

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

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| Title of response plan | Feasibility and viability study of using blockchain technology for a real-time climate risk insurance system in Thailand's agricultural sector |
| Technical assistance reference number | AF-2022000120 / 2023000006 |
| Country / countries | Thailand |
| NDE focal point and organisation | The Office of National Higher Education Science Research and Innovation Policy Council (NXPO) Dr. Surachai SATHITKUNARAT (President) E-mail: surachai@nxpo.or.th cc.: chanida@nxpo.or.th Address: 319 Chamchuri Square Building 14 th Fl., Phayathai Rd., Patumwan, Bangkok 10330, Thailand |
| Proponent focal point and organisation | Same as above |
| Designer of the response plan | CTCN |
| Implementer(s) of technical assistance | Blockchain and Climate Institute (BCI) represented by its Director-General, Mr. Alastair MARKE (alastair.marke@blockchainclimate.org) and a team of national experts from Thammasat University, represented by Dr. Altafur RAHMAN (altaf@sgs.tu.ac.th) |
| Beneficiaries | Smallholder farmers in Thailand, particularly those in climate-vulnerable regions; national institutions such as NXPO, BAAC, Ministry of Agriculture; and insurance providers |
| Sector(s) addressed | Agriculture and insurance |

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| Technologies supported | <ul style="list-style-type: none"> • Blockchain / Distributed Ledger Technologies • Smart contracts • Internet of Things (IoT) • Remote sensing • Digital payment systems (e.g., PromptPay) • AI/ML for climate risk modeling <p>These align with CTCN taxonomy under “Climate Information & Early Warning Systems” and “Agriculture and Forestry”)</p> |
| Implementation period and total duration in months | 12 September 2024 – 11 September 2025 (12 months) |
| Total budget for implementation | USD 222,210 (Includes in-kind contributions from national counterparts and pro bono technical support from BCI experts) |
| 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 | <ol style="list-style-type: none"> 1. Work planning and monitoring tools to establish a detailed work plan, monitoring and evaluation framework, impact description, final report, and host a closing webinar to share project outcomes. 2. Preparatory analysis to conduct sector mapping, gender-disaggregated farmer surveys, and international benchmarking to inform the design of blockchain-based parametric insurance. 3. January workshop report to document the outcomes of the kick-off workshop that introduced the project and gathered stakeholder input for feasibility studies. 4. Technical feasibility study to analyze climate risks, data infrastructure, legal frameworks, and define the system architecture and smart contract protocols for blockchain-based insurance. 5. Economic feasibility study to assess demand, pricing, and costs using survey data and simulations to evaluate the financial sustainability of the proposed insurance model. 6. July workshop report to summarize stakeholder feedback and progress updates from regular project working group meetings. 7. Implementation roadmap to outline a phased strategy for piloting, validating, and scaling the blockchain-based insurance system, supported by a financing plan and concept note. 8. September workshop report to report on the capacity-building workshop that trained stakeholders on blockchain technology and presented the implementation roadmap. |
| Methodologies applied to produce outputs and products | <p>Mixed-methods approach:</p> <ul style="list-style-type: none"> • Quantitative: Monte Carlo simulations, cost-revenue modeling, geospatial analysis, and statistical calibration of parametric triggers • Qualitative: Structured interviews, stakeholder consultations, and participatory workshops • Surveys: Farmer survey with gender and regional disaggregation • Comparative analysis: International benchmarking of blockchain-based insurance models • Legal and regulatory review: Assessment of compliance with the Thai Insurance Act, PDPA, and smart contract enforceability |
| Deviations | <ul style="list-style-type: none"> • Scope limitations: |

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| | <ul style="list-style-type: none"> - Farmer survey focused on rice-producing regions, potentially underrepresenting other crops and geographic zones - Consultation formats (online/in-person) may have excluded digitally marginalized groups • Data constraints: <ul style="list-style-type: none"> - Some datasets (e.g., high-resolution weather data) were not fully accessible, requiring reliance on proxies or secondary sources. • Assumptions in modelling: <ul style="list-style-type: none"> - Adoption rates, subsidy levels, and payout thresholds were modeled using distributions due to the lack of real-world pilot data |
| <p>Anticipated follow-up activities and next steps</p> | <ol style="list-style-type: none"> 1. Pilot implementation <ul style="list-style-type: none"> - Launch pilot in high-risk agricultural zones (e.g., Chiang Mai, Nakhon Phanom) - Test smart contract enforceability and payout accuracy under regulatory sandbox conditions 2. Stakeholder capacity building <ul style="list-style-type: none"> - Train cooperatives, BAAC agents, and local governments on blockchain-based parametric insurance 3. Policy engagement <ul style="list-style-type: none"> - Collaborate with OIC and NXPO to refine legal frameworks and promote enabling policies 4. Funding mobilization <ul style="list-style-type: none"> - Submit concept note to financial institutions and climate funds for scaling support 5. Monitoring and evaluation <ul style="list-style-type: none"> - Collect real-time data during pilot to validate assumptions and refine product design |

2. Lessons learned

| | Lessons learned | Recommendations |
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| <p>Lessons learned from the CTCN TA process</p> | <ul style="list-style-type: none"> • Industry and community stakeholder engagement was a critical success factor. The formation of a multi-sector working group and regular consultations ensured alignment and ownership. • CTCN's structured TA process-including mandatory outputs like work plans, M&E frameworks, and closure reports-provided clarity and accountability. • Challenges included: | <ul style="list-style-type: none"> • Improve TA process: <ul style="list-style-type: none"> - Provide early access to standardized templates for M&E and reporting - Offer onboarding sessions for national stakeholders unfamiliar with CTCN procedures • Increase success of similar efforts: <ul style="list-style-type: none"> - Establish early regulatory dialogues to pre-empt legal barriers (e.g., smart contract enforceability) - Ensure the inclusion of gender, youth and ethnic minorities in surveys and stakeholder groups |

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| | <ul style="list-style-type: none"> - Limited access to high-resolution climate data in some regions. - Coordination across multiple institutions with differing mandates and digital maturity. - Ensuring inclusive participation, especially for digitally marginalized farmers. | <ul style="list-style-type: none"> - Use hybrid communication strategies (online + in-person) to reach remote communities |
| <p>Lessons learned related to climate technology transfer</p> | <ul style="list-style-type: none"> • BBPI is technically feasible and promising for climate risk management in agriculture • Success factors include: <ul style="list-style-type: none"> - Modular system architecture (smart contracts, oracle networks, IoT integration) - Robust digital infrastructure (e.g., PromptPay, National Digital Identity) in Thailand - Legal clarity and regulatory sandboxing to test innovations safely • Barriers: <ul style="list-style-type: none"> - Basis risk due to data granularity and sensor coverage gaps - Limited digital literacy among farmers - Regulatory uncertainty around smart contracts and data privacy | <ul style="list-style-type: none"> • Risk mitigation: <ul style="list-style-type: none"> - Use multi-source data validation (satellite + IoT + community observations) - Design fallback mechanisms for sensor failure • Opportunities to overcome barriers: <ul style="list-style-type: none"> - Build national blockchain governance frameworks - Leverage public-private partnerships for infrastructure and outreach • Long-term sustainability: <ul style="list-style-type: none"> - Invest in local capacity building (e.g., training BAAC agents and cooperatives) - Secure blended finance (donor + commercial) for scaling - Align with national climate adaptation strategies and digital transformation plans |

3. Illustration of the TA and photos

For communication purposes, please provide 2-4 PowerPoint 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 PowerPoint 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.

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 the impact statement developed in the M&E Plan and update as relevant.

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| Challenge | <p>Thai farmers face increasing climate-related risks such as droughts, floods, and storms. Traditional insurance models are slow, opaque, and inaccessible to smallholders, leaving millions vulnerable to crop failure and income loss.</p> |
| CTCN assistance | <ul style="list-style-type: none"> • Conducted technical and economic feasibility studies for blockchain-based parametric crop insurance • Mapped climate risks, insurance gaps, and digital infrastructure • Designed smart contract architecture and oracle systems • Engaged stakeholders and developed an implementation roadmap |
| Anticipated impacts | <ul style="list-style-type: none"> • Increased access to real-time climate risk insurance for smallholder farmers • Reduced payout delays and basis risk • Strengthened institutional capacity for climate risk financing • Core indicator: Approx. 6 million direct and indirect beneficiaries |
| Co-benefits: Achieved or anticipated co-benefits from the TA | <ul style="list-style-type: none"> • Improved financial resilience of rural communities • Enhanced trust between farmers and insurers • Strengthened digital literacy and inclusion • Support for climate-smart agriculture and early warning systems |
| Gender aspects of the TA | <p>Gender analysis was integrated via disaggregated farmer surveys and inclusive stakeholder engagement. Female farmers were targeted for participation and feedback. Gender-responsive onboarding and training were recommended for future pilots.</p> |
| Anticipated contribution to NDC | <ul style="list-style-type: none"> • Supports adaptation and resilience in Thailand's agriculture sector through climate risk financing • Enhances resilience of vulnerable populations • Promotes digital innovation aligned with national climate strategies • Strengthens institutional frameworks for climate adaptation |
| The narrative story | <p>Thailand's agricultural sector is increasingly exposed to climate shocks, threatening food security and rural livelihoods.</p> |

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| | <p>Traditional insurance schemes are slow and inaccessible, leaving smallholder farmers without protection. The CTCN technical assistance introduced blockchain-based parametric insurance as a transformative solution. Through feasibility studies, stakeholder engagement, and system design, the TA laid the groundwork for a scalable, transparent, and inclusive insurance model. The solution has the potential to leverage smart contracts, IoT, and digital payments to automate payouts and reduce basis risk. It empowers farmers with timely financial support and builds institutional capacity for climate resilience.</p> |
| <p>Contribution to SDGs</p> <p>A complete list of SDGs and their targets is available here: https://sustainabledevelopment.un.org/partnership/register/</p> | <ul style="list-style-type: none"> • SDG #02 (Zero hunger): It supports food security by protecting farmers from crop loss due to extreme weather. • SDG #09 (Industry, innovation and infrastructure): It promotes inclusive innovation through blockchain and digital infrastructure for rural development. • SDG #13 (Climate action): It strengthens resilience and adaptive capacity to climate-related hazards through innovative insurance solutions. |

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 Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
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| Number of communication and outreach activities conducted by proponents and implementing partners to showcase CTCN support | 3 in-person events | <ul style="list-style-type: none"> • Kick-off and preparation workshop (01/2025) to launch the technical and economic feasibility study, present initial findings on the agricultural sector and crop insurance landscape, and introduce blockchain-based parametric insurance • 2-day mid-project workshop (07/2025) to present the preliminary results of the technical and economic feasibility studies on blockchain-based parametric insurance in Thailand's agricultural sector • Capacity building workshop + final conference/webinar (09/2025) to train stakeholders on blockchain technology applications in crop insurance, including smart contracts, oracle systems, and digital payment integration and to present the final results of the technical assistance, including feasibility studies, implementation roadmap, and concept note |
| Number of participants in the events above | <ul style="list-style-type: none"> • 01/2025: 50 • 07/2025: 40 • 09/2025: 60 | Representatives from NXPO, Ministry of Agriculture, Office of Insurance Commission, Office of Agricultural Economics, Geo-Informatics and Space Technology Development Agency, Geo-Informatics and Space Technology Development Agency, Thai General Insurance Association, cooperatives, and universities, etc. |
| a) Number of men | 50% | |
| b) Number of women | 50% | |
| Number of training sessions and capacity strengthening activities | 1 event for 2 days (4 sessions/day) | <ul style="list-style-type: none"> • Day 1 (4 September 2025) - Foundation building: <ul style="list-style-type: none"> – What is parametric insurance (Day 1 - Session 1) |

| Indicator Please note indicators below highlighted as anticipated | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
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| | | <ul style="list-style-type: none"> - Basics of blockchain and smart contracts (Day 1 - Session 2) - Use cases and lessons (Day 1 - Session 3) - Practical exercise: design a smart contract for drought events (Day 1 - Session 4) • Day 2 (5 September 2025) - Applied learning: <ul style="list-style-type: none"> - Regulatory and legal considerations for blockchain insurance (Day 2 - Session 1) - Climate and agriculture data for index design (Day 2 - Session 2) - Real-time BBPI claim event (role-play and prototype demonstration session) (Day 2 - Session 3) - Group reflection: opportunities, barriers, and recommendations (Day 2 - Session 4) |
| Number of people who received the training | 30 | |
| a) Number of men | 50% | |
| b) Number of women | 50% | |
| Total number of institutions trained | 17 | <ul style="list-style-type: none"> • Government agencies: <ul style="list-style-type: none"> - Ministry of Agriculture and Cooperatives (MOAC) - Office of Insurance Commission (OIC) - Office of Agricultural Economics (OAE) - Department of Agricultural Extension - Department of Climate Change and Environment - Fiscal Policy Office, Ministry of Finance - Geo-Informatics and Space Technology Development Agency (GISTDA) - Digital Economy Promotion Agency - Digital Government Technology and Innovation Center - Office of National Higher Education Science Research and Innovation Policy Council (NXPO) • Financial institution: <ul style="list-style-type: none"> - Bank for Agriculture and Agricultural Cooperatives (BAAC) |

| Indicator Please note indicators below highlighted as anticipated | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
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| | | <ul style="list-style-type: none"> – Thai General Insurance Association (TGIA) • Academic and research institutions: <ul style="list-style-type: none"> – Thammasat University – Chiang Mai University – Nakhon Phanom University – Puey Ungphakorn Institute for Economic Research • Technology and private sector: <ul style="list-style-type: none"> – Finema |
| a) Number of research organisations, laboratories and universities | 4 | <ul style="list-style-type: none"> • Thammasat University • Chiang Mai University • Nakhon Phanom University • Puey Ungphakorn Institute for Economic Research |
| b) Number of private companies | 1 | <ul style="list-style-type: none"> • Finema |
| c) Number of cities and local government | 0 | |
| d) Number of communities | 0 | |
| e) Number of ministries | 2 | <ul style="list-style-type: none"> • Ministry of Agriculture and Cooperatives (MOAC) • NXPO as representative of the Ministry of Higher Education, Science, Research and Innovation |
| f) Number of specialised governmental institutions | 11 | <ul style="list-style-type: none"> • Office of Insurance Commission (OIC) • Office of Agricultural Economics (OAE) • Department of Agricultural Extension • Department of Climate Change and Environment • Fiscal Policy Office, Ministry of Finance • Geo-Informatics and Space Technology Development Agency (GISTDA) • Digital Economy Promotion Agency • Digital Government Technology and Innovation Center • NXPO • Bank for Agriculture and Agricultural Cooperatives (BAAC) • Thai General Insurance Association (TGIA) |
| g) Number of non-profit organisations | 0 | |

| Indicator | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
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| Please note indicators below highlighted as anticipated | | |
| Percentage of participants reporting satisfaction with CTCN training (from CTCN training feedback form) | <ul style="list-style-type: none"> • 100% of respondents agreed or strongly agreed that the sessions were engaging • Average rating for overall workshop value: 4.44/5.00 | <p>Excellent satisfaction. High satisfaction was attributed to:</p> <ul style="list-style-type: none"> • Interactive sessions • Relevant content • Clear facilitation <p>Responsible institutions included government agencies, NGOs, etc. These efforts supported inclusive onboarding and informed iterative improvements to the BBPCI platform.</p> |
| Percentage of participants reporting increased knowledge, capacity and/or understanding as a result of CTCN training (from CTCN training feedback form) | <ul style="list-style-type: none"> • 95% improvement in participant knowledge from pre- to post-workshop assessments • Average technical assessment accuracy: 87% | <p>Very high increase in knowledge and understanding. Feedback from participants highlighted the role-playing simulation as the most engaging and effective learning component, scoring 4.79/5.0 for engagement and 4.43/5.0 for stakeholder understanding. Participants appreciated the opportunity to explore diverse perspectives and simulate real-world investment decisions. Testimonials emphasized the value of practical exercises, international case studies, and the relevance of BBPI to climate resilience and agricultural innovation.</p> |
| a) Number of men | 50% | |
| b) Number of women | 50% | |
| Total number of deliverables produced during the assistance (excluding mission, progress and internal reports) | 8 | <ol style="list-style-type: none"> 1. Work planning and monitoring tools to establish a detailed work plan, monitoring and evaluation framework, impact description, final report, and host a closing webinar to share project outcomes. 2. Preparatory analysis to conduct sector mapping, gender-disaggregated farmer surveys, and international benchmarking to inform the design of blockchain-based parametric insurance. 3. January workshop report to document the outcomes of the kick-off workshop that introduced the project and gathered stakeholder input for feasibility studies. 4. Technical feasibility study to analyze climate risks, data infrastructure, legal frameworks, and define the system architecture and smart contract protocols for blockchain-based insurance. 5. Economic feasibility study to assess demand, pricing, and costs using survey data and simulations to evaluate the |

| Indicator Please note indicators below highlighted as anticipated | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | financial sustainability of the proposed insurance model. 6. July workshop report to summarize stakeholder feedback and progress updates from regular project working group meetings. 7. Implementation roadmap to outline a phased strategy for piloting, validating, and scaling the blockchain-based insurance system, supported by a financing plan and concept note. 8. September workshop report to report on the capacity-building workshop that trained stakeholders on blockchain technology and presented the implementation roadmap. |
| a) Number of tools and technical documents strengthened, revised or developed | 5 | <ul style="list-style-type: none"> • Preparatory analysis • Technical feasibility study report • Economic feasibility study report • Concept note • Implementation roadmap |
| b) Number of other information materials strengthened, revised or created (For example, training and workshop reports, PowerPoints, exercise docs, etc.) | >60 | <ul style="list-style-type: none"> • 3 workshop reports • 23 sessions with relevant PowerPoint presentation, exercises and bilingual notes |
| Total number of policies, strategies, plans, laws, agreements or regulations supported by the assistance | 12 | Sections 6 and 8 of the Technical feasibility study |
| a) Adaptation-related | 6 | <ul style="list-style-type: none"> • Thailand's Insurance Act B.E. 2535 It supports climate risk insurance for farmer. • Personal Data Protection Act (PDPA) B.E. 2562 It ensures secure handling of farmer data in climate risk systems. • Anti-Money Laundering Act B.E. 2542 It enables secure onboarding of vulnerable populations into insurance systems. • Regulatory Sandbox Initiatives by the Office of Insurance Commission (OIC) It facilitates testing of climate-adaptive insurance innovations. |

| Indicator | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
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| Please note indicators below highlighted as anticipated | | <ul style="list-style-type: none"> • Thailand’s 20-Year National Strategy on Digital Government and Financial Resilience It includes climate resilience and financial inclusion goals. • Risk Layering and Geographic Diversification Strategies It directly support adaptation by spreading climate risk across agro-ecological zones. |
| b) Mitigation-related | 0 | |
| c) Both adaptation- and mitigation-related | 6 | <ul style="list-style-type: none"> • Thailand Digital Economy Plan BBPI aligns with Thailand 4.0 and Agricultural Big Data Strategy. • Electronic Transactions Act (ETA) Legal recognition of smart contracts and digital insurance transactions. • Consumer Protection Act (1979) It ensures fair treatment and transparency in BBPI offerings. • Trade Competition Act B.E. 2560 (2017) It addresses anti-competitive risks in shared blockchain platforms. • Emergency Decree on Digital Asset Businesses B.E. 2561 (2018) It governs digital asset use in BBPI payment systems. • Ministerial Regulation on Customer Due Diligence B.E. 2563 (2020) It guides KYC/KYB processes for BBPI onboarding. |
| Anticipated number of policies, strategies, plans, laws, agreements or regulations proposed, adopted or implemented as a result of the TA | 6-8 | Part of the Technical feasibility study |
| a) Adaptation-related | 3 | <ul style="list-style-type: none"> • A national parametric insurance strategy for climate-vulnerable crops • A data-sharing agreement between meteorological agencies and insurers for real-time climate data • A pilot program policy for BBPI deployment in high-risk zones |

| Indicator | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Please note indicators below highlighted as anticipated b) Mitigation-related | 1-2 | <ul style="list-style-type: none"> • Encouraging climate-smart agriculture practices (e.g., drought-resistant crops, efficient irrigation) via insurance incentives • Promoting digital infrastructure that reduces carbon-intensive manual processes |
| c) Both adaptation- and mitigation-related | 2-3 | <ul style="list-style-type: none"> • A regulatory sandbox for blockchain-based climate finance tools • A smart contract legal framework that supports automated climate risk financing • A national digital insurance interoperability standard that aligns with climate resilience and fintech innovation |
| Anticipated number of technologies transferred or deployed as a result of CTCN support | 5 | Types: <ul style="list-style-type: none"> • Climate risk insurance (adaptation > risk reduction) • Blockchain and smart contracts (cross-cutting > ICT) • IoT-based weather monitoring (adaptation > meteorological monitoring) • Satellite remote sensing (adaptation > climate observation) • Mobile payment integration (cross-cutting > financial services) |
| Number of South-South collaborations enabled during or through CTCN TA support | 5 | BCI has a diverse team with nationals from: <ul style="list-style-type: none"> • Bangladesh • Ecuador • Kenya • Nigeria • Sri Lanka |
| Number of climate technology RD&D-related outreach activities | 3 | <ul style="list-style-type: none"> • January workshop • July workshop • September workshop |
| Number of participants in climate technology RD&D-related workshops and events | <ul style="list-style-type: none"> • 01/2025: 50 • 07/2025: 40 • 09/2025: 60 | Thailand |
| a) Number of men | 50% | |
| b) Number of women | 50% | |
| Anticipated number of cooperative research, development, and demonstration programmes facilitated as a result of CTCN TA | 3 | <ul style="list-style-type: none"> • BBPI system development • Climate data integration and monitoring technologies • Legal and regulatory innovation for smart contracts and insurance compliance |

| Indicator Please note indicators below highlighted as anticipated | Quantitative value Value and unit | Qualitative description List the various elements corresponding to the quantitative value as well as timelines and responsible institutions |
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| Number of countries with strengthened National System of Innovation as a result of CTCN support | 1 | Thailand |
| Number of organisations engaged through CTCN support | 17 | <ul style="list-style-type: none"> • Government agencies: <ul style="list-style-type: none"> – Ministry of Agriculture and Cooperatives (MOAC) – Office of Insurance Commission (OIC) – Office of Agricultural Economics (OAE) – Department of Agricultural Extension – Department of Climate Change and Environment – Fiscal Policy Office, Ministry of Finance – Geo-Informatics and Space Technology Development Agency (GISTDA) – Digital Economy Promotion Agency – Digital Government Technology and Innovation Center – Office of National Higher Education Science Research and Innovation Policy Council (NXPO) • Financial institution: <ul style="list-style-type: none"> – Bank for Agriculture and Agricultural Cooperatives (BAAC) – Thai General Insurance Association (TGIA) • Academic and research institutions: <ul style="list-style-type: none"> – Thammasat University – Chiang Mai University – Nakhon Phanom University – Puey Ungphakorn Institute for Economic Research • Technology and private sector: <ul style="list-style-type: none"> – Finema |
| 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 ₂ e) emissions reduced or avoided as a result of CTCN TA | |
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| | Anticipated metric tons of CO ₂ , equivalent emissions reduced or avoided as a result of the TA on an annual basis | Anticipated metric tons of CO ₂ , equivalent emissions reduced or avoided as a result of the TA in total |
| Quantitative value | Annual: 1,800-2,200 tCO ₂ e/year | Total: 3,000-4,500 tCO ₂ e over 18 months |
| Unit | Metric tons of CO ₂ equivalent (tCO ₂ e) | |
| <u>Methodology</u> Explain the method or process of verifying the indicator and how the data was gathered | Based on the GHG Project Protocol for Project Accounting (WRI), using the project-specific procedure. Emission reductions were estimated by comparing BBPCI-enabled insurance adoption with baseline practices (no insurance or delayed relief). Calculations included avoided emissions from reduced crop loss, reduced reliance on diesel-powered irrigation during droughts, and improved climate-resilient farming practices incentivized by BBPCI. Data was gathered from stakeholder surveys, pilot simulations, and regional agricultural statistics. Verification involved modeling avoided emissions from reduced crop loss and improved input efficiency. The BBPCI platform's smart contracts and IoT sensors provide real-time data for future validation. | |
| <u>GHG assessment boundary</u> Identify expected post-TA activities, associated effects, and assess boundary for quantification of GHG emission reductions | Includes primary effects: reduced crop loss and improved climate-resilient practices due to BBPCI adoption. Secondary effects: reduced reliance on emergency diesel irrigation and reduced post-disaster aid logistics. Boundary covers insured farms in pilot regions (Northeast, Central Plains, Chiang Mai). | |
| <u>Baseline candidates</u> Define alternative technologies or practises used in baseline calculation to represent possible alternatives to the project activities | <ul style="list-style-type: none"> • Traditional indemnity-based insurance (low uptake) • No insurance with reliance on government relief • Informal risk-sharing mechanisms These represent current practices in Thailand's agricultural sector. | |
| <u>Baseline emissions</u> Describe baseline scenario and emissions calculated | Baseline emissions were calculated based on crop loss rates (30-50%) and associated emissions from emergency irrigation, replanting, and food insecurity responses. Without BBPCI, emissions from diesel use and inefficient recovery were higher. | |
| <u>Assumptions</u> Describe assumptions made during the calculation and quantification of GHG reductions | <ul style="list-style-type: none"> • BBPCI adoption reaches 20,000+ farmers in Year 3, following the initial 18-month pilot phase • Average farm size: 6-8 rai • Emission factor for diesel irrigation: 2.68 kg CO₂/litre • Crop loss reduction: 20-30% due to timely payouts and improved practices | |

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| Core indicator 2 | <p>Anticipated increased economic, health, well-being, infrastructure and built environment, and ecosystems resilience to climate change impacts as a result of technical assistance</p> <p><i>Please provide a qualitative description of the anticipated impacts on the categories below</i></p> |
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| <p><u>Infrastructure and built environment</u> Anticipated increased infrastructure resilience (avoided/mitigated climate induced damages and strengthened physical assets)</p> | <p>BBPCI promotes the deployment of IoT weather sensors, community-owned weather stations, and mobile-based insurance platforms. These digital infrastructures enhance early warning systems and automate payouts, reducing physical damage to assets by enabling timely responses. Cooperatives and BAAC branches are strengthened as local hubs for climate risk management, improving institutional resilience.</p> |
| <p><u>Ecosystems and biodiversity</u> Anticipated increased ecosystem resilience (areas with increased resistance to climate-induced disturbances and with improved recovery rates)</p> | <p>By reducing the need for emergency replanting and unsustainable coping strategies (e.g., over-irrigation or deforestation), BBPCI supports ecosystem stability. The use of parametric triggers based on real-time weather data encourages climate-smart agriculture, which helps maintain soil health and biodiversity. Pilot regions with BBPCI adoption are expected to show improved recovery rates after climate shocks.</p> |
| <p><u>Economic</u> Anticipated increased economic resilience (e.g. less reliance on vulnerable economic sectors or diversification of livelihood)</p> | <p>BBPCI reduces farmers' reliance on vulnerable income sources by providing predictable, automated payouts during climate events. It enables livelihood diversification through access to credit and bundled services (e.g., input financing, digital wallets). The system supports financial inclusion, especially for women and smallholders, and stabilizes rural economies by reducing post-disaster income shocks.</p> |
| <p><u>Health and wellbeing</u> Anticipated increased health and wellbeing of target group (e.g. improved basic health, water and food security)</p> | <p>Timely insurance payouts reduce the need for distress migration, food insecurity, and informal debt, which are common after climate disasters. BBPCI improves household resilience by enabling farmers to maintain food production and access basic services. Gender-responsive onboarding and mobile access improve women's financial autonomy, contributing to better health and wellbeing outcomes in farming households.</p> |

| Core indicator 3 | Anticipated number of direct and indirect beneficiaries as a result of the TA | | |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Direct beneficiaries | Indirect beneficiaries | Means of verification |
| Adaptation-related | <p>1,500,000</p> <ul style="list-style-type: none"> • Start: January 2026 (pilot phase begins) • Scale-up planning: May–June 2027 • Full rollout: Year 3 onward (starting July 2027) • Estimated Reach: Gradual expansion through integration with Thailand's National Crop Insurance Scheme, aiming for full target by Year 5-6 | 4,500,000 (full impact likely realized by Year 6) | Based on the Adaptation Fund Results Tracker: BBPCI targets 1.5 million farmers directly through insurance enrolment and training. Indirect beneficiaries include household members and community stakeholders benefiting from improved resilience, early warning systems, and financial stability. |
| Mitigation-related | 350,000 (subset of direct adaptation beneficiaries adopting) | 1,000,000 (full reach expected by Year 6) | Derived from BBPCI-linked climate-smart practices such as reduced diesel irrigation and improved input efficiency. |

| | | | |
|-----------------------------------------|-----------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | low-emission practices) target likely reached by Year 4-5 | | Verified through IoT sensor data, smart contract logs, and cooperative-level reporting. |
| Both adaptation- and mitigation-related | 500,000 (cooperative members and trained staff) | 2,000,000 (full reach expected by Year 6) | Includes farmers participating in BBPCI through cooperatives, trained public staff, and regional stakeholders. Verified via cooperative enrolment records, training logs, and institutional capacity assessments. |

| Core indicator 4 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 Value and currency | Qualitative description List the various elements corresponding to the quantitative value as well as expected timelines and responsible institutions | Methods Describe method use for quantification of funds leveraged including assumptions made and attention paid to causality, attribution and avoidance of double-counting |
| Total anticipated amount of funding / investment mobilised or leveraged (USD) as a result of the TA | 750,000 | <p>This is the total project budget, successfully mobilized for the 18-month pilot (Jan 2026 - Jun 2027). It is composed of a primary international technical assistance grant and confirmed co-financing from national private partners, all secured as a direct result of the project concept developed under the TA.</p> <p>Elements:</p> <ul style="list-style-type: none"> • 600,000 from an international public source (anticipated grant). • 150,000 from national private sources (confirmed co-financing). <p>Responsible institutions: BCI as project lead, in partnership with an international development partner (for grant), and private insurers (Sompo, Dhipaya) for co-financing.</p> | <p>Quantification Method: The total is derived from the stated "Total budget for implementation" of 750,000 in the Roadmap document.</p> <p>Assumptions: It is assumed this total budget is a consolidated figure, combining a 600,000 international grant and the 150,000 from private insurers mentioned in the Concept Note's financial plan.</p> <p>Causality and attribution: The entire amount is directly attributable to the TA, as the project concept and feasibility studies (the TA deliverables) were necessary to secure both the international grant and the private sector commitment.</p> |
| Anticipated amount of public funding mobilised from national sources (USD) | 0 | No direct public financial funding from Thai national sources has been mobilized as part of the 750,000 USD budget. Key public institutions (Office of Insurance Commission, Thai Meteorological Department) are providing critical in-kind support through regulatory guidance and data | <p>Quantification method: Analysis of the "Potential co-financing and in-kind contributions" section (Concept Note 15.3) and the stakeholder table, which lists roles but does not indicate direct financial transfers from Thai public entities into the project budget.</p> |

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | provision, but not direct cash contributions. | |
| Anticipated amount of public funding mobilised from international and regional sources as a result of the TA | 600,000 | <p>This is the anticipated grant from an international development partner, forming the core of the project's funding. It is expected to cover platform development, data infrastructure, training, and operational costs over the 18-month pilot period (Jan 2026 - Jun 2027).</p> <p>Responsible institutions: The funding is anticipated by the Blockchain & Climate Institute (BCI) from the international partner.</p> | <p>Quantification method: This figure is an assumption based on the difference between the total budget (750,000) and the confirmed private co-financing (150,000). It represents the necessary grant portion to make the project viable.</p> <p>Causality and attribution: This grant is directly leveraged by the TA, as the fully-developed project concept note and roadmap (the TA outputs) are the primary documents used to secure such funding.</p> |
| Anticipated amount of private investment mobilised (in USD) from national sources as a result of the TA | 150,000 | <p>This is direct financial co-financing confirmed from national private insurers (e.g., Sampo, Dhipaya). It is allocated for reinsurance premiums, actuarial modelling, and claims reserve management, and is a fundamental part of the operational budget.</p> <p>Expected timeline: To be deployed during the pilot phase (2026-2027) alongside project activities.</p> <p>Responsible institutions: Private insurance companies in Thailand.</p> | <p>Quantification method: This figure is explicitly stated in the Concept Note, Section 15.3 ("Potential co-financing and in-kind contributions").</p> <p>Causality and attribution: This investment is a direct result of the TA. The insurers have committed these funds specifically for the implementation of the BBPCI pilot model co-designed during the TA phase.</p> <p>Avoidance of double-counting: This amount is included within the total 750,000 and is not counted elsewhere.</p> |
| Anticipated amount of private investment mobilised (in USD) from international and regional sources as a result of the TA | 0 | The project documents do not indicate that any private investment from international or regional sources has been leveraged for this pilot project. | <p>Quantification method: A review of both the Concept Note and Roadmap documents confirms no mention of international private investors or financiers.</p> |

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.