



# **Provision of Feasibility and Viability Study of Using Blockchain Technology for a Real-Time Climate Risk Insurance System in Thailand's Agricultural Sector**

## **CAPACITY-BUILDING WORKSHOP & PROJECT WORKING GROUP MEETING REPORTS (4-8 September 2025)**

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## EXECUTIVE SUMMARY

1. From 4-8 September 2025, a two-day capacity-building workshop and final conference were held in Bangkok to advance the feasibility and viability of blockchain-based parametric insurance (BBPI) for climate risk management in Thailand's agricultural sector. The workshop and final conference were part of the Climate Technology Centre and Network (CTCN) Technical Assistance programme, supported by UNEP and implemented by the Blockchain & Climate Institute (BCI) in collaboration with NXPO and other national stakeholders.
2. The workshop convened participants from government agencies, financial institutions, academia, NGOs, etc. It aimed to build technical literacy, foster cross-sectoral collaboration, and co-design a roadmap for BBPI implementation. Sessions covered parametric insurance principles, blockchain and smart contract applications, regulatory frameworks, data infrastructure, and international best practices. Participants engaged in hands-on exercises, including smart contract design and real-time claim simulations.
3. Key outcomes included:
  - (a) 95% improvement in participant knowledge, with an average technical assessment accuracy of 87%;
  - (b) High engagement scores (4.33/5.00) and strong feedback on the relevance and value of the workshop;
  - (c) Simulation-based learning that enhanced understanding of stakeholder dynamics and implementation challenges; and
  - (d) Co-development of a BBPI roadmap, outlining phased implementation, regulatory sandboxing, and pilot project design.
4. The workshop identified critical challenges such as data reliability, legal clarity, and technology accessibility, especially for smallholder and female farmers. Recommendations emphasised the need for localised training materials, inclusive design, post-workshop support, and continued stakeholder engagement.
5. This workshop laid a strong foundation for BBPI deployment in Thailand, aligning with national climate resilience strategies and the UN Sustainable Development Goals. It demonstrated the potential of blockchain technology to transform agricultural insurance delivery, improve transparency, and enhance the adaptive capacity of vulnerable farming communities.

## บทสรุปผู้บริหาร

1. ระหว่างวันที่ 4–8 กันยายน 2025 มีการจัดการประชุมเชิงปฏิบัติการเพื่อเสริมสร้างศักยภาพ (Capacity Building Workshop) หลายวัน และการประชุมสรุปครั้งสุดท้ายที่กรุงเทพมหานคร เพื่อผลักดันการศึกษาค้นคว้าความเป็นไปได้และความเหมาะสมของระบบประกันภัยพารามेटริกบนบล็อกเชน (BBPI) สำหรับการจัดการความเสี่ยงด้านสภาพภูมิอากาศในภาคเกษตรกรรมของประเทศไทย กิจกรรมนี้เป็นส่วนหนึ่งของโครงการความช่วยเหลือทางเทคนิคของ Climate Technology Centre and Network (CTCN) ซึ่งได้รับการสนับสนุนจากโครงการสิ่งแวดล้อมแห่งสหประชาชาติ (UNEP) และดำเนินการโดยสถาบัน Blockchain & Climate Institute (BCI) ร่วมกับ NXPO และผู้มีส่วนได้ส่วนเสียระดับชาติอื่น ๆ
2. การประชุมเชิงปฏิบัติการนี้ได้รวบรวมผู้เข้าร่วมจากหน่วยงานภาครัฐ สถาบันการเงิน สถาบันการศึกษา องค์กรพัฒนาเอกชน และภาคส่วนอื่น ๆ โดยมีเป้าหมายเพื่อพัฒนาความรู้ด้านเทคนิค ส่งเสริมความร่วมมือข้ามภาคส่วน และร่วมกันออกแบบแผนที่นำทางสำหรับการดำเนินงาน BBPI หัวข้อการประชุมครอบคลุมถึงหลักการของประกันภัยพารามेटริก การประยุกต์ใช้บล็อกเชนและสมาร์ทคอนแทรคต์ กรอบกฎหมายและระเบียบข้อบังคับ โครงสร้างพื้นฐานด้านข้อมูล และแนวปฏิบัติสากล ผู้เข้าร่วมยังได้ฝึกปฏิบัติจริง เช่น การออกแบบสมาร์ทคอนแทรคต์ และการจำลองการเคลมแบบเรียลไทม์
3. ผลลัพธ์สำคัญประกอบด้วย:
  - การพัฒนาความรู้ของผู้เข้าร่วมเพิ่มขึ้น 95% โดยมีความถูกต้องเฉลี่ยของการประเมินทางเทคนิคที่ 87%
  - คะแนนการมีส่วนร่วมสูง (4.33/5.00) และข้อเสนอแนะที่ดีเกี่ยวกับความเกี่ยวข้องและคุณค่าของการประชุม
  - การเรียนรู้ผ่านการจำลองสถานการณ์ช่วยเพิ่มความเข้าใจในพลวัตของผู้มีส่วนได้ส่วนเสียและความท้าทายในการดำเนินงาน
  - การพัฒนาแผนที่นำทาง BBPI ร่วมกัน ซึ่งกำหนดระยะเวลาการดำเนินงาน การทดสอบใน Regulatory Sandbox และการออกแบบโครงการนำร่อง
4. การประชุมเชิงปฏิบัติการยังได้ระบุความท้าทายสำคัญ เช่น ความน่าเชื่อถือของข้อมูล ความชัดเจนทางกฎหมาย และการเข้าถึงเทคโนโลยี โดยเฉพาะสำหรับเกษตรกรรายย่อยและเกษตรกรสตรี ข้อเสนอแนะเน้นถึงความจำเป็นในการจัดทำสื่อการฝึกอบรมในท้องถิ่น การออกแบบที่ครอบคลุม การสนับสนุนหลังการประชุม และการมีส่วนร่วมของผู้มีส่วนได้ส่วนเสียอย่างต่อเนื่อง
5. กิจกรรมครั้งนี้ได้วางรากฐานที่แข็งแกร่งสำหรับการนำ BBPI มาใช้ในประเทศไทย โดยสอดคล้องกับยุทธศาสตร์การเสริมสร้างความยืดหยุ่นต่อสภาพภูมิอากาศของประเทศ และเป้าหมายการพัฒนาที่ยั่งยืนของสหประชาชาติ (UN SDGs) ทั้งยังแสดงให้เห็นถึงศักยภาพของเทคโนโลยีบล็อกเชนในการเปลี่ยนแปลงการให้บริการประกันภัยการเกษตรระดับความโปร่งใส และเสริมสร้างขีดความสามารถในการปรับตัวของชุมชนเกษตรกรที่เปราะบาง

# 1 INTRODUCTION

## 1.1 Project background

1. The Blockchain-Based Parametric Insurance (BBPI) initiative is being implemented under the Climate Technology Centre and Network (CTCN) Technical Assistance programme, with support from the United Nations Environment Programme (UNEP). This initiative aims to assess the feasibility and viability of deploying blockchain technology to deliver real-time climate risk insurance solutions tailored to Thailand's agricultural sector.

2. Thailand's agricultural sector is highly vulnerable to climate-induced risks such as droughts, floods, and extreme temperature fluctuations. These risks disproportionately affect smallholder farmers, who often lack access to timely and reliable insurance mechanisms. The BBPI initiative responds to this challenge by exploring how blockchain-enabled parametric insurance can automate payouts, reduce transaction costs, and enhance transparency—ultimately improving the resilience of Thai farmers.

3. The initiative aligns closely with Thailand's national priorities for agricultural resilience, as outlined in the Draft Agricultural Climate Change Action Plan (2023-2027) and the National Adaptation Plan (NAP). These frameworks emphasise the need for innovative financial instruments and digital solutions to support farmers in adapting to climate variability. The BBPI project also supports Thailand's commitments under the UN Sustainable Development Goals (SDGs), particularly SDG #01 (No Poverty), SDG #02 (Zero Hunger), and SDG #13 (Climate Action).

## 1.2 Context and purpose of the workshop and final conference

4. Amid rising climate risks like droughts and floods affecting Thailand's agriculture, traditional insurance systems face delays in payouts and verification challenges. BBPI offers automated, transparent solutions via smart contracts and satellite data. The capacity-building workshop's purpose was to build participant capacity in BBPI fundamentals, evaluate feasibility for Thai contexts, and simulate stakeholder dynamics to identify implementation barriers. Aligned with UNEP's sustainability goals, it promoted knowledge transfer and collaboration under the UN Supplier Code of Conduct, emphasising ethical practices in child labour prevention and equitable access.

5. The Project Working Group (PWG) for the feasibility and viability study of using blockchain technology for a real-time climate risk insurance system in Thailand's agricultural sector is a multi-stakeholder advisory body established by the CTCN and the Blockchain & Climate Institute (BCI). It includes representatives from government ministries, financial institutions, insurance companies, farming cooperatives, research organizations, and NGOs. The PWG ensures the project reflects the needs of all relevant stakeholders, promotes gender balance, and provides strategic guidance throughout the study.

6. The purpose of the final meeting of the PWG is to review and validate the findings of the technical and economic feasibility studies, assess the proposed implementation roadmap for a blockchain-based parametric crop insurance product, and finalize recommendations. This meeting will also serve to consolidate stakeholder feedback, ensure alignment with national priorities, and prepare for potential pilot implementation and funding mobilization.

### **1.3 Target audience**

7. The primary target audience for this capacity-building initiative comprises stakeholders across Thailand's agricultural, financial, and regulatory sectors who are directly or indirectly involved in the design, delivery, regulation, or uptake of climate risk insurance solutions (see Annex 2). The initiative focuses on enhancing the understanding and capabilities of actors involved in developing and implementing blockchain-based parametric crop insurance systems.

#### *1.3.1 Smallholder farmers and cooperatives*

8. Smallholder farmers —especially those cultivating rice, maize, cassava, and rubber— are the most vulnerable to climate-induced risks such as droughts, floods, and storms. These farmers often lack access to traditional insurance products due to affordability, trust, and digital literacy barriers. The capacity building activities aimed to:

- Improve awareness of parametric insurance mechanisms;
- Enhance digital and financial literacy, particularly among women farmers;
- Promote trust in smart contracts and blockchain-enabled claims processes; and
- Support cooperative-led group enrolment and onboarding.

Special attention is given to female farmers, who represent over 50% of the agricultural workforce but face systemic barriers in land ownership, credit access, and digital inclusion. Gender-responsive training and inclusive design are central to the program.

#### *1.3.2 Government agencies and regulators*

9. Key public institutions play a critical role in enabling and scaling blockchain-based insurance solutions. These included:

- Ministry of Agriculture and Cooperatives (MOAC) – for policy alignment and farmer outreach;
- Office of Insurance Commission (OIC) – for regulatory compliance and licensing;
- National Science and Technology Policy Office (NXPO) – for innovation and digital transformation;
- Thai Meteorological Department (TMD) – for weather data integration and oracle validation; and
- Geo-Informatics and Space Technology Development Agency (GISTDA) – for satellite and geospatial data.

10. Capacity building for these agencies focused on:

- Understanding blockchain architecture and smart contract enforceability;
- Regulatory implications of decentralised insurance models; and
- Data governance, privacy, and compliance with the PDPA and ETA.

### *1.3.3 Financial institutions and insurers*

11. Institutions such as the Bank for Agriculture and Agricultural Cooperatives (BAAC), Sompote, Dhipaya, and the Thai General Insurance Association (TGIA) are key to underwriting, distributing, and managing risk pools. Their capacity needs include:

- Integration of blockchain and IoT data into actuarial models;
- Development of tiered pricing strategies and subsidy alignment; and
- Use of mobile platforms for premium collection and claims disbursement.

### *1.3.4 Technology providers and developers*

12. Blockchain developers, fintech startups, and IoT solution providers are essential for building and maintaining the technical infrastructure. Capacity-building will support:

- Development of permissioned blockchain networks;
- Smart contract design for parametric triggers; and
- Oracle management and data validation protocols.

### *1.3.5 Academic and research institutions*

13. Our partner, Thammasat University, provides the national experts who contribute to research, pilot design, and impact evaluation. Their involvement ensures evidence-based policy and technology development.

### *1.3.6 Development partners and donors*

14. International organizations such as UNEP, CTCN, GIZ, ADB, and the World Bank are instrumental in funding, technical assistance, and policy dialogue. Capacity building will help align donor strategies with national resilience goals and ensure effective coordination.

## **2 WORKSHOP AND FINAL CONFERENCE DETAILS**

### **2.1 Date, time and venue**

15. The final capacity-building workshop and conference on the feasibility and viability of blockchain-based parametric crop insurance in Thailand was held over three days from 4 to 8 September 2025 in Bangkok, Thailand. All sessions were conducted under the Chatham House Rule<sup>1</sup>, encouraging open and honest dialogue without attribution. The workshop and final conference were structured as follows:

- Day 1 (4 September 2025): Introduction to parametric insurance, blockchain fundamentals, smart contracts, and international use cases. Included a practical exercise on smart contract design for drought events. (activity 7.1)

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<sup>1</sup> Under the Chatham House Rule, anyone who comes to a meeting is free to use information from the discussion, but is not allowed to reveal who made any particular comment. It is designed to increase openness of discussion.

- Day 2 (5 September 2025): Legal and regulatory considerations, climate and agricultural data for index design, real-time BBPI claim simulation, and stakeholder reflections. (activity 7.1)
- Day 3 (8 September 2025): Presentation of project findings, equity and inclusion, regulatory perspectives, technical design discussions, and co-design of the BBPI implementation roadmap. (activity 3.3)

It was hosted at NXPO headquarters, providing a secure, accessible venue with multimedia facilities for hybrid participation: NXPO, 319 Chamchuri Square Building, 14th Floor, Phayathai Rd., Patumwan, Bangkok 10330, Thailand.

## 2.2 Rundown

16. The rundown was as follows:

- Day 1 (4 September 2025) - Foundation building:
  - 10:00 - 10:15: Welcome coffee
  - 10:15 - 10:45: Opening remarks
  - 10:45 - 11:45: What is parametric insurance (Day 1 - Session 1)
  - 11:45 - 12:00: Coffee break
  - 12:00 - 13:00: Basics of blockchain and smart contracts (Day 1 - Session 2)
  - 13:00 - 14:00: Lunch break
  - 14:00 - 15:00: Use cases and lessons (Day 1 - Session 3)
  - 15:00 - 15:15: Coffee break
  - 15:15 - 16:15: Practical exercise: design a smart contract for drought events (Day 1 - Session 4)
  - 16:15 - 16:30: Coffee break
  - 16:30 - 17:00: Day 1 wrap-up
- Day 2 (5 September 2025) - Applied learning:
  - 10:00 - 10:15: Welcome coffee
  - 10:15 - 10:45: Introduction to the structure of Day 2
  - 10:45 - 11:45: Regulatory and legal considerations for blockchain insurance (Day 2 - Session 1)
  - 11:45 - 12:00: Coffee break
  - 12:00 - 13:00: Climate and agriculture data for index design (Day 2 - Session 2)
  - 13:00 - 14:00: Lunch break
  - 14:00 - 15:30: Real-time BBPI claim event (role-play and prototype demonstration session) (Day 2 - Session 3)
  - 15:30 - 15:45: Coffee break
  - 15:45 - 17:15: Group reflection: opportunities, barriers, and recommendations (Day 2 - Session 4)
- Day 3 (8 September 2025) - Final workshop:
  - 10:00 - 10:15: Welcome coffee
  - 10:15 - 10:45: Opening remarks

- 10:45 - 11:00: Keynote presentation 1
- 11:00 - 11:15: Keynote presentation 2
- 11:15 - 12:15: Project overview, equity, and inclusion in BBPI (Day 3 - Session 1)
- 12:15 - 13:15: Lunch break
- 13:15 - 14:15: Insurance sector and regulatory perspectives (Day 3 - Session 2)
- 14:15 - 14:30: Coffee break
- 14:30 - 15:30: Risk transfer models and blockchain data requirements (Day 3 - Session 3)
- 15:30 - 15:45: Coffee break
- 15:45 - 17:15: Roadmap co-design and stakeholder feedback (Day 3 - Session 4)
- 17:15 - 17:30: Coffee break
- 17:30 - 18:00: Closing remarks

The detailed rundown is in Annex 1.

### 2.3 **Format**

17. The workshop and final conference were delivered in a highly interactive, multi-format structure over three days, combining capacity building, technical demonstration, and collaborative planning. The format was designed to maximise engagement, knowledge transfer, and actionable outcomes for a diverse, multi-sectoral audience. Key features of format included:

- (a) Hybrid delivery: The workshop and final conference were held in-person in Bangkok, Thailand, with several expert speakers and facilitators joining remotely via online platforms. This enabled participation from both local and international experts, ensuring a broad range of perspectives;
- (b) Session structure: Each day was organized into thematic sessions, including:
  - Expert presentations: Short, focused talks by subject matter experts on parametric insurance, blockchain technology, smart contracts, regulatory frameworks, and data requirements.
  - Panel discussions and group reflection: Facilitated discussions and group reflections allowed participants to share experiences, identify challenges, and co-create recommendations.
  - Practical exercises and demonstrations: Hands-on activities, such as designing a smart contract for drought events and simulating real-time claim events, enabled participants to apply concepts in a practical context.
  - Roadmap co-design: The final day featured collaborative sessions where stakeholders co-developed an implementation roadmap for blockchain-based parametric insurance in Thailand.

- (c) Chatham House Rule: All sessions were conducted under the Chatham House Rule, encouraging open and honest dialogue without attribution;
- (d) Participant diversity: The format encouraged active participation from a wide range of stakeholders, including government agencies, financial institutions, farmer cooperatives, NGOs, academia, and international organizations; and
- (e) Recognition: The quizzes at the end of each session validated participants' engagement and learning throughout the workshop and final conference, concluded with a certification ceremony.

Complementary elements:

- Regular coffee and lunch breaks facilitated informal networking and peer exchange; and
- Group photos reinforced a sense of community and shared purpose.



### **3 CONTENT SUMMARY**

#### **3.1 Key themes and topics discussed**

##### *3.1.1 Capacity-building workshop*

##### *Climate risk and the need for innovation in agricultural insurance*

18. Thailand's vulnerability: Participants examined how floods, droughts, and storms are increasing risks to rural livelihoods and food security.

19. Limitations of traditional insurance: Trainers highlighted inefficiencies of conventional indemnity-based insurance, including high administrative costs, slow claims, and low penetration.

##### *Parametric insurance: principles and benefits*

20. Concept: The workshop introduced parametric insurance, emphasizing predefined weather indices (e.g., rainfall, temperature) as triggers.

21. Advantages: Benefits such as reduced administrative burden, faster payouts, and greater transparency were explained through interactive sessions.

##### *Blockchain and smart contracts in insurance*

22. Role of blockchain: Sessions illustrated blockchain's potential for secure, transparent, and tamper-proof record-keeping.

23. Smart contracts: Demonstrations showed how automated contracts trigger payouts when weather thresholds are met, reducing fraud and costs.

##### *Technical feasibility and system architecture*

24. Data infrastructure: Training addressed the integration of IoT sensors, satellite data, and meteorological inputs for reliable triggers.

25. System design: Participants reviewed models using permissioned blockchain, decentralized oracles, and mobile/USSD interfaces.

26. Automation: Simulations demonstrated automated claims processing and PromptPay-enabled digital payouts.

##### *Economic feasibility and business model*

27. Market demand: Survey findings on 85% farmers' interest were presented for discussion.

28. Pricing and subsidies: Trainers explained premium ranges (THB 30–60/rai) and the role of subsidies for smallholder adoption.

29. Revenue and sustainability: Break-even projections (6,200–7,000 users) and pathways to scale were reviewed.

### Technical tools and demonstrations

30. Blockchain and smart contract platforms: Live demonstrations highlighted transparency and efficiency in automated payouts.
31. Data integration tools: Participants explored the use of GISTDA satellite data for index design and claim verification.
32. Simulation software: Real-time BBPI claim simulations provided hands-on experience of the end-to-end insurance process.

### Conceptual and strategic frameworks

33. International best practice frameworks: Case studies from Kenya and India were shared to illustrate implementation models.
34. Regulatory and legal analysis tools: Frameworks for analysing Thailand's legal environment (smart contracts, PDPA, ETA) were introduced.
35. Stakeholder mapping and engagement models: Tools helped participants identify and map the roles of farmers, insurers, regulators, and NGOs.

### Learning and capacity building resources

36. Workshop materials: Bilingual slides, handouts, and guides were distributed covering blockchain, parametric insurance, and roadmaps.
37. Role-playing exercise kits: Participants engaged in the “parametric insurance startups” simulation using structured profiles and rubrics.



38. Assessment and feedback tools: Knowledge assessments and forms were used to capture participant learning and recommendations.

#### Complementary resources and recommendations

39. Micro-learning modules: Short, focused learning sessions were highlighted as effective for community-based education.

40. Implementation guides: Sector-specific guides were recommended for insurers, regulators, and farmer groups.

41. Post-workshop support: Recommendations included creating communities of practice, mentoring, and technical assistance.

#### 3.1.2 Project working group meeting

#### Inclusivity, gender, and last-mile delivery

42. Gender-responsive design: Stakeholders emphasized the need to reduce barriers for women farmers in insurance adoption.

43. Mobile-first and cooperative-based onboarding: Discussions focused on mobile and cooperative approaches for underserved groups.

#### Regulatory, legal, and institutional considerations

44. Compliance: The group reviewed alignment with the Insurance Act, PDPA, and ETA.

45. Regulatory sandboxes: Members agreed on the importance of controlled testing for contracts and payment models.

46. Stakeholder roles: Emphasis was placed on coordination among insurers, regulators, agri-tech firms, and farmer organizations.

#### Risk management and basis risk

47. Basis risk: Addressed through recommendations for granular, region-specific indices and multi-source validation.

48. Risk pooling and reinsurance: Diversification and reinsurer partnerships were discussed to improve resilience.

#### Capacity building and farmer engagement

49. Training and outreach: Stakeholders agreed that farmer education on digital literacy and insurance is essential.

50. Feedback mechanisms: Mechanisms for continuous farmer input and adaptive management were proposed.

### Lessons from international experience

51. Global pilots: The group examined lessons from Kenya, India, and other countries, stressing cooperative engagement and trust-building.

### Technical tools and demonstrations

52. Stakeholders noted that during the two-day capacity building workshop, a suite of tools, frameworks, and simulations had been shared to support future BBPI adoption.

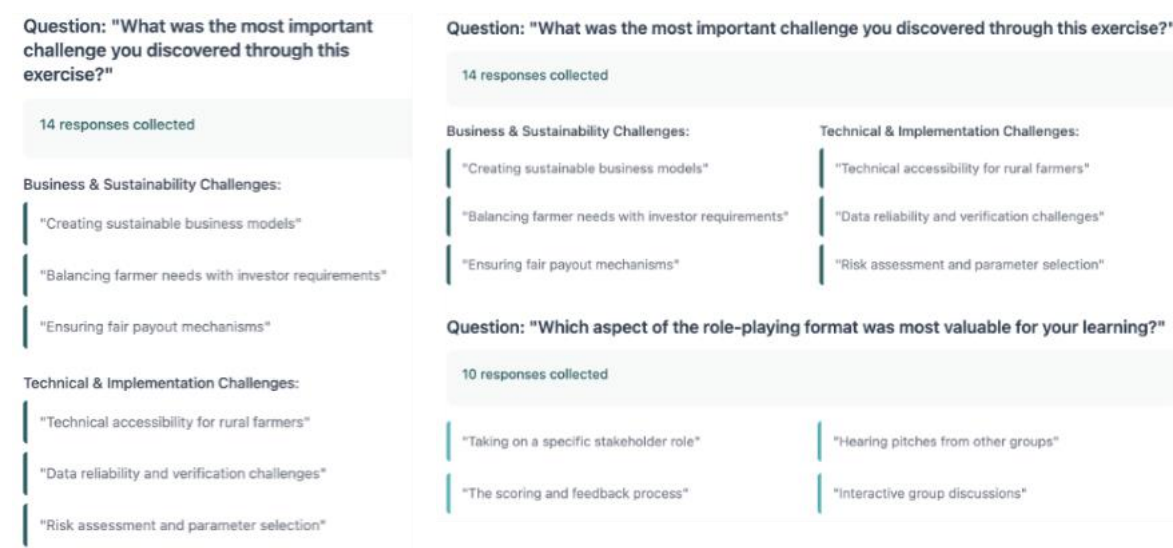
## **3.2 Notable insights**

### 3.2.1 Capacity-building workshop

#### Stakeholder perspectives and engagement

53. Diverse stakeholder priorities: The role-playing exercises revealed distinct priorities among farmers, insurers, and government representatives. Farmers emphasized premium affordability, payout speed, and ease of access, while insurers focused on risk mitigation, technology reliability, and regulatory compliance.

54. Cross-sector collaboration: The workshop successfully fostered collaboration between NGOs, economists, agricultural experts, government officials, and technologists. This multi-disciplinary approach was critical in surfacing practical implementation challenges and building shared understanding.



### Technical and implementation challenges

55. Data reliability and accessibility: Participants identified the accuracy and accessibility of satellite and climate data (e.g., GISTDA) as foundational for effective parametric insurance. Concerns were raised about data verification, especially for smallholder plots and in remote areas.

56. Technology adoption barriers: The use of blockchain and cryptocurrency-based payment systems was seen as a potential barrier for older or less tech-savvy farmers. Participants recommended integrating familiar payment methods and simplifying user interfaces to enhance adoption.

57. Smart contract and regulatory complexity: While smart contracts offer automation and transparency, participants highlighted the need for clear legal frameworks and regulatory sandboxes to ensure enforceability and compliance.

#### Learning and capacity building outcomes

58. Significant knowledge gains: Quantitative assessments showed a 95% improvement in participant knowledge, with strong retention of complex concepts such as parametric triggers, smart contract mechanisms, and regulatory requirements.

59. Simulation as a learning tool: The "Parametric Insurance Startups" simulation was highly effective in building practical understanding of stakeholder dynamics, investment decision-making, and the challenges of designing sustainable BBPI business models.

#### Critical success factors and recommendations

60. Localization and contextualization: Participants stressed the importance of adapting international best practices to the Thai context, including the development of Thai-language materials, localized case studies, and sector-specific scenarios beyond rice farming.

61. Ongoing support and community building: Moderate confidence in practical application (3.56/5.00) indicates a need for continued technical support, post-workshop mentoring, and the creation of communities of practice to sustain momentum.

62. Regulatory and data infrastructure development: The need for regulatory sandboxes, clear guidelines for smart contract enforceability, and improved data sharing protocols between government and private sector actors was repeatedly emphasized.

63. Confidence in practical application: Despite significant knowledge gains, participants reported only moderate confidence in applying BBPI concepts in real-world settings. This highlights the need for continued technical support, hands-on practice, and post-workshop mentoring.

64. Resource limitations: Limited access to tailored training materials, sector-specific guides, and ongoing support networks may slow the pace of adoption and scaling.

#### Additional insights and best practices

65. Education and outreach: Comprehensive farmer education programs and micro-learning modules were recommended to bridge knowledge gaps and build trust in BBPI solutions.

66. Pilot projects and demonstrations: Participants advocated for pilot programs with simplified technology interfaces and demonstration projects to showcase BBPI benefits and processes in real-world settings.

67. Feedback-driven iteration: The workshop's feedback mechanisms highlighted the value of iterative learning and continuous improvement, both for capacity building initiatives and for BBPI product development.

### 3.2.2 Project working group meeting

#### Stakeholder perspectives and engagement

68. OIC raised concerns about crop-specific parameters, regulatory clarity, blockchain infrastructure costs, and inter-agency data availability, while also noting that age-related digital literacy may be more important than gender differences.

69. OAE emphasized the critical role of government subsidies (60% MoAC, 40% BAAC), expressed concerns over high technology and operational costs, and recommended presenting results to the Agricultural Insurance Steering Committee.

70. BAAC highlighted the need for simple, user-friendly applications, particularly for older farmers, and referenced past pilot challenges such as high satellite costs and reliance on unsustainable CSR-funded models.

71. NXPO and experts noted recurring issues of high costs, digital literacy gaps, and unclear cost-bearing responsibilities, recommending that these be addressed in the upcoming workshop.

72. CTCN stressed the importance of two-way consultation, clear financing models (national budget, donor support, private co-financing), and framing feasibility studies as assessments rather than attempts to “prove” viability.

#### Technical and implementation challenges

73. Stakeholders raised concerns over the high costs of technology and the long-term sustainability of blockchain systems.

74. Issues of crop-specific data requirements and inter-agency data integration were identified as critical hurdles for implementation.

#### Learning and capacity building outcomes

75. Stakeholders confirmed the value of presenting feasibility results in both English and Thai, ensuring that agencies could provide feedback ahead of the workshops.

#### Critical success factors and recommendations

76. Clear assignment of institutional roles and responsibilities for governance and long-term management of blockchain infrastructure was emphasized as a key success factor.

## 4 OUTCOMES

### 4.1 Expected impacts on participants' work

#### 4.1.1 Capacity-building workshop

##### Enhanced technical competency

77. Improved understanding of BBPI: Participants demonstrated a 95% improvement in knowledge, particularly in blockchain fundamentals, parametric insurance mechanisms, and smart contract applications. This foundational understanding will enable them to more confidently evaluate, design, and advocate for BBPI solutions within their organizations.

78. Practical skills for implementation: Through hands-on simulations and technical demonstrations, participants gained practical skills in data integration, risk assessment, and the use of blockchain tools. These competencies are directly transferable to their daily work, especially in project planning, feasibility studies, and pilot program development.

##### Strategic and organizational benefits

79. Informed decision-making: Exposure to international best practices and real-world case studies has equipped participants with frameworks for strategic planning and risk management. This will support more informed decision-making regarding technology adoption, partnership development, and regulatory compliance.

80. Cross-sector collaboration: The workshop fostered connections between stakeholders from government, NGOs, academia, and the private sector. These new networks are expected to facilitate collaborative projects, knowledge sharing, and joint problem-solving in the future.

##### Policy and regulatory influence

81. Regulatory readiness: Participants, especially those from regulatory bodies and policy-making organizations, are now better positioned to contribute to the development of legal frameworks, regulatory sandboxes, and data sharing protocols necessary for BBPI implementation.

82. Advocacy for innovation: With a clearer understanding of the benefits and challenges of BBPI, participants can act as advocates for innovation within their institutions, promoting the adoption of new technologies and practices.

##### Capacity building and knowledge transfer

83. Multiplier effect: Equipped with bilingual workshop materials, technical guides, and micro-learning modules, participants are expected to disseminate knowledge within their organizations and communities. This multiplier effect will accelerate capacity building and support the scaling of BBPI initiatives.

84. Ongoing learning and support: The workshop's emphasis on feedback, iterative learning, and post-workshop support (such as mentoring and communities of practice) will help sustain participant engagement and foster continuous professional development.

### Anticipated challenges and support needs

85. Bridging the confidence gap: While knowledge gains were substantial, moderate confidence in practical application (3.56/5.00) suggests that participants may require ongoing technical assistance, access to demonstration projects, and opportunities for hands-on practice to fully realize the benefits in their work.

86. Localization and adaptation: Participants highlighted the need for further localization of tools and resources, including Thai-language materials and sector-specific case studies, to maximize relevance and impact.

#### 4.1.2 Project working group meeting

##### Enhanced technical competency

87. Stakeholders developed a stronger understanding of the technical and economic feasibility studies, enabling them to provide more targeted feedback on system architecture, user design, and cost modelling.

##### Strategic and organizational benefits

88. Representatives from OIC, OAE, and BAAC emphasized the importance of integrating pilot results into existing institutional processes, strengthening organizational alignment for BBPI adoption.

##### Policy and regulatory influence

89. OIC raised questions regarding long-term regulatory clarity, blockchain cost sustainability, and inter-agency data governance, reinforcing the importance of policy adaptation.

90. OAE underlined the role of subsidy mechanisms and recommended escalation of findings to the Agricultural Insurance Steering Committee, ensuring institutional anchoring.

##### Capacity building and knowledge transfer

91. NXPO coordinated translation and distribution of feasibility findings in Thai, facilitating broader accessibility and enabling internal agency discussions ahead of the September workshop and final conference.

### Anticipated challenges and support needs

92. Stakeholders flagged recurring challenges such as digital literacy gaps among older farmers, unclear assignment of cost-bearing responsibilities, and inter-agency data integration, indicating the need for further technical support and financing clarity.

## 4.2 Feedback from participants

### 4.2.1 Quantitative feedback

93. The capacity-building workshop received strong positive ratings across all evaluation categories, reflecting high participant satisfaction and engagement:

Survey Question	Day 1 Session 1 (16 responses)	Day 1 Session 2 (16 responses)	Day 1 Session 3 (15 responses)	Day 1 Session 4 (13 responses)	Day 2 Role Play (14 responses)	Day 2 Session 3 (14 responses)	Day 2 Session 4 (9 responses)	Overall Average (97 responses)
I found this session engaging and well-presented	4.25	4.19	4.13	4.23	4.79	4.00	4.33	4.27
How would you rate your understanding of today's topic?	4.56	4.25	3.93	4.08	4.43	4.21	4.22	4.25
How confident are you in applying what you learned?	3.94	3.81	3.40	3.54	3.71	3.86	3.56	3.70
How relevant was this session to your role/organization?	4.06	3.81	3.13	3.31	N/A*	3.21	3.67	3.54

\*Role Play session used different question format for relevance metric. Color coding: Green (4.0+), Yellow (3.5-3.9), Red (Below 3.5)

Evaluation category	Average rating	Interpretation
Session engagement	4.33 / 5.00	Excellent
Topic understanding	4.22 / 5.00	Good to excellent
Speaker clarity	3.89 / 5.00	Good
Content relevance	4.00 / 5.00	Good
Overall workshop value	4.44 / 5.00	Excellent
Application confidence	3.56 / 5.00	Moderate to good
BBPI readiness	3.78 / 5.00	Good

94. Session engagement: 100% of respondents agreed or strongly agreed that the sessions were engaging.

95. Application confidence: While most participants felt confident or somewhat confident in applying what they learned, a moderate confidence score (3.56/5.00) suggests a need for continued support and practical opportunities.

96. BBPI readiness: The majority felt ready or somewhat ready to engage with BBPI initiatives.

### 4.2.2 Qualitative feedback

97. Participants highlighted several aspects as most valuable:

- (a) Role-playing and simulation: The role-playing exercise was repeatedly cited as the most engaging and effective learning component, helping participants understand diverse stakeholder perspectives and real-world decision-making;

- (b) Technical understanding: Clear explanations of blockchain concepts, smart contracts, and international case studies (e.g., Kenya) were appreciated for making complex topics accessible; and
- (c) Practical application: Participants valued learning about emerging technologies for Thai farmers and the direct relevance to climate change adaptation and agricultural insurance.

98. Areas identified for further attention included:

- (a) Overcoming barriers: Participants requested more practical solutions for overcoming implementation challenges;
- (b) Economic feasibility: There was a desire for a deeper analysis of the financial aspects of BBPI;
- (c) Legal and regulatory clarity: More information on the legal framework for smart contracts and insurance products was requested; and
- (d) Localization: Participants asked for more Thai-specific examples and materials.



#### 4.2.3 Impact statements and recommendations

Participants reported that the workshop:

- (a) Provided a comprehensive overview of BBPI and its application in agriculture;
  - (b) Enhanced their understanding of how blockchain can address climate risks and support research missions; and
  - (c) Fostered cross-sectoral learning and collaboration.
99. Recommendations for future workshops included:
- (a) More hands-on, practical exercises and demonstrations;
  - (b) Consistent provision of bilingual (Thai/English) materials;
  - (c) Inclusion of sector-specific scenarios beyond rice farming; and
  - (d) Ongoing support and consultation opportunities post-workshop.

#### 4.2.4 *Summary*

100. Overall, participant feedback confirms that the workshop was highly effective in building knowledge, stimulating engagement, and preparing stakeholders for BBPI implementation. The moderate confidence in practical application highlights the importance of continued capacity building, technical support, and opportunities for real-world practice.

## 5 LESSONS LEARNED

### 5.1 **Workshop- and final conference -specific challenges**

#### 5.1.1 *Language and communication barriers*

101. Bilingual delivery: The workshop was conducted in both English and Thai to accommodate all participants. However, some technical content and case studies were only available in English, which created comprehension challenges for participants less comfortable with English. This highlighted the need for more comprehensive Thai-language materials and real-time translation support.

102. Technical jargon: The complexity of blockchain and insurance terminology occasionally hindered full understanding, especially among participants with non-technical backgrounds.

103. Some participants found the legal and regulatory exercises too technical, suggesting that future sessions adopt simpler formats such as multiple-choice questions or scenario-based activities to improve comprehension.

#### 5.1.2 *Diverse participant backgrounds*

104. Varied experience levels: Participants came from a wide range of sectors (NGOs, government, etc.), with differing levels of familiarity with blockchain and insurance concepts. This made it challenging to balance the depth and accessibility of content, and to ensure all participants could fully engage with technical sessions.

105. Engagement in simulations: While the role-playing exercises were highly rated, some participants initially struggled to adopt unfamiliar roles or to contribute confidently in group discussions, especially when outside their professional comfort zones.

### 5.1.3 Time and resource constraints

106. Limited time for hands-on practice: Participants expressed a desire for more extended hands-on technical demonstrations and practical exercises. The two-day capacity-building format limited the depth of technical exploration and the opportunity for in-depth Q&A.

### 5.1.4 Workshop logistics

107. Session pacing: Balancing the agenda to cover foundational concepts, technical demonstrations, and interactive exercises within the available time proved challenging. Some sessions felt rushed, while others could have benefited from additional discussion time.

108. Participant attendance: As with many capacity-building workshops, there were minor fluctuations in attendance across sessions, which affected group dynamics and continuity in some exercises. It seems obvious that participants were not able to be away from the office for 3 consecutive days to attend this kind of workshop. We were fortunate to generate this level of attendance thanks to NXPO engaging stakeholders.

### 5.1.5 Feedback and follow-up

109. Moderate confidence in application: Despite strong knowledge gains, participants reported only moderate confidence in applying workshop concepts in their work. This suggests a need for ongoing support, follow-up mentoring, and opportunities for continued learning beyond the workshop. To address this issue in the future, a tactic could be to include specialised training sessions for the different disciplines in the group, for example, by including role-specific perspectives in some of the sessions.

## **5.2 Workshop- and final conference -specific successes**

### 5.2.1 Exceptional learning outcomes

110. Significant knowledge gains: Participants demonstrated a 95% improvement in knowledge from pre- to post-workshop assessments, with an average technical assessment accuracy of 87%. This indicates highly effective learning across complex topics such as blockchain, parametric insurance, and smart contracts.

111. Strong retention of complex concepts: Participants showed advanced understanding of technical concepts, including parametric triggers, regulatory sandboxes, and data quality requirements.

### 5.2.2 High engagement and participation

112. Introducing silent reading in Thai before group exercises significantly increased participation and ensured that all participants felt more confident contributing.

113. Day 3 recorded the highest levels of enthusiasm, with notably strong engagement from OAE representatives and student participants compared to earlier sessions.

114. Active involvement: The workshop achieved high engagement scores (4.33/5.00 for session engagement and 4.44/5.00 for overall value). The interactive format, including role-playing and simulations, was particularly effective in maintaining participant interest and involvement.

115. Effective simulation exercises: The “Parametric Insurance Startups” role-play received outstanding feedback (4.79/5.00 for engagement), helping participants internalize stakeholder perspectives and real-world decision-making processes.

### 5.2.3 Cross-sector collaboration

116. Diverse stakeholder engagement: The workshop and final conference successfully brought together farmers, NGOs, government officials, technologists, and academics. This cross-sectoral mix fostered rich discussions, broadened perspectives, and laid the groundwork for future partnerships.

117. Shared understanding: The workshop facilitated the creation of a shared understanding of BBPI benefits, risks, and implementation challenges among all stakeholder groups.

### 5.2.4 Practical skills and strategic capacity

118. Hands-on technical skills: Participants gained practical experience in data integration, risk assessment, and the use of blockchain tools, which are directly applicable to their professional roles.

119. Strategic planning: Exposure to international best practices and real-world case studies equipped participants with frameworks for strategic planning, risk management, and regulatory compliance.

### 5.2.5 Foundation for future implementation

120. Feasibility study support: The workshop established a strong foundation for the ongoing BBPI feasibility study, including technical readiness assessment, stakeholder alignment, and regulatory awareness.

121. Pilot project readiness: Participants are now better prepared to contribute to pilot projects, with improved technical literacy and a clearer understanding of implementation requirements.

### 5.2.6 Positive participant feedback

122. The use of translated slides and bilingual materials enhanced accessibility and was positively received by participants, particularly those less familiar with technical English terminology.

123. Valued learning approaches: Participants highlighted the value of role-playing, simulation, and collaborative discussions as the most beneficial aspects of the workshop.

124. Motivation for continued engagement: The workshop and final conference generated enthusiasm for ongoing learning, with participants expressing interest in further technical demonstrations, sector-specific scenarios, and post-workshop support.

## **5.3 Recommendations**

### *5.3.1 Content and delivery*

125. Increase hands-on practice: Allocate more time for technical demonstrations, simulations, and practical exercises. Participants valued interactive learning and requested extended opportunities to apply concepts in real-world scenarios.

126. Tailor content to diverse backgrounds: Continue to adapt materials for participants with varying levels of technical expertise. Provide foundational sessions for newcomers and advanced modules for experienced participants.

127. Expand sector-specific scenarios: Include case studies and exercises relevant to a broader range of agricultural contexts beyond rice farming, to ensure wider applicability and engagement.

### *5.3.2 Language and accessibility*

128. Provide comprehensive bilingual materials: Ensure all presentations, handouts, and technical guides are available in both Thai and English. Consider real-time translation or interpretation support during sessions.

129. Simplify technical language: Reduce jargon and use clear, accessible language, especially when introducing complex blockchain and insurance concepts.

### *5.3.3 Participant engagement and support*

130. Foster inclusive participation: Encourage all participants to contribute during group activities, and provide support for those less familiar with role-playing or technical discussions.

131. Offer post-workshop support: Establish follow-up mentoring, technical assistance, and online communities of practice to sustain learning and support practical application after the workshop and final conference.

### *5.3.4 Implementation and impact*

132. Develop pilot projects: Facilitate the design and launch of pilot BBPI projects, allowing participants to apply their learning in real-world settings and share results with peers.

133. Strengthen stakeholder collaboration: Continue to bring together diverse stakeholders (NGOs, government, etc.) to foster cross-sectoral dialogue and partnership building.

### *5.3.5 Resource development*

134. Create micro-learning modules: Develop short, focused learning resources that can be used for ongoing training and outreach, especially for rural and remote communities.

135. Produce role-specific guides: Prepare tailored implementation guides for different stakeholder groups (e.g., farmers, insurance professionals, regulators) to support their unique needs.

### *5.3.6 Monitoring and evaluation*

136. Regularly assess learning outcomes: Use pre- and post-workshop assessments, as well as participant feedback, to continuously improve design and delivery.

137. Document and share best practices: Capture lessons learned and success stories from each workshop to inform future capacity building initiatives and promote knowledge sharing.



## **6 MONITORING AND EVALUATION**

### **6.1 Methods used to assess the effectiveness**

#### *6.1.1 Pre- and post-workshop knowledge assessments*

138. Structured technical assessments: Participants completed four session-based assessments measuring their understanding of key concepts such as parametric insurance triggers, smart contract functionality, and blockchain automation.

139. Pre-workshop baseline: Revealed limited prior knowledge (e.g., 60% had never heard of parametric insurance).

140. Post-workshop results: Demonstrated a 95% improvement in knowledge and an average accuracy of 87%, indicating strong learning outcomes.

### 6.1.2 *Participant feedback surveys*

141. Quantitative ratings: A post-workshop survey was completed by 9 participants, covering categories such as session engagement, topic understanding, speaker clarity, and overall workshop value.

Highlights:

- Session engagement: 4.33/5.00;
- Overall workshop value: 4.44/5.00;
- BBPI readiness: 3.78/5.00; and
- Application confidence: 3.56/5.00.

142. Qualitative insights: Open-ended responses provided rich feedback on the most valuable learning aspects (e.g., role-playing, stakeholder perspectives, blockchain applications) and areas needing improvement (e.g., economic feasibility, legal frameworks, localization).

### 6.1.3 *Simulation-based evaluation*

143. A post-session survey was completed by 14 participants on the role-playing exercise: The “Parametric Insurance Startups” simulation was used to assess practical understanding and stakeholder engagement.

Highlights:

- Engagement score: 4.79/5.00;
- Stakeholder understanding: 4.43/5.00; and
- Confidence in application: 3.71/5.00.

These scores reflected strong participation and conceptual grasp, though they also indicated a need for continued support in applying skills practically.

🎯 Role Play Session Key Insights		
Learning Effectiveness	Critical Challenges Identified	Pedagogical Success
<ul style="list-style-type: none"><li>• Highest engagement scores (4.79/5)</li><li>• Enhanced stakeholder understanding</li><li>• Interactive format highly valued</li><li>• Practical perspective-taking</li></ul>	<ul style="list-style-type: none"><li>• Business model sustainability</li><li>• Stakeholder need balancing</li><li>• Technical accessibility barriers</li><li>• Implementation complexity</li></ul>	<ul style="list-style-type: none"><li>• Active learning methodology</li><li>• Peer-to-peer knowledge exchange</li><li>• Real-world problem simulation</li><li>• Collaborative analysis skills</li></ul>

### 6.1.4 *Facilitator observations*

144. Real-time monitoring: Facilitators tracked participant engagement, group dynamics, and responsiveness during sessions and exercises. Observations were used to adjust pacing, clarify concepts, and support inclusive participation.

### 6.1.5 *Learning progression tracking*

145. Session-by-session analysis: Knowledge progression was tracked across sessions, revealing consistent improvement and retention of complex concepts. This helped identify which topics were most effectively delivered and which required further reinforcement.

### 6.1.6 *Recommendations Integration*

146. Feedback-driven adjustments: Participant recommendations were systematically reviewed and integrated into planning for future workshops. These included calls for more Thai-language materials, extended technical practice, and sector-specific case studies.

## 6.2 **Evaluation results**

### 6.2.1 *Quantitative evaluation outcomes*

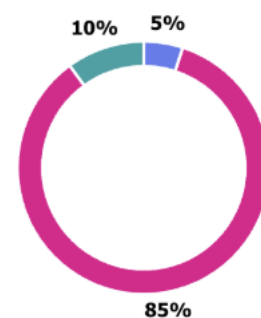
147. Knowledge improvement: Polls were designed to check if the participants understood the content in the sessions. Some of the sessions included one or more online quizzes, which participants could answer on their phones through a QR code. Each quiz was made up of five multiple-choice questions. Through their answers, participants demonstrated a 95% increase in knowledge from pre-workshop baseline to post-workshop assessments. This was measured across four technical sessions, with an average post-session accuracy of 87%.

148. Session-specific performance (average responses: 15):

- Day 1 - Session 1 (parametric insurance): 83% average accuracy

1. When does parametric insurance pay farmers? [การประกันภัยพารามेटริกจ่ายเงินให้เกษตรกรเมื่อไหร่]

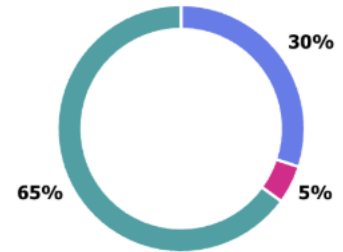
• After damage inspection by assessors [หลังจากผู้ประเมินตรวจสอบความเสียหาย]	1
• When weather data hits a set trigger level [เมื่อข้อมูลสภาพอากาศถึงระดับที่กำหนด]	17
• When farmers report crop losses [เมื่อเกษตรกรรายงานความเสียหาย]	2
• After government approves the claim [หลังจากรัฐบาลอนุมัติการเคลม]	0



2. What triggers a payout in parametric insurance? [อะไรเป็นตัวกระตุ้นการจ่ายเงินในประกันภัยพารามेटริก]

1

- Farmer's damage report [รายงานความเสียหายของเกษตรกร] 6
- Field assessor visit [การตรวจสอบของผู้ประเมิน] 1
- Rainfall below 100mm (example) [ปริมาณฝนต่ำกว่า 100 มม. (ตัวอย่าง)] 13
- Insurance company decision [การตัดสินใจของบริษัทประกัน] 0

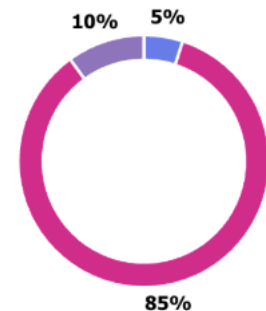


While 85% understood how parametric insurance works at the end of session 1, only 65% could correctly identify a practical application example.

- Day 1 - Session 2 (blockchain and smart contracts): 92%

3. What is the biggest advantage of using blockchain for insurance? [ข้อดีที่ใหญ่ที่สุดของการใช้บล็อกเชนในประกันภัยคืออะไร]

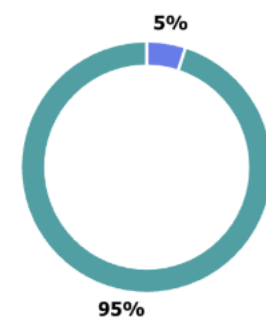
- It's cheaper to build [สร้างได้ถูกกว่า] 1
- It removes the need for human decisions in payouts [ไม่ต้องให้คนตัดสินใจในการจ่ายเงิน] 17
- It works without internet [ทำงานได้โดยไม่ต้องใช้อินเทอร์เน็ต] 0
- It covers more types of crops [คุ้มครองพืชผลได้หลากหลายกว่า] 2



- Day 1 - Session 3 (international best practices): 92%

2. What is the MOST important success factor for BBPI implementation? [ปัจจัยสำคัญที่สุดสำหรับความสำเร็จของการนำ BBPI ไปใช้คืออะไร]

- Low cost technology [เทคโนโลยีต้นทุนต่ำ] 1
- Government funding [เงินทุนจากรัฐบาล] 0
- Data quality and reliability [คุณภาพและความน่าเชื่อถือของข้อมูล] 19
- Marketing campaigns [แคมเปญการตลาด] 0



### 6.2.2 *Qualitative evaluation insights*

149. Most valuable aspects identified by participants:

- Role-playing and simulation exercises;
- Exposure to diverse stakeholder perspectives;
- Clear explanation of blockchain and parametric insurance concepts; and
- Practical relevance to climate change and agricultural resilience.

150. Areas for improvement:

- More Thai-language materials and localized examples;
- Deeper exploration of economic feasibility and legal frameworks; and
- Extended hands-on technical demonstrations.

151. Impact statements: Participants reported gaining:

- A clearer understanding of BBPI mechanisms;
- Insight into stakeholder dynamics and investment decision-making; and
- Motivation to apply BBPI concepts in their organizational contexts.

### 6.2.3 *Simulation-based learning effectiveness*

152. Role-playing exercise scores:

- Engagement: 4.79/5.00;
- Stakeholder understanding: 4.43/5.00; and
- Practical application confidence: 3.71/5.00.

These results confirm that the simulation was highly effective in reinforcing learning and encouraging strategic thinking, though additional support is needed to boost confidence in real-world application.

## 6.3 **Testimonials**

### 6.3.1 *Selected participant testimonials*

153. Participants said:

- *“The workshop groups provided an overview and different organizational contexts, like experiencing real examples.”*

(การจัดกลุ่มทำเวิร์กช็อป ทำให้เห็นภาพรวมและบริบทต่างๆของแต่ละหน่วยงาน คล้ายการได้สัมผัสตัวอย่างจริง)

— Workshop participant

- *“Gained understanding of blockchain technology application in agricultural insurance.”*

(เข้าใจเรื่องการนำเทคโนโลยีบล็อกเชนมาใช้ในการประกันภัยทางการเกษตร)

— Government stakeholder

- *“Learned about technology to solve climate change impacts and apply to organizational research missions.”*

(เรียนรู้เกี่ยวกับเทคโนโลยีเพื่อแก้ไขผลกระทบจากการเปลี่ยนแปลงสภาพภูมิอากาศและนำไปประยุกต์ใช้ในภารกิจวิจัยขององค์กร)

— Research institution representative

- *“Role-playing helped me understand how different stakeholders think and make decisions.”*

— NGO participant

- *“The Kenya case study was very useful. It showed how BBPI can work in practice.”*

— Agricultural extension officer

### 6.3.2 *Themes emerging from testimonials*

154. Real-world relevance: Participants appreciated the practical nature of the workshop, especially the simulation exercises and international case studies.

155. Stakeholder perspective awareness: Role-playing was repeatedly cited as a powerful tool for understanding diverse viewpoints and decision-making processes.

156. Technology and climate resilience: Many participants connected BBPI to broader goals of climate adaptation and agricultural innovation.

157. Organizational application: Several testimonials indicated that participants plan to apply workshop insights to their institutional strategies and research agendas.

## 7 KEY INSIGHTS

### 7.1 Technical and data-related challenges

#### 7.1.1 *Capacity-building workshop*

158. Stakeholders compared the ‘Cat in the box’ and ‘Cat in the grid’ satellite models, recommending a staged approach to scaling data resolution from coarse to denser networks as pilots expand.

159. Combining satellite and ground-based data improves accuracy, but it is costly and requires staged investment.

160. Denser sensor deployment is particularly important for hilly or remote regions with significant microclimatic variation.

161. Ensuring data reliability and verification is foundational for parametric insurance; verifying data for smallholder plots and remote areas is challenging and could affect the trustworthiness of payouts.

162. Technology accessibility barriers exist for rural farmers, especially with blockchain and cryptocurrency systems; complexity and low digital literacy among older farmers are significant obstacles.

#### *7.1.2 Project working group meeting*

163. The PWG meetings provided critical insights into the technical and data-related challenges facing the implementation of BBPI in Thailand's agricultural sector. These meetings served as a platform for multi-stakeholder dialogue, enabling government agencies, financial institutions, technologists, and researchers to collaboratively identify barriers and propose solutions.

164. Key challenges discussed included:

- Fragmented data-sharing protocols: Stakeholders highlighted the lack of secure, real-time data-sharing agreements between government agencies and private sector actors. This fragmentation impedes the development of robust BBPI solutions, particularly in integrating weather, crop, and geospatial data from sources such as TMD, GISTDA, and OAE;
- Crop-specific data requirements: The Office of Insurance Commission (OIC) raised concerns about the need for granular, crop-specific parameters to ensure accurate index design and payout triggers. This was echoed by the Office of Agricultural Economics (OAE), which emphasized the importance of regional calibration and multi-source validation to reduce basis risk;
- Digital literacy and accessibility: The Bank for Agriculture and Agricultural Cooperatives (BAAC) stressed the need for simple, user-friendly applications, especially for older farmers. Past pilot experiences revealed that high satellite costs and reliance on CSR-funded models were unsustainable, reinforcing the need for cost-effective and accessible technology;
- Cost responsibility and sustainability: NXPO and other experts noted recurring issues around unclear cost-bearing responsibilities for blockchain infrastructure and data systems. Discussions emphasized the importance of defining institutional roles and long-term governance mechanisms to ensure sustainability; and
- Technology infrastructure and scaling: Finema's input during the PWG meeting introduced the potential use of Thailand's Blockchain Service Infrastructure (TBCSI) and voluntary participation in the Thai Blockchain Community Initiative (TBCI). These platforms could support identity verification and secure data exchange, but require further exploration and alignment with BBPI needs.

165. Decisions and actions:

- Finema was identified as a potential local implementation partner;
- NXPO was tasked with initiating contact with TBCSI to explore collaboration;

- BCI committed to incorporating lessons learned into the final implementation roadmap, including addressing cost concerns, regulatory pathways, and workshop design feedback; and
- Stakeholders agreed on the need for a clear implementation roadmap with defined responsibilities, timelines, and institutional ownership.

166. The PWG meeting reinforced the importance of inclusive, cross-sectoral engagement in addressing technical and data-related challenges. They also laid the groundwork for future collaboration, pilot design, and resource mobilization, including potential funding from the Green Climate Fund (GCF) and Adaptation Fund.

## **7.2 Regulatory and legal barriers**

### *7.2.1 Capacity-building workshop*

167. Participants emphasized the importance of regulatory sandboxes and licensing clarity as critical enablers of BBPI adoption.

168. They also highlighted the need for data localization and compliance with Thai regulations such as PDPA and ETA, as well as alignment with international standards, including ISO and GDPR.

169. Unclear legal frameworks: The absence of clear regulations for smart contracts and blockchain-based insurance products creates uncertainty for both providers and users. Participants emphasized the need for regulatory sandboxes and well-defined guidelines to ensure compliance and enforceability.

### *7.2.2 Project working group meeting*

170. The PWG meetings provided a critical forum for discussing regulatory and legal challenges associated with the implementation of BBPI in Thailand. These discussions revealed several key barriers and opportunities for policy alignment and institutional coordination.

171. Key regulatory and legal challenges identified:

- Regulatory approval pathways: Stakeholders emphasized the complexity of navigating Thailand's insurance regulatory framework. The Thai General Insurance Association (TGIA) and Office of Insurance Commission (OIC) were identified as key actors in the approval process. The need for a formal proposal to OIC was discussed, highlighting the importance of early engagement with regulators;
- Legal clarity for smart contracts: Participants noted that while smart contracts offer automation and transparency, their enforceability under Thai law remains uncertain. There was consensus on the need for regulatory sandboxes to test BBPI products in a controlled environment, allowing for legal and technical validation before full-scale deployment;

- Digital identity and compliance: Finema presented its expertise in digital identity verification and government software solutions, offering to support BBPI implementation. The discussion included the potential use of Thailand’s Blockchain Service Infrastructure (TBCSI) and the voluntary Thai Blockchain Community Initiative (TBCI), which could facilitate compliance with data protection and identity verification requirements; and
- Localization and alignment with Thai regulations: The importance of aligning BBPI with national laws such as the Personal Data Protection Act (PDPA) and Electronic Transactions Act (ETA) was reiterated. Participants stressed the need for localized legal frameworks that accommodate blockchain-based insurance models while ensuring consumer protection and regulatory oversight.

172. Decisions and actions:

- Finema was identified as a potential implementation partner to support digital identity and compliance infrastructure;
- NXPO was tasked with initiating contact with TBCSI to explore collaboration opportunities;
- BCI and NXPO agreed to incorporate regulatory feedback into the final implementation roadmap, including legal considerations and stakeholder engagement strategies; and
- A concept note will be developed to seek funding from the Green Climate Fund (GCF) and Adaptation Fund, with an “alignment section” to address regulatory fit and institutional readiness.

The PWG meeting underscored the importance of proactive regulatory engagement, legal clarity, and institutional coordination to ensure the successful deployment of BBPI in Thailand. These discussions will inform the next phase of feasibility planning and pilot design.

### **7.3 Business model and sustainability issues**

#### *7.3.1 Capacity-building workshop*

173. Mobile wallets and QR payments were identified as practical enablers to facilitate adoption among farmers.

174. It was noted that BAAC has already successfully tested blockchain-linked payments in its sandbox environment.

175. Balancing stakeholder needs: Designing economically viable business models that balance the needs of farmers (affordability, accessibility) with those of insurers and investors (risk management, profitability) is complex. High premium costs and the risk of insolvency with unlimited coverage were identified as potential pitfalls.

176. Sustainable pricing structures: Developing pricing models that are both accessible to smallholder farmers and sufficient to cover risks is a persistent challenge.

### 7.3.2 *Project working group meeting*

177. The PWG meetings provided a strategic platform to assess the viability and sustainability of business models for BBPI in Thailand. Discussions focused on balancing affordability for farmers with long-term financial sustainability for insurers and technology providers.

178. Key issues and insights:

- Subsidy mechanisms and affordability: The Office of Agricultural Economics (OAE) emphasized the importance of government subsidies to ensure affordability for smallholder farmers. A proposed model included a 60% subsidy from the Ministry of Agriculture and Cooperatives (MoAC) and 40% from the Bank for Agriculture and Agricultural Cooperatives (BAAC). This approach was seen as essential to overcome adoption barriers and ensure equitable access;
- Cost of technology and pilot sustainability: BAAC raised concerns about the high costs associated with satellite data and blockchain infrastructure, referencing past pilot projects that relied on unsustainable CSR funding. The need for cost-effective, scalable solutions was highlighted, particularly for rural and older farmer demographics;
- Digital literacy and user experience: Stakeholders stressed the importance of designing simple, intuitive user interfaces for BBPI platforms. BAAC noted that older farmers may struggle with complex digital systems, reinforcing the need for mobile-first, low-tech solutions such as USSD-based access and cooperative-led onboarding;
- Institutional cost-sharing and governance: NXPO and other members flagged recurring issues around unclear cost-bearing responsibilities. There was consensus on the need to define institutional roles for long-term governance and financial management of BBPI infrastructure, including blockchain maintenance and data services; and
- Funding and scaling strategy: The PWG discussed potential funding sources for scaling BBPI, including the Green Climate Fund (GCF) and Adaptation Fund. BCI committed to producing a concept note and aligning feasibility findings with donor requirements. NXPO highlighted the importance of securing the Ministry of Agriculture approval for pilot initiation.

179. Decisions and actions:

- BCI will finalize and translate shortened feasibility reports to support funding applications;
- A concept note will be developed to seek support from GCF and Adaptation Fund, incorporating alignment with national priorities and sustainability goals; and NXPO will consolidate stakeholder feedback to finalize the pilot roadmap and clarify institutional responsibilities.

180. The PWG meeting reinforced that a sustainable BBPI business model must integrate subsidy mechanisms, cost-effective technology, inclusive design, and clear institutional governance. These elements will be critical to ensuring long-term viability and scalability across Thailand’s agricultural sector.

#### 7.4 **Implementation and adoption barriers**

##### 7.4.1 *Capacity-building workshop*

181. There was strong support from BAAC and MOAC for the BBPI rollout, provided sufficient funding can be secured.

182. Participants highlighted the clear need for defined leadership roles, governance mechanisms, and cross-agency monitoring to ensure effective implementation.

183. The session concluded with agreement on a pilot roadmap scheduled from January 2026 to June 2027.

184. More than 13 million farmers in Thailand are exposed to climate risks, with women managing the majority of rural households.

185. Ensuring equity requires community outreach, USSD-based access for farmers without smartphones, gender-responsive training, and sandbox pilots with feedback loops to safeguard inclusiveness.

186. Farmer trust and engagement: Building trust in new technologies and insurance mechanisms among farmers, especially those with limited prior exposure, requires sustained outreach and education.

187. Localization and contextualization: Adapting international best practices to the Thai context—including language, agricultural diversity, and local regulatory requirements—remains an ongoing challenge.

##### 7.4.2 *Project working group meeting*

188. The PWG meetings provided a critical lens through which stakeholders examined the practical challenges of implementing BBPI in Thailand. These discussions focused on the real-world barriers to adoption, especially among smallholder farmers and institutional actors.

189. Key implementation and adoption barriers identified:

- Digital literacy and user accessibility: BAAC emphasized that older farmers and those in remote areas may struggle with digital platforms, particularly blockchain-based systems. The need for mobile-first, low-tech solutions such as USSD interfaces and cooperative-led onboarding was strongly supported;
- Technology cost and sustainability: Stakeholders raised concerns about the high costs of satellite data, blockchain infrastructure, and system maintenance. BAAC referenced previous pilot projects that failed due to reliance on CSR funding and unsustainable cost structures;

- Institutional coordination and governance: NXPO and other members noted the lack of clarity around institutional roles and responsibilities for long-term BBPI governance. This includes managing infrastructure, data sharing, and regulatory compliance across agencies;
- Farmer trust and engagement: Building trust in BBPI among farmers was seen as essential. CTCN stressed the importance of two-way consultation and participatory design, ensuring that farmers are not just recipients but co-creators of the insurance model; and
- Funding and pilot readiness: The PWG agreed that successful implementation depends on securing sufficient funding and formal approval from the Ministry of Agriculture. A phased pilot roadmap was proposed, with clear milestones and stakeholder responsibilities.

190. Decisions and actions:

- BCI will incorporate stakeholder feedback into the final implementation roadmap, including design simplification, cost-sharing models, and outreach strategies;
- NXPO will consolidate feedback and coordinate with relevant ministries to finalize pilot plans; and
- CTCN will organize a webinar to share findings with other National Designated Entities (NDEs), promoting regional learning and collaboration.

191. The PWG meeting highlighted that successful BBPI implementation requires not only technical readiness but also inclusive design, institutional alignment, and sustained engagement with end users. These insights will inform the next phase of pilot development and national rollout.

## 8 CONCLUSION

192. The final capacity building workshop held from 4-8 September 2025 in Bangkok marked a pivotal milestone in Thailand's journey toward implementing BBPI for climate risk management in agriculture. The workshop and final conference successfully brought together a diverse group of stakeholders—including farmers, cooperatives, government agencies, insurers, technologists, academics, and development partners—to explore the technical, economic, and institutional feasibility of BBPI solutions tailored to Thailand's agricultural context.

193. Participants demonstrated significant learning gains, with a 95% improvement in technical knowledge and high engagement across all sessions. The interactive format, particularly the role-playing simulations and smart contract design exercises, enabled participants to internalize complex concepts and apply them in practical scenarios. The workshop also fostered cross-sectoral collaboration, laying the groundwork for future partnerships and pilot initiatives.

194. Despite challenges such as language barriers, time constraints, and varying levels of technical familiarity, the workshop and final conference achieved its objectives and generated actionable recommendations for future capacity building, policy development, and pilot implementation. Participants expressed strong interest in continued engagement, highlighting the need for localized resources, post-workshop support, and inclusive design strategies.

195. The insights, feedback, and co-designed roadmap emerging from this workshop will directly inform the next phase of the BBPI feasibility study and contribute to Thailand's broader climate resilience agenda. As the country moves toward innovative, data-driven insurance models, this workshop has helped build the technical foundation, stakeholder alignment, and strategic momentum necessary for successful BBPI deployment.

**Provision of Feasibility and Viability Study for Using Blockchain Technology for a  
Real-Time Climate Risk Insurance System in Thailand’s Agricultural Sector**

**THREE-DAY FINAL WORKSHOP ON THE TECHNICAL ASSISTANCE FOR THE  
IMPLEMENTATION OF A BLOCKCHAIN-BASED PARAMETRIC INSURANCE IN  
THAILAND**

*(\*Chatham House rule applies)*

*4-8 September 2025  
Bangkok, Thailand*

As part of the CTCN technical assistance programme, this two-day workshop aims to present the preliminary results of the technical and economic feasibility studies on blockchain-based parametric insurance in Thailand’s agricultural sector.

**DAY 1 (THURSDAY 4 SEPT.) - CAPACITY BUILDING WORKSHOP (ACTIVITY 7.1)**

10:00 - 10:15	Welcome coffee	
10:15 - 10:45	Opening remarks	<ul style="list-style-type: none"><li>• <i>Dr. Surachai SATHITKUNARAT, President, NXPO</i></li></ul>
10:45 - 11:45 <i>(Day 1 - Session 1)</i>	<p><u>What is parametric insurance</u> Purpose: Introduce participants to the concept of parametric insurance as a risk management tool for agriculture Topics:</p> <ul style="list-style-type: none"><li>• Difference between parametric and indemnity-based insurance</li><li>• How parametric insurance uses predefined indices (e.g, rainfall, temperature)</li><li>• Role in reducing claims processing time and increasing transparency</li></ul>	<ul style="list-style-type: none"><li>• <i>Maria SANCHEZ, Research Officer, Research Division I, BCI (online)</i></li></ul>
11:45 - 12:00	Coffee break	
12:00 - 13:00 <i>(Day 1 - Session 2)</i>	<p><u>Basics of blockchain and smart contracts</u> Purpose: Build foundational knowledge of blockchain technology and its relevance to insurance Topics:</p>	<ul style="list-style-type: none"><li>• <i>Arend JANSSEN, Senior Research Officer, Research Division I, BCI (online)</i></li><li>• <i>Rubaiyyaat AAKBAR, Technology Officer, Emerging Technology Division, BCI (online)</i></li></ul>

	<ul style="list-style-type: none"> <li>• Blockchain principles (decentralization, immutability, transparency)</li> <li>• Smart contracts: definition and operation</li> <li>• How smart contracts enable automatic payouts in parametric insurance</li> </ul>	
13:00 - 14:00	Lunch break ( <i>after the group photo</i> )	
14:00 - 15:00  (Day 1 - Session 3)	<u>Use cases and lessons</u> Purpose: Present international experiences with BBPI Topics: <ul style="list-style-type: none"> <li>• Lessons from pilots worldwide</li> <li>• Technology and regulatory hurdles</li> <li>• Implications for BBPI in Thailand</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Tomasz TRZECIAK, Legal Advisor &amp; Strategy Officer, Research Division I, BCI (online)</i></li> </ul>
15:00 - 15:15	Coffee break	
15:15 - 16:15  (Day 1 - Session 4)	<u>Practical exercise: design a smart contract for drought events</u> Purpose: Apply Day 1 learnings in a real-world scenario Topics: <ul style="list-style-type: none"> <li>• Simulated design of a smart contract for drought events</li> <li>• Group collaboration on threshold definitions, triggers, and payouts</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Dr. Thusitha BANDARA, Deputy Chief Technology Officer, Emerging Technology Division, BCI (online)</i></li> <li>• <i>Dr. Michal KIT, Principal Technology Officer, Emerging Technology Division, BCI (online)</i></li> <li>• <i>Rubaiyyaat AAKBAR, Technology Officer, Emerging Technology Division, BCI (online)</i></li> </ul>
16:15 - 16:30	Coffee break	
16:30 - 17:00	Day 1 wrap-up	<ul style="list-style-type: none"> <li>• <i>Thomas YAPO, Principal Research Officer, Research Division I, BCI</i></li> </ul>

## DAY 2 (FRIDAY 5 SEPT.) - CAPACITY BUILDING WORKSHOP (ACTIVITY 7.1)

10:00 - 10:15	Welcome coffee	
10:15 - 10:45	Introduction to the structure of Day 2	<ul style="list-style-type: none"> <li>• <i>Thomas YAPO, Principal Research Officer, Research Division I, BCI</i></li> </ul>
10:45 - 11:45 <i>(Day 2 - Session 1)</i>	<p><u>Regulatory and legal considerations for blockchain insurance</u></p> <p>Purpose: Understand the legal and policy framework necessary for BBPI in Thailand</p> <p>Topics:</p> <ul style="list-style-type: none"> <li>• Data protection, contract enforceability</li> <li>• Blockchain regulations in Thailand</li> <li>• Cross-sector coordination for policy reform</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Tomasz TRZECIAK, Legal Advisor &amp; Strategy Officer, Research Division I, BCI (online)</i></li> </ul>
11:45 - 12:00	Coffee break	
12:00 - 13:00 <i>(Day 2 - Session 2)</i>	<p><u>Climate and agriculture data for index design</u></p> <p>Purpose: Explore data sources and methodologies for parametric index construction</p> <p>Topics:</p> <ul style="list-style-type: none"> <li>• Importance of high-resolution, real-time weather and crop data</li> <li>• Data gaps and solutions in Thailand</li> <li>• Role of national agencies (TMD, GISTDA, OAE)</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Dr. Thusitha BANDARA, Deputy Chief Technology Officer, Emerging Technology Division, BCI (online)</i></li> <li>• <i>Dr. Michal KIT, Principal Technology Officer, Emerging Technology Division, BCI (online)</i></li> </ul>
13:00 - 14:00	Lunch break <i>(after the group photo)</i>	
14:00 - 15:30 <i>(Day 2 - Session 3)</i>	<p><u>Real-time BBPI claim event (role-play and prototype demonstration session)</u></p> <p>Purpose: Simulate a real-time BBPI claim to understand roles and processes</p> <p>Topics:</p> <ul style="list-style-type: none"> <li>• Trigger event verification</li> <li>• Smart contract execution</li> <li>• Stakeholder interactions and troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Rubaiyyaat AAKBAR, Technology Officer, Emerging Technology Division, BCI (online)</i></li> </ul>
15:30 - 15:45	Coffee break	
15:45 - 17:15 <i>(Day 2 - Session 4)</i>	<p><u>Group reflection: opportunities, barriers, and recommendations</u></p> <p>Purpose: Synthesize workshop learnings and identify pathways for implementation</p> <p>Topics:</p> <ul style="list-style-type: none"> <li>• Stakeholder perspectives on implementation</li> <li>• Enablers and blockers (technical, legal, etc.)</li> <li>• Recommendations for future policy and pilots</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Usman ZANNA, Senior Economist, Research Division I, BCI (online)</i></li> </ul>
17:15 - 17:30	Coffee break	
17:30 - 18:00	Certification ceremony and closing	<ul style="list-style-type: none"> <li>• <i>Hosam EL NAGAR, Director of Capacity Building, Capacity Building Division, BCI</i></li> </ul>

**DAY 3 (MONDAY 8 SEPT.) - FINAL CONFERENCE (ACTIVITY 7.2)**

10:00 - 10:15	Registration and welcome coffee	
10:15 - 10:45	Opening remarks	<ul style="list-style-type: none"> <li>• <i>Assoc. Prof. Wongkot WONGSAPAI, Vice President, NXPO</i></li> </ul>
10:45 - 11:00	Keynote presentation	<ul style="list-style-type: none"> <li>• <i>Valentin RUDLOFF, Climate Technology Specialist, CTCN</i></li> </ul>
11:00 - 11:15	Keynote presentation	<ul style="list-style-type: none"> <li>• <i>Alastair MARKE, Director-General, BCI</i></li> </ul>
11:15 - 12:15  (Day 3 - Session 1)	<p><u>Project overview, equity, and inclusion in BBPI</u> Objective: Set the context for the BBPI initiative, communicate its goals, and ensure inclusive and equitable deployment across Thailand’s agricultural sector</p> <p>Presentation:</p> <ul style="list-style-type: none"> <li>• Key findings: <ul style="list-style-type: none"> <li>– BBPI has the potential to revolutionize climate risk insurance delivery for agriculture</li> <li>– Women farmers and marginalized groups are underrepresented in current insurance schemes</li> <li>– Challenges include low insurance penetration, limited data infrastructure, regulatory gaps, and gender biases in outreach and digital access</li> </ul> </li> <li>• Proposed solutions: <ul style="list-style-type: none"> <li>– Leverage smart contracts and blockchain to improve transparency and efficiency</li> <li>– Implement digital literacy programs and gender-responsive design</li> <li>– Enhance public-private collaboration and involve women-led cooperatives</li> <li>– Promote inclusive stakeholder engagement to ensure equitable access to BBPI benefits</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <i>Dr. Snow SINI, Senior Economist, Research Division I, BCI</i></li> </ul>
12:15 - 13:15	Lunch break ( <i>after the group photo</i> )	
13:15 - 14:15  (Day 3 - Session 2)	<p><u>Insurance sector and regulatory perspectives (panel)</u> Objective: Discuss sectoral readiness and regulatory frameworks</p> <p>Presentation:</p> <ul style="list-style-type: none"> <li>• Key findings: Interest from Thai insurers and regulators, but legal uncertainty remains</li> <li>• Challenges: Smart contract enforceability, data localization laws</li> </ul> <p>Proposed solutions: Create a regulatory sandbox; align BBPI with OIC guidelines</p>	<ul style="list-style-type: none"> <li>• <i>Tomasz TRZECIAK, Legal Advisor &amp; Strategy Officer, Research Division I, BCI (online)</i></li> </ul>
14:15 - 14:30	Coffee break	

14:30 - 15:30  (Day 3 - Session 3)	<p><u>Risk transfer models and blockchain data requirements (discussion)</u></p> <p>Objective: Discuss the technical design of the insurance product</p> <p>Presentation:</p> <ul style="list-style-type: none"> <li>• Key findings: Parametric triggers need localized calibration</li> <li>• Challenges: Inadequate sensor networks; legacy IT systems</li> </ul> <p>Proposed solutions: Integration with TMD, GISTDA; leverage existing BBPI data models</p>	<ul style="list-style-type: none"> <li>• <i>Dr. Thusitha BANDARA, Deputy Chief Technology Officer, Emerging Technology Division, BCI (online)</i></li> <li>• <i>Dr. Michal KIT, Principal Technology Officer, Emerging Technology Division, BCI (online)</i></li> <li>• <i>Rubaiyyaat AAKBAR, Technology Officer, Emerging Technology Division, BCI</i></li> </ul>
15:30 - 15:45	Coffee break	
15:45 - 17:15  (Day 3 - Session 4)	<p><u>Roadmap co-design and stakeholder feedback</u></p> <p>Objective: Co-create a shared roadmap for BBPI implementation and gather final stakeholder inputs to guide post-project actions</p> <p>Presentation:</p> <ul style="list-style-type: none"> <li>• Key findings: <ul style="list-style-type: none"> <li>– Stakeholders support a phased implementation approach for BBPI</li> <li>– Strong multi-sectoral interest in pilot roll-out and long-term institutional ownership</li> <li>– Challenges include role clarity, coordination, sustained funding, and the need for inclusive governance.</li> </ul> </li> <li>• Proposed solutions: <ul style="list-style-type: none"> <li>– Establish a BBPI Taskforce with defined leads for policy, technology, and data</li> <li>– Institutionalize BBPI under MOAC and NXPO to ensure continuity</li> <li>– Set up cross-agency monitoring and feedback mechanisms</li> <li>– Encourage inclusive participation from farmers, cooperatives, and underrepresented groups</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <i>Dr. Snow SINI, Senior Economist, Research Division I, BCI</i></li> <li>• <i>Usman ZANNA, Senior Economist, Research Division I, BCI (online)</i></li> </ul>
17:15 - 17:30	Coffee break	
17:30 - 18:00	Closing remarks	<ul style="list-style-type: none"> <li>• <i>NXPO</i></li> </ul>

**IN-PERSON WORKSHOP ATTENDANCE**

**Blockchain & Climate Institute (BCI)**

Mr. Alastair MARKE, Director-General  
Mr. Hosam EL NAGAR, Director of Capacity Building, Capacity Building Division  
Mr. Thomas YAPO, Principal Research Officer, Sustainable Finance Division  
Mr. Rubaiyyaat AAKBAR, Principal Technology Officer, Emerging Technology Division  
Dr. Snow SINI, Senior Economist, Sustainable Finance Division  
Ms. Jane MUENI, Executive Secretary to Director-General

**Office of National Higher Education, Science Research and Innovation Policy Council (NXPO)**

Dr. Surachai SATHITKUNARAT, President  
Assoc. Prof. Wongkot WONGSAPAI, Vice-President  
Dr. Saravane SINGTONG, Division Director  
Dr. Nara BENJABUTR, Economics Expert  
Dr. Chanida SANSAARD, Policy Specialist  
Dr. Natthamon SUWANNAPROM, Policy Developer  
Ms. Kotchawan PAKKRUEK, Assistant Manager  
Mr. Krich WONGJUN, Senior Officer  
Ms. Chaniporn RUANGRIT, Policy Analyst  
Ms. Jitsuna DARACHAI, Policy Analyst  
Ms. Sirilak CHAROENRAM, Researcher  
Ms. Chavisara WIENGCHAI, Researcher  
Ms. Laor-on JIRASIRIWAT, Coordinator  
Ms. Waraporn LEESOMPOCH, Intern  
Ms. Wannapa SUTTHITHIP, Intern

**Thammasat University**

Dr. Prapaporn MONGKHONVANIT, Dean, School of Global Studies  
Mr. Shekh RAHMAN, Vice-Dean, School of Global Studies  
Asst. Prof. Dr. Sorat PREVEENWONGY, Director, Mekong Sub-Region Study Center

**Electronic Transactions Development Agency (ETDA)**

Mr. Chaichana MITRPANT, Executive Director  
Mr. Supachok JANTARAPATIN, Director of Office of the Standard  
Ms. Khanit PHATONG, Senior Management Officer

Mr. Natthaphat ROJANASUPAMIT, Senior Specialist

### **Thai Industrial Standards Institute (TISI)**

Ms. Sornarin SANGKANONG, Professional Standards Officer

Mr. Pratyat TUNAPONG, Professional Standards Officer

Mr. Norapong WORA-AKHOM, Standard Specialist

### **Finema**

Mr. Pakorn LEESAKUL, Co-Founder

Ms. Catherine NABBALA, Freelance

### **Rice Department**

Dr. Phayom KOBELLI, Rice Protection Expert

Ms. Sukanya ARANYAMIT, Senior Agricultural Academic

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