CTCN Technical Assistance Closure Report

1. Basic information

Title of response plan	The Radio-Internet Climate Technology for Agricultural Resilience in Nigeria (RANETA)
Technical assistance reference number	**CTCN 24-002 [SSFA/2024/7313]**
Country/countries	**Nigeria**
NDE organisation	**National Council on Climate Change**
NDE focal point	**Mr. Chukwuemeka Okebugwu**
NDE contact information	*chuksokebugwu@yahoo.com, +2348064426144*
Proponent focal point and organisation	*Dr. James Ijampy (Assistant Director, Directorate of Applied Meteorological Services), Nigerian Meteorological Agency (NiMet)*
Designer of the response plan	*Sadiq Abubakar Gulma, Green Habitat Initiative, sadiq@greenhabitat.ng*
Implementer(s) of technical assistance	*Instruction: Implementers and other partner organisations are defined as the people and institutions engaged in the implementation of the TA* *1. Green Habitat Initiative (GHI)* *2. Nigerian Meteorological Agency* *3. National Council on Climate Change* *4. Kebbi State Ministry of Agriculture and Rural Development* *5. Kebbi State Ministry of Information and Culture*
Beneficiaries	*Instruction: Beneficiaries are defined as people and institutions benefiting from the TA* *Nigerian Meteorological Agency (NiMet), Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, and Farmers of Argungu LGA.*
Sector(s) addressed	*Early Warning and Environmental Assessment, Water*
Technologies supported	*Instruction: Select relevant sector(s) from the CTCN Water, Renewable agriculture, renewable energy taxonomy https://www.ctc-n.org/resources/ctcn-taxonomy* *1. Early Warning Systems Communication* *2. Community-run Early Warning Systems* *3. Climate Change Monitoring.*
Implementation start date	*04/03/2024*
Implementation end date	*31/08/2025*
Total budget for implementation	*Instruction: In addition to the financial value of the technical assistance, please also include whether any pro bono or in-kind support has been provided by either the implementer/or the national counterparts.* *1. Budget from CTCN: USD 182,230.33*

	2. *An average of 1,000 working hours from NiMet staff, staff of Kebbi State Government, Extension Workers, and Lead farmers.* 3. *Approximately USD 1,500 in support from the Kebbi State Government and Argungu LGA for the use of halls for the training and workshops.*
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	**Description of Delivered Outputs and Products as well as the Activities Undertaken to Achieve Them** The RANETA Technical Assistance was implemented in alignment with the response plan, delivering on mandatory outputs and key components through a sequence of strategic activities. The outputs and activities are summarised below in reference to the original log frame: **Component 1: Development of Implementation Plans and Communication Documents** This component laid the groundwork for the effective TA implementation by developing essential planning and communication documents. A detailed work plan of all activities, deliveries, outputs, deadlines, and responsible persons/organisations, as well as a budget, was developed to guide the implementation of the TA. The detailed work plan and budget were based directly on the TA's approved response plan. ● **Activity 1.1. Development of a Detailed Work Plan (Completed, March 2024)** Building upon the detailed work plan, a monitoring and evaluation plan was developed. This plan established specific indicators to measure progress and success, enabling ongoing assessment of the TA's timeliness and appropriateness. By monitoring key metrics, stakeholders were able to make informed decisions and adjust strategies as needed to meet TA goals. ● **Activity 1.2. Development of Monitoring and Evaluation Plan (Completed, March 2024)** At the onset of the technical assistance, a concise CTCN Impact Description was crafted to articulate the intended outcomes and benefits of the TA. This description served as a reference point for evaluating the TA's effectiveness upon completion. The document was periodically updated to enable TA stakeholders to track progress and assess the TA's impact over time. ● **Activity 1.3. Development of the CTCN Impact Description (Completed, March 2024)**

	Identifying and addressing potential risks was crucial for TA success. A comprehensive risk mitigation plan was developed to anticipate and manage risks throughout the TA's lifecycle. This plan included an assessment of risk probability, impact, and mitigation strategies. It was regularly updated so that the TA teams could proactively address emerging risks and safeguard TA objectives. • **Activity 1.4. Development of a Risk Mitigation Plan (Completed, March 2024)** Identifying and addressing potential risks was crucial for TA success. A comprehensive risk mitigation plan was developed to anticipate and manage risks throughout the TA's lifecycle. This plan included an assessment of risk probability, impact, and mitigation strategies. It was regularly updated so that the TA teams could proactively address emerging risks and safeguard TA objectives. **Component 2: Creation of a Steering Committee, Mapping of Stakeholders, and Conduction of an Inception Meeting** Immediately after the signature of the contract, a kick-off meeting was held between the CTCN and GHI. The meeting was held virtually on 4th March 2024 in the presence of NiMet (the TA proponent) and NCCC (the UNFCCC focal organisation for technology). During the meeting, GHI presented the components of this TA, followed by an interactive discussion with all participants on understanding the TA and its deliverables. • **Activity 2.1. Kick-off Call (Completed, March 2024)** A kick-off call to officially initiate the project activities was held between CTCN, GHI and the NDE. At the meeting, the proposed project activities and work plan were presented and discussed, ensuring that all the parties are on the same page with the TA concept. • **Activity 2.2. Creation of a Steering Committee and Mapping of Stakeholders (Completed, April 2024)** All relevant stakeholders, including governmental institutions at national and sub-national levels, as well as NGOs, were mapped to support the implementation of technical assistance. From these stakeholders, a focused steering committee called the Stakeholder Working Group (SWG), comprising up to eight members, was formed. The SWG provided technical oversight and high-level guidance

throughout the TA lifecycle. The following documents were developed under this activity:

1. Description of the Steering Committee and Terms of Reference: A comprehensive description of the Steering Committee and detailed ToR outlining roles, responsibilities, and objectives were developed.
2. Stakeholder Mapping Report: A complete list of stakeholders, with details including names, positions, affiliations, gender, and roles, was compiled.

- **Activity 2.3. Inception Meeting (Completed, May 2024)**

An inception meeting was organised with the SWG to formally introduce the team of experts and present the TA's goals, milestones, anticipated deliverables, and the roles and responsibilities of the SWG. This meeting set the stage for effective TA implementation.

Component 3: Diagnosis of Existing Dissemination Systems (Completed, June 2024)

This component entailed a meticulous examination of existing dissemination systems to pave the way for developing an effective agrometeorological information dissemination system.

- **Activity 3.1. Diagnosis of Current Equipment Available in Nigeria to Gather Climate Data (Completed, June 2024)**

A thorough assessment was carried out on the climate data gathering equipment in operation across Nigeria, with a specific focus on equipment owned and used by NiMet in Abuja and Kebbi State. The diagnosis scrutinised the functionality and efficacy of NiMet's climatological/meteorological information systems, including early warning systems and local data collection infrastructure.

- **Activity 3.2. Identification of the Needs of Future Users and Administrators of the System (Completed, June 2024)**

Drawing from the diagnostic findings, GHI developed a comprehensive set of inquiries to identify the needs of prospective users and administrators of the forthcoming system. These requirements formed the basis for the system's technical specifications.

- **Activity 3.3. Half-Day Workshop to Validate the Identification of Needs (Completed, June 2024)**

A workshop was conducted with the SWG to validate the identified needs and present the findings from the diagnostic phase. Stakeholders provided input to refine the proposed specifications.

- **Activity 3.4. Final Report Detailing the Needs of the Agrometeorological System (Completed, July 2024)**

Following the validation workshop, an exhaustive report was prepared, consolidating the refined specifications derived from stakeholder input.

Component 4: Designing the Architecture of the New Dissemination System

This component involved a comprehensive approach to designing the architecture of the new dissemination system.

- **Activity 4.1. Identification of Relevant Technologies (Completed, September 2024)**

Potential technologies for disseminating agroclimatic data from NiMet to stakeholders were identified. Existing systems were assessed for feasibility, and various communication channels, including radio, SMS, and web platforms, were evaluated.

- **Activity 4.2. Identification of Barriers, Challenges, Opportunities, and Strengths (Completed, September 2024)**

An in-depth analysis was conducted to identify the barriers, challenges, opportunities, and strengths related to implementing the proposed technology in the Nigerian and Kebbi State contexts.

- **Activity 4.3. Half-Day Workshop on Technology Options and Viability (Completed, October 2024)**

A workshop was convened to present the technology options and viability assessment to the SWG. Stakeholders contributed feedback for selecting the final technology.

- **Activity 4.4. Design of the System Architecture (Completed, December 2024)**

	An iterative approach was used to draft the architecture, incorporating multiple feedback loops from stakeholders. • **Activity 4.5. In-Person Meeting to Validate the Prototype (Completed, March 2025)** An in-person meeting was held to present the prototype technology, including its functionalities, configurations, and cost estimates for installation, operation, and maintenance. **Component 5: Piloting the Technology in Kebbi State** • **Activity 5.1. Planning the Pilot Implementation (Completed, January 2025)** A detailed implementation plan was prepared, outlining technical, human, and financial requirements, as well as the roles and responsibilities of all entities. • **Activity 5.2. Online Meeting to discuss logistics and implementation of the pilot (Completed, January 2025)** An online meeting was held to review and finalise the pilot implementation plan based on stakeholder feedback. • **Activity 5.3. On-Site Meetings with Kebbi State Representatives (Completed, June 2025)** On-site meetings were conducted to inform Kebbi State representatives of the pilot's objectives, advantages, and responsibilities. • **Activity 5.4. Implementation of the Pilot System (Completed, July 2025)** The pilot system was developed and implemented in line with the approved design, using iterative cycles and feedback loops with stakeholders. The system enabled the transmission of climatic data from NiMet to Kebbi State and converted it into actionable agrometeorological insights for farmers, using the most effective communication channels for accessibility. **Component 6: Implementation of the final prototype**

	• **Activity 6.1. Demonstration Workshop of the prototype to the stakeholder steering group and the Kebbi State. (Completed, July 2025)** A demonstration workshop of the prototype was conducted for the stakeholder steering group, providing a hands-on and interactive experience of the system. Participants will have the opportunity to test the system independently and pose any inquiries. Simultaneously, a three-day workshop will be held in Kebbi State, engaging technicians, system users, civil society representatives, and other relevant stakeholders. GHI's responsibilities include fostering farmer participation, facilitating system understanding for users and administrators, promptly addressing technical issues, implementing necessary improvements, and providing additional support as needed to ensure the success of the pilot TA. • **Activity 6.2. Adjustments to the system and the start of the demonstration phase. (Completed, July 2025)** Following feedback received during the previous workshop (Activity 6.1), adjustments were made to the demonstration system to address identified comments and suggestions. The objective is to refine the system based on user input and prepare for the start of the demonstration phase. • **Activity 6.3. Validation of the final prototype. (Completed, July 2025)** In this activity, the final prototype of the system was validated by both the SWG and representatives from Kebbi State. The objective was to confirm that the tested system meets the predetermined requirements and effectively addresses user needs. • **Activity 6.4. Workshop on Sustainable Agricultural Practices (Completed, November 2024)** This workshop aimed to share experiences with farmers on various sustainable and climate-smart agricultural practices to mitigate the adverse effects of extreme weather events attributed to climate change. Through interactive sessions and expert-led discussions, farmers learnt about different techniques that include resilient farming techniques, water conservation methods, soil management strategies, and crop diversification approaches.

	Component 7: Disseminate information to future users, administrators, and beneficiaries of the system ● **Activity 7.1. Development of the Final Technical Assistance Report (Completed, August 2025)** A comprehensive final report was compiled, capturing all TA activities, methodologies, outcomes, challenges, lessons learned, and recommendations for sustaining and scaling the initiative. The report also included annexes with stakeholder lists, workshop materials, monitoring data, and communication outputs. **Key Deliverable - Final TA Report** The final report served as a complete reference for the TA's implementation and impact, enabling NiMet, NCCC, and other stakeholders to continue applying the knowledge and systems developed. ● **Activity 7.2. Handover and Closure Workshop (Completed, August 2025)** A closure workshop was held in Abuja on 26th August 2025, bringing together all key stakeholders to present the TA results, demonstrate the Agro-weather Dissemination System (ADS) platform, and discuss pathways for long-term sustainability.
Methodologies applied to produce outputs and products	**Methodologies Applied to Produce Outputs and Products** *(Components 1–7: System design and development, beneficiary Training, stakeholder engagement and Sustainability)* The implementation of the RANETA Technical Assistance followed a participatory, iterative, and evidence-based methodology to ensure relevance, ownership, and sustainability of outputs and outcomes. A combination of approaches was applied across all components and activities, as outlined below: 1. **Planning and Framework Development** At the onset, structured planning tools were used to guide implementation. A detailed work plan, budget, and monitoring and evaluation framework were developed to align activities with the approved response plan. Risk assessments and mitigation strategies were systematically applied to anticipate

challenges and ensure continuity of the TA.

2. **Stakeholder Engagement and Participatory Design**
A multi-stakeholder approach was central to delivery. Stakeholder mapping and the creation of a Steering Committee (Stakeholder Working Group – SWG) provided inclusive technical oversight. Inception and validation workshops facilitated dialogue, ensured transparency, and incorporated feedback from national institutions, local government, civil society, and end-users. This participatory approach allowed for the co-creation of system requirements and solutions that reflect user needs.

3. **Diagnostic Assessment and Evidence Gathering**
A rigorous diagnostic phase was conducted to examine existing dissemination systems, NiMet's climate data infrastructure, and the information needs of farmers and administrators. Methods included field visits, structured assessments, key informant interviews, and validation workshops. This ensured that the system design was based on empirical evidence and contextual realities.

4. **Iterative System Design and Prototyping**
The Agro-weather Dissemination System (ADS) was developed using an iterative design methodology. Technologies were identified, options evaluated, and prototypes refined through multiple feedback loops with the SWG and stakeholders. Demonstrations and user testing sessions ensured the architecture was responsive, user-friendly, and adaptable to farmer realities (low literacy, limited internet, local languages).

5. **Capacity Building and Knowledge Sharing**
To ensure sustainability, methodologies incorporated capacity strengthening for multiple actors: broadcasters were trained in weather communication, extension officers received hands-on training to support farmers, and farmers were engaged through practical workshops on climate-smart agriculture. Peer-to-peer exchanges and "train-the-trainer" models enhanced local ownership and knowledge transfer.

6. **Pilot Testing and Validation**
The system was piloted in Kebbi State using a real-world testbed approach. Farmers and extension workers are actively engaged with the system via SMS, USSD, IVR, and radio.

	Feedback was collected, analysed, and integrated into refinements. Validation workshops confirmed that the final prototype met the agreed technical specifications and user needs. 7. **Documentation, Reporting, and Knowledge Management** All processes and results were comprehensively documented in reports, workshop proceedings, and technical manuals. A Final TA Report consolidates methodologies, lessons, challenges, and recommendations, serving as a knowledge resource for NiMet, NCCC, and other partners for replication and scale-up.
Reference to knowledge resources	**NIL**
Deviations	*Instruction: Please describe any deviations from the response plan against the actual implemented activities, outputs and products* **Original Plan:** The project initially planned to design and construct a stand-alone physical radio and internet system to disseminate climate information to smallholder farmers. **Reason for Deviation:** During the technical needs assessment, it became clear that the context, existing technologies at NiMet, and the geographic spread of the target communities required a more flexible, sustainable, and scalable solution. A physical infrastructure would have been cost-intensive, harder to maintain, and less adaptable to NiMet's evolving digital systems. **Implemented Technology:** Based on this review, a cloud-based dissemination system was designed and developed. This digital solution was fully integrated with NiMet's existing infrastructure, enabling the collection, processing, and delivery of localised weather and agro-advisory information directly to farmers in real time. **Benefits of Implemented Technology over Original Plan:** ● Greater scalability: the cloud system can be expanded to cover more regions without additional heavy infrastructure. ● Enhanced sustainability: lower maintenance costs and reliance on existing NiMet systems ensure long-term use. ● Improved accessibility: allows faster and more localised dissemination of information tailored to farmers' specific needs.

	• Better integration: aligns with NiMet's current digital ecosystem, avoiding duplication and ensuring institutional ownership.

Anticipated follow-up activities and next steps	**Anticipated Follow-Up Activities and Next Steps**
	
	Following the successful completion of the RANETA Technical Assistance, several strategic follow-up actions have been planned to ensure the sustainability, scale-up, and institutionalisation of project outcomes. These next steps will be implemented in collaboration with key stakeholders and aligned with state and national development priorities.
	
	1. Inclusion of specialised weather information in the agro-weather dissemination system.
	• **Lead Stakeholders:** Nigerian Meteorological Agency (NiMet).
	• **Activities:**
	  ○ Determine useful weather information from NiMet's database to be shared with target beneficiaries.
	  ○ Incorporate new weather information into the Agroweather Dissemination System.
	• **Expected Outcomes:** Farmers have access to more weather information tailored to their needs and location.
	2. Expansion of the farmer database
	• **Lead Stakeholders:** Nigerian Meteorological Agency (NiMet), Kebbi State Ministry of Agriculture and Rural Development.
	• **Activities:**
	  ○ Collate farmer information using a specialised template for the Agro-weather Dissemination System (ADS).
	  ○ Upload collated farmer information onto the ADS.
	• **Expected Outcomes:** More farmers are registered with the ADS and have access to reliable weather information that will improve their agricultural resilience.

2. Lessons learned

	Lessons learned	Recommendations
Lessons learned from the CTCN TA process	**Participatory Design Ensures Ownership** Engaging stakeholders, including NiMet, State/local government, civil society, extension officers, and farmers, throughout the process ensured inclusivity,	**Scale-Up Nationwide Deployment** Expand the Agro-weather Dissemination System (ADS) beyond the single LGA in Kebbi State to other states in Nigeria, prioritising climate-vulnerable regions, to maximise impact on food security and

	built ownership, improved system relevance, and strengthened commitment to sustainability. **Iterative Prototyping Strengthens Usability** Using feedback loops at every stage of the system design allowed continuous refinement. This ensured that the Agro-weather Dissemination System (ADS) was user-friendly, context-appropriate, and responsive to farmer realities such as low literacy and basic phone use. **Capacity Building is Central to Sustainability** Training farmers, extension agents, and broadcasters proved critical not only for the adoption of the system but also for embedding knowledge locally. The training approach created a pool of local experts capable of sustaining the TA outcomes. **Multi-Channel Communication is Key** Combining SMS, USSD, IVR, and radio broadened access, ensuring inclusivity for farmers with different levels of literacy, language, and technology access. This approach reduced the risk of exclusion and maximised outreach. **Gender-Responsive Approaches Enhance Impact** Deliberate inclusion of women and youth increased project	resilience. **Strengthen Institutional Integration** Fully integrate the ADS into NiMet's core operations and national climate information frameworks to ensure continuity, sustainability, and alignment with Nigeria's NDC targets. **Enhance Farmer Database and Personalisation** Continue expanding the farmer database with accurate geo-referenced information to provide more location-specific forecasts and tailored advisories for different crops and contexts. **Invest in Continuous Capacity Building** Establish ongoing training programs for extension officers, local technicians, and farmer cooperatives to ensure sustained knowledge transfer, local ownership, and system maintenance. **Promote Gender and Youth Inclusion** Institutionalise gender-responsive strategies by targeting women and youth groups, providing tailored training, and ensuring that dissemination channels remain accessible to all demographics. **Leverage Multi-Channel Dissemination** Maintain and enhance the multi-channel approach (SMS, USSD, IVR, radio) while exploring integration with mobile apps and social media for

	equity and strengthened resilience within households and communities. Gender-sensitive design of information dissemination (e.g., local languages, voice calls) improved participation. **Early Risk Mitigation Planning Prevents Setbacks** Developing a risk mitigation plan at the start helped anticipate potential challenges (technical, institutional, and logistical). This proactive approach reduced disruptions and safeguarded project delivery. **Institutional Collaboration Strengthens Results** Partnerships between NiMet, government agencies, UNEP-CTCN, and local actors demonstrated the value of coordinated action. Collaboration leveraged diverse expertise, enhanced credibility, and created an enabling environment for scaling. **Pilot Testing Validates Practicality** Testing the system in Kebbi State provided real-world insights into technical performance, farmer acceptance, and operational challenges. Lessons from the pilot will inform scaling to other parts of the country.	broader reach and engagement. **Ensure Sustainable Financing Models** Develop financing strategies, including government support, donor partnerships, and potential private sector engagement, to secure long-term sustainability of the ADS. **Strengthen Monitoring, Evaluation, and Learning (MEL)** Institutionalise continuous monitoring of system usage, accuracy of forecasts, and farmer outcomes to inform improvements, track impact, and support adaptive management. **Foster Regional and Global Knowledge Exchange** Share RANETA's experiences and best practices with other African countries implementing climate information systems, positioning Nigeria as a leader in climate-smart agriculture.
Lessons learned related to climate technology transfer	**Localisation of Technology is Essential** The successful transfer of	**Institutionalise Technology within National Systems** Fully integrate the Agro-weather

	climate technology requires adapting global tools to local realities. By tailoring the Agro-weather Dissemination System (ADS) to Nigeria's context, integrating local languages, offline channels (USSD/IVR), and farmer-specific needs, the TA ensured usability and acceptance. **Institutional Anchoring Guarantees Sustainability** Embedding the system within NiMet and involving the National Council on Climate Change (NCCC) from the onset demonstrated that climate technology transfer must be anchored in strong national institutions to ensure continuity and long-term ownership. **Capacity Building is Integral to Technology Transfer** The TA showed that transferring technology is not only about delivering a digital platform but also about equipping users and administrators with the skills to operate, maintain, and scale it. Training farmers, broadcasters, and extension officers was as critical as the system itself. **Stakeholder Participation Strengthens Relevance** A participatory design process involving government agencies, CSOs, private sector actors, and farmers validated that technology transfer is	Dissemination System (ADS) into NiMet's core services and the National Council on Climate Change (NCCC) framework to guarantee long-term sustainability and national ownership of the technology. **Strengthen Local Capacity for Operation and Maintenance** Establish continuous training programs for NiMet staff, extension officers, and local technicians to ensure that technical know-how is retained in-country, reducing reliance on external expertise. **Promote Inclusive and Gender-Responsive Transfer** Ensure that women and youth are deliberately included in technology access and training programs, addressing structural barriers that limit their participation in climate technology adoption. **Develop Sustainable Financing Mechanisms** Secure long-term financing for technology upkeep through government budget allocations, donor partnerships, and private sector involvement, ensuring the transfer does not stall after pilot stages. **Embed Risk Management in Technology Deployment** Institutionalise risk assessment and mitigation planning as part of the technology transfer process, addressing technical, financial, and institutional risks early to avoid disruptions. **Adopt Iterative, User-Centred Approaches** Continue using pilot testing, feedback loops, and user-centred design to refine the technology and ensure it

	more effective when stakeholders co-create solutions rather than passively receive them. **Iterative Prototyping Reduces Risk** Piloting the ADS in Kebbi State before full deployment highlighted that iterative prototyping and user testing are essential to refine technologies, minimise failures, and ensure systems meet user expectations. **Technology Transfer Extends Beyond Hardware/Software** The TA confirmed that effective transfer also includes methodologies, governance structures, and knowledge-sharing systems. Establishing the Stakeholder Working Group (SWG) ensured governance mechanisms were transferred alongside the digital platform. **Social Innovation Drives Technological Innovations** Through weekly engagements with farmers, the TA ensured the social and behavioural change of farmers towards perception, belief, and utilisation of weather and climate forecasts was promoted. Without pushing for social change through dialogue with the farmers, the use of religious and traditional knowledge, ADS will not be effective.	remains responsive to farmer realities, especially in diverse ecological zones. **Enhance Regional and Global Knowledge Sharing** Position Nigeria as a hub for South-South cooperation by sharing RANETA's experience with other African countries, contributing to global learning on climate technology transfer and adaptation solutions. **Integrate Technology with Policy and Development Planning** Ensure that the transferred technology is linked with national agricultural and climate resilience strategies, embedding it in broader policy frameworks for adaptation and sustainable development.

3. Illustration of the TA and photos

Barriers and Opportunities

Barriers:

- Limited access of smallholder farmers to localised climate information.
- Low literacy levels and limited internet penetration in rural areas.
- Fragmented dissemination systems and weak farmer-extension linkages.
- High vulnerability of farming communities to floods, droughts, and extreme weather.

Opportunities:

- Strong institutional support from NiMet and national government institutions.
- Growing mobile penetration enabling SMS, USSD, and IVR access.
- Donor support through UNEP-CTCN and the Adaptation Fund.
- High stakeholder interest in climate-smart agriculture.

Methodology and Activities

Methodology:

- Participatory and inclusive design with stakeholder engagement.
- Evidence-based diagnosis and needs assessment.
- Iterative prototyping and validation of system architecture.
- Capacity building for farmers, extension officers, and broadcasters.

Activities:

- Development of work plan, M&E framework, and risk mitigation plan.
- Creation of the Steering Committee and stakeholder mapping.
- Diagnostic assessment of NiMet systems and user needs.
- System design, workshops, and prototype validation.
- Pilot implementation in Kebbi State with user testing and feedback.
- Training workshops on climate-smart agriculture.

Outputs and Achieved Results

Outputs:

- Needs assessment report and system architecture design.
- Cloud-based Agro-weather Dissemination System (ADS).
- Training sessions for broadcasters, extension workers, and farmers.
- Final Technical Assistance Report documenting methodologies and lessons.

Achieved Results:

- Functional Agro-weather Dissemination System deployed on AWS cloud.
- Farmers in Kebbi State are receiving localised weather forecasts and advisories.
- Increased farmer capacity to make climate-informed decisions.
- Strengthened collaboration among NiMet, GHI, and local stakeholders.
- Enhanced resilience of farming communities against climate variability.

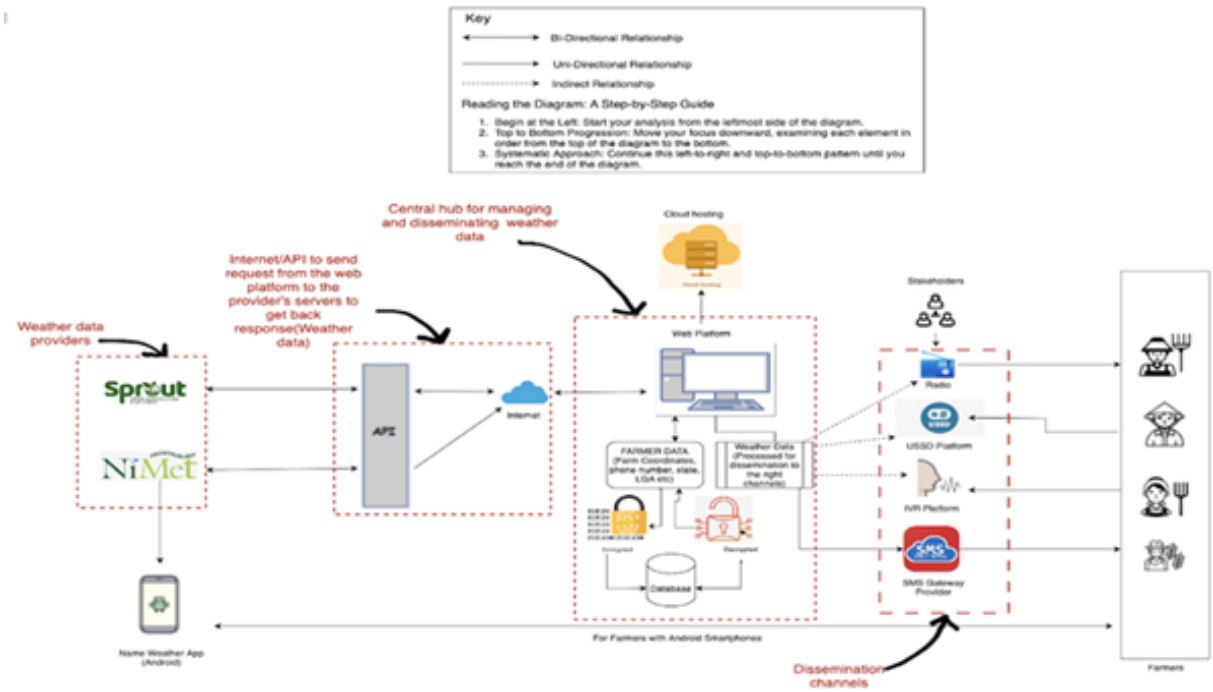

Figure 1: Architecture of the Agroweather Dissemination System

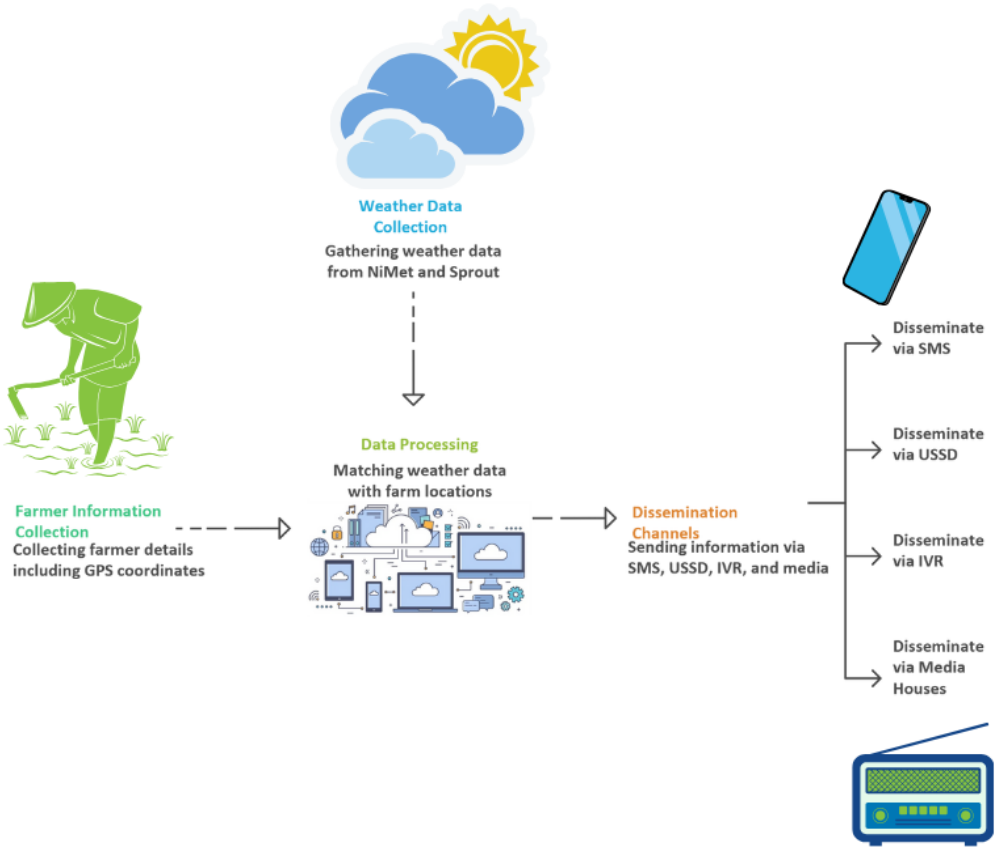

Figure 2: Description of the Agroweather Dissemination System

Figure 3: Participants during the demonstration workshop of the Agroweather Dissemination System in Kebbi State (July 2025)

Figure 4: Group photo with the RANETA project team, niMet officials and stakeholders from kebbi State after an on-site stakeholder engagement in kebbi State (July 2025)

Figure 5: The DG/CEO of NiMet-Prof. Charles Anosike (Left) in a handshake with the Executive Director of GHI and the Project Director of the RANETA TA-Engr. Sadiq Abubakar Gulma (Right) after an MoU signing for the RANETA TA between NiMet and GHI. (June 2024)

Figure 6: A trained extension agent under the RANETA TA (left) receives a smartphone from Mal. Umar Gulma-Director of Information, kebbi State Ministry of Information and Culture (Right), as part of RANETA's initiative to support the extension agents in accessing the ADS for weather information. (August 2025)

Figure 7: A facilitator (in white) discussing with female beneficiary farmers during the practical field session of the sustainable agricultural practices training (November 2024)	**Figure 8:** Mal. Faruk Illo - Director of projects and Climate Change, kebbi State Ministry of Agriculture and Rural Development (Right), present a solar rechargeable radio set and a smart mobile phone to a beneficiary, lead farmer under the RANETA TA. (August 2025)
Stakeholders (Farmers, extension agents and government officials) engagement	

4. Impact Statement

Challenge	In Northwest Nigeria, farmers lack awareness of climate change impacts and have limited access to climate information. Smallholder farmers, who contribute significantly to Nigeria's agricultural sector, face challenges such as market failures and insecure land tenure. Kebbi State heavily relies on agriculture, particularly rice and wheat production, but government interventions like the Rice Anchor Borrowers Programme have faced challenges, including loan defaults due to flooding and climate change. The deficiency in climate information exacerbates vulnerability to natural disasters, leading to food insecurity. Government strategies aim to integrate climate adaptation into agriculture, including enhancing climate information systems and empowering extension services. However, there remains a gap in delivering early warning systems to farmers and effectively communicating research insights.
CTCN Assistance	• Designed and piloted the Agroweather Dissemination System that enables the NiMet to directly communicate agroweather information to smallholder farmers through a suite of communication channels. • Held workshops to enlighten farmers on the impact and realities of climate change. • Enhanced coordination of relevant stakeholders in the agricultural, information, meteorology and environmental spectrum within Kebbi State and across Nigeria. • Trained farmers on sustainable agricultural practices and techniques to mitigate climate change.
Anticipated impact	The anticipated impact of RANETA is the transformation of agricultural resilience in Nigeria by bridging the gap between meteorological data and smallholder farmers' decision-making. By providing timely, location-specific, and easily accessible agro-weather information through SMS, USSD, IVR, and radio, farmers will be empowered to plan their activities more effectively, reduce crop losses, and improve productivity. This will not only enhance food security but also strengthen livelihoods, build community resilience against climate change, and promote climate-smart

	agriculture across rural communities. Furthermore, the system will foster stronger collaboration between NiMet, extension services, and local stakeholders, ensuring sustainability and scalability of the solution nationwide.
Co-benefits: Achieved or anticipated co-benefits from the TA	**Improved Food Security and Income Stability** By delivering timely and location-specific weather information, farmers can make better decisions on planting, irrigation, and harvesting. This reduces losses from unexpected weather events and increases overall yields. As productivity improves, smallholder farmers can secure more stable incomes and contribute to strengthening household and community food security. **Gender and Youth Inclusion** RANETA deliberately incorporated women and youth into its capacity-building and training programs. This ensures that vulnerable groups, often excluded from access to vital agricultural information, gain equal opportunities to participate in climate-smart farming. The involvement of women and youth also empowers households economically and encourages the next generation of farmers to embrace innovation. **Promotion of Digital Literacy and Technology Adoption** Through the use of mobile-based tools such as SMS, USSD, and IVR, rural farmers are gradually exposed to digital platforms, enhancing their comfort with using technology for farming decisions. This contributes to bridging the digital divide between urban and rural populations and opens up future opportunities for farmers to benefit from other digital agricultural innovations. **Strengthened Institutional Collaboration** The implementation of RANETA has fostered strong partnerships between NiMet, government agencies, civil society organisations, and private sector actors. This multi-stakeholder approach enhances knowledge-sharing, resource mobilisation, and policy support, creating an enabling environment for sustaining and scaling up the system across Nigeria. **Environmental impacts** By equipping farmers with weather-informed advisories, RANETA helps them adapt more efficiently to floods, droughts, and other extreme weather events. This leads to more sustainable use of resources such as water and soil. Additionally, the system supports climate-smart agricultural practices that align with Nigeria's broader climate change adaptation and mitigation strategies, thereby reducing environmental degradation and strengthening ecosystem resilience.
Gender aspects of the TA	The technical assistance was supported by a gender analysis and gender action plan (GAP) conducted during the baseline assessment, which

	identified barriers such as limited land access, unpaid care burdens, and underrepresentation of women in agricultural decision-making. In response, the RANETA Technical Assistance (TA) adopted a gender-responsive approach by ensuring women and youth have equal access to localised climate information through SMS, USSD, IVR, and radio in local languages, bridging the information gap that often excludes them. By deliberately including women and youth in training and capacity-building activities, the TA enhances their knowledge of climate-smart agriculture, strengthens their decision-making, and improves household food security and incomes. This reduces their vulnerability to climate shocks, empowers them economically, and promotes greater resilience at the community level. Furthermore, by mainstreaming gender considerations into stakeholder engagement and policy dialogue, RANETA contributes to advancing Nigeria's gender-responsive NDC commitments and supports SDG 5 on gender equality.
Anticipated contribution to NDC	**Agriculture & Food Security:** Nigeria's NDC prioritises agriculture, forestry, and land use, food security, and health as key sectors for climate adaptation[1]. By delivering timely, location-specific agro-weather information, RANETA strengthens smallholder farmers' ability to anticipate and respond to weather stresses like droughts and flooding. Thus, improving crop productivity, reducing losses, and enhancing food security. This directly supports Nigeria's adaptation objectives in the agricultural and food systems domain. **Water Resource Management & Disaster Risk Reduction:** RANETA's provision of drought and flood advisories enables proactive water and land management, supporting resilience strategies that the NDC emphasises under adaptation, particularly in light of climate-related disasters affecting agriculture and water availability[2]. This contributes to reducing vulnerability to extreme events and supports sustainable water resource practices. **Institutional Strengthening, Technology Transfer & Capacity Building:** Nigeria's NDC underscores the need for technology transfer, capacity building, and reliance on climate information services to bolster adaptive capacity[3]. RANETA strengthens institutional frameworks linking NiMet with extension services, broadcasters, and local stakeholders and builds the competence of these actors to deliver climate advisories effectively. This enhances national capacity to integrate climate services into agricultural planning.

[1] https://www.scribd.com/document/682281650/NDC-File-Amended-11222
[2] https://www.scribd.com/document/682281650/NDC-File-Amended-11222
[3] https://www.scribd.com/document/682281650/NDC-File-Amended-11222

	Multi-Stakeholder Engagement: The NDC adopts a whole-of-society approach, involving government agencies, local institutions, civil society, and development partners[4]. RANETA exemplifies this by uniting NiMet, local extension services, media (radio), and community networks in a coordinated dissemination system, fostering inclusive implementation and stakeholder collaboration. **Actionable Implementation & Monitoring:** Nigeria's recently launched NDC Implementation Framework (NDC-IF) aims to operationalise the NDC through structured outcomes, outputs, and measurable indicators. RANETA contributes to this framework by providing tangible adaptation outcomes (e.g. reduced crop losses, increased yield), scalable outputs (e.g. tech-enabled advisories across LGAs), and opportunities for integrating agro-weather metrics into MRV (monitoring, reporting, and verification) systems.
The narrative story	The Radio-Internet Climate Technology for Agricultural Resilience in Nigeria (RANETA) Technical Assistance was conceived to bridge the gap between weather data generated by the Nigerian Meteorological Agency (NiMet) and the smallholder farmers who depend on it the most. Farmers in rural areas often struggled with crop losses and food insecurity because timely, location-specific climate information was inaccessible or not presented in formats they could easily use. It is also the fact that the belief, perception, and utilisation of weather forecasts is very low in Nigeria. To address this, RANETA designed and deployed the Agro-weather Dissemination System (ADS), a cloud-based platform that delivers localised forecasts, flood and drought alerts, and crop-specific advisories through SMS, USSD, IVR, and radio in local languages. Working with Green Habitat Initiative (GHI) as the implementing partner, the project trained radio broadcasters, extension officers, women, and youth farmers to use and share the information. Piloted in Kebbi State, the system not only improved farm-level decision-making but also fostered stronger institutional collaboration, gender inclusion, and digital literacy. By transforming raw meteorological data into actionable guidance, RANETA has laid the foundation for climate-smart agriculture in Nigeria and a pathway to scale resilience-building across the country.
Contribution to SDGs A complete list of SDGs and their targets is available here: https://sustainabledevelopm	**SDG 2 – Zero Hunger** Provides smallholder farmers with timely weather forecasts and crop-specific advisories, reducing crop losses and increasing food production, thereby enhancing food security.

[4] https://www.scribd.com/document/682281650/NDC-File-Amended-11222

ent.un.org/partnership/register/	**SDG 1 – No Poverty** By improving agricultural productivity and reducing vulnerability to climate shocks, RANETA helps stabilise farmer incomes and strengthens rural livelihoods. **SDG 5 – Gender Equality** Ensures inclusive participation of women and youth in training and access to localised climate information, empowering them economically and socially in agricultural decision-making. **SDG 13 – Climate Action** Strengthens community resilience to climate change by equipping farmers with tools to adapt to floods, droughts, and extreme weather events. **SDG 9 – Industry, Innovation, and Infrastructure** Deploys a cloud-based dissemination platform integrating SMS, USSD, IVR, and radio, promoting digital innovation and infrastructure that serve rural communities. **SDG 17 – Partnerships for the Goals** Fosters collaboration between NiMet, Green Habitat Initiative, UNEP-CTCN, government ministries, private sector actors, and local communities to scale climate-smart solutions. **SDG 12 – Responsible Consumption and Production** Promotes efficient resource use through better farm planning and reduced waste from crop failures.

Annexe 1: Technical assistance data collection

A. Output and outcome indicators

Indicator Please note the 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 organised by proponents and implementing partners	26	**1. Project inception meeting (30-05-2024)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of

		Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, and National Agricultural Extension Research and Liaison Services (NAERLS). 2. **Workshop to validate the identification of the needs. (25-06-2024).** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, and National Agricultural Extension Research and Liaison Services (NAERLS). 3. **Workshop presentation of the options, as well as the viability of the system. (25-09-2024)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, and National Agricultural Extension Research and Liaison Services (NAERLS). 4. **Meeting to validate the prototype technology. (26-03-2025)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria

		(AFAN), kebbi State branch, Dankwalli and Farfajiya Farming clusters. 5. **Meeting to discuss the logistics and implementation of the pilot. (29-01-2025)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, and National Agricultural Extension Research and Liaison Services (NAERLS). 6. **On-site meetings with the representatives of Kebbi State. (19-20/06/2025)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria (AFAN), kebbi State branch, Dankwalli and Farfajiya Farming clusters. 7. **Demonstration Workshop of the prototype to the restricted working group and to Kebbi State. (16-17/07/2025)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria (AFAN), kebbi State branch, Dankwalli and Farfajiya Farming clusters.

		8. Validation of the final prototype. (21-08-2025) **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria (AFAN). **9. Workshop on sustainable agricultural practices. (28-29/11/2025)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria (AFAN), kebbi State branch, Dankwalli and Farfajiya Farming clusters, Beneficiary farmers. **10. Dissemination and closure workshop (26-08-2025)** **Responsible institutions:** NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria (AFAN). **11. Sixteen (16) Stakeholder Working Group (SWG) monthly meetings. (March 2024 - August 2025, Last Wednesday of every month)**

		Responsible institutions: NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Federal Ministry of Agriculture and Food Security, National Council on Climate Change, National Agricultural Extension Research, Liaison Services (NAERLS), All Farmers Association of Nigeria (AFAN).
Number of participants in events organised by proponents and implementing partners	*List the total number here: 60*	**Report of workshop on sustainable agricultural practices and attendance register (November 2024)** ***Responsible institutions:*** *NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Dankwalli and Farfajiya Farming clusters, Beneficiary farmers*
a) Number of men	*31*	**Report of workshop on sustainable agricultural practices and attendance register (November 2024)** ***Responsible institutions:*** *NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Dankwalli and Farfajiya Farming clusters, Beneficiary farmers*
b) Number of women	*29*	**Report of workshop on sustainable agricultural practices and attendance register (November 2024)** ***Responsible institutions:*** *NiMet, Green Habitat Initiative, Kebbi State Ministry of Agriculture and Rural Development, Kebbi State Ministry of Information and Culture, Kebbi State Agricultural and Rural Development Agency (KARDA), Dankwalli and Farfajiya Farming clusters, Beneficiary farmers*

Number of climate technology RD&D-related events		
Number of participants in climate technology RD&D events	*List the total number here*	
a) Number of men		
b) Number of women		
Number of training sessions organised by proponents and implementing partners	*List the total number here* *3*	1. *Report on workshop for sustainable agricultural practices. (November 2024)* 2. *Workshop on validation of needs assessment.* 3. *Demonstration workshop of Agroweather Dissemination System*
Number of participants in trainings organised by proponents and implementing partners	*List the total number here:* *60*	
a) Number of men	*31*	
b) Number of women	*29*	
Total number of institutions trained	*3*	
a) Governmental (national or subnational)	**1**	a) *Kebbi State Agricultural and Rural Development Authority (KARDA)*
b) Private sector (bank, corporation, etc.)	**2**	*a) Dan-Kwalli Farming cluster.* *b) Farfajiya Farming cluster*
c) Nongovernmental (NGO, University, etc.)	**Nil**	
Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form)		*Satisfied = 4+ on 5-point scale*
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-point scale*
a) Percentage of men		
b) Percentage of women		
Total number of deliverables produced during the assistance (excluding mission, progress and internal reports)	*List the total number here:* *16*	
a) Number of communication materials, including news releases, newsletters, articles, presentations, social media postings, etc.	**12**	1. *October 2024, Technical Assistance factsheet*[5] 2. *March 5th 2024, kick-off post on the RANETA project. LinkedIn post* 3. *July 5th 2024, A meeting with the RANETA Stakeholders. LinkedIn post*

[5] https://www.ctc-n.org/sites/default/files/2024-10/Nigeria%20%28AFCIA%29.pdf

		4. *July 8th 2024, Collaborative meeting with the DG of NIMET. LinkedIn post* 5. *May 16th 2024, Two-day capacity building workshop ,KEBBI X 3 posts. LinkedIn post* 6. *July 21st 2024, E.D Empowering farmers through Climate-Smart innovation. LinkedIn post* 7. *22nd 2024, Demonstration workshop for agroweather dissemination system. LinkedIn post* 8. *July 29th 2025, Demonstration workshop for agroweather dissemination system with NiMet and Min. Of Agriculture. LinkedIn post* 9. *August 21st 2025, invitation of the RANETA dissemination and closure workshop. LinkedIn post* 10. *August 27th 2025, Successful completion of the RANETA project. LinkedIn post* 11. *August 28th 2025, Concluded Dissemination and closure workshop of the RANETA project. LinkedIn post* 12. *Dissemination and Closure workshop news release.*[6]
b) Number of tools and technical documents strengthened, revised or developed	**0**	*List the names of the documents*
c) Number of other information materials strengthened, revised or created (For example, training and workshop reports, PowerPoint Points, exercise docs, etc.)	**4**	1. *Report on technology needs assessment.* 2. *Report on Diagnosis of the existing NiMet's Climate and Weather dissemination system.* 3. *Report on Agro-weather Dissemination System prototype.* 4. *Operation Manual of the Agro-weather Dissemination System.*
Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance	*List the total number here:* *1*	1. *Kebbi State Climate Smart Agricultural Profile (CSA)*
a) Adaptation related	**1**	1. *Kebbi State Climate Smart Agricultural Profile (CSA), strategic plan document for climate adaptation.*
b) Mitigation related	**Nil**	*List the type and name of documents supported*

[6] https://dailytrust.com/nimet-partners-ghi-to-build-agro-weather-dissemination-system/

c) Both adaptation- and mitigation-related	**1**	*List the type and name of documents supported*
Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA	*List the total number here:*	
a) Adaptation related	**Nil**	*List the type of documents anticipated to be proposed, adopted or implemented*
b) Mitigation related	**Nil**	*List the type of documents anticipated to be proposed, adopted or implemented*
c) Both adaptation- and mitigation-related	**Nil**	
Anticipated number of technologies transferred or deployed as a result of CTCN support	*List the total number here:* *4*	*Instruction: List the types of technologies supported by this assistance. Technologies must be identified from the CTCN taxonomy of climate sectors and technologies (download in PDF format and choose from column C): https://www.ctc-n.org/resources/ctcn-taxonomy.* 1. Seasonal to interannual weather forecast 2. Early Warning Systems Communication 3. Community-run early warning systems 4. Downscaling of climate model projections
Anticipated number of collaborations facilitated or enabled as a result of technical assistance	*3*	
a) Number of South-South collaborations		*List the names of the organisations (excluding the CTCN or TA implementers)*
b) Number of RD&D collaborations	**2**	1. National Agricultural Extension Research and Liaison Services (NAERLS), Nigeria. 2. Nigerian Meteorological Agency (NiMet)
c) Number of private sector collaborations	**1**	1. All Farmers Association of Nigeria
Number of countries with a strengthened National System of Innovation as a result of CTCN support		*List the names of countries*
Insert any additional indicators here		

B. Core impact indicators

Please fill in the tables for the 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 Annexe to this Closure Report, where applicable.*	
	Anticipated metric tons of CO_2e reduced or avoided as a result of the TA **on an 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 the boundary for quantification of GHG emission reductions		
Baseline emissions Describe baseline scenario, baseline candidates, emission factors and emissions calculated		
Methodology Explain the method or process of verifying the indicator and how the data was gathered		
Assumptions Describe assumptions made during the calculation and quantification of GHG reductions		

Core indicator 2	**Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystem 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-	Through the Agro-weather Dissemination System (ADS), RANETA helps farmers and communities anticipate and prepare for extreme weather events such as floods, droughts, and storms. This reduces climate-induced damages to community

induced damages and strengthened physical assets)	assets such as irrigation facilities, storage facilities, and farm infrastructure. By promoting climate-informed agricultural planning, the system indirectly strengthens the resilience of local infrastructure and supports the sustainable use of built assets in rural communities.
Ecosystems and biodiversity Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)	RANETA promotes better management of natural resources by enabling farmers to align planting, irrigation, and harvesting with climate forecasts. This reduces overexploitation of soil and water resources, lowers the risk of land degradation, and fosters sustainable land-use practices. By minimising unsustainable farming activities driven by uncertainty, the system supports ecosystem balance and enhances the ability of biodiversity-rich landscapes to recover from climate shocks.
Economic Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)	By reducing crop losses and stabilising yields, RANETA directly contributes to increased income security for smallholder farmers. The platform also enables diversification of livelihoods, as reliable climate information encourages investment in different crop varieties and farming systems, including climate-resilient practices. This reduces dependency on vulnerable mono-cropping systems, strengthens rural economies, and contributes to poverty reduction.
Health and well-being Anticipated increased health and well-being of the target group (e.g. improved basic health, water and food security)	With improved food security through climate-informed farming, households enjoy better nutrition and reduced vulnerability to hunger. Access to reliable water and food supply lessens the risk of malnutrition and climate-induced health crises. By reducing the stress and uncertainty associated with unpredictable farming outcomes, RANETA also contributes to improved psychosocial well-being of farmers and their families, while supporting safer, healthier livelihoods in rural communities.

Core indicator 3	**Anticipated number of direct and indirect beneficiaries as a result of the TA**	
	Quantitative value	**Means of verification**
Total beneficiaries	*5,132*	The target direct beneficiaries include 100 farmers and 23 representatives of the stakeholder working group member institutions directly engaged in the TA implementation. In addition, 5,009 indirect beneficiaries representing 23% of the total farmer population (70% of the total estimated ward population 21,770) in the target Argungu community, these farmers are expected to gain access to climate information via radio stations and direct contact with trained beneficiary farmers. The figures are deduced from the total population of Argungu LGA (342,100[7]).

[7] https://www.citypopulation.de/en/nigeria/admin/kebbi/NGA022003_argungu/

Number of adaptation beneficiaries	*5,132*	The 5,132 direct and indirect beneficiaries are anticipated to have improved access to climate information through the services of the Agroweather Dissemination System developed under the TA, thereby enabling them to adapt to Climate change.
Number of mitigation beneficiaries	Nil	
Number of adaptation and mitigation beneficiaries	*5,132*	The 5,132 direct and indirect beneficiaries are anticipated to have improved access to climate information through the services of the Agroweather Dissemination System developed under the TA, thereby enabling them to adapt to Climate change.

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 description or title of the investment*	**Methods** *Describe the methods used for the quantification of funds leveraged*
Total funding	*Total number in USD (numerals only, no rounding or abbreviations)* ***Nil***	*Total number in USD (numerals only, no rounding or abbreviations)* ***100,000 USD***	**World Food Program (WFP), Nigeria (September - October 2024), scale-up of Agroweather Dissemination System to Sokoto and Katsina States.**	The scale-up of the technology will require stakeholder engagement, data collection and connectivity of the state's database to the existing ADS. This is deduced from the total amount spent under the RANETA TA (182,000 USD) where only one state was targeted.
Anticipated amount of public funding mobilised from				

national/domestic sources				
Anticipated amount of public funding mobilised from international/ regional sources	**Nil**	***400,000 USD***	**World Food Program (WFP), Nigeria (September - October 2024), scale-up of Agroweather Dissemination System to Sokoto and Katsina States.**	The scale-up of the technology will require stakeholder engagement, data collection and connectivity of the state's database to the existing ADS. This is deduced from the total amount spent under the RANETA TA (182,000 USD) where only one state was targeted.
Anticipated amount of private funding mobilised from national/domestic sources				
Anticipated amount of private funds mobilised from international/regional sources				

<u>Annexe 2 (for internal use – to be filled in by the CTCN)</u>

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.