Programme of activities design document form

(Version 09.0)

BASIC INFORMATION	
Title of the PoA	Methane avoidance in rice cultivation
Version number of the PoA-DD	03.0
Completion date of the PoA-DD	20/12/2020
Coordinating/managing entity	Core CarbonX Solutions Private Limited
Host Parties	India
Applied methodologies and standardized baselines	AMS-III.AU. Version 4.0: Methane emission reduction by adjusted water management practice in rice cultivation.
Sectoral scopes	15: Agriculture

PART I. Programme of activities (PoA)

SECTION A. Description of PoA

A.1. Purpose and general description of PoA

>> ***General Implementation Framework***

Rice cultivation is the most important agricultural operation in India, not only in terms of food security but also in terms of livelihood and plays a major part in the economy and employment. With 43.79 million hectares, India ranks number one globally in paddy area and with 168.50 million tonnes[1].

In India, rice is cultivated under various water management conditions depending upon the availability. Approximately 60.1% of the total area comes under irrigated area[2]. Rice cultivation In India is characterised by the flood irrigation and the predominance of transplanted rice (TPR). TPR means that rice seedlings are grown in nursery beds and then transplanted by hand to the rice field, which remains continuously flooded throughout the growing phase until the field is drained for harvest.

Paddy fields are the most dominant anthropogenic sources of methane to the atmosphere (5-20% of the total emission from all anthropogenic sources[2]). Anaerobic decomposition of organic material in flooded rice fields produces methane, which escapes to the atmosphere primarily by transport through the rice plants. The annual amount of CH_4 emitted from a given area of rice is a function of the number and duration of crops grown, water regimes before and during the cultivation period, and organic and inorganic soil amendments. Soil type, temperature, and rice cultivar also affect CH_4 emissions. This CH4 emission-intensive cultivation method will be targeted by the proposed programme, that will involve the implementation of the technology/measures that result in reduced anaerobic decomposition of organic matter in rice cropping soils and thus reduced generation of methane.

The PoA includes projects such as:
(a) Rice farms that change the water regime during the cultivation period from continuously to intermittent flooded conditions and/or a shortened period of flooded conditions;
(b) Alternate wetting and drying method (AWD)
(c) Rice farms that change their rice cultivation practice from transplanted to direct-seeded rice (DSR).

Thus, the measure will consist of AWD and/or DSR in combination with adjusted water management system in rice cultivation.
Provision of training
The field staff will use a demonstration plot on the farm group leader's field to show the proposes cultivation method to a group of local farmers. The training will focus on all the critical cultivation steps like field preparation, sowing, weed control, disease control, irrigation and harvest and monitoring of water level. The training will last one season and includes farmer meetings during the season to demonstrate and reflect on each key agronomic practice. After the demonstration season, the local farmers will be free to decide whether they want to implement the new cultivation method.

Continuous supervision and advice
The field staff will continue with intensive supervision during a farmer's first season of AWD/DSR cultivation and supports him further with regular monitoring and advice throughout the following seasons. This shall ensure that farmers will appropriately apply the cultivation method and thus profit from

[1]Directorate of Economics and Statistics, Department of Agriculture Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare. Govt of India, (2019), Page 141, Table 7.1: Area, Production and Yield of Principal Crops in various Countries in 2017 Agricultural statistics at a glance, 2019 https://eands.dacnet.nic.in/PDF/At%20a%20Glance%202019%20Eng.pdf

[2] http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch4ref5.pdf

the change of the cultivation method. This intensive on-site service will also be used to collect data and information for the CDM monitoring. The project activity will consist of an undefined number of farmers switching to the AWD/DSR plus adjusted water management method under the advice and guidance of the staff from the field teams. The size of the project activity, i.e. the number of participating farmers and the cumulated size of their fields, will be subject to monitoring, reporting and verification.

The PoA will lead to the considerable reduction of methane emission in the paddy fields of India and will contribute strongly to the sustainable development of rural villages involved in the project. Each component project activity (CPA) under the proposed SSC-PoA will involve the implementation of the various options to mitigate CH_4 emissions from paddy fields depending upon the conditions in India. This PoA will further expand to other regions in Asia and Africa continent.

Policy/measure or stated goal of the PoA
The goal of the project activity is to reduce CH_4 emissions through adjusted water management system and/or Direct seeding of pre-germinated rice (DSR) in rice cultivation, thus the programme contributes to reducing greenhouse gas (GHG) and provides a healthy environment and sustainable development of India..

Confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity
This PoA is to be undertaken by CME-Core CarbonX Solutions Private Limited and is implemented without any valuable consideration or legal obligation.
Thus, the PoA is a voluntary action.

Framework for the implementation of the PoA
The CME of the PoA is 'Core CarbonX Solutions Private Limited'. The CPAs under the PoA will be implemented by 'Core CarbonX Solutions Private Limited' or any other CPA implementing partners.

Relevance to Sustainable Development:
The PoA is consistent with the national laws and sustainable development policies and strategies and addresses the national sustainable development. Ministry of Environment and Forest and Climate Change, Govt. of India has stipulated the social well-being, economic well-being, environmental well-being and technological well-being as the four indicators for sustainable development in the host country approval eligibility criteria for Clean Development Mechanism (CDM) projects. In addition, this PoA will contribute to sustainable development and reduction of national emissions of GHG as follows.

- Greenhouse gas (GHG) emission reductions by reducing the emission of CH_4 from the rice fields.
- Reduction in wastage of water from the beginning till the yield of the crop.

Sustainable Development Goals (SDGs)	Environmental benefits	Economic benefits	Social benefits	Technological benefits
	-	Due to more precise application of fertilizer and crop protection agents, proper field management and enhanced stress tolerance, fields, the DSR method may tend to render higher yields.	-	Adjusted water management system and/or Direct seeding of pre-germinated rice (DSR) in rice cultivation will be introduced.

	The PoA will bring a win-win situation for farmers by reducing the usage of water in the rice cultivation.	-	-	-
	-	The PoA will help in earning carbon revenue from the global carbon market.The PoA will also contribute in better water utilization leading to economic advantage to the farmers.	Facilitating carbon revenue for the farmers through the PoA initiatives which will help improving socio-economic condition of participating farmers.	-
	The PoA will prevent the methane emission that would have occurred due to the uncontrolled anaerobic decomposition of organic materials in the flooded soil.	-	-	Water savings may be up to 15 to 25 percent with no yield penalty,
	-	The technology reduces pumping costs, fuel consumption.	-	The technologies/measures save water and also reduces methane emissions from rice fields.
	-	Public-private partnerships including mobilization of finance	-	Public-private partnerships including transfer of technologies from research stage to fields.

A.2. Physical/geographical boundary of PoA

>> The geographical area, in which SSC-CPAs included in this PoA will be implemented, is defined as India. The geographical boundary of SSC-PoA in India is also given in the below figure.

The boundary of a PoA is defined as the geographical area within which all the CPAs included in the PoA is implemented. The geographical boundary of the PoA covers the whole of India. The political boundary of India is chosen as the country/ geographical boundary of the SSC-PoA. It lies north of equator between 8°44' to 37°6' north latitude and 68°7' to 97°25' east longitude.[3]

[3] https://en.wikipedia.org/wiki/Geography_of_India

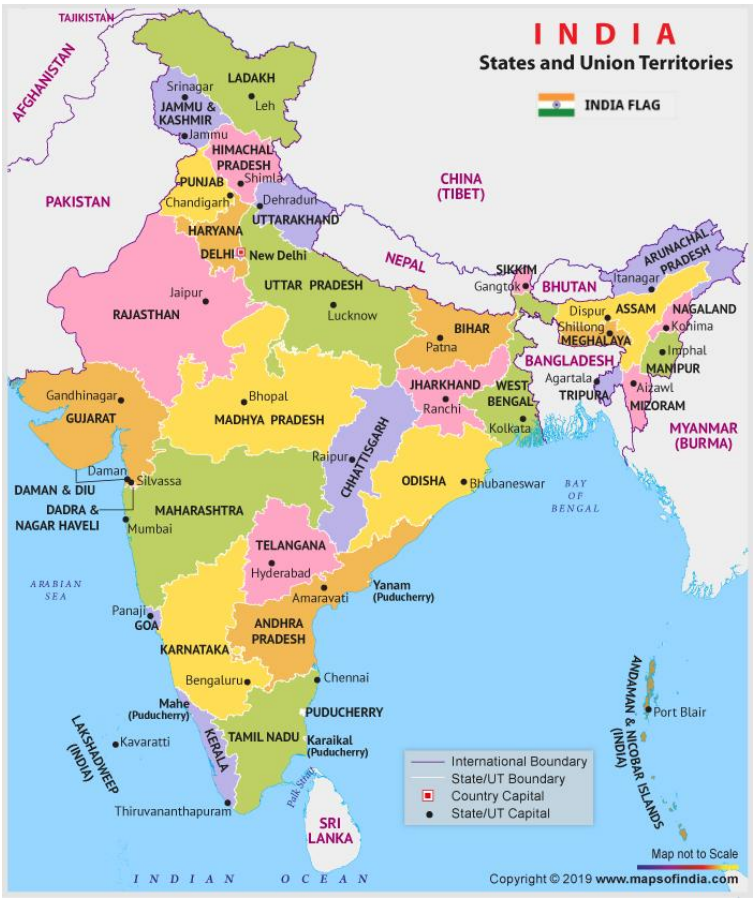

Figure 1:Map of India as Physical/geographical Boundary of PoA

A.3. Technologies/measures

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Methane emission measurement studies have shown that the CH_4 flux in rice fields is affected by various parameters like water management, cultivar, organic amendment, fertilizer treatment, soil temperature etc. Water management is one of the key parameters in controlling methane emission. The CPAs under the PoA will comprise of technology/measures that result in reduced anaerobic decomposition of organic matter in rice cropping soils and thus reduced generation of methane. This PoA will generally adopt different technologies including adjusted water management system and/or direct seeding of pre-germinated rice (DSR) in the rice field that will result in reducing methane emission.

Implementation of mitigation options requires an understanding of the emission mechanisms, the interaction between rice plant, microbe, the environmental condition in the soil, and the cultural condition of the farmer. Methane produced by methanogen under anaerobic condition in the rice field, during reproductive growth rice plant excretes some essential nutrient and activate microbial growth.

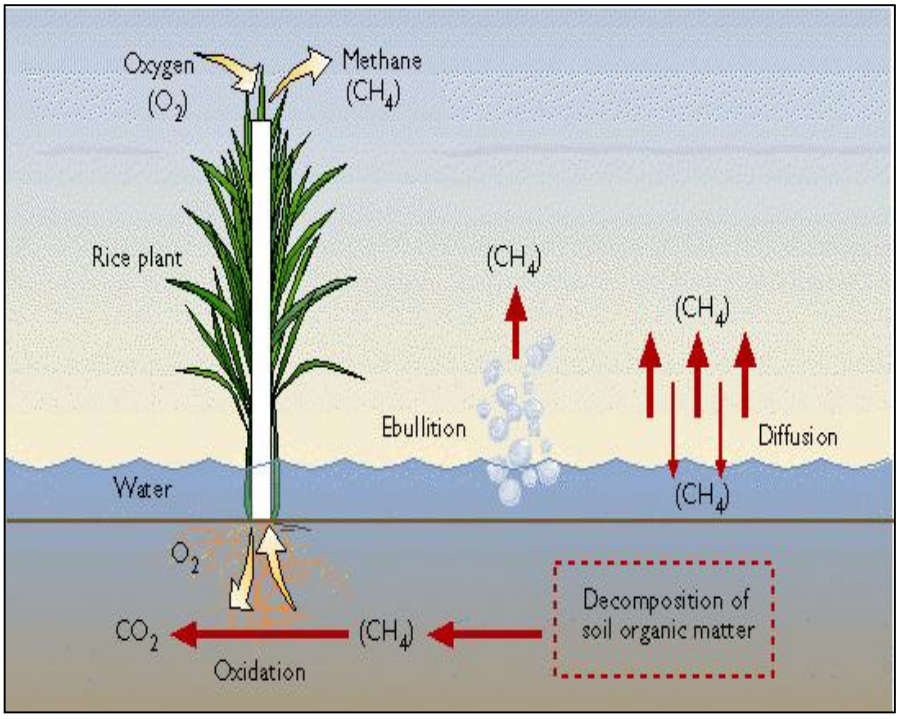


Figure 2: Decomposition of Soil Organic Matter

Methane avoidance from rice field is reduced by the implementation of adjustment water management system. The below technologies/measures will be taken up under the changed cultivation practices in combination or separately.

Alternate Wetting and Drying (AWD) Technique

The Alternate Wetting and Drying (AWD)[6] technique is a water-saving technology to reduce the irrigation water consumption in rice field without decreasing the yield. In AWD, irrigation water is applied a few days after the disappearance of the ponded water. Hence, the field gets alternately flooded and non-flooded. The number of days of non-flooded soil between irrigations can vary from 1 to more than 10 days depending on the number of factors such as soil type, weather, and crop growth stage.

Field water tube made up of PVC. Note the holes on all sides.	A field tube in flooded field	Water at 15 cm below the soil surface: Time to irrigate the field again
Alternate Dry and Wet Level in the field		

Figure 3: Installation of Pipes

A practical way to implement AWD safely is by using a 'field water tube' ('pani pipe') to monitor the water depth on the field. After irrigation, the water depth will gradually decrease. When the water level will drop to about 15 cm below the surface of the soil, irrigation should be applied to re-flood the field to a depth of about 5 cm. This practice is known as Safe AWD. From one week before to a week after flowering, the field should be kept flooded, topping up to a depth of 5 cm as needed. After flowering, during grain filling and ripening, the water level can be allowed to drop again to 15 cm below the soil surface before re-irrigation.

AWD can be started a few weeks (1−2 weeks) after transplanting. When many weeds are present, AWD will be postponed for 2−3 weeks to assist suppression of the weeds by the ponded water and improve the efficacy of herbicide. Local fertilizer recommendations as for flooded rice will be used. This will involve the application of nitrogen fertilizer preferably on the dry soil just before irrigation.

In Safe AWD, water savings may be up to 15 to 25 percent with no yield penalty. The depth of water can be allowed to drop from 15 cm to 20 or even 25 cm below the soil surface

The field water tube (Pani Pipe)

The field water tube will be made of 30 cm long plastic pipe or bamboo, with a diameter of 10 to 15 cm to easily see the water level inside the tube. .
The bottom 15 cm of the tube will be drilled with holes on all sides; these holes will be about 0.5 cm each and 2 cm away from one another.

Placing of the tube

The tube will be placed in a readily accessible part of the field, close to the bund (not less than 1 m away) for easy monitoring. The location will be representative of the average water depth in the field (for example it should not be in a high spot or a low spot).

The tube will be buried up till 20 cm depth so that half of its length remains on the surface.
The soil inside the tube will be removed so that the bottom of the tube can be seen ensuring the level of water inside the tube is the same as the level of water on the field.

Direct Seeded Rice (DSR)[4] and Adjusted Water Management System in Rice Cultivation

Direct seeding is a crop establishment system wherein rice seeds are sown directly into the field, as opposed to the traditional TPR method of growing seedlings in a nursery, then transplanting into flooded fields[5].Dry and wet-seeding, in which seeds are sown directly in the main field instead of transplanting rice seedlings, are commonly referred to as direct seeding. Methane gas emissions is lower in DSR than with conventionally tilled transplanted puddle rice.

Dry DSR

[4] Kaur J, S Avtar. (2017). Direct Seeded Rice: Prospects, Problems/Constraints and Researchable Issues in India. Vol 5, Number 1 https://www.agriculturejournal.org/volume5number1/direct-seeded-rice-prospects-problemsconstraints-and-researchable-issues-in-india/

[5] https://dsrc.irri.org/our-work/what-is-dsr

In Dry-DSR, rice is established using several different methods, including (i) broadcasting of dry seeds on unpuddled soil after either zero tillage (ZT) or conventional Tillage (CT) (ii) dibbled method in a well-prepared field and (iii) drilling of seeds in rows after CT, minimum tillage (MT) using a power tiller-operated seeder, ZT or raised beds. In case of both CT and ZT, a seed-cum-fertilizer drill is used, which, after land preparation or in ZT conditions, places the fertilizer and drills the seeds.

Wet DSR
Wet-DSR involves sowing of pregerminated seeds (radicle 1- 3 mm) on or into puddled soil. When pregerminated seeds are sown on the surface of puddled soil, the seed environment is mostly aerobic and this is known as aerobic Wet-DSR. When pregerminated seeds are sown/drilled into puddled soil, the seed environment is mostly anaerobic and this is called as anaerobic Wet-DSR. Wet-DSR under aerobic and anaerobic, seeds can either be broadcasted or sown in-line using a drum seeder or an anaerobic seeder with a furrow opener and closer.

Adjusted Water Management System
The adjusted irrigation practice which is part of the DSR concept is the main cause for emission reductions. In this process, the period under which rice field gets completely submerged is significantly reduced compared to the traditional method. The rice seeds that are directly sown into the field, can only germinate under non-flooded, but moist field conditions. Only then the germinating seeds won't starve from lack of oxygen and develop normally. After some ten days without any additional irrigation, a period of 20 days with intermittent irrigation follows, where the field is irrigated every 2 to 3 days. This follows a period of flooded conditions similar to that in transplanted rice, before irrigation is stopped about 20-30 days before harvest and the field gets drained or irrigation under. Due to the prolonged aerobe conditions under the DSR method in the initial phase of the season, a large fraction of soil organic matter and applied organic matter gets decomposed. This will
significantly lower the potential to generate CH4 during the flooded phase.

These barriers are addressed by the combination of the project activity's specific elements (as described under A.2. in more detail): Training and guidance/assistance: traditional habits and lack of knowledge regarding alternative cultivation methods can only be overcome by intensive training and education. The continuous guidance/assistance provides for quality assurance and reduces real and perceived risks of loss or failure. The intensive expert advice will enhance the farmers knowledge on modern agronomic practices and give them the opportunity to ask specific questions with relation to rice cultivation in general. Provision of a specific technologies package solution: the combination of direct seeding with the help of the purpose-made Baytani seeder and specific crop protection products for seed treatment and weed control address the risks previously associated with DSR cultivation. Incentive: under the Tabela programme, farmers benefit from the reduced costs for seed and field labour and from higher yields Thus, the project activity alleviates specific barriers for switching from traditional, transplanted rice cultivation to direct seeded rice with adjusted water management.

A.4. Coordinating/managing entity

>> Core CarbonX Solutions Private Limited is the coordinating/managing entity ("CME") for this PoA.

A.5. Parties and project participants

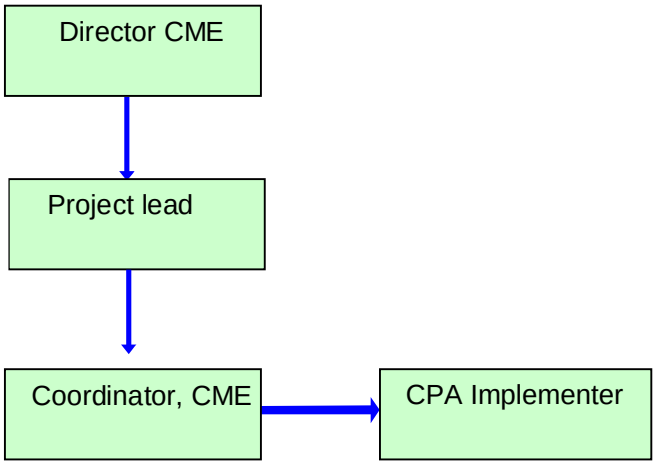
Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host Party)	Core CarbonX Solutions Private Limited	No

A.6. Public funding of PoA

No public funding or ODA have or will be diverted for the implementation of the POA

SECTION B. Management system

The CME shall develop and implement a management system. The management structure involved for the review of the inclusion of the CPA in the PoA is as follows:



(a) The roles and responsibilities of the personnel involved in the management structure are as follows:

Role	Responsibility
Coordinator, CME	• Collects the inputs from the project implementers/partners • Reviews the CPA guidelines as per guidelines • Ensures verification, identification of CPAs • Lists eligible CPAs • CPA DD and PoA DD development
	• Validation and verification support to CPA implementer • Prepares monitoring report for emission reduction • Review and improvement suggestions of monitoring system and plan
Project Lead, CME	• Analyzes the computation sheet provided by Coordinator • Forwards the CPA to Director CCX for the inclusion in the POA
Director, CME	• Forwards the inclusion of the CPA to the DOE

(b) Records of arrangements for training and capacity development for personnel;

All records will be stored in the archive of CME. The training will be conducted to all the team members in their respective field in accordance with the latest EB decisions and changing monitoring requirements.

(c) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA).

Each CPA included in the PoA is not a de-bundled component of another CDM programme activity (CPA) or CDM project activity. It will be ensured that 'If each of the independent subsystems/measures included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied then that CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large-scale activity.'

(d) Records and documentation control process for each CPA under the PoA;

In order to unambiguously identify CPA participating in the PoA, the CME will implement a number system that uniquely identifies each CPA. This number system will be used to record baseline and monitoring data on a continuous basis using a database. The CME will keep records and updates for each CPA under the PoA including the following information; Farmer information (e.g. name, house address or contact information), start and end date of the CPA crediting period, details of land of each farmer that will adopt the mitigation technology and issued CERs information.

(e) Measures for continuous improvements of the PoA management system;

It will be ensured that the PoA management system will be reviewed periodically for the continuous improvements for the management system. There will be a systematic collection and analysis of data to ensure that:

- There is relevant and sufficient documentation of management systems for the scope and scale of methane avoidance in rice cultivation project implementation.
- The system is focused on providing quality training, assessment and support services.
    - arrangements are in place to meet regularly with distributors to seek feedback and make changes in response
    - maintenance of and improvements to training and assessment of the farmers
- Internal audit and organisational self-assessment
- The CME will also monitor their improvements to determine their effectiveness and make further changes if needed.

SECTION C. Demonstration of additionality of PoA

>> The CME has proposed to implement the methane avoidance in rice field PoA to promote and accelerate the implementation of this project with the support from potential CER revenues. In the absence of CERs revenue, the voluntary coordinated action by coordinating and managing entity "Core CarbonX Solutions Private Limited" would not be implemented. This has justified in the below paragraph by demonstrating additionality for the whole PoA.

Demonstration of additionality of proposed PoA:

According to the "Standard: CDM project standard for programmes of activities" (Version 02.0), the eligibility criteria shall include conditions that would systematically demonstrate additionality of CPAs under the proposed CDM PoA in the eligibility criteria for inclusion of CPAs in the PoA in accordance with paragraph 124(g) (ii) –" If the generic CPA is small-scale in accordance with the thresholds referred to in paragraphs 126 below and applies only small-scale methodologies, the conditions shall derive from the requirements contained in the additionality section of the applied methodologies, or if such section does not exist, from the "Methodological tool: Demonstrating additionality of small-scale project activities". As per the methodology AMS- III.AU. version 4 para (5)- "Project participants shall apply the "General guidelines for SSC CDM methodologies, "Guidelines on the demonstration of additionality of small-scale project activities".

As per the para 10 of the TOOL21: Demonstration of additionality of small-scale project activities, version 13.1, project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

(a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions;

(b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;

(c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;

(d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

This proposed programme intends to implement projects such as a) Alternate Wetting and Drying (AWD) Method and b) Adjusted Water Management System in in rice cultivation. The PoA demonstrates the existence of an Investment Barrier and Barrier due to prevailing practice as per the para 10 of the CDM Methodological tool TOOL21: Demonstration of additionality of small-scale project activities, vers. 12.0.

Investment Barrier

Alternate Wetting and Drying (AWD) Method

In case of AWD, the cost for pipes, capacity building for monitoring and follow up for AWM will be incurred without any additional financial return from other revenues such as the sale of CERs. Procuring pipes, installing pipes in the farm land, building up awareness of farmers about installation of pipes and monitoring of water level in pipes for watering of land requires capital, which is a barrier to the end-user of the PoA due to difficulties in accessing capital, a wide dissemination of such technology in the Host Country is unlikely. The actions under the PoA will alleviate these barriers by installing pipes in the farmland and carry out hand-holding and awareness for the farmers about the AWD Technique. The proposed programme will install the pipes at free of cost to users which means no money shall be charged to farmers for the installation of pipes as well as awareness and capacity building will be given to farmers. Hence there is no financial return from the programme other than revenue from the sale of CERs.

DSR and adjusted water management system in rice cultivation

Direct seeding is a crop establishment system wherein rice seeds are sown directly into the field, as opposed to the traditional method of growing seedlings in a nursery, then transplanting into flooded fields. Although DSR delivers faster planting and maturing, conserves scarce resources like water and labour, is more conducive to mechanization, and reduces emissions of greenhouse gases that contribute to climate change compared to the conventional puddled transplanted rice (PTR) method prevalent in India, the adoption of DSR is not prevalent due to constraints such as the use of High seed rates, Risk of poor or non-uniform crop establishment, higher weed infestation, higher risk of lodging. This underscores the need for an integrated and scientific approach to making direct-seeded rice socioeconomically and environmentally sustainable. Thus the CME and CPA implementer will work with research institutes/universities/NGOs in developing, refining and catalyzing dissemination of practices to address the above constraints including (1) Mechanized and precise planting using low seed rate, (2) identifying innovative solutions for weedy rice and other emerging weed problems (e.g. herbicide resistance), (3) decision tools for accurate recommendation, (4) identifying new herbicides for broad-spectrum weed control, (5) exploiting the potential of anaerobic germination tolerant rice for weed suppression, (6) integrating mechanical tools (7) precision application methods and safe handling to improve herbicide efficacy and human safety, and (8) Testing of existing and new superior rice cultivars (inbreds or hybrids) to identify cultivars which are more adapted to DSR.

All the cost on piloting, capacity building, monitoring and management in this PoA will be supported by the investor for adoption of DSR technology. In addition, majority of farmers in India are small and poor, therefore access to new mechanized and precision agriculture technology is limited as these are capital intensive and farmers cannot afford. The PoA will support and strengthen the service economy of scale-appropriate mechanization and precision agriculture technologies to provide cost-effective access to capital-intensive machinery and technologies through carbon revenue. The PoA will also incentivise each farmer through passing on certain percentage of the revenue from carbon revenue for switchover to the adjusted water management system and/or Direct seeding of pre-germinated rice (DSR) in rice cultivation. Thus, in the absence of the PoA, none of the CPAs that will be implemented under the PoA would occur and any associated emission reduction effect would not occur. Hence, the information presented here constitutes the demonstration of additionality of the PoA as a whole, and this proposed general CPA is small-scale project.

Barriers due to the prevailing practice

In India, the total area under irrigated rice is about 22 million hectares, which accounts for approximately 49.5% of the total area under rice crop in the country[6]. Almost all these lands are governed by fixed irrigation water payment for farmers that differs from state to state and depends on acreage as well as crop. This water consumption in the field is not dependent on the volume of water consumed in the field. Thus, such low fixed price on water doesn't create any incentive for farmers to conserve the water. Therefore, adoption of AWD or DSR -adjusted water management system and/or direct seeding of pre-germinated rice (DSR) in rice cultivation- is almost negligible and has been carried out only at pilot level.

Transplanted Rice (TPR) with continuously flooded fields is the traditional and prevailing cultivation method in India. Rice farmers continue what they have learned from the tradition and stick to these habits. Changing the cultivation method to AWD and DSR is against to their knowledge about the traditional methods, the conviction of their advantages, willingness to innovate and to take risks and the capital to finance the equipment. In addition, rice farmer sees the perceived complicated irrigation management system, the risk of seed being washed away by rainfall or eaten by birds/rats after sowing and higher grass weed infestation and thus higher effort for weeding as some of the barrier.

There are also no govt policy regulation or incentive mechanism to promote alternative wetting and drying (AWD) and DSR. Thus, without any support in terms of funding, policies and established practice prevent its dissemination in the India as of today. The current AWD/DSR area is limited only to pilot level without any significant penetration on ground. Therefore, these technologies/measures are considered additional in India. The above mentioned drawbacks shall be overcome with the proposed PoA and its key elements training.

Thus, in the absence of the PoA, none of the CPAs that will be implemented under the PoA would occur According to the "Standard: CDM project standard for programmes of activities, Version 02.0, para 38 the Coordinating/managing entity shall demonstrate additionality of the proposed CDM PoA by establishing that in the absence of the PoA, none of the CPAs that will be implemented under the PoA would occur. In addition, as per para 39 the CME shall include conditions that would systematically demonstrate additionality of CPAs under the proposed CDM PoA in the eligibility criteria for inclusion of CPAs in the PoA in accordance with paragraph 124(g). Hence, the information presented here constitutes the demonstration of additionality of the PoA as a whole, and this proposed general CPA is a small-scale project

SECTION D. Start date and duration of PoA

D.1. Start date of PoA

>>
15/09/2020 (as "the date of publication of the PoA-DD" at the stage of global stakeholder consultation)

D.2. Duration of PoA

28 Years 0 Months.

SECTION E. Environmental impacts

E.1. Level at which environmental impacts analysis is undertaken

>> Environmental analysis is undertaken at PoA level since the adjusted water management system and/or Direct seeding of pre-germinated rice (DSR) in rice cultivation will have not have considerable negative environmental impacts; moreover, impacts will be similar in all CPAs.

[6] https://www.mdpi.com/2073-4395/8/10/202/htm

E.2. Analysis of environmental impacts

>> As per the Ministry of Environment and Forests (Government of India) notification dated September 14, 2006 regarding the requirement of environmental Impact Assessment (EIA) studies as per the Environmental Protection Rule, 1986 (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii) Ministry of Environment and Forests), any project developer in India needs to file an application to the Ministry of Environment and Forests (including a public hearing and an EIA) in case the proposed industry or project is listed in a predefined list. Rice field cultivations and activities involving adjusted water management system and/or direct seeding of pre-germinated rice (DSR) in rice cultivation are not included in this list and thus an EIA is not required. Hence, environmental impact analysis is not required for the PoA and also for the CPA.

E.3. Environmental impact assessment

No EIA is required.

SECTION F. Local stakeholder consultation

F.1. Level at which local stakeholder consultation is undertaken

F.2. The local stakeholder consultation (LSC) is undertaken at PoA level as all the CPAs under proposed PoA will have same technology/measures and similar impact. Modalities for local stakeholder consultation

>>The local stakeholder consultation was conducted via a webinar on 1st September 2020 from 14:00 pm to 16:00 pm due to COVID-19 restriction.

The invited stakeholders included representatives from farmers, not-for-profit organisations, Agriculture university scientists, development agencies in the region.

Minutes of the meeting were recorded and a video recording was done for webinar.

F.3. Summary of comments received

>>Minutes of Meetings were as follows:

Meeting/Project Name:	**Stakeholder Consultation Meeting for PoA- Methane Avoidance in Rice Cultivation**		
Date of Meeting:	**01-09-2020**	Time	**14:00 :16:00**
1. Meeting Objective(s)			
To interact with the stakeholders involved with the PoA.			
2. Participants			
Mr. Niroj Kumar Mohanty	Managing Director, CCX		
Mr. Ashish Chaudhary	Climate Change and Sustainability Expert, CCX		
Mr. Jay Anand	Director, CCX		
Mr. Karthik	Manager, CCX		
Mr. Hrishikesh Mahadev	GIZ, Hyderabad		
Dr. Venkata Ramana	Professor Jaya Shaker Telangana State Agricultural University		
Mr. V.V. Rao	Director. Bhavana Power Private Limited		
Mr. Krishan Murari	Former IRRI employee		
Mr. Narsinga Rao	Farmer		
Mr. Munesh Saxena			
Mr. Rajesh Rao	Farmer		

Mr. Gandra Surender Rao	Farmer	
Mr. Phool Chand	P A Research and Consultants	
Mr. Shailendra Kewat	GHG Auditor	
Mr. Purkutapu Jithender Reddy	Farmer	
Mr. Krishna	Impact NGO	
Ms. S. Radhamani	Mother NGO	
	Center for Dignity	
Ms. Abhigna Pinnamreddy	Associate Consultant, CCX	
Mr. Jamal	Associate Consultant, CCX	
Ms. Riya Ahuja	Associate Consultant, CCX	

Topic/ Discussion notes	**Discussion led by**
Welcomed all the assembled Stakeholders to the meeting. He explained that the proposed Methane Emission Reduction by adjusted water management system in the rice cultivation Program of Activities (PoA) will be beneficial to the farmers.	Mr. Niroj Kumar Mohanty
He started the presentation on the PoA on methane avoidance in rice field. Gave a brief descriptionabout CCX and its area of expertise. He then explained the anomalies happening due to climate change in various parts of the country like flash floods, droughts etc. He then led the discussion towards the global warming and the gases responsible for it and how humans beings are being responsible for it. The next discussion was on the importance of paddy as a staple food to the world and how paddy fields are responsible for methane emissions due to the anearobic digestion of the organic material in the fields. He then shed light on the water adjustment method known as Alternate Wetting and Drying(AWD) and the PoA that will lead to less emissions in the price fields.	Mr. Ashish Chaudhary
A video on the AWD was shown at the end of the discussion and then he asked for queries	Mr. Niroj Kumar Mohanty
He mentioned that the research on AWD was done in Telangana and its uses very observed. He suggested that this method would be easily practiced where the farmer has command on water that is borewell irrigated areas. The areas which are rainfed or canal irrigated are not much suitable to implement this method of water adjustment. He questioned about the amount of CERs that the farmer gets by this PoA and how the emissions reductions can be accounted. He also mentioned that if there is an incentive for farmers it would be very useful.	Dr. Venkata Ramana
He answered that we take IPCC and UNFCCC approved methodology into account for calculation and the revenue modle for farmer is developed	Mr. Niroj Kumar Mohanty
He asked whether this method can be scalable to other crops or it is restricted to rice only	Mr. Munesh Saxena
He answered that the present focus was only on paddy fields but the applicability to other crops will be definitely discussed in future	Mr. Niroj Kumar Mohanty
She has given the full support of their NGO named MOTHER NGO in implementation of the project since they are closing working with the farmers from 1995	Ms. Radhamani. S
He appreciated the efforts of CCX and also mentioned that this was a new concept to him. He would extend his help wherever	Mr.V.V.Rao

possible. He shed light on how this can be useful in power saving for the farmer in the upland areas and where the borewell irrigation is in play.	
He has worked in IRRI. He suggested that direct seeded rice can be effective and they have researched in that area on small level farmers.	Mr. Krishan Murari
He answered that in upland areas, flooding is very minimal.	Mr. Niroj Kumar Mohanty
The meeting ended with a Vote of thanks to all the distinguished guests and participants by Mr. Niroj Mohanty	Mr. Niroj Kumar Mohanty

F.4. Consideration of comments received at the PoA level

All questions asked were answered by the CME and the project participants and no change of the PoA design is required.

SECTION G. Approval and authorization

>> Letter(s) of approval from the host party (ies) (India), dated 12/12/2012 with reference number 4/16/2012-CCC which wishes to be involved in the PoA has been given to the DOE at the time of validation of the given PoA.

PART II. Generic component project activity (CPA)

SECTION H. Description of generic CPA

H.1. Title of generic CPA

>>Methane avoidance in rice cultivation in CPA xxx

H.2. Reference number of generic CPA

>> CPA xxx

H.3. Purpose and general description of generic CPA

>> Rice cultivation is the most important agricultural operation in India, not only in terms of food security but also in terms of livelihood and plays a major part in the economy and employment. With 43.79 million hectares, India ranks number one globally in paddy area and with 116.42 million tonnes[7], stands next only to China in total paddy production. Rice occupies about 22.01% of gross cropped area and contributes 59.14% of total food grain production and 59.68% of total cereal production of India[8].

In India, rice is cultivated under various water management conditions depending upon the availability. Approximately 60.1% of the total area comes under irrigated area, out of which 16% is continuously flooded and 37% is intermittent flooded (IF) region[9]. Intermittently flooded paddy regions are further classified into single aerated (SA) and multiple aerated (MA), which are prevalent in the northern and western regions of India. Multiple aeration occurs due to high water percolation rates of sandy-loam soils and non-availability of timely irrigation, making it highly variable. Out of 37% intermittent flooded regions, 23% area is under single aeration (SA) and 14% area is multiple aeration (MA)[10].

[7]Agricultural statistics at a glance, 2019

[8]Agricultural statistics at a glance, 2019

[9]Agricultural statistics at a glance, 2019

[10]Gupta, P.K. et al., Development of methane emission factors for Indian paddy fields and estimation of national methane budget, Chemosphere (2008)

Paddy fields are the most dominant anthropogenic sources of methane to the atmosphere (5-20% of the total emission from all anthropogenic sources[11]). Anaerobic decomposition of organic material in flooded rice fields produces methane, which escapes to the atmosphere primarily by transport through the rice plants. The annual amount of CH_4 emitted from a given area of rice is a function of the number and duration of crops grown, water regimes before and during cultivation period, and organic and inorganic soil amendments. Soil type, temperature, and rice cultivar also affect CH_4 emissions.

The CME indicates and demonstrates this PoA is the Type III project type as per paragraph 126 (c) of CDM project Standard for programme of activities, (ver. 02). As per the para 126 (c): Type III: Other project activities not included in Type I or Type II that result in GHG emission reductions not exceeding 60 kt CO2e per year in any year of the crediting period. However, this is not applicable as per the details demonstrated under the below section I.2. Applicability of methodologies and standardized baselines.

The Proposed small scale Component Project Activity (hereafter referred as CPA) involves the implementation of the various water management practices to mitigate methane emission from paddy fields in regions [name of districts] districts in [name of state] state, India. The CPA will lead to the considerable reduction of methane emission in the paddy fields of [name of districts] districts and will contribute strongly to the sustainable development of rural villages.

Contribution of the project activity to sustainable development
Ministry of Environment and Forests, Govt. of India has stipulated the social well-being, economic well-being, environmental well-being and technological well-being as the four indicators for sustainable development in the host country approval eligibility criteria for Clean Development Mechanism (CDM) projects.

Social well-being:

- The CPA will befit the farmers by reducing the usage of water in the rice cultivation and harnessing carbon revenue from these initiatives.

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Economic well-being:

- The CPA will help in earning carbon revenue from the global carbon market.
- The CPA will also contribute in better water utilization leading to economic advantage to the farmers.

Environmental well-being:

- The CPA will prevent the methane emission that would have occurred due to the uncontrolled anaerobic decomposition of organic materials in the flooded soil.

Technological well-being:

- The CPA will promote the AWD and DSR with adjusted water management system among the farmers communities.

H.4. Technologies/measures

>>The proposed CPAs under the PoA involved will generally adopt different technologies including adjusted water management system and/or Direct seeding of pre-germinated rice (DSR) in rice field that will result in reducing methane emission.

The technology measures:
Alternate wetting and drying method
Direct Seeded Rice (DSR) and Adjusted Water Management System in Rice Cultivation

[11] http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch4ref5.pdf

SECTION I. Application of methodologies and standardized baselines

I.1. References to methodologies and standardized baselines

>> Type: Type III – Other Project Activities
Methodology: AMS III.AU. - Methane emission reduction by adjusted water management practice in rice cultivation, Version: Version 04

The applied methodology "AMS-III.AU." refers to application of the following tools:
Guideline: General guidelines for SSC CDM methodologies, Version 23.0
TOOL 21: Demonstration of additionality of small-scale project activities, Version 13.0
Tool19: Demonstration of additionality of microscale project activities, Version 09.0

I.2. Applicability of methodologies and standardized baselines

>> The methane avoidance in rice field in India meets the methodology criteria of AMS III.AU.version 04 as given.

S.No.	Technology /Measure as per AMS III.AU/version 04	Justification
1	Rice cultivation in the project area is predominantly characterized by irrigated, flooded fields for an extended period of time during the growing season, i.e. farms whose water regimes can be classified as *upland* or *rain fed and deep water* are not eligible to apply this methodology. This shall be shown from a representative survey conducted in the geographical region of the proposed project or by using national data. This project area characterization shall also include information on pre-season water regime and applied organic amendments, so that all dynamic parameters as shown in Table 2 of the methodology AMS III. AU, version 04 are covered by the baseline study.	Rice cultivation in the project area under the proposed CPA is predominantly characterized by irrigated, flooded fields for an extended period of time during the growing season. This shall be shown from a representative survey conducted in the geographical region of the CPA or by using national data. This will demonstrate baseline rice cultivation practices in the geographical region covered under CPA.
2	The project rice fields are equipped with controlled irrigation and drainage facilities such that both during dry and wet season, appropriate dry/flooded conditions can be established on the fields.	The rice fields under the proposed CPA will involve controlled irrigation and drainage facilities, consist of both the irrigation activity and the drainage activity that can be controlled or adjusted as desired, not just in terms of timing but also in terms of the quantity of water or the flow rate. Only field where the controlled irrigation and drainage facilities can be established, those filed will be considered under CPA.
3	The project activity does not lead to a decrease in rice yield. Likewise, it does not require the farm to switch to a cultivar that has not been grown before.	The cultivation method used in the proposed CPA doesn't lead to a decrease in rice yield. The rice cultivar/variety will not be touched by the project cultivation method.
4	Training and technical support during the cropping season that delivers appropriate knowledge in field preparation, irrigation, drainage and use of fertilizer to the farmer is part of the project activity and is to be documented in a verifiable manner (e.g. protocol of trainings, documentation of on-site visits). In particular the project	The training programe will focus collaboration between research institutes, NGOs, and universities who will work in the defined regions with farmers. The knowledge and information given in the International Rice Research Institute will be used for building up awareness

	proponent is able to ensure that the farmer by himself or through experienced assistance is able to determine the crop's supplemental N fertilization need. The applied method shall assess the fertilizer needs using for example a leaf colour chart (LCC) or photo sensor or testing strips. Alternatively, a procedure to ensure efficient fertilization considering the specific cultivation conditions in the project area backed by scientific literature or official recommendations shall be used.	and practices among farmers. Training and technical support during the cropping season that delivers appropriate knowledge in field preparation, irrigation, drainage and use of fertilizer to the farmer is part of the project activity and is to be documented in a verifiable manner (e.g. protocol of trainings, documentation of on-site visits). The region-specific protocol of trainings and documentation on-site visit will be prepared.
5	Project proponents shall ensure that the introduced cultivation practice, including the specific cultivation elements, technologies and use of crop protection products, is not subject to any local regulatory restrictions.	In India Rice is mainly grown in two types of soils i.e., (i) uplands and (ii) low lands. The method of cultivation of rice in a particular region depends largely on factors such as situation of land, type of soils, irrigation facilities, availability of labourers intensity and distribution of rainfalls. The crop of rice in Wet or low-land cultivation is grown with Transplanting in flooded field. puddled fields.[12] It is verified that there are no effective policies or regulatory requirements that will stimulate switch from the prevailing practice in irrigated rice fields – continuous flooding – to AWD or DSR with adjusted water management a method that leads to lower GHG emissions from rice cultivation. Thus, neither the project activity as a whole nor its elements are in conflict with any laws or regulations in India. Further explanations are given in Section E.
6	Excepting the case where the default value approach indicated in paragraph 15 is chosen for emission reductions calculations, project proponents have access to infrastructure to measure CH_4 emissions from reference fields using closed chamber method and laboratory analysis.	Default value will be used. Thus, this is not applicable.
7	Aggregated annual emission reductions of all fields included under one project activity shall be less than or equal to 60 kt CO_2 equivalent.	According to para 14 of "Tool19: Demonstration of additionality of microscale project activities" (Version 09.0), for CPAs applying microscale thresholds at the unit level rather than at the aggregate level of the CPA, the term 'project activities' in paragraphs 4, and 11 to 13 above shall be read as 'units'. In addition, according to the footnote 18 of para 14 of "Tool19", units are also referred to as "independent subsystems" or "technology / measures" in CDM regulatory documents. Therefore, the technology/measures in this project

[12] https://farmer.gov.in/cropstaticsrice.aspx

		is a “microscale CDM unit”. In this case, according to para 48 of "General guidelines for SSC CDM methodologies” (Version 23.0), CME is not required to demonstrate compliance of the CPA with the microscale or small-scale thresholds at the aggregate level of each CPA. In such case, the requirements related to de-bundling stated in para 6 of general guidelines for SSC CDM methodologies do not apply.

I.3. Application of multiple methodologies

>> AMS. III. AU. Version 04.0 - Methane emission reduction by adjusted water management practice in rice cultivation is only applicable for the generic CPA.

I.4. Project boundary, sources and greenhouse gases (GHGs)

>>

Source		GHG	Included?	Justification/Explanation
Baseline	Baseline: Continuation of transplanted rice and flooded rice cultivation	CO_2	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
		CH_4	Yes	Major source of emission
		N_2O	No	Minor source of emissions and limited data available. Exclusion is conservative assumption.
Project Activity	Project activity: Project emissions under the changed cultivation practice	CO_2	No	Excluded as emissions are neutral
		CH_4	Yes	Major source of emission
		N_2O	No	Excluded for simplification

I.5. Establishment and description of baseline scenario

>> As per paragraph 11 of the applied methodology AMS III.AU. Version 04,” The baseline scenario is the continuation of the current practice e.g. transplanted and continuously flooded rice cultivation in the project fields.”

The baseline scenario is the continuation of the current practice e.g. transplanted and continuously flooded rice cultivation in the project fields.

The baseline emission factor for continuously flooded fields without organic amendments ($EF_{BL,c}$) will be either determined ex-ante prior to the start of the project activity (in this case the ex-ante value should be used to calculate emission reduction during the crediting period). This will be defined based on the approach given in Table 2 of the Methodology AMS III.AU. version 04 as well as para 26- 28 of the methodology.

I.6. Estimation of emission reductions

I.6.1. Explanation of methodological choices

>> As per AMS III.AU. Version 04 paragraph 20:
As an alternative to the reference field approach indicated in paragraphs 12, 13, 16 and 17, project participants may calculate emission reductions using one of the following two simplified approaches (i.e. Option 1 or Option 2) using IPCC tier 1 approach or global default values.

Option 1: Using the IPCC tier 1 approach but undertaking measurements to determine baseline emission factors for continuously flooded fields, as per the following formula:

$$ER_y = EF_{ER} \times A_y \times L_y \times 10^{-3} \times GWP_{CH4}$$

$$EF_{ER} = EF_{BL} - EF_P$$

$$EF_{BL} = EF_{BL,c} x\ SF_{BL,w} x\ SF_{BL,p} x\ SF_{BL,o}$$

$$EF_P = EF_{BL,c} x\ SF_{P,w} x\ SF_{P,p} x\ SF_{P,o}$$

Where:

ER_y	=	Emission reductions in year *y* (t CO_2e)
EF_{ER}	=	Adjusted daily emission factor (kgCH_4/ha/day). Alternatively, seasonal emission factor (kgCH_4/ha/season) may be determined[13]
A_y	=	Area of project fields in year *y* (ha)
L_y	=	Cultivation period of rice in year *y* (days/year). This is not applicable when seasonal emission factor is determined
GWP_{CH4}	=	Global warming potential of CH_4 (t CO_2e/t CH_4)
EF_{BL}	=	Baseline emission factor (kgCH_4/ha/day) or (kgCH_4/ha/season)
EF_P	=	Project emission factor (kgCH_4/ha/day) or (kgCH_4/ha/season)
$EF_{BL,c}$	=	Baseline emission factor for continuously flooded fields without organic amendments (kgCH_4/ha/day) or (kgCH_4/ha/season)
$SF_{BL,w} or\ SF_{P,w}$	=	Baseline or project scaling factors[4] to account for the differences in water regime during the cultivation period
$SF_{BL,p} or\ SF_{P,p}$	=	Baseline or project scaling factors to account for the differences in water regime in the pre-season before the cultivation period
$SF_{BL,o} or\ SF_{P,o}$	=	Baseline or project scaling factors should vary for both type and amount of organic amendment applied

The baseline emission factor for continuously flooded fields without organic amendments ($EF_{BL,c}$) shall be either determined ex ante prior to the start of the project activity (in this case the ex ante value should be used to calculate emission reduction during the crediting period) or monitored annually (in this case, the ex post values should be used to calculate emissions reduction during the crediting period). At least three reference fields shall be chosen in the project area. On these fields, measurements shall be carried out using the closed chamber method in accordance with the guidance on methane measurement in the appendix. Alternatively, the baseline emission factor for continuously flooded fields with organic amendments may be determined.

IPCC default for $SF_{BL,w}$ or $SF_{P,w}$ is as follows

Water regime during the cultivation period	$SF_{BL,w} or\ SF_{P,w}$

[13] In this methodology, "season" means an entire cropping season (from land preparation until harvest or post season drainage). If a seasonal emission factor is opted, it should be based on measurements over the entire period of flooding, and should account for fluxes of soil-entrapped methane that typically occur upon drainage.

Irrigated	Continuously flooded	1
	Intermittently flooded - single aeration	0.60
	Intermittently flooded - multiple aeration	0.52

Source: IPCC 2006, volume 4, chapter 5.5, Table 5.12
1. Continuously flooded: Fields have standing water throughout the rice growing season and may only dry out for harvest (end-season drainage).
2. Intermittently flooded: fields have at least one aeration period of more than three days during the cropping season;
(a) Single aeration: fields have a single aeration during the cropping season at any growth stage (except for end-season drainage);
(b) Multiple aeration: fields have more than one aeration period during the cropping season (except for end-season drainage).

IPCC default for $SF_{BL,\,p}$ or $SF_{P,\,p\,is}$ provided in the following table. For regions/countries where it can be demonstrated by official government data or peer-reviewed literature that doubles cropping is practiced, a default value of 1.0 is used. Otherwise, 0.68 is used.

Water regime prior to rice cultivation	$SF_{BL,\,p}$ *or* $SF_{P,\,p}$
Non flooded pre-season < 180 days (indicating double cropping)	1
Non flooded pre-season > 180 days (indicating single cropping)	0.68

Source: IPCC 2006, volume 4, chapter 5.5, Table 5.13.

IPCC default for $SF_{BL,o}$ or $SF_{P,o}$ is calculated as follows:

$$SF_o = \left(1 + \sum_i ROA_i \; x \; CFOA_i \right)^{0.59}$$

Where:

ROA_i = Application rate of organic amendment type *i*, in dry weight for straw and fresh weight for others, tonne ha^{-1}.
5 tonne/ha of straw is assumed as the baseline quantity of organic amendment, because the value of leftover straw after harvest is in the range of 3 tonne/ha (when harvested manually to the ground level, leaving very little stubble and the root residues) to 7 tonne/ha (harvested mechanically leaving behind large amount of crop residues on the field)

$CFOA_i$ = Conversion factor for organic amendment type *i* (in terms of its relative effect with respect to straw applied shortly before cultivation.
0.29 is used for a single crop and 1.0 for a double crop

For a single crop, where the rice straw is usually ploughed back to the soil after the harvest of the crop and left for long period of time (i.e. rice straw is incorporated for a duration of > 30 days before cultivation), the straw is already mineralized being left in the dry field. Therefore the readily fermentable C component of the rice straw is less at flooding. This gives rise to lesser methane production when the soil is flooded for cultivation, therefore, 0.29 is used. On the contrary, when rice straw is

incorporated for a duration < 30 days before the cultivation (a double crop situation), the rice straw is not mineralized and the readily fermentable C contents of the rice straw results in the formation of higher quantity of methane production, therefore, 1.0 is used. Moreover, the soil characteristics when a second crop follows an earlier one favour larger methane production.

The IPCC default values for *$SF_{BL,o}$ or $SF_{P,o}$ is provided in the following table:*

Water regime prior to rice cultivation	$SF_{BL,o}$ or $SF_{P,o}$	
Non flooded pre-season < 180 days (indicating double cropping)	2.88	$SF_{BL,o}$ or $SF_{P,o}$ = (1 + 5 × 1)$^{0.59}$ = 2.88
Non flooded pre-season > 180 days (indicating single cropping)	1.70	$SF_{BL,o}$ or $SF_{P,o}$ = (1 + 5 × 0.29)$^{0.59}$ = 1.70

[(a)] Source: calculated using equation (10) above with default values from IPCC 2006, volume 4, chapter 5.5, Table 5.14.

The above table is for rice straw only. To include other organic amendments following IPCC 2006 Table 5.14, the data will be:

(a) For compost, the $SF_{BL,o}$ or $SF_{P,o}$ will be $(1 + C \times 0.05)^{0.59}$;

(b) For farm yard manure, the $SF_{BL,o}$ or $SF_{P,o}$ will be $(1 + YM \times 0.14)^{0.59}$;

(c) For green manure, the $SF_{BL,o}$ or $SF_{P,o}$ will be $(1 + GM \times 0.50)^{0.59}$;

(d) C, YM, GM are application rate (tonne ha-1) of compost, farm yard manure, and green manure, respectively.

The calculation of specific emission factor for the baseline (EF_{BL}) and for the project activity (EF_P) ($kgCH_4$/ha/day) is summarized in the table below:

Table - Specific emission factors for baseline, project and emission reductions ($kgCH_4/ha/day$) or($kgCH_4/ha/season$)

	$EF_{BL,c}$	Baseline				Project scenarios	Project				Emission reduction factor (EF_{ER})
		$SF_{BL,w}$	$SF_{BL,p}$	$SF_{BL,o}$	Emission factor (EF_{BL})		$SF_{P,w}$	$SF_{P,p}$	$SF_{P,o}$	Emission factor (EF_P)	
For regions/ countries where double cropping is practiced	$EF_{BL,c}$	1.00	1.00	2.88	$EF_{BL,c}$ x 2.88	**Scenario 1:** change the water regime from continuously to intermittent flooded conditions (single aeration)	0.60	1.00	2.88	$EF_{BL,c}$ x 1.73	$EF_{BL,c}$ x 1.15
						Scenario 2: change the water regime from continuously to intermittent flooded conditions (multiple aeration)	0.52	1.00	2.88	$EF_{BL,c}$ x 1.50	$EF_{BL,c}$ x 1.38
For regions/ countries where single cropping is practiced	$EF_{BL,c}$	1.00	0.68	1.70	$EF_{BL,c}$ x 1.16	**Scenario 1:** change the water regime from continuously to intermittent flooded conditions (single aeration)	0.60	0.68	1.70	$EF_{BL,c}$ x 0.69	$EF_{BL,c}$ x 0.46
						Scenario 2: change the water regime from continuously to intermittent flooded conditions (multiple aeration)	0.52	0.68	1.70	$EF_{BL,c}$ x 0.60	$EF_{BL,c}$ x 0.55

Option 2: using global default values derived from IPCC tier 1 approach.

Emission reductions shall be calculated, as per the equation

$$ER_y = EF_{ER} * A_y * L_y * 10^{-3} * GWP_{CH4}$$

Where,

ER_y	Emission reductions in year *y*(tCO_2e)
EF_{ER}	Adjusted daily emission factor (kgCH4/ha/day)
A_y	Area of project fields in year *y* (ha)
L_y	Cultivation period of rice in year *y* (days/year)
GWP_{CH4}	Global warming potential of CH_4 (tCO_2e/tCH_4, use value of 25[14])

Using default values of adjusted daily emission factor EF_{ER} (kgCH4/ha/day) given below in different project scenarios:

(a) For regions/countries where double cropping is practiced:

i. Use 1.50 (kgCH4/ha/day) for project activities that shift to intermittent flooding (single aeration);
ii. Use 1.80 (kgCH4/ha/day) for project activities that shift to intermittent flooding (multiple aeration);

(b) For regions/countries where single cropping is practiced:

i. Use 0.60 (kgCH4/ha/day) for project activities that shift to intermittent flooding (single aeration);
ii. Use 0.72 (kgCH4/ha/day) for project activities that shift to intermittent flooding (multiple aeration).

Description on the region on determining whether it is double crop or single crop has been established (to be described in the CPA xxx level)

Discussion of the parameters defining the baseline cultivation pattern

Baseline reference fields shall be set up in a way that they are representative of baseline emissions in the project rice fields. For this, groups of cultivation patterns have to be identified with the help of parameters given in the table 2 of the methodology AMS III.AU, version 04.0 which is discussed below:

[14] The global warming potentials (GWPs) of methane is adopted in accordance with decision 4/CMP.A GWP = 25 for methane is used for the second commitment period of the Kyoto Protocol. The GWP of methane is considered as per the table 2.14 of the errata to the contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

S. No.	Parameter	Type[15]	Values/categories	Source/method[16]
1	Water regime – on-season[17]	Dynamic	Continuously flooded Single drainage Multiple drainage	Baseline: Farmer's Information (Details will be available at the CPA level) Project: Monitoring
	Present field condition: The predominant on-season water regime in the CPA xxx region will be determined at the CPA xxx level. As part of the baseline, every farmer involved in the CPA xxx shall state the type of on-season water regime. The applicable category for the baseline scenario is continuously flooded. The baseline reference fields in the CPA xxx will be cultivated as per the traditional TPR (transplanted rice) system with continuously flooded conditions.			
2	Water regime – pre-season	Dynamic	Flooded Short drainage (<180 days) Long drainage (>180 days)	Baseline: Farmer's Information Project: Monitoring Information (Details will be available at the CPA xxx level) Project: Monitoring
	Present field condition: The predominant pre-season water regime in the CPA xxx region will be determined at the CPA xxx level.. As part of the monitoring, every farmer involved in the CPA shall state the type of pre-season water regime. Only farms which come under short drainage will come under the CPA xxx. The applicable category for the baseline scenario is short drainage.			
3	Organic amendment	Dynamic	Straw on-season[18] Green manure Straw off-season Farm yard manure Compost No organic amendment	Baseline: Farmer's Information Project: Monitoring

[15]Dynamic conditions are those that are connected to the management practice of a field, thus can change over time (no matter whether intended by the project activity or due to other reasons) and shall be monitored in the project fields. Static conditions are site-specific parameters that characterize a soil and do not (relevantly) change over time and thus do in principle only have to be determined once for a project and the corresponding fields.

[16]Source/method of data acquisition to determine the applicable value for each parameter

[17]The values, upland, regular rainfed, drought prone and deep water, which are regularly used to differentiate the on-season water regime (see IPCC guidelines), are not mentioned here, because these categories are excluded from a project activity under this methodology (cf. applicability criteria)

[18] Straw on-season means straw applied just before rice season, and straw off-season means straw applied in the previous season. Rice straw that was left on the surface and incorporated into soil just before the rice season is classified as straw on-season.

	Present field condition: The farms which come under the organic amendments listed above will come under the CPA xxx			
4	Soil pH	Static	<4.5 4.5-5.5 >5.5	ISRIC-WISE soil property database
	Present field condition: The map given as figure 2 shows the soil pH in different regions of India[19]. The map is made with the help of ISRIC-WISE data. The figure shows different pH values in different regions mostly in the range of 5.5- 7.3. The same data will be used for identifying the pH value of soil of fields for the CPA xxx.			
5	Soil Organic Carbon	Static	<1% 1-3% >3%	ISRIC-WISE soil property database
	Present field condition: The map given as figure 3 shows the Soil Organic Carbon (SOC) content in soil in different regions of India[20]. The map is made with the help of ISRIC-WISE data. The figure shows different SOC values in different regions of India. The same data will be used for identifying the SOC value of soil of fields for the CPA xxx.			
6	Climate	Static	[AEZ]	Rice Almanac, Harvest Choice
	Present field condition: According to the Rice Almanac, India lies in five agro ecological zones: AEZ 1, characterized by warm and semiarid tropics; AEZ 2, warm sub-humid tropics; AEZ 5, warm arid and semiarid subtropics with summer rainfall; AEZ 6, warm sub-humid tropics with summer rainfall; and AEZ 8, cool sub-tropics with summer rainfall. Most rice is grown in AEZs 1, 2 and 6[21]. The farms involved in CPA xxx fall under AEZ [name of AEZ], characterized by [tropical condition of the AEZ].			

[19] http://webmap.ornl.gov/wcsdown/wcsdown.jsp?dg_id=546_3

[20] http://webmap.ornl.gov/wcsdown/wcsdown.jsp?dg_id=546_5

[21] http://www.scribd.com/doc/22453055/Rice-Alma-2002#outer_page_94

http://dspace.irri.org:8080/dspace/bitstream/10269/245/2/9712200922_content.pdf

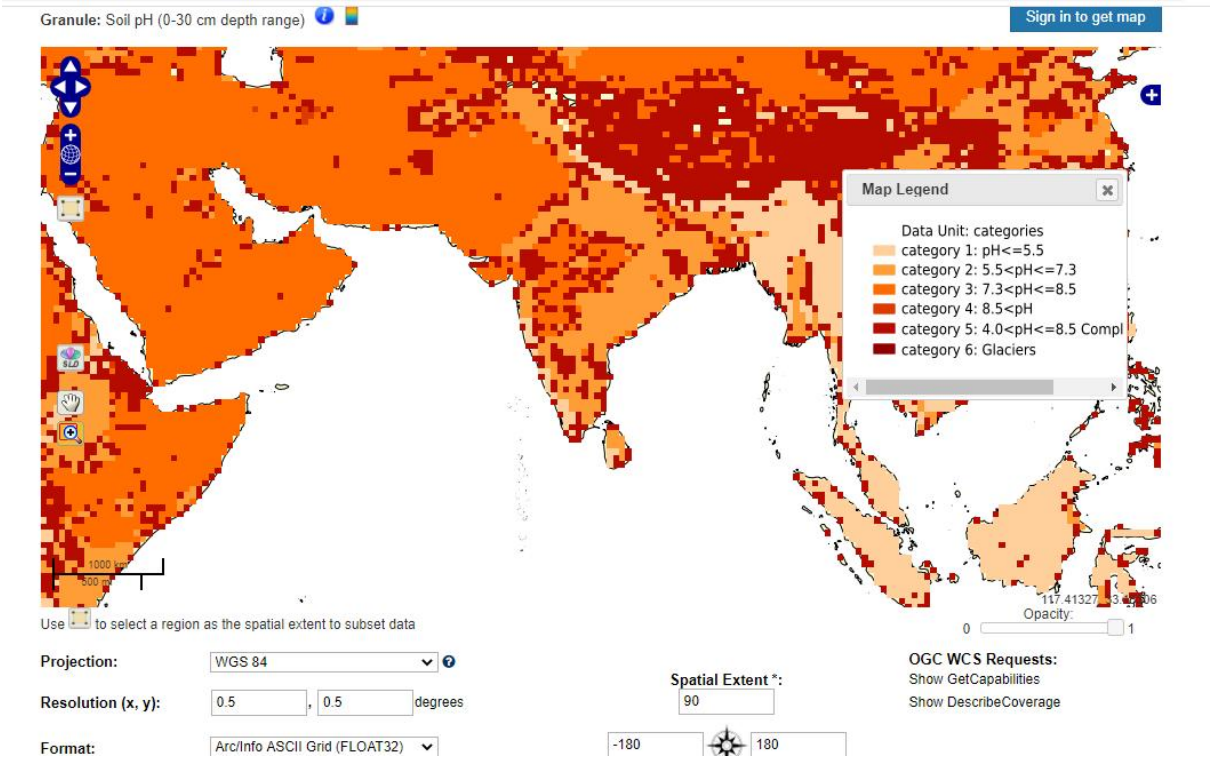

Figure 4 : Soil pH of India

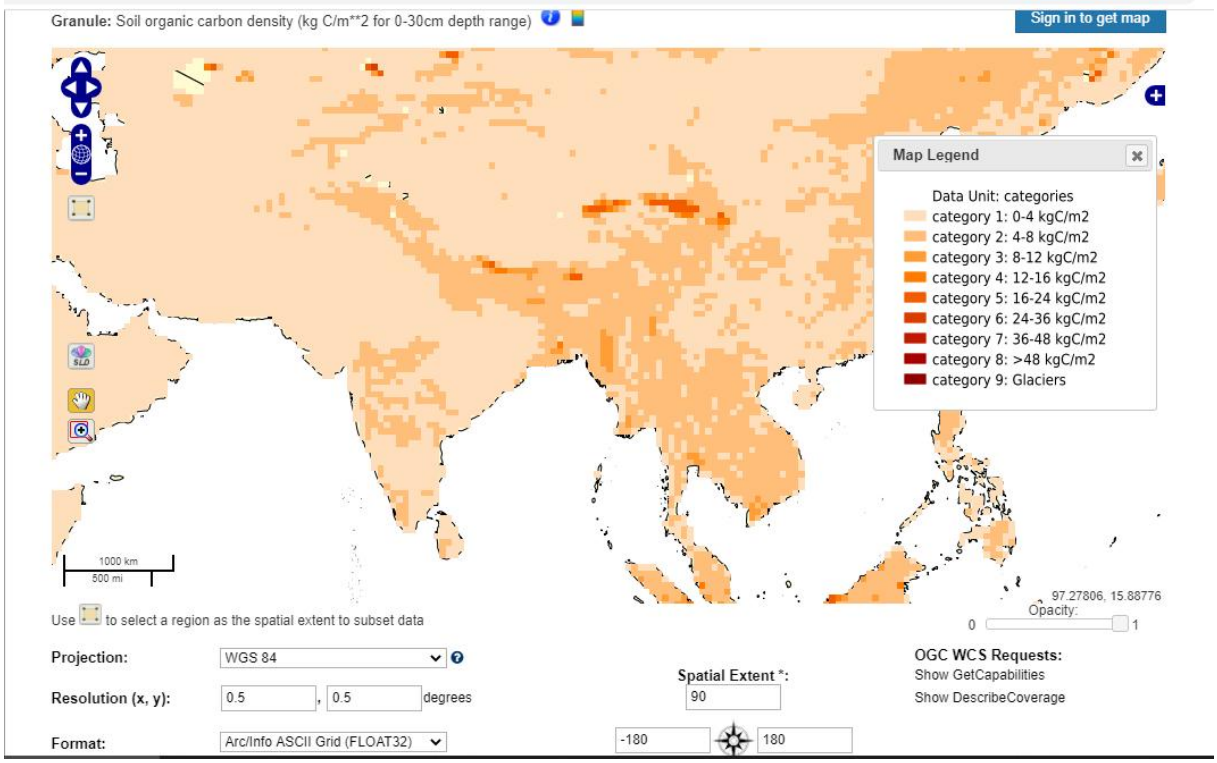

Figure 5: Soil SOC of India

I.6.2. Data and parameters fixed ex ante

Data / Parameter	$EF_{BL,c}$
Unit	$kgCH_4/ha/day$ or $kgCH_4/ha/season$
Description	Baseline emission factor for continuously flooded fields without organic amendments
Source of data	-
Value(s) applied	(XXX) determined at the CPA xxx level
Choice of data or Measurement methods and procedures	As per the instructions in the appendix (Guidelines for measuring methane emissions from rice fields) and IPCC 2006, volume 4, chapter 5.5.
Purpose of data	Calculation of baseline emission and project emission
Additional comment	Determined ex ante prior to the start of the project activity (in this case, the ex-ante value should be used to calculate emissions reduction during the crediting period) or monitored annually. This will be fixed for each CPA xxx ex ante prior to the start of the project activity.

Data / Parameter	GWP_{CH4}
Unit	tCO_2e/tCH_4
Description	Global warming potential of CH_4
Source of data	2006 IPCC guidelines for National Greenhouse Gas Inventories
Value(s) applied	25
Choice of data or Measurement methods and procedures	The global warming potentials (GWPs) of methane is adopted in accordance with decision 4/CMP.A GWP = 25 for methane is used for the second commitment period of the Kyoto Protocol. The GWP of methane is considered as per the table 2.14 of the errata to the contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/05/ar4-wg1-errata.pdf
Purpose of data	Calculation of baseline emission and project emission
Additional comment	-

I.6.3. Modalities for ex ante calculation of emission reductions

>> As per AMS III.AU. version 04 paragraph 20:
As an alternative to the reference field approach indicated in paragraphs 12, 13, 16 and 17, project participants may calculate emission reductions using one of the following two simplified approaches (i.e. Option 1 or Option 2) using IPCC tier 1 approach or global default values.

Option 1: Using the IPCC tier 1 approach but undertaking measurements to determine baseline emission factors for continuously flooded fields, as per the following formula:

$$ER_y = EF_{ER} \times A_y \times L_y \times 10^{-3} \times GWP_{CH4}$$

$$EF_{ER} = EF_{BL} - EF_P$$

$$EF_{BL} = EF_{BL,c} \, x \, SF_{BL,w} \, x \, SF_{BL,p} \, x \, SF_{BL,o}$$

$$EF_P = EF_{BL,c} \, x \, SF_{P,w} \, x \, SF_{P,p} \, x \, SF_{P,o}$$

Where:

ER_y	=	Emission reductions in year *y* (t CO_2e) (XXX)
EF_{ER}	=	Adjusted daily emission factor (kgCH_4/ha/day). Alternatively, seasonal emission factor (kgCH_4/ha/season) may be determined(XXX)
A_y	=	Area of project fields in year *y* (ha) (XXX)
L_y	=	Cultivation period of rice in year *y* (days/year). This is not applicable when seasonal emission factor is determined (XXX)
GWP_{CH4}	=	Global warming potential of CH_4 (t CO_2e/t CH_4) (25)
EF_{BL}	=	Baseline emission factor (kgCH_4/ha/day) or (kgCH_4/ha/season) (XXX)
EF_P	=	Project emission factor (kgCH_4/ha/day) or (kgCH_4/ha/season) (XXX)
$EF_{BL,c}$	=	Baseline emission factor for continuously flooded fields without organic amendments (kgCH_4/ha/day) or (kgCH_4/ha/season) (XXX)
$SF_{BL,w}$ *or* $SF_{P,w}$	=	Baseline or project scaling factors to account for the differences in water regime during the cultivation period (XXX)
$SF_{BL,p}$ *or* $SF_{P,p}$	=	Baseline or project scaling factors to account for the differences in water regime in the pre-season before the cultivation period (XXX)
$SF_{BL,o}$ *or* $SF_{P,o}$	=	Baseline or project scaling factors should vary for both type and amount of organic amendment applied (XXX)

Option 2: using global default values derived from IPCC tier 1 approach.

Emission reductions shall be calculated, as per the equation

$$ER_y = EF_{ER} * A_y * L_y * 10^{-3} * GWP_{CH4}$$

Where,

ER_y	Emission reductions in year *y*(tCO_2e) (XXX)
EF_{ER}	Adjusted daily emission factor (kgCH4/ha/day) (XXX)
A_y	Area of project fields in year *y* (ha) (XXX)
L_y	Cultivation period of rice in year *y* (days/year) (XXX)
GWP_{CH4}	Global warming potential of CH_4 (tCO_2e/tCH_4, use value of 25)

Details and choices are CPA specific. Thus all are provided in the CPA-DD and ER calculation sheet elaborated for the CPA xxx level.

Using default values of adjusted daily emission factor EF_{ER} (kgCH4/ha/day) given below in different project scenarios:

a) For regions/countries where double cropping is practiced:

I. Use 1.50 (kgCH4/ha/day) for project activities that shift to intermittent flooding (single aeration);

II. Use 1.80 (kgCH4/ha/day) for project activities that shift to intermittent flooding (multiple

aeration);

b) For regions/countries where single cropping is practiced:

I. Use 0.60 (kgCH4/ha/day) for project activities that shift to intermittent flooding (single aeration);

II. Use 0.72 (kgCH4/ha/day) for project activities that shift to intermittent flooding (multiple aeration).

Example under Option 2:
Emission reductions shall be calculated, as per the equation

$$ER_y = EF_{ER} * A_y * L_y * 10^{-3} * GWP_{CH4}$$

ER_y= 1.8kgCH4/ha/day *5000 ha *220 days/year*10^{-3}*25 tCO2e/tCH4=49500 tCO2e
Where,

ER_y	Emission reductions in year *y*(tCO_2e) (49500)
EF_{ER}	Adjusted daily emission factor (kgCH4/ha/day) (1.8)
A_y	Area of project fields in year *y* (ha) (5000)
L_y	Cultivation period of rice in year *y* (days/year) (220)
GWP_{CH4}	Global warming potential of CH_4 (tCO_2e/tCH_4, use value of 25)(25)

Using default values of adjusted daily emission factor EF_{ER} ($kgCH_4$/ha/day) given below in different project scenarios: 1.80 ($kgCH_4$/ha/day) for project activities that shift to intermittent flooding (multiple aeration).

I.7. Monitoring plan

I.7.1. Data and parameters to be monitored

Data / Parameter	A_y
Unit	Ha
Description	Aggregated project area in year y
Source of data	Farmers' information as stated in the database
Value(s) applied	(XXX) determined at CPA xxx level
Measurement methods and procedures	To be determined by collecting the project field sizes in a project database. The size of project fields shall be determined by GPS or satellite data. Should such technologies not be available, established field size measurement approaches shall be used provided that uncertainties are taken into account in a conservative manner. Project proponents shall set up a database which holds data and information that allow an unambiguous identification of participating rice farms, including name and address of the rice farmer, size of the field and cultivation practices and water regimes. In case of a survey, a survey representative sample will be carried out. Sampling standard shall be used for determining the sample size to achieve 95/10 confidence precision. A discount shall be applied based on the percentage of aggregate area under the project cultivation practices and water regime as determined by the sample survey. The sampling survey will be carried out according to the sampling plan (a) Mentioned in section I.7.2.
Monitoring frequency	Every year
QA/QC procedures	Project proponents shall ensure that the project reference fields are cultivated in a way that they represent the ranges of cultivation practice elements on the project fields in a conservative manner with respect to methane emissions. Should farmers relevantly deviate from the defined project cultivation practice, so that their fields cannot be deemed to be represented by the reference fields any more, those fields shall not be taken into account for the determination of the aggregated project area. This requirement shall assure that only those farms are considered for the calculation of emission reductions which comply with the project cultivation practice.
Purpose of data	Calculation of baseline emissions
Additional comments	It will be determined by collecting the project field sizes in a project database. In order to determine whether the project fields are cultivated according to the project cultivation practice as defined by the CPA xxx, and thus assure that measurement on the reference fields are representative for the emissions from the project fields, a cultivation database shall be maintained for all project fields. With the help of database, all parameters that are part of the project cultivation practice, and at least the following, shall be documented by the farmers: a. Sowing (date); b. Fertilizer, organic amendments and crop protection application (date and amount); c. Water regime on the field and dates where the water regime is changed from one status to another; d. Yield. In addition, farmers shall state whether they have followed fertilization recommendations provided with the introduction of the adjusted water management practice. Reporting and verification shall be done on the basis of samples of the logbooks from the farmers, according to the latest version of the "Standard for sampling and surveys for CDM project activities and programme of activities".

Data / Parameter	L_y
Unit	Days/year
Description	Cultivation period of rice in year y
Source of data	Farmers' information as stated in the database
Value(s) applied	-
Measurement methods and procedures	It will be determined by using cultivation database maintained by farmers as stated above. In case of survey of representative sample, sampling standard shall be used for determining the sample size to achieve 95/10 confidence precision. The sampling survey will be carried out according to the sampling plan mentioned in section I.7.2.
Monitoring frequency	Every year
QA/QC procedures	
Purpose of data	Calculation of baseline emission
Additional comments	

Apart from the above mentioned parameters, following parameters will also be monitored for defining the cultivation patterns as per given in table 2 of AMS III.AU, version 04.0,

S. No.	Parameter	Type[22]	Values/categories	Source/method[23]
1	Water regime – on-season[24]	Dynamic	Continuously flooded	Farmers' database
			Single drainage	
			Multiple drainage	
2	Water regime – pre-season	Dynamic	Flooded	Farmers' database
			Short drainage (<180 days)	
			Long drainage (>180 days)	
3	Organic amendment	Dynamic	Straw on-season[25]	Farmers' database
			Green manure	
			Straw off-season	
			Farm yard manure	
			Compost	

[22]Dynamic conditions are those that are connected to the management practice of a field, thus can change over time (no matter whether intended by the project activity or due to other reasons) and shall be monitored in the project fields. Static conditions are site-specific parameters that characterize a soil and do not (relevantly) change over time and thus do in principle only have to be determined once for a project and the corresponding fields.

[23]Source/method of data acquisition to determine the applicable value for each parameter

[24]The values, upland, regular rainfed, drought prone and deep water, which are regularly used to differentiate the on-season water regime (see IPCC guidelines), are not mentioned here, because these categories are excluded from a project activity under this methodology (cf. applicability criteria)

[25] Straw on-season means straw applied just before rice season, and straw off-season means straw applied in the previous season. Rice straw that was left on the surface and incorporated into soil just before the rice season is classified as straw on-season.

			No organic amendment	
4	Soil pH	Static	<4.5	ISRIC-WISE soil property data-base
			4.5-5.5	
			>5.5	
5	Soil Organic Carbon	Static	<1%	ISRIC-WISE soil property data-base
			1-3%	
			>3%	
6	Climate	Static	[AEZ]	Rice Almanac, Harvest Choice

I.7.2. Sampling plan

>>

Representative sampling will be undertaken that is designed in line with the requirements of the AMS III. AU methodology applied and the "Standard for sampling and surveys for CDM project activities and programme of activities, version 08.0". This sampling plan follows the recommended outline as contained in "Guidelines for sampling and surveys for CDM project activities and programme of activities

Monitoring Parameters
A percentage –Percentage of the areas under cultivation and water regime practices. This will be used to estimate the aggregated project areas for the year A numeric value –cultivation period of rice in a year. (L_Y Cultivation period of rice in year y)

As per the methodology AMS-III.AU version 04.0-Methane emission reduction by adjusted water management practice in rice cultivation para 37 " Reporting and verification shall be done on the basis of samples of the log-books from the farmers, according to the latest version of the "Standard for sampling and surveys for CDM project activities and programme of activities". And as per the the section 5, para 22 of the Standard "Parameter values shall be estimated by sampling in accordance with the requirements in the applied CDM methodologies separately and independently for each of the CPAs included in the PoA except when a single sampling plan covering a group of CPAs is undertaken applying 95/10 confidence/precision for the sample size calculation. In the latter case, the populations of all CPAs in the group are combined together."

Sample size will be chosen for a 95/10 precision (95% confidence interval and 10% margin of error); in cases where survey results indicate that 90/10 precision is not achieved, the lower bound of a 95% confidence interval of the parameter value may be chosen as an alternative to repeating the survey efforts to achieve a 95/10 precision.

Furthermore, as per para 37, Annex 38 of EB 55, "a request for issuance shall include all CPAs which are included in the PoA". Sampling may therefore be same across CPAs and hence a single sampling plan shall be applied to reduce efforts.

Sampling Frame
The sampling frame refers to all the information in the database. The PoA is open to different CPA Implementers and different cultivation practices and water regime in rice field cultivation. As explained below, to take the different characteristics of different CPA Implementer, cultivation practice and water regime that may affect estimates into consideration, CPAs shall be either sampled separately and independently, or grouped together under a single sampling plan across CPAs, in each case using strata that have unique combinations of these factors.

(i) Target Population

The target population will be the total population served under the specific CPA or group of CPAs.

(ii) Sampling Method

Sampling will be conducted using sampling techniques, and detailed calculations are provided within the monitoring plan as per CDM guidelines “Sampling and surveys for CDM project activities and programmes of activities”. Optionally, other sampling approaches may be used in accordance with “Standard for Sampling and surveys for CDM project activities and programmes of activities” and Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, when sampling techniques or statistical analysis necessitates it.

(iii) Sample Size

The sample size will be calculated using the EB 86, “Guidelines for Sampling and Surveys for CDM Project Activities and Programme of Activities”, version 04.0.

According to the “Standard for sampling and surveys for CDM project activities and programme of activities”, if there is more than one parameter to be estimated, then a sample size calculation should be done for each of them. Then either the largest number for the sample size is chosen as sampling effort with one common survey, or separate sampling efforts and surveys are undertaken for each parameter.

Sample sizes will be sufficient to ensure that the precision of the sample means/proportions are in accordance to the Sampling Frame established for the CPA within the PoA to estimate emissions reductions. In cases where survey results indicate that desired precision is not achieved, the lower bound of corresponding confidence interval of the parameter value maybe used as an alternative to repeating the survey. Alternatively, the survey may be expanded to reach the required confidence/precision. There may be non-response from the target population. Thus, over-sampling by 10% may be used to avoid non-response; however, sampling may be ceased once required confidence/precision is met.

(iv) Survey and Data collection Method

The sample to be surveyed will be drawn through: physical on-site visit (face-to-face) and site visit. For the physical on-site visit (face-to-face interview), data is collected through hard-copy questionnaires and /or online questionnaire.

I.7.3. Other elements of monitoring plan

>>The owners of the project fields of CPA xxx are residents of the village. A local coordinator will be appointed at each village. A database will be kept by CME of each farmer for every year. The database will include the detailed information regarding the cultivation practices and water regimes. The local coordinator will review the cultivation activities and guide the farmers for keeping the correct data in the database.

The database will be made to keep the following information of the paddy fields:

- Water regime on-season
- Water regime pre-season
- Organic amendments
- Field size
- fertilization

Authority for Review:
In addition to the established systems and procedures by which database is monitored by the coordinators, the CPA head will randomly check to ensure that the monitoring systems actually work.

Training:

Proper training and technical support will be given to the farmers in terms of field preparation, irrigation, drainage and use of fertilizers. For this a training team will be set up. The team will visit the villages in the regions of the CPA xxx and will analyze their conventional way of work and will suggest on the changes to make optimum water management in paddy fields.

Monitoring Report to be provided to Verification Entity:
The CPA Coordinator is responsible for preparing the Monitoring Report. The monitoring consists of consolidating the daily monitoring reports submitted by the Village members month-wise to the CPA Coordinator. The CPA Coordinator will prepare half-yearly reports on the status of the project, which will be available for verification by the DOE.

SECTION J. Crediting period type and duration

The CPA has a renewal crediting period. The length of the crediting period is 7 years and 0 month.

SECTION K. Eligibility criteria for inclusion of CPAs

>>

No.	Eligibility Criterion- Category	Eligibility criterion- Required condition	Supporting evidence for inclusion
1	Geographical boundaries of CPAs consistent with the geographical boundary of the PoA;	The geographical boundary of the SSC-CPA area is uniquely defined and located in India.	CPA to provide detailed documentation regarding the exact geographical location of the CPA.
2	Double counting	Carbon emission reductions claimed by the CPA should be unique and not counted more than once. Each rice farmer and their land shall be assigned a unique serial number which shall be stored in the database.	Project proponents shall set up a database which will hold data and information that allow an unambiguous identification of participating rice farms, including name and address of the rice farmer, size of the field. A unique serial number and will be given to farmer and to their land.
3	Exclusiveness of CPA-Conditions to confirm that CPAs are neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered;	The CPA shall not be previously: 1. Registered as a CDM project activity 2. Included as a CPA in any other registered PoA, or deregistered as a CPA of a PoA	A declaration will be submitted by CPA implementer to CME and the same will be cross checked by the CME before submission to DOE. Confirmation by CME. The Exclusiveness of CPA will be described in detail in the "A.7. History of CPA" of each CPA
4	Specification of the technology/measure, such as the level and type of service, as well as performance specification based on, inter alia, testing/certification;	Technology Employed by the CPA: Project proponents will define all parameters that are part of the project cultivation practice, and at least the following: (a) Sowing; (b) Fertilizer, organic amendments, and crop protection application (c) Water regime on the field (e.g. “dry/moist/flooded”) and dates where the water regime is changed from one status to another; (d) Yield.	Database will contain: Database which holds data and information on project cultivation practice, identification of participating rice farms, including name and address of the rice farmer, size of the field.

		Details about adopted technology. The proposed CPAs under the PoA involved will generally adopt different technologies including adoption of adjusted water management system (AWD) and/or Direct seeding of pre-germinated rice (DSR) and Adjusted water management in rice field that will result in reducing methane emission.	
5	Conditions to check the start dates of CPAs through documentary evidence;	The earliest date at which the implementation or construction or real action of a CPA will be the start date of the CPA and the start date of the CPA will be after the start of the PoA.	Record of end user agreement, registration details, adoption of technology, etc. under the CPA.
6	Conditions to ensure compliance with the applicability of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents;	Each CPA complies with the applicability and other requirements outlined in followed methodologies: Methodology: AMS III.AU. - Methane emission reduction by adjusted water management practice in rice cultivation, Version: 04 The applied methodology "AMS-III.AU." refers to application of the following tools: Tools applied Guideline: General guidelines for SSC CDM methodologies, Version 23.0 TOOL21: Demonstration of additionality of small-scale project activities, Version 13.0	Methodology applicability check of the CPA-DD applying the applied methodology AMS III.AU. Version 04 and Guideline: General guidelines for SSC CDM methodologies, Version 23.0 and TOOL21.
7	Conditions to ensure that CPAs meet the requirements for demonstration of additionality.	The additionality is demonstrated at the PoA level with the investment barrier and barriers due to prevailing practice [in line with para 10 of TOOL21.	Additionality is demonstrated at the PoA level for the technology/measure. Technology/measure under the CPA will be submitted..
8	The PoA-specific requirements, including any conditions related to undertaking local stakeholder consultation and environmental impact analysis	A Local stakeholder consultation meeting has been conducted at the PoA level to gauge the opinions and comments of the stakeholders. The Environmental Impact Analysis has been conducted at the PoA level	Adherence to any requirements stipulated by the Stakeholder Consultation conducted at the PoA level.
9	Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance;	The SSC CPA does not receive any public funding from the parties listed in the Annex I. Also the SSC CPA will not involve diversion of the Official Development Assistance (ODA)	ODA self-declared certificate
10	Target group and distribution	1. Target Group: Rice farmers. 2. Distribution Mechanism: Via Partner Organizations	1. Data base tool 2. The distribution mechanism will be detailed in each CPA-DD.
11	If the generic CPA is small-scale or microscale, conditions to	Not applicable. The technology/measure in this PoA as	Not applicable as per section I.2 above.

	ensure that CPAs that will be included meet the small-scale or microscale thresholds and remain within those thresholds throughout the crediting period of the CPAs. However, if the generic CPA consists solely of units that qualify as "microscale CDM units" as defined in the "Methodological tool: Demonstration of additionality of microscale project activities", these conditions are not required;	defined "microscale CDM unit", the threshold condition is not Required.	
12	De-bundling:-Where applicable, the requirements for the debundling check, in case the CPAs belongs to smallscale or microscale project categories.	The technology/measure in this-PoA as defined "microscale CDM unit", the debundling check is not required.	Not applicable.
13	Sampling	CPAs under the program will adhere to all requirements as mentioned in Standard: Sampling and surveys for CDMproject activities and program of activities.	CPAs will follow monitoring plan described in PoA-DD section I.7.2.

Appendix 1. Contact information of coordinating/managing entity and project participants

Coordinating/managing entity and/or project participants	☒ Coordinating/managing entity ☒ Project participant
Organization name	Core CarbonX Solutions Private Limited
Country	India
Address	5R, Block-A, #6-3-668/9, Kanthi Shikara Complex, Punjagutta, Hydera-bad-500082, Telangana, India
Telephone	040-23410367, +91-9908387772
Fax	040-23400367
E-mail	nmohanty@corecarbonx.com and info@corecarbonx.com
Website	www.corecarbonx.com
Contact person	Niroj Kumar Mohanty

Appendix 2. Affirmation regarding public funding

There is no public funding involved in the particular project activities included in this PoA.

Appendix 3. Applicability of methodologies and standardized baselines

Refer to section I.2

Appendix 4. Further background information on ex ante calculation of emission reductions

Refer to section I.6.2

Appendix 5. Further background information on monitoring plan

Refer to section I.7.1

Appendix 6. Summary report of comments received from local stakeholders

Refer to section F.3

Appendix 7. Summary of post-registration changes

N.A.

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Document information

Version	*Date*	*Description*
09.0	31May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM project standard for programmes of activities" (CDM-EB93-A07-STAN); • Make editorial improvements.
08.1	28 June 2017	Revision to: • Remove a duplicated instruction; • Make editorial improvement.
08.0	7 June 2017	Revision to: • Improve consistency with the "CDM project standard for programmes of activities"and with the PDD and CPA-DD forms; • Make editorial improvement.
07.0	25 May 2017	Revision to: • Ensure consistency with the "CDM project standard for programmes of activities" (CDM-EB93-A07-STAN) (version 01.0); • Incorporate the "Programme design document form for small-scale CDM programmes of activities" (CDM-SSC-PoA-DD-FORM); • Make editorial improvement.
06.0	15 April 2016	Revision to ensure consistency with the "Standard: Applicability of sectoral scopes" (CDM-EB88-A04-STAN) (version 01.0).
05.0	9 March 2015	Revision to: • Include provisions related to choice of start date of PoA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Add exception for generic CPA where technology is under positive lists; • Make editorial improvement.
04.1	5 August 2014	Editorial revision to correct the document information table.

Version	*Date*	*Description*
04.0	25 June 2014	Revision to: • Include the Attachment: Instructions for filling out the project design document form for CDM programme of activities (these instructions supersede the Guideline: Completing the programme design document form for CDM programme of activities (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the PoA in B.4 and Appendix 1; • Add general instructions on post-registration changes in paragraphs 2 and 3 of general instructions and Appendix 6; • Change the reference number from F-CDM-PoA-DD to CDM-PoA-DD-FORM; • Make editorial improvement.
03.0	3 December 2012	EB 70 Revision to reflect changes to the *Guideline: Completing the programme design document form for CDM programmes of activities* (EB 70, Annex 6).
02.0	13 March 2012	EB 66 Revision required to ensure consistency with the "Guidelines for completing the programme design document form for CDM programmes of activities" (EB 66, annex 12).
01.0	27 July 2007	EB 33, Annex 41 Initial publication.

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Document Type: Form
Business Function: Registration
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