Technical Assistance Closure Report Template

Objective of the technical assistance (TA) Closure Report:

- To communicate publicly in one document a summary of progress made and lessons learned during the TA towards the anticipated impact (sections 1-4).
- To document qualitative and quantitative data collected during TA, for use in donor and UN reporting (Annex 1).

Steps for completing the TA closure report:

1. The lead TA implementer submits the closure report at the end of the technical assistance as a final deliverable. The TA closure report will capture outputs, outcomes and impacts of all activities conducted under the TA. Please copy and summarise relevant material from previous TA outputs/deliverables and the Response Plan, as relevant.
2. A CTCN Manager will review and revise the closure report before final approval by the CTCN Deputy Director.

Important note on public and internal use of the closure report:
Once approved by the CTCN Deputy Director, the TA closure report will be a public document available on the CTCN website www.ctc-n.org. Selected content will be used for targeted communication activities. Annex 2 is for internal use only and will not be publicly available.

Closure Report for CTCN Technical Assistance

1. Basic information

Title of response plan	**Identification of technical practices for Climate-Smart Agriculture (CSA) in Indonesia**
Technical assistance reference number	**CTCN 22-011**
Country / countries	**Indonesia**
NDE organisation	**Directorate General of Climate Change, Ministry of Environment and Forestry Republic of Indonesia**
NDE focal point	**Rizki Amelgia, S. Hut., M.Sc.**
NDE contact information	*ndectcn.idn@menlhk.go.id*
Proponent focal point and organisation	**Dr. Ir. Dudi Iskandar M. For. Sc., IPU,** **Direktorat Evaluasi Kebijakan Riset, Teknologi, dan Inovasi - BRIN** *dudi002@brin.go.id*
Designer of the response plan	National Research and Innovation Agency (BRIN)
Implementer(s) of technical assistance	DHI A/S as host of UNEP-DHI
Beneficiaries	National Research and Innovation Agency (BRIN)
Sector(s) addressed	Agriculture Water Human Health
Technologies supported	Climate smart agriculture technologies: Sustainable fertilizers Soil moisture monitoring Fertilizer management

	Precision agriculture Improved cultivation techniques
Implementation start date	09/11/2022
Implementation end date	29/3/2024
Total budget for implementation	USD 225,359
Description of delivered outputs and products as well as the activities undertaken to achieve them. In doing so, review the log frame of the original response plan and refer to it as appropriate	The TA have delivered following key outputs: - A Stakeholder analysis report on Climate Smart Agriculture (CSA) stakeholders in Indonesia - Formed a national working group to advise on CSA technology selection - A report summarizing CSA technology review findings focusing on existing sensor technology, drone technology, satellite imagery technology, sensor – satellite imagery combination technology and other relevant technologies - Technology fact sheet catalogue containing the factsheets for respective technologies - Technology feasibility analysis report summarizing the possible barriers, challenges, and bottlenecks with respect to the application of the four (4) types of technologies. - A design of the macro system framework based on CSA technologies evaluated and selected together with the national working group - A catalogue of technology factsheets for automatic irrigation and fertilizer application - A report on the feasibility analysis for the integration of the two systems - A report on the market potential analysis for the deployment of the fully integrated system - A cost-benefit and financing mechanisms analysis for implementation of the integrated systems - Consolidated training materials in English and Bahasa Indonesia on the CSA technologies and analysis findings
Methodologies applied to produce outputs and products	The project applied following methodologies to successfully deliver on its objectives: - Literature review - Technology feasibility analysis - Cost-benefit analyses - Stakeholder consultations (particularly involving the established national, cross-sectoral working group - Field visits - Training workshops - Direct interactions with selected CSA technology providers (private sector)
Reference to knowledge resources	Project undertook extensive literature review on CSA technologies relevant for Indonesia. For full report on the literatures sources that were reviewed in this process please refer to the project deliverables.
Deviations	The initial project received approximately 4 months extension due to slower project start than initially anticipated.
Anticipated follow-up activities and next steps	It is anticipated that the integrated system design proposal, including the cost-benefit analysis, will serve as basis for

	seeking further funding for system implementation in a pilot province. Potential donor to support this activity has been identified by the national stakeholders (at the discretion of the national institutions).

2. Lessons learned

	Lessons learned	Recommendations
Lessons learned from the CTCN TA process	Main lessons learned relating to the CTCN TA process include following: - Rapid responses from CTCN were helpful in facilitating moving activities along and meeting tight deadlines relating to the implementation plan - As per NDE request, all TA outputs also received formal NDE approval which required additional meeting organization and added some time requirements to the implementation plan. This helped to increase country ownership and engagement but did have some impact on the implementation timeline (longer time required to complete output packages, but was resolved by 'batching' outputs together)	To ensure active engagement from project proponent and NDE at all stages of the project as these were critical factors to the success of TA implementation, and contributing factors to the TA results sustainability.
Lessons learned related to climate technology transfer	Number of the assessed technologies have indicated great potential and positive cost-benefit ratio for potential implementation. Availability of resources (like funding) may be an issue to implement the technology so this is a barrier that will need to be addressed.	To move forward, piloting of specific technologies in selected geographies (suggested to pilot in the province selected by the working group (Sukabumi Region, West Java Province, Indonesia) will be crucial to test any barriers related to uptake, implementation and operations. Recommendation is also to utilize the work done under the CTCN project as a stepping stone for potentially building on this work (e.g. further financing applications). Prioritising the participation of women for implementation is also recommended to ensure that the technology upscaled or selected is suitable for all potential users.

3. Illustration of the TA and photos

For communication purposes, please provide 2-4 Power Point slides, including illustrations or charts, describing barriers, opportunities, methodology, activities, outputs and achieved results. The illustrations must be copied into the TA Closure report but must also be delivered as power point files. Also, please provide at least five high-resolution pictures in jpg format, capturing technical assistance. The pictures should illustrate how the TA has impacted the lives of the beneficiaries in particular and the communities in general.

Barriers and Opportunities

- Gender was considered central to the implementation of the TA and mainstreamed in all relevant outputs and deliverables.
- Small-scale pilot project in the selected area, although availability of resources (like fundings) may be an issue.
- Application of CSA significantly reduces ecological destruction and loss of biodiversity.
- Improvement in efficiency, effectiveness and productivity in the agriculture production which then offers great potential to elevate a better economy, social and cultural standings.
- Mainstreaming of climate agenda into development planning, particularly in the implementation of CSA in Indonesia.

Methods

- The TA applied following methodologies to successfully deliver on its objectives:
  - Literature review
  - Cost-benefit analyses
  - Stakeholder consultations (particularly involving the established national, cross-sectoral working group
  - Field visit to selected site (i.e., Regency of Sukabumi, West Java)
  - Training workshops
  - Direct interactions with selected CSA technology providers (private sector)

Activities and Outputs

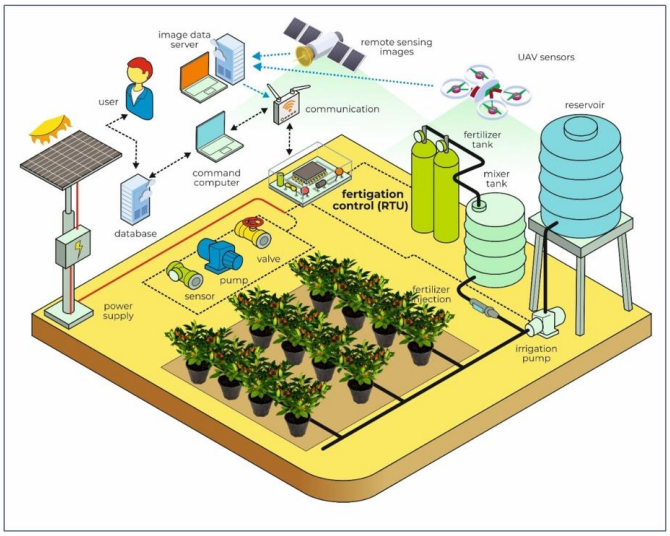
Outputs	Activities
Map stakeholders and organise an inception meeting	• Mapping of stakeholders that are likely to be involved in CSA deployment in Indonesia • Establish a stakeholder working group • Organise an inception meeting of the working group
Identify technologies to support the identification of water content and soil chemistry on agricultural land	• Identification of existing technologies that provide data on water content and soil chemistry on agricultural land (vidiometry/drone/CCTV, etc.) • Conduct feasibility analysis for the technologies • Design macrosystem framework for the selected technology
Identify technologies for automatic irrigation and fertilizer application and design an integrated system for the suitable conditions as per the geographic location selected	• Identification of relevant technologies for automatic irrigation and fertilizer application • Feasibility analysis for the integration of the two systems – Analysis of integrated system – Site visit – Designing of location-specific integrated system
Analyse market potential and cost-benefit of the fully integrated system	• Evaluation of market potential of integrated system • Analysis of the cost-benefit and financing mechanisms to deploy the integrated system
Train governmental bodies in CSA practices and the fully integrated system	• Module development comprising of the selected CSA practices and associated financial mechanisms • In-person workshop with the participation of contextual technology suppliers and the stakeholder working group.

Achieved Results

- Establishment of a stakeholder working group for the formulation of CSA practices in Indonesia. The working group role was to provide technical overview and high-level guidance at every stage of the TA implementation.
- Development of a soil sensing system framework with site-implanted sensors and a SCADA-like system, with optional spectral sensors (UAVs, Remote sensing) attachment.
- Design of integrated drip irrigation and automatic fertilization technology with soil sensing system, suitable for application in Sukabumi Regency, West Java, Indonesia.
- Implementation of technology has the potential to increase production, reduce greenhouse gas emissions, and investment can be recovered after one (1) year for a planting area of 1 ha.
- Knowledge and capacity building on CSA practices and the resulting integrated technology conducted through training.

Proposed Design of the Integrated System

1. Architecture of the primary system
   - Field Sensors
   - Field Controller/Remote Terminal Unit (RTU)
   - Irrigation Network: Drip Line
   - Actuators 1: Irrigation
   - Actuators 2: Fertiliser Injection System
   - Central computer
   - Internet connectivity
   - User Interface
2. Energy Supply
3. Optional Spectral Data Subsystem
   - Field implanted spectral camera
   - Remote Sensing Data
   - Drone Data/Unmanned Aerial Vehicles (UAVs)
   - Spectral Data Server
4. Communication to the Central Computer
5. Operating Systems
6. Maintenance
   - Irrigation
   - Fertigation
   - Sensors
   - Field Controller
   - Power supply (solar power system)
7. Gender-responsive approach



4. Impact Statement

The information in the table below will be used to communicate results and anticipated impacts of this technical assistance publicly. Please copy information from impact statement developed in the M&E Plan and update as relevant.

Challenge	*Approx. 500 characters with spaces*
CTCN Assistance	This CTCN TA seeks to: • Recommend suitable CSA technology that (a) uses sensors that can identify water content and soil chemistry on agricultural land; and (b) deploys automation of watering and fertilizing tools according to land requirements and climate conditions. • Provide training in managing and using the fully integrated system to farmers and Government agencies and through that raise awareness and understanding of CSA technologies for agriculture in Indonesia, supported with cost-benefits analyses if its application.
Anticipated impact	In long term, it is expected that the outcomes of the TA will help the players of the agricultural sector in Indonesia to: • Facilitate the implementation and replication of CSA technologies in Indonesia, supporting the achievement of its National Adaptation Plan (NAP) goals and strategies Contribute to Indonesia's Nationally Determined Contribution (NDC) as agriculture has been earmarked as one of the five sectors prioritized for mitigation and adaptation intervention programmes.
Co-benefits: Achieved or anticipated co-benefits from the TA	• Providing necessary technology, integrated system and cost-benefit analyses to enable small-scale pilot project in the selected area on the ground, when additional funding is available • Providing sufficient information on CSA options and their costs to enable further CSA technology pipeline development in the country

	• Improvement in efficiency, effectiveness and productivity in the agriculture production, including efficiency of water and fertilizer use • Increased yield through smart technology application, reducing pressures on land expansion and thus reduce the pressures of ecological destruction and loss of biodiversity.
Gender aspects of the TA	The issue of gender was considered central to the implementation of this TA project. A national gender expert was engaged in the implementation of the project throughout its full duration. The gender expert participated in project meetings and reviewed key project findings with the focus on ensuring that gender considerations are mainstreamed throughout the full project execution. This included gender mainstreaming in following aspects of the TA implementation: • Ensuring a gender balance in the implementation team • Ensuring gender balance in project activities relating to stakeholder engagement and training /workshops, meetings • Ensuring gender is considered in main outputs and deliverables • Reviewing the selected technologies for CSA and providing inputs on gender considerations when it comes to implementation of these technologies • Providing training module inputs on gender mainstreaming under output 5 (the capacity development and training activities to the national stakeholders). In advance of the technology analysis and selection, the gender expert also provided a literature review and analysis specifically on gender and CSA Practices in Indonesia undertaken previously, included in the project inception deliverables-
Anticipated contribution to NDC	• Reduction of GHG emissions in the agriculture sector • Mainstreaming of climate resilience agenda into development planning • Promotion of climate resilience in the food, water and energy sectors, particularly focusing on food-water-environment nexus • Scaling up best practices in innovative climate change mitigation and adaptation efforts, particularly for water and agriculture sectors
The narrative story	Climate change poses one of the most serious risks to food and nutrition security in Indonesia, especially for subsistence farming, and by the year 2050, total rainfall in Indonesia is expected to increase on average by nearly 10% from April through June but decrease by 10% to 25% from July through September. Climate change will have impacts on food security, environmental degradation and could potentially contribute to increase in poverty and food insecurity. Furthermore, results from a number of studies have indicated that climate change could result in a 9% to 25% reduction in farm-level net revenue in Indonesia in the future. According to the report by the Ministry of Foreign Affairs (2018), climate change will affect water availability and food security through seawater intrusion, reduction of river flow, reduction of rainfall and increase in temperature. All these impacts may then trigger more crop pests and diseases, a higher risk of crop failure, reduction of food production due to climate-related vulnerabilities

	such as severe floods and droughts, reduction of rice production due to the reduction in the number of cold nights during planting season, harder crops and seeds preservation during unpredicted and sometimes intense rainfall, frequent fluvial flooding, and an increasing number of tropical cyclones (in certain areas of Indonesia). These findings were supported by Indonesia's National Action Plan for Climate Change Adaptation (RAN-API) or National Adaptation Plan (NAP) which considers agriculture as one of the four priority sectors with potential economic loss from climate change impacts. The NAP reported that the expected total loss to this sector is estimated to be close to IDR 20 trillion in 2024. Consequently, the NAP states that climate adaptation strategy within the agriculture sector should include climate-smart agriculture (CSA) as a prospective technology. CSA by definition is "agriculture that sustainably increases productivity, enhances resilience (adaptation), reduces/removes greenhouse gases (GHG) (mitigation) where possible, and enhances achievement of national food security and development goals."[1] A list of technologies for CSA has been pre- identified and approved at the country level. One such CSA technology is the smart farming system. The use of smart farming technology in agricultural production is expected to offer great potential for improving efficiency, effectiveness and productivity. However, the application of these smart farming technologies is not fully understood, hampering its wider application and upscaling as one of the solutions to overcome climate change's effect on agricultural production. Due to climate change issues, the achievement of climate resilience through the implementation of the National Plan for Climate Change Adaptability will be conducted through the use of geospatial data, information and automation as a part of smart farming practices. This is in accordance with the Ministry of Industry's program "Making Indonesia 4.0" as an integrated roadmap to be implemented for the Industrial Revolution 4.0. The roadmap requires collaborative actions among multiple stakeholders: governmental institutions, associations, industry and academic components. In the Mid-Term National Plan 2020-2024, the National Planning Agency (BAPPENAS) stated that one of the objectives of economic resources management strategies is to increase the availability, access and quality of food consumption, maintain the productivity and sustainability of adaptive agricultural resources with regards to climate change, agricultural digitalization, land management and irrigation. It also mentioned the application of advanced technology, especially in relation to Industry 4.0 in some sectors; one of them is for increasing the efficiency, productivity and competitiveness of the agriculture sector. Agriculture 4.0 can play a key part in solving the food scarcity issue.

[1] https://www.fao.org/climate-smart-agriculture/en/

	The Indonesian government introduced "Smart Farming 4.0" in September 2018. The Indonesian Ministry of Rural Development led the initiative, with a pilot project in Situbondo, East Java. Agricultural production varies widely across places and climate change affected each area specifically. Therefore, further understanding, identification and dissemination of CSA technology approaches is urgently needed. Indonesian government through The Ministry of Agriculture has published general guidelines for climate change adaptation in the agricultural sector. However, the policy still lacked the details on its operationalization. The concept of CSA in Indonesia is still in the formulation process, conducted by the Ministry of Agriculture and CTAT (International Center for Tropical Agriculture), funded by the World Bank. The concept of CSA will be highly relevant for the whole agricultural production system in Indonesia, starting from the value chain, agriculture system, and sensitive geographical areas which are affected by climate factors. This technical assistance brough together national experts and institutional working group to increase technical understanding and implementation potential of CSA technologies within the national agricultural sector. It helped to identify potential CSA technologies of relevance in Indonesia, it developed a proposed for an integrated system that could combine smart agricultural elements of irrigation and fertilization and build the national capacity on application of these technologies. The TA also produced a cost-benefit assessment of the integrated system and connected national stakeholders with a number of CSA technology providers, to further help bridge gap between the knowledge of the CSA and its on-the-ground implementation and upscaling (including the costs of that) in the country. In addition to the fertigation systems, the CSA assessment took a closer look at the importance of use of information and communication technology systems to connect the various elements of CSA technologies into an integrated system. The application of these kinds of ICTs in agriculture, along withs precision agriculture and other CSA methods will be central to building climate resilience and food security in Indonesia.
Contribution to SDGs A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/	• SDG 1: End poverty in all its forms everywhere - The outcome of the TA will work on improving agricultural practices in Indonesia, which will have a direct impact on food security • SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture - The outcome of the TA will work on improving agricultural practices in Indonesia, which will have a direct impact on food security • SDG 5: Achieve gender equality and empower all women and girls - Gender is a central element for this TA, which will be mainstreamed in all outputs • SDG 6: Ensure availability and sustainable management of water and sanitation for all

	- The technologies include a smart irrigation system that will help improve the use of water in Indonesia • SDG 13: Take urgent action to combat climate change and its impacts - This TA will help design better climate-smart techniques, that, once implemented, will increase the resilience and adaptive capacities of the country.

Annex 1 Technical assistance data collection

Please add quantitative and qualitative values for the indicators selected in the M&E plan and monitored throughout the technical assistance in the tables below. Indicators which have been monitored in addition to the proposed indicators below may be added at the end of table A. Non-relevant indicators should be left blank.

A. Output and outcome indicators

Indicator Please note indicators below highlighted as **anticipated**	**Quantitative value** *Numerals only; disaggregates must sum to the total*	**Qualitative description** *List the various elements corresponding to the quantitative value as well as timelines and responsible institutions*
Total number of events organized by proponents and implementing partners	*8*	1. *Introductory Workshop* 2. *Meeting for Stakeholder Working Group and Location selection* 3. *Stakeholder Working Group Inception Meeting* 4. *Stakeholders Working Group Meeting for Output 2* 5. *Site Visit to Sukaraja Sukabumi* 6. *Stakeholders Working Group Meeting for Output 3* 7. *Stakeholders Working Group Meeting for Output 4* 8. *Training Workshop*
Number of participants in events organized by proponents and implementing partners	*128*	
a) Number of men	*83*	
b) Number of women	*45*	
Number of climate technology RD&D related events	-	*See above*
Number of participants in climate technology RD&D events	-	*See above*
a) Number of men		
b) Number of women		
Number of training organized by proponents and implementing partners	*1*	*Two-day workshop held on 5th and 6th March 2024 to train stakeholders on CSA technologies, the integrated system and to invite 6 technology providers from the private sector.*
Number of participants in trainings organized by proponents and implementing partners	*20*	
a) Number of men	15	

b) Number of women	5	
Total number of institutions trained	*17*	
a) Governmental (national or subnational)	6	*1.* Biro Perencanaan dan Kerja Sama Kemendes (National) *2.* Balai Penyuluhan Pertanian (BPP) Sukaraja (Sub-National) *3.* Balai Penyuluhan Pertanian (BPP) Cibadak (Sub-National) 4. Dinas Sumberdaya Air Provinsi Jawa Barat (Sub-National) *5.* Bappelitbangda Kabupaten Sukabumi (Sub-National) *6.* Ditjen Prasarana dan Sarana Kementan (National)
b) Private sector (bank, corporation, etc.)	3 (+6)	1. PT. Nudira Sumberdaya Indonesia 2. PT. Great Giant Pineaple 3. PT. Aneka Tambang (ANTAM) 4. Six (6) technology provider companies: - Netafim - PT. Mertani - PT. Daya Sentosa Rekayasa Irrigation - BIOPS Agrotekno - Meteo Nusantara Instrumen - Massgro
c) Nongovernmental (NGO, University, etc.)	8	1. SMKN1 Sukaraja (Vocational High School) 2. SMKN1 Cibadak (Vocational High School) 3. Sekolah Vokasi IPB (University) 4. Politeknik Pembangunan Pertanian Bogor (University) 5. Poktan Tani Makmur (Farmer Group) 6. Poktan Asri Tani (Farmer Group) 7. Poktan Muda Mandiri (Farmer Group) 8. Poktan Lohjinawi (Farmer Group)
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)	100%	*Satisfied= 4+ on 5-pt scale from the feedback form*
Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form)		*Increased knowledge, capacity and/or understanding= 4+ on 5-pt scale*
a) Percentage of men	100%	From the form filled by participants.

b) Percentage of women	100%	
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	*21*	21 dedicated deliverables reports (workshop related reports merged into single units)
a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc.	1	Presentation: Identification of Technical Practices for Climate-Smart Agriculture (CSA) in Indonesia
b) Number of tools and technical documents strengthened, revised or developed	-	*List the name of the documents*
c) Number of other information materials strengthened, revised or created (For example training and workshop reports, Power Points, exercise docs etc.)	**21 + 9 = 30**	*21 assessment reports (including technology assessment sheets, integrated system analyses, cost-benefit assessment reports) + training modules and associated materials in English and Bahasa*
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	-	
a) Adaptation related	NA	NA
b) Mitigation related	NA	NA
c) Both adaptation- and mitigation related	NA	NA
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	-	
a) Adaptation related	NA	NA
b) Mitigation related	NA	NA
c) Both adaptation- and mitigation related	NA	NA
Anticipated number of technologies transferred or deployed as a result of CTCN support	*5*	*The TA focused on assessment of 4 main technology types (including sub-technology types and their integrated assessment) and associated information technology systems:* - *Sensors* - *Remote Sensing* - *UAV-based sensors* - *Combined smart fertigation technologies - combining irrigation and fertilization technologies*
Anticipated number of collaborations facilitated or enabled as a result of technical assistance	*List total number here*	
a) Number of South-South collaborations	6	*Potential collaborations: technology providers that were invited to directly present their technologies to the government training workshop, including:* *1. Netafim* *2. PT. Mertani* *3. PT Daya Sentosa Rekayasa Irrigation* *4. BIOPS Agrotekno* *5. Meteo Nusantara Instrumen* *6. Massgro*

b) Number of RD&D collaborations	6	*See above*
c) Number of private sector collaborations	6	*See above*
Number of countries with strengthened National System of Innovation as a result of CTCN support	**1**	*Indonesia*
Insert any additional indicators here	NA	NA

B. Core impact indicators

Please fill in the tables for anticipated impacts of the CTCN assistance. Every technical assistance should contribute to at least one of the indicators below. For guidance on how to report on core indicators see the 'M&E Guidance Document for TA Implementers'.

Core indicator 1	**Anticipated metric tons of CO_2 equivalent (CO_2e) emissions reduced or avoided as a result of CTCN TA** *Please add your calculations in word or excel format as an Annex to this Closure Report, where applicable.*	
	Anticipated metric tons of CO_2e reduced or avoided as a result of the TA **on annual basis**	Anticipated metric tons of CO_2e reduced or avoided as a result of the TA **in total**
Quantitative value *(emissions reductions)*	*Total number (numerals only, no rounding or abbreviations)*	*Total number (numerals only, no rounding or abbreviations)*
Unit	tCO_2e	tCO_2e
GHG assessment boundary (project emissions) Identify expected post-TA activities, associated effects and assess boundary for quantification of GHG emission reductions	*Anticipated kg of CO2e reduced on an annual basis per 1 ha of land: 777 tCO2e (potentially reducing 50% of GHG compared to conventional technologies).*	*Depending on area where implemented and years in operation.*
Baseline emissions Describe baseline scenario, baseline candidates, emission factors and emissions calculated	*See deliverables integrated report*	
Methodology Explain the method or process of verifying the indicator and how data was gathered	*See deliverables integrated report*	
Assumptions Describe assumptions made during	*Technologies installed, maintained and operating to their full potential.*	

calculation and quantification of GHG reductions		

Core indicator 2	**Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts as a result of technical assistance** *Please provide a **qualitative** description of the anticipated impacts on the categories below*
Infrastructure and built environment Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)	*Strengthened resilience of the farming systems and particularly irrigation as water and fertilizers only dispensed upon need.*
Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	*Strengthened resilience of the crops, as well as reduced impacts on biodiversity – the better dosage of water and fertilizers would reduce the amount of chemicals and water used and thus reduce the environmental footprint of the activities.*
Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)	*Reduced costs for fertilizer and irrigation applications as these will be dosage according to the crop climate needs and in a more targeted way. It is expected to also lead to reduced crop loss due to more precise fertigation operations during different climatic conditions.*
Health and wellbeing Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)	*Improved water and food security through improved and more climate resilient farming operations in the targeted communities.*

Core indicator 3	**Anticipated number of direct and indirect beneficiaries as a result of the TA**	
	Quantitative value	**Means of verification**
Total beneficiaries	*Total number*	*Literature*
Number of adaptation beneficiaries	-	-
Number of mitigation beneficiaries	9,589	*Based on the 2023 census on the number of farmers in Sukaraja District, assuming it will be piloted in the District.*
Number of adaptation-and mitigation beneficiaries	-	-

Core indicator 4	**Anticipated amount of funding/investment leveraged (USD) as a result of TA (disaggregated by public, private, national, and international sources, as well as between anticipated/confirmed funding)**			
	Quantitative value confirmed *in USD*	**Quantitative value anticipated** *in USD*	**Qualitative description** *List the institutions, timelines, and*	**Methods** *Describe methods used for*

			description or title of the investment	*quantification of funds leveraged*
Total funding	*Total number in USD (numerals only, no rounding or abbreviations)*	*Total number in USD (numerals only, no rounding or abbreviations)*		
Anticipated amount of public funding mobilised from national/domestic sources	8,511.00	8,511.00	BRIN	Based on findings from the cost-benefit analysis carried out.
Anticipated amount of public funding mobilised from international/ regional sources				
Anticipated amount of private funding mobilised from national/domestic sources				
Anticipated amount of private funds mobilised from international/regional sources				

Annex 2 (for internal use – to be filled in by the CTCN)

CTCN evaluation

This section will be completed by the relevant CTCN Technology Manager.

- Evaluation of the timeliness of the TA implementation as measured against the timeline included in the response plan;
- Evaluation of TA quality as defined in the response plan;
- Overall performance of the Implementers;
- Overall engagement of the NDE and Proponent;
- Lessons learned on the CTCN process and steps taken by the CTCN to improve.