Meeting Link

https://us02web.zoom.us/meeting/register/tZEqdO2sqzkuE9HYujER5EeRBYq9MRzw7ibR

ASEAN-CRN Knowledge Exchange Event and Partners Meeting

28 – 30 March 2023 | Amari Watergate Bangkok

Food and Agriculture Organization of the United Nations

german cooperation
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Before we start …

1

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If you do not wish to be documented or recorded, please do not say anything.

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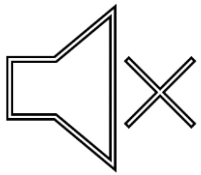

For online participants:
When not speaking, please make sure your mic is muted.

Raise your virtual hand if you wish to speak.

For onsite participants:
Please raise your hand and use the microphone when speaking.

3

For online participants, feel free to **turn on your camera.**

Session 1: 09.00-09.15

Welcome Remarks

Mr. Joell H. Lales
Director, Department of Agriculture-Bureau of Agricultural Research (DA-BAR), the Philippines

Session 1: 09.00-09.15

Opening Remarks

Mr. Rapibhat Chandarasrivongs

Director-General, Department of Agriculture (DOA), Thailand and ASEAN-CRN Chair

Session 1: 09.15-09.30

Introduction and Update on ASEAN-CRN Progress

Dr. Margaret C. Yoovatana
Director, International Agricultural Affairs Group, Planning and Technical Division, TH DOA and ASEAN-CRN Focal Point

Introduction and Update on the ASEAN Climate Resilience Network (ASEAN-CRN) Progress

Dr. Margaret C. Yoovatana

Director, International Agricultural Affairs Group, Planning and Technical Division, TH DOA and ASEAN-CRN Focal Point

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OUTLINE:

- **Introduction to ASEAN-CRN and ANGA**
  - ASEAN Climate Resilience Network (ASEAN-CRN)
  - ASEAN Negotiating Group for Agriculture (ANGA)
- **Progress and Key achievements (2022-2023)**
  - "Scaling up climate actions for resilient and low emission landscapes in Asia and Pacific" (Mar 2022)
  - "7th ASEAN-CRN Annual Meeting" (19 Apr 2022)
  - "Decarbonization of ASEAN Agrifood systems and Climate Policy Negotiations Training", Bali (27-29 Sept 2022)
  - "Pathways to Net Zero for Agrifood and Land Use Systems in Asia", Bangkok (14-16 Dec 2022)
  - Other engagements
- **Plan activities in 2023**
  - 8th ASEAN-CRN Annual Meeting (4 Apr 2023)
  - ANGA regional event (Sep 2023)

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Introduction to ASEAN-CRN and ANGA

The ASEAN Climate Resilience

ASEAN climate resilience network

The ASEAN Climate Resilience Network (ASEAN-CRN) is a platform for regional exchange of information, experiences and expertise on climate smart agriculture and other land use.

The network facilitates the translation of science into policies and finds resources to support needs of the sector within the region.

ASEAN-CRN's mission is to promote resilience and low-emissions of agriculture and other land use

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The ASEAN-CRN Work Areas

National-level Implementation of Regional Agreements

Knowledge Management and Capacity Building

Mobilizing Resources

Regional Policies and Engagement

Research and Innovation

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ASEAN-CRN Activities and Outputs

- The prioritisation of climate-smart agricultural (CSA) practices for regional cooperation were documented in a book entitled Promotion of Climate Resilience for Food Security in ASEAN.

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ASEAN-CRN Activities and Outputs

These later formed the basis of the ASEAN Guidelines for the promotion of Climate Smart Agriculture: a collection of existing best practices with contributions freely given by practitioners and leading agencies in the region

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2015
The 37th Meeting of the ASEAN Ministers of Agriculture and Forestry (AMAF)
10 September 2015 • Makati City, Philippines
The ASEAN Regional Guidelines for Promoting CSA Practices were endorsed by the ASEAN Ministers of Agriculture and Forestry (AMAF)
*at the 37th Meeting of the AMAF
ASEAN Regional Guidelines for
Promoting Climate Smart Agriculture (CSA) Practices

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2017

Adopted 39th AMAF Meeting 28/9/2017

10 PHASES IN DEVELOPING A NATIONAL CROP INSURANCE PROGRAM: GUIDE OVERVIEW

While the 10 Phases Guide in Developing a National Crop Insurance Program were also endorsed by the AMAF

*at the 39th Meeting of the AMAF

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The ASEAN Climate Resilience Network

It also conducts and joins several knowledge exchange events on best practices.

Examples of knowledge exchange events

Laos-Thailand Maize Seed Village Exchange

Examples of knowledge exchange events

ToT on Using Climate Information for Decision Making in Rice Farming

Examples of knowledge exchange events

Effective CIS on Agriculture in ASEAN

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Examples of knowledge exchange events

5th Global Science Conference on Climate Smart Agriculture

Examples of knowledge exchange events

Effective CIS on Agriculture in ASEAN

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The ASEAN Negotiating Group on Agriculture (ANGA)

- In 2016, ASEAN-CRN produced the first ASEAN common position in agriculture as a submission to the UNFCCC SBSTA 44.

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The ASEAN Negotiating Group on Agriculture (ANGA)

In 2019, ANGA was formally recognized as a new negotiations group under G77 and China in Bonn, Germany and participated at COP 25 in Madrid, Spain

Since its formation, ANGA successfully submitted joint submissions to the KJWA under the UNFCCC

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Acting as secretariat support to ANGA, another negotiation training was conducted in February 2020 that led to a common position submitted to Koronivia Joint Work on Agriculture under UNFCCC.

ASEAN CRN joined several consortia to access climate finance (January 2021)

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Policy Brief

Positioning ASEAN in international climate negotiations:

lessons learned from the ASEAN Negotiating Group for Agriculture (ANGA)

CRN also contributed to two policy development work:

1) A review of the CSA policy guidelines; and

2) a policy reflection on lessons learned from ANGA

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CRN and ANGA at COP 26 – November-December 2021

ANGA members aligned with each other and showed a unified presence at COP26 in a hybrid manner. Some are negotiated virtually, and some were physically in Glasgow, Scotland.

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Progress and Key achievements (2022 - 2023)

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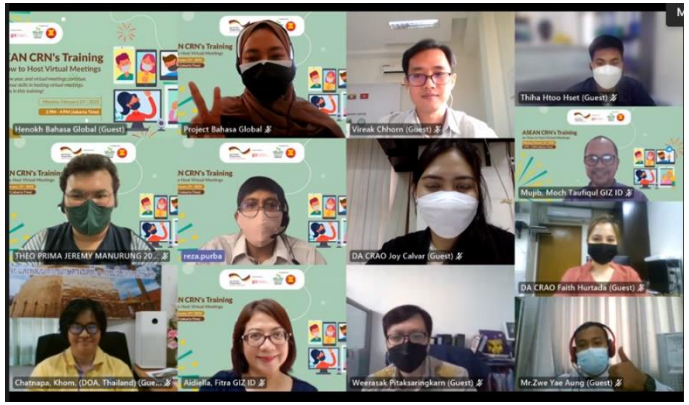
General Updates on CRN Activities and Outputs

1) ASEAN CRN's Training on How to Host Virtual Meetings, 21 Feb 2022

- 21 participants were equipped with a-know-how to participate and to organize virtual meetings or events by using selected digital platforms.
- The participants learned useful features of the platforms and practised to set-up and schedule the virtual meetings, incl. interactivity tools, e.g. online survey and quizzes.



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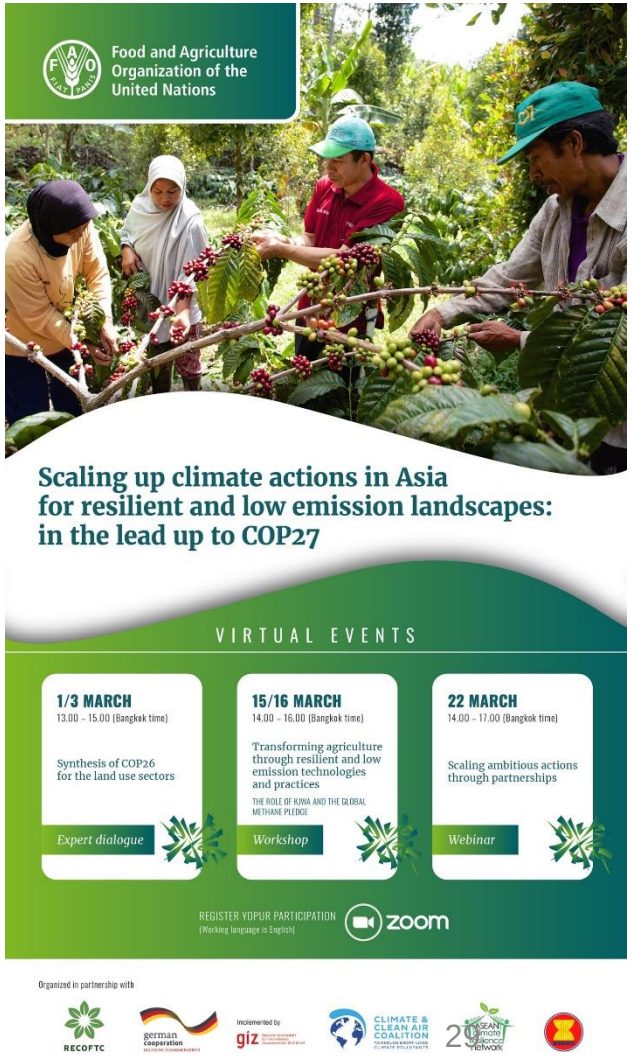
General Updates on CRN Activities and Outputs

2) Scaling up climate actions for resilient and low emission landscapes in Asia and Pacific: In the lead up to COP27'

Event 1 (1-3 Mar 2022): *Synthesis of COP26 for the land use sector*
Event 2 (15-16 Mar 2022): *Transforming agriculture through resilient and low emission practices – the role of Koronivia Joint Work for Agriculture (KJWA) and the Methane Pledge*
Event 3 (22 Mar 2022): *Scaling ambitious actions through partnerships*

- aims to provide and enhance understanding of climate policies, pledges and initiatives from COP26, and their impacts on the push towards resilient and low-emission landscapes in Asia-Pacific region.

- discussed the future of KJWA, the active participation of the ASEAN Negotiating Group for Agriculture (ANGA), and how engagement with shaping climate policies will benefit the ASEAN agriculture sector and overall landscape, including forestry.



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General Updates on CRN Activities and Outputs

3) '7th Annual Meeting of ASEAN-CRN',
19 Apr 2022

- Co-chaired by Thailand and hosted by Myanmar
- CRN focal points updated on what they are doing in relation to climate change and agriculture.
- The meeting has updated its 3-year workplan (2021-2023) and prioritized topics of interest, notably on low emissions agriculture and the need to understand MRV instruments for agriculture.
- The meeting agreed to keep the workplan a living document.

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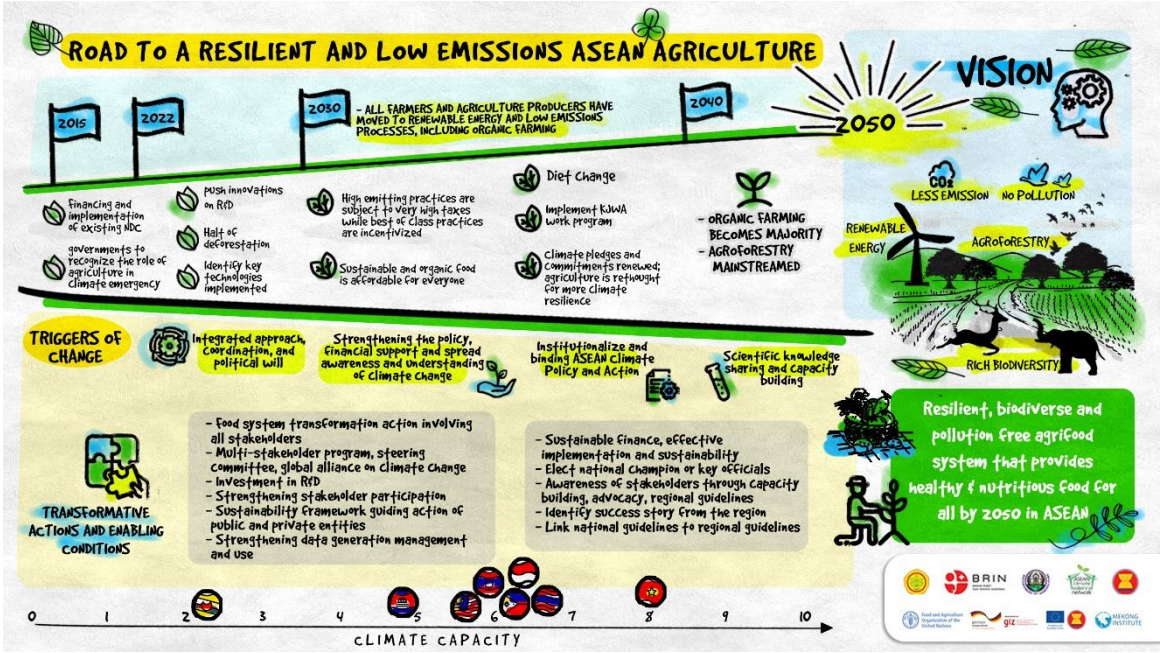
General Updates on CRN Activities and Outputs

4) "Transformation to Low Emissions and Resilient Agrifood System: A Knowledge Exchange Event and Climate Policy Negotiations Training', 27-29 Sept 2022

- Onsite at Bali, Indonesia
- Supported by GIZ, FAO, E-READI, MI
- **Participants**: ASEAN-CRN, ANGA, ASEAN Working groups, International development organizations
- **Outputs**:
  - Identification of priority areas from the visioning exercise.
  - Guidance for ANGA preparation for further negotiation
  - Understanding and awareness of ANGA specific problems/gap



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General Updates on CRN Activities and Outputs

5) ‘Pathways to Net Zero for Agrifood and Land Use Systems in Asia’, 14-16 Dec 2022

- At Amari Watergate Bangkok, Thailand
- Supported by E-READI, FAO, UNEP, GIZ
- **Outcomes**: Improved understanding of:
  - agriculture and land-use priorities from Long Term Strategies for Low Emission Development (LTS) and related net zero pledges from the region.
  - relationships bet. LTS, NDC, and initiatives
  - carbon market opportunities for agriculture and land-use, with a special focus on rice and forestry.

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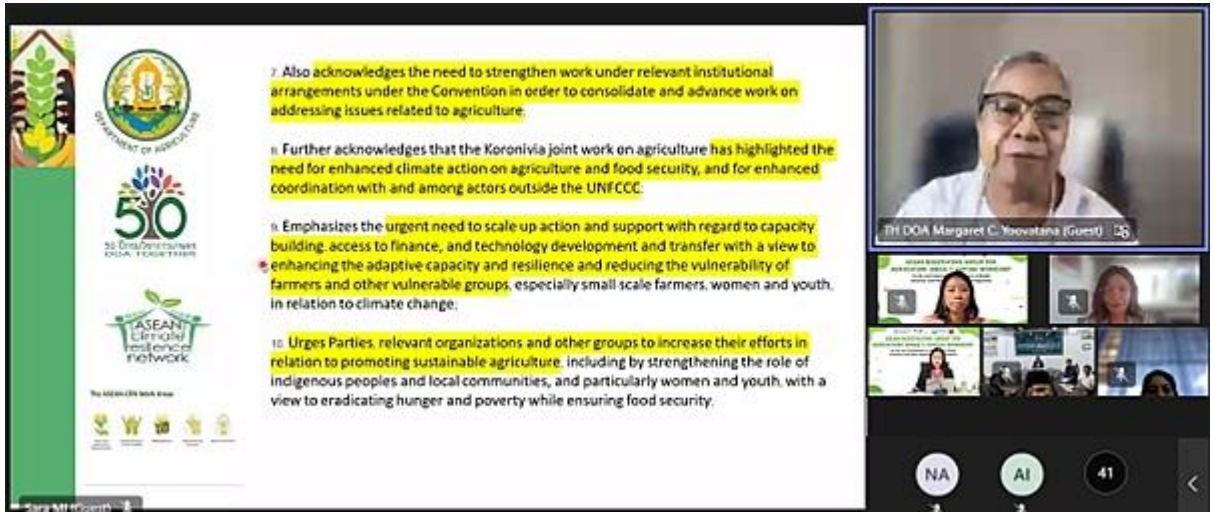
General Updates on CRN Activities and Outputs

6) ANGA Virtual Workshop on Koronivia', 9 Mar 2023

- Chaired by Lao PDR (Chair of ANGA)
- View on the development of the TOR of "Sharm el-Sheikh Joint Work on Implementation of Climate Action on Agriculture and Food Security"
- Strategies to enhance the national programmes
- Overview and discussion on the adopted decision from COP27



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Various Engagements

- **UNFCCC 56th sessions of the SBSTA and the SBI (SB56),** 6-16 June 2022 in Bonn, Germany

  - ASEAN-CRN Convenor has ensured coordination amongst ANGA focal points.

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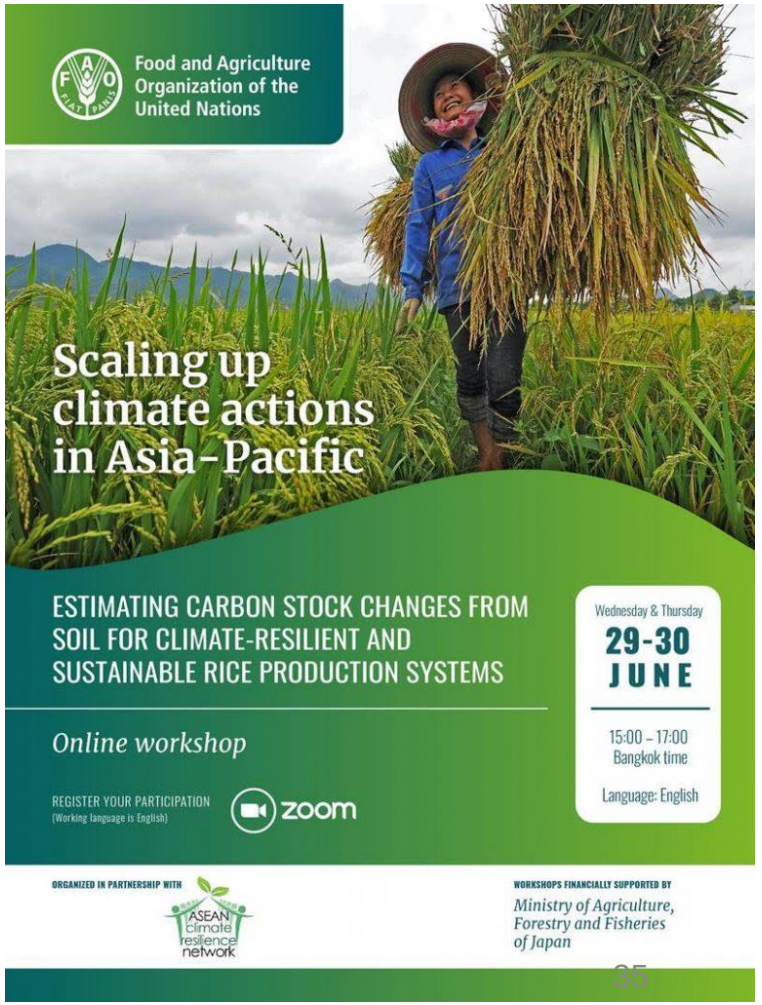
Various Engagements

- **Introduction to the concept of climate-smart agriculture (CSA)**

  - ASEAN-CRN engaged with the Asia Productivity Organization (APO), Japan, in introducing the concept of CSA and sharing the key elements of success.

- **‘Estimating carbon stock changes from soil for climate-resilient and sustainable rice production systems’ workshop,** 29-30 June 2022

  - Co-organized with FAO-HQ and FAO-RAP



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Various Engagements

- **ANGA negotiation at COP27,** 6-18 Nov 2022 in Sharm El Sheikh, Egypt

Various Engagements

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- **GCF Agriculture Readiness Grant Launching at the COP27**, in Sharm El Sheikh, Egypt
  - The Green Climate Fund (GCF) Agriculture Readiness Grant for the Enhanced Climate Finance and Implementation of Koronivia Joint Work on Agriculture (KJWA) was finally approved and launched at the Thai Pavilion of COP27.

Photo: ASEAN-CRN/Dada Bacudo

https://asean-crn.org/gcf-agriculture-readiness-grant-launching-at-the-

Various Engagements

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EU-ASEAN Dialogue on: Decarbonisation challenges for the ASEAN Agricultural sector and building transformative and resilient pathways : Direct contribution to the 2021-2022 AMAF priority area

Objective:

Aims to uncover the decarbonization challenges for ASEAN Agriculture sector to build transformative and resilient pathways for net neutrality

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Plan activities in 2023

Plan activities in 2023

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1) 'The 8th ASEAN-CRN Annual Meeting (4 Apr 2023) [back-to-back with 17th ATWGARD Meeting (5 Apr 2023)] – virtually

- Hosting by Philippines
- ASEAN-CRN Chair to report on the last year activities and achievements of ASEAN-CRN
- ASEAN-CRN focal points to update on what they are doing in relation to climate change and agriculture
- To review the agreed 2-year workplan (2022-2023)
- To agree on the internal ASEAN-CRN matters, e.g., amended TOR, ASEAN-CRN Secretariat mechanism and institutionalisation

2) 'ANGA regional event #2/2023 (Sept 2023)

- To discuss on priority issues for ANGA and the ways forward

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ASEAN-CRN contributions

- By now, the ASEAN-CRN has facilitated countless,
- Partnerships
- Collaborations
- Coordination
- Personal and professional linkages

That developed into projects and relationships. Both documented and undocumented.

All of this is being done to contributed to the **ASEAN Cooperation Vision 2025 on Food, Agriculture and Forestry** and the **ASEAN Comprehensive Recovery Framework.**

Thank You

Terima Kasih
Brunei

ស្មអរគុណ
Cambodia

Terima Kasih
Indonesia

ຂອບໃຈ
Laos

Terima Kasih
Malaysia

ကျေးဇူးတင်ပါတယ်
Myanmar

Salamat Sa Iyo
Philippines

Thank You
Singapore

ขอบคุณค่ะ
Thailand

cảm ơn bạn
Vietnam

ASEAN-CRN

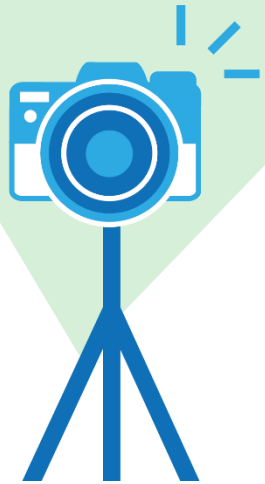
Email:
secretariat@asean-crn.org

Website:
asean-crn.org

YouTube

ASEAN Climate Resilience Network

Group Photo



Event Moderators

Dada Bacudo

ASEAN CRN Coordinator

Moderator

Anusara Tanpitak (Sara)

Mekong Institute

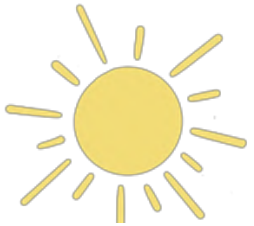
Overall support

Than Tha Aung

Mekong Institute

Online Moderator and Note-taker

Getting to know (15min)

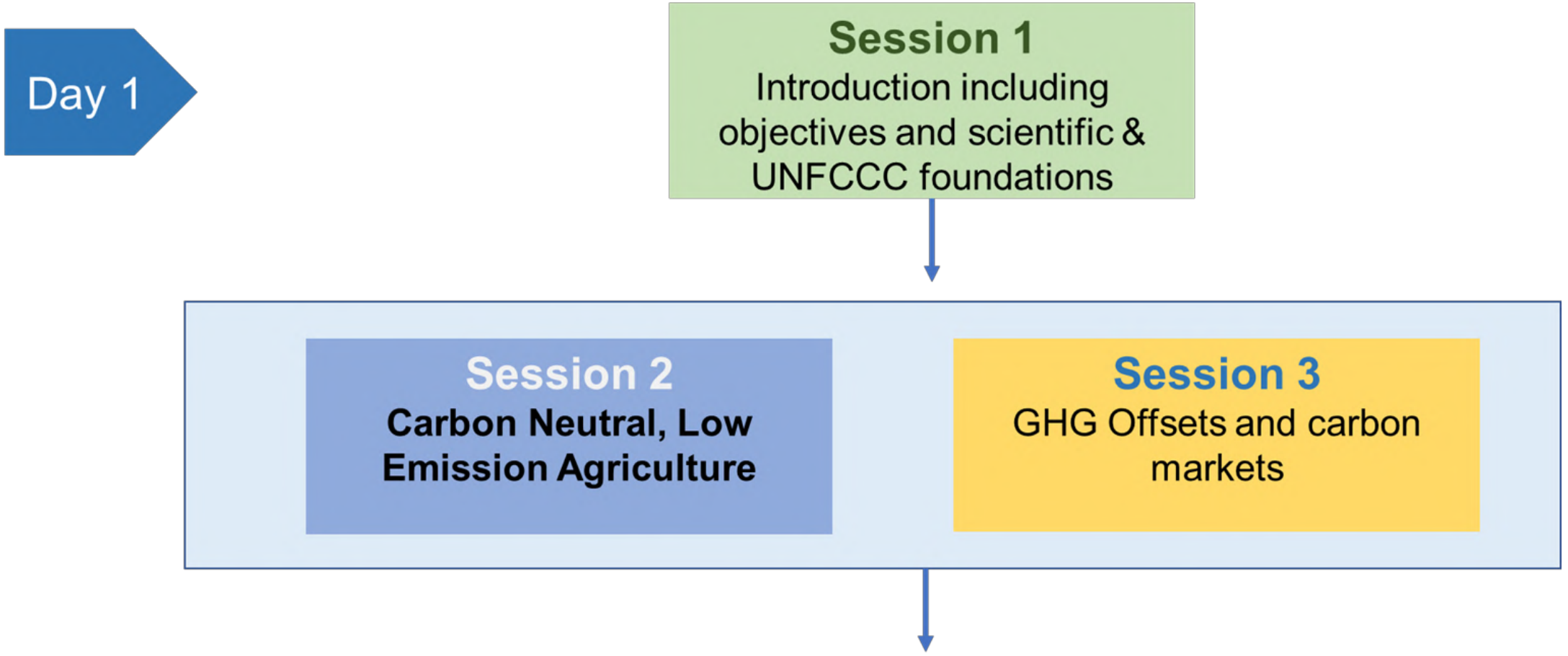


1. **Onsite participant** writes on a white card in front of you: Name, country and your role on the cards.
2. **Online participant** writes in the chat box instead.
3. **Examples are**: *researcher, project coordinator, cheerleader, budget holder, implementer, policy specialist, national investment planner, adviser, strategist, partners, start-up, international organisations, development partners.*

Event Objectives

- **To enhance understanding** of utilization of agromet, climate information services and digitalization of information as well as potential use of agro-insurance in accessing loss and damage funds
- **To increase knowledge** on how agriculture can help achieve national climate targets
- **To identify potential collaborations** among partners of ASEAN-CRN
- **To start identifying finance and implementation options** to take forward KJWA in the region in conjunction with the Southeast Asian GCF Readiness Grant and other initiatives

Programme Roadmap



Programme Roadmap

Day 2

Session 4
Climate resilient agriculture including agro-met & risk management.

Session 5
Experiences with **climate finance** for agriculture including innovative approaches

Programme Roadmap

Session 6

Partnership Forum

Day 3

Session 1: 10.00-10.50

Science update:

IPCC and Climate Outlook with Impacts on ASEAN Agriculture

Babu Suresh
International Food Policy Research Institute (IFPRI)

Veronica Doerr
Australian Centre for International Agricultural Research (ACIAR)

Janek Toepper

Beau Damen
FAO

Food and Agriculture Organization of the United Nations

Scaling up Climate Ambition on Land Use and Agriculture through NDCs and NAPs (SCALA)

ASEAN-CRN Knowledge Exchange Event and Partners Meeting

28 March 2023

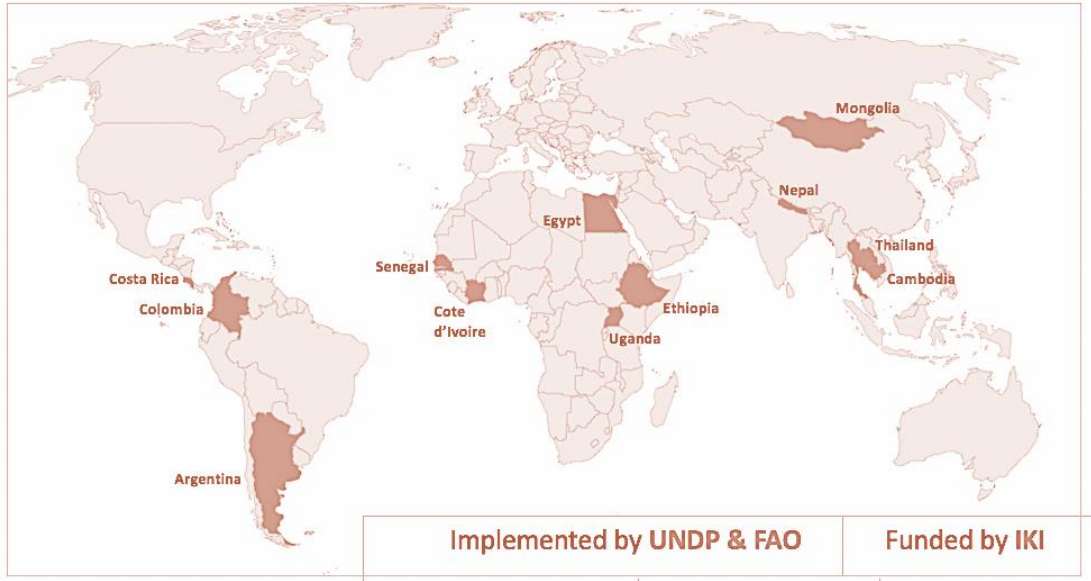
Food and Agriculture Organization of the United Nations

SCALA Programme Overview and Asia Highlights

Scaling up Climate Ambition on Land Use and Agriculture through NDCs and NAPs (SCALA)

SCALA Goal

Support transformative climate action in the land-use and agriculture sectors to reduce GHG emissions and/or enhance removals, as well as strengthen resilience and adaptive capacity to climate change in participant countries.

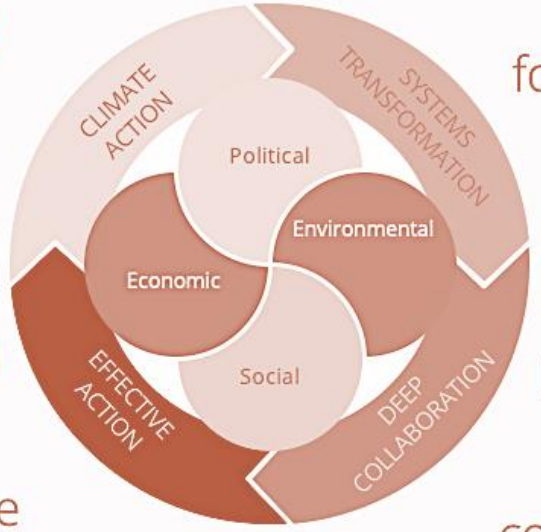


Implemented by UNDP & FAO	Funded by IKI	
12 countries	20 million euros	2020-2025

WHY WAS SCALA DESIGNED?

Achieving climate related goals in land use and agriculture

Transformation of food and agricultural systems

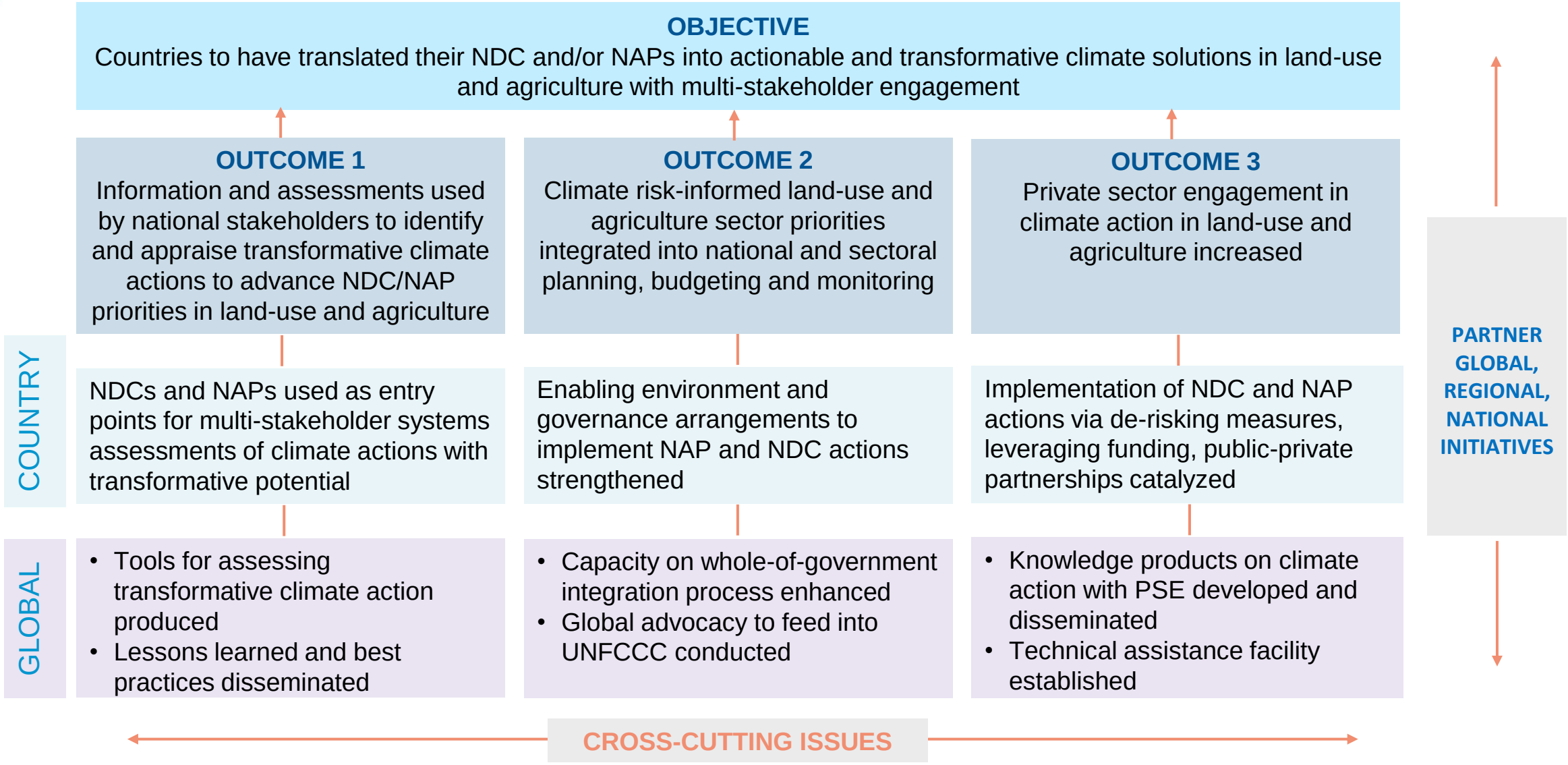


NDCs and NAPs with actionable, transformative climate solutions

Inclusive, multi-stakeholder collaborative action

A 'systems view' of the SCALA Programme

SCALA's approach



SCALA Asia Highlights - Institutional anchors and focus areas

Thailand: Climate Change Action Plan for the Agricultural Sector (CCAPA 2023-2027)

- Potential focus on livestock systems (incl. maize feed) and manure management/ biogas – systems-level assessment in 2023
- Link to MRV, M&E under CCAPA

Cambodia: MAFF's Climate Change Priority Action Plan 2023-2030

- Focus on sustainable forest management (SFM) and livestock systems – systems-level assessment in 2023
- Link to MRV, M&E under CCPAP

Mongolia: New Livestock Tax Law

- Sustainable herding practices and pastureland management, including via Hackathon-winning mobile application

Nepal: NDC implementation plan (AFOLU sector action plan), NAP

- Focus on climate-smart rice and livestock (dairy) systems, support to MRV of methane emissions, PSE for selected value chains

Food and Agriculture Organization of the United Nations

Global context
Connecting science to policy

Scaling up Climate Ambition on Land Use and Agriculture through NDCs and NAPs (SCALA)

Agriculture in UNFCCC

Sho

Year	COP	What happened?
2007	COP 13	Bali Action Plan: idea emerged
2009	COP 15	Copenhagen: draft decision was prepared - no adoption
2010	COP 16	Cancun: no decision adopted
2011	COP 17	Durban: proposed “issues relating to agriculture” - under SBSTA
2013	COP 18	Doha: “issues relating to agriculture” mandated
2017	COP 23	Bonn/Fiji: “issues relating to agriculture" turn into KJWA managed under joint agenda item - “SBSTA- SBI”
2018	SB48	KJWA Roadmap: annex I of FCCC/SBSTA/2018/4 and FCCC/SBI/2018/9
2022	COP27	Sharm el-Sheikh: End of KJWA Roadmap and new decision FCCC/CP/2022/L.4 establishing the Four-Year Sharm el-Sheikh Joint Work

KJWA in a Snapshot (2017-2022)

Key Achievements

- Created a **KJWA "family",** a sense of belonging and an understanding for the urgency to act "collectively"
- Gave **agriculture a more prominent** role in the climate negotiations
- **KJWA Roadmap** – (balanced) look at both adaptation and mitigation (co-benefits)
- Raised **awareness** and **understanding** of ag/non-ag stakeholders on the "**particularity and vulnerability** of agriculture, food security and food systems in the context of climate change"
- **More stakeholder involved**: parties, constituted bodies, operating entities of the
financial mechanisms, non-state actors

KJWA in a Snapshot (2017-2022)

Key Achievements

- KJWA Roadmap and its workshop reports reflected the **rich discussion** (wealth of insights), **latest science**, **national circumstances**, **realities** faced by farmers, and **ways of mobilizing climate action** in the area of agriculture and food security
- Built a **common understanding** of relevant challenges and opportunities;
- mapping of **activities** and **mandates** of **UNFCCC bodies**
- KJWA **regionalization**, workshops and prepared submissions at regional level, regional and context-specificity
- KJWA roadmap has helped **focus work** of the institutions, organisations and stakeholders to **new and additional activities and initiatives** in the field
- **Agriculture** high on the **international agenda** (launch of

UNFCCC COP27 – Moving to Implementation

Key outcomes for Agriculture and Food Security

FAST
Food and Agriculture for Sustainable Transformation Initiative

AWARe
Action on Water Adaptation and Resilience

I-CAN

Food and Agriculture for Sustainable Transformation (FAST)

Action for Water Adaptation and Resilience (AWARe)

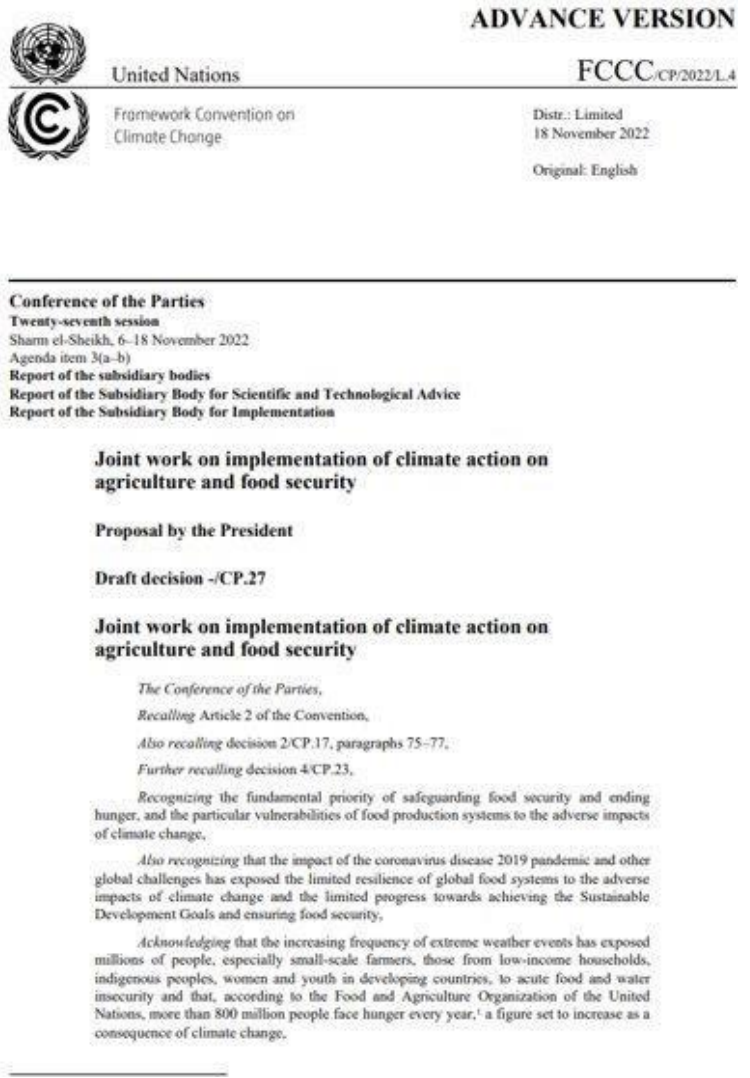
Initiative on Climate Action and Nutrition (I-CAN)

- Sharm el-Sheikh Implementation Plan
- Agreement on New "Loss and Damage" Fund for Vulnerable Countries,
- Operationalization of the Santiago Network,
- Global Waste Initiative 50 by 2050,

Four-Year Sharm el-Sheikh Joint Work

Implementation of Climate Action on Agriculture and Food Security

- **Turning point** for the Koronivia Joint Work on Agriculture (KJWA) process with the adoption of a new decision FCCC/CP/2022/L.4
- **Establish** the four-year Sharm el-Sheikh joint work on **implementation of climate action on agriculture and food security** (para 14)
- Includes implementation of the **outcomes of the KJWA** and **previous activities** (1, 2, 3, 4, 5) addressing issues related to agriculture, as well as **future topics** (para 14)
- Establish the **Sharm el-Sheikh online portal**:
  - ✓ **sharing information** on projects, initiatives and



ADVANCE VERSION

United Nations

Framework Convention on Climate Change

FCCC/CP/2022/L.4

Distr.: Limited
18 November 2022

Original: English

Conference of the Parties
Twenty-seventh session
Sharm el-Sheikh, 6–18 November 2022
Agenda item 3(a–b)
Report of the subsidiary bodies
Report of the Subsidiary Body for Scientific and Technological Advice
Report of the Subsidiary Body for Implementation

Joint work on implementation of climate action on agriculture and food security

Proposal by the President

Draft decision -/CP.27

Joint work on implementation of climate action on agriculture and food security

The Conference of the Parties,

Recalling Article 2 of the Convention,

Also recalling decision 2/CP.17, paragraphs 75–77,

Further recalling decision 4/CP.23,

Recognizing the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change,

Also recognizing that the impact of the coronavirus disease 2019 pandemic and other global challenges has exposed the limited resilience of global food systems to the adverse impacts of climate change and the limited progress towards achieving the Sustainable Development Goals and ensuring food security,

Acknowledging that the increasing frequency of extreme weather events has exposed millions of people, especially small-scale farmers, those from low-income households, indigenous peoples, women and youth in developing countries, to acute food and water insecurity and that, according to the Food and Agriculture Organization of the United Nations, more than 800 million people face hunger every year,[1] a figure set to increase as a consequence of climate change,

Four-Year Sharm el-Sheikh Joint Work

Key recommendations

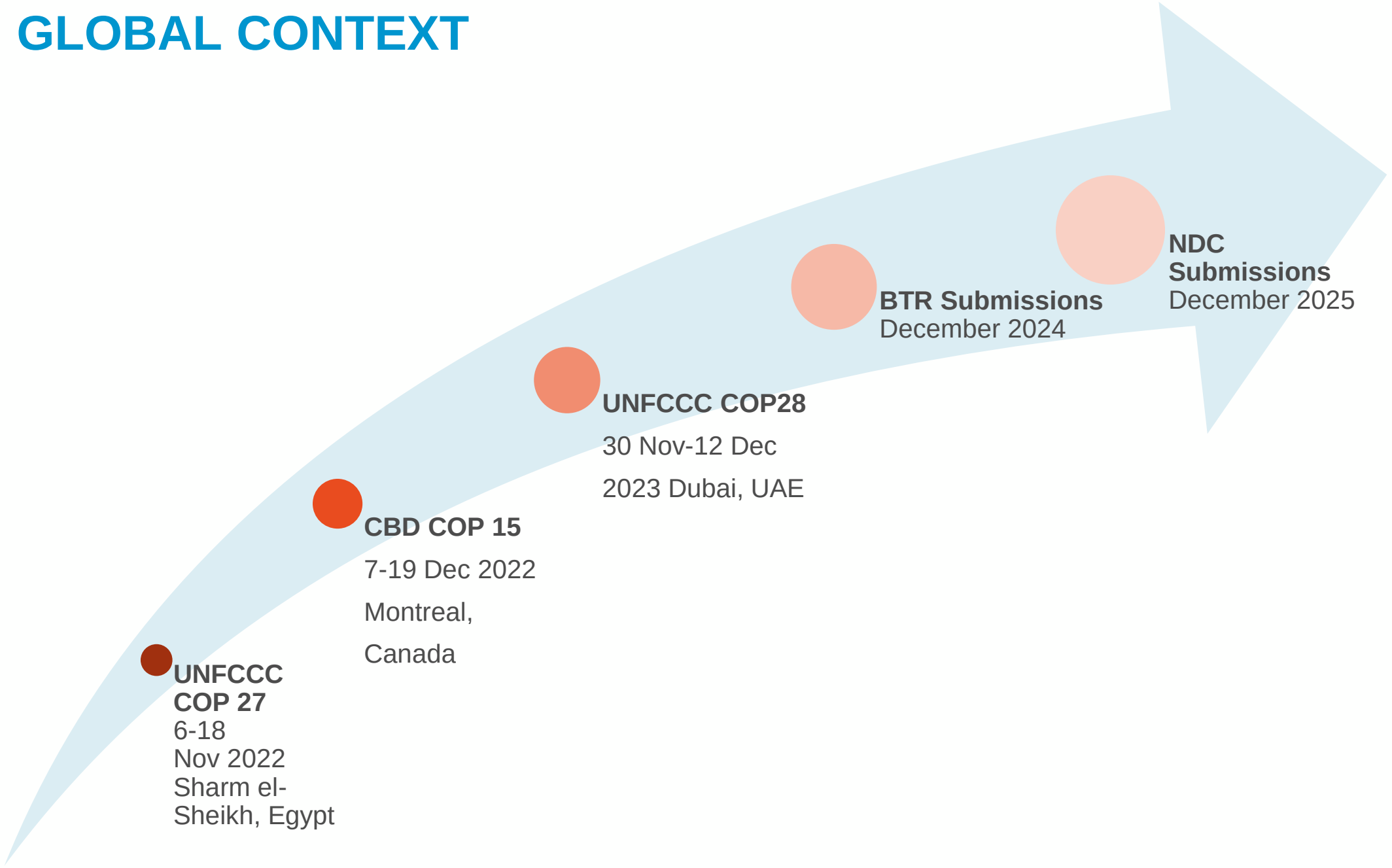
What did we take further….KJWA highlighted and emphasized the need (para 8-9)

- to identify **modalities** for addressing challenges in and exploring opportunities for **accessing existing means of implementation**
- for enhanced **climate action, coordination** with and among actors outside the UNFCCC;
- to strengthen work under relevant **institutional arrangements** under the Convention
- to **scale up action and support** with regard to capacity-building, access to finance, and

Four-Year Sharm el-Sheikh Joint Work

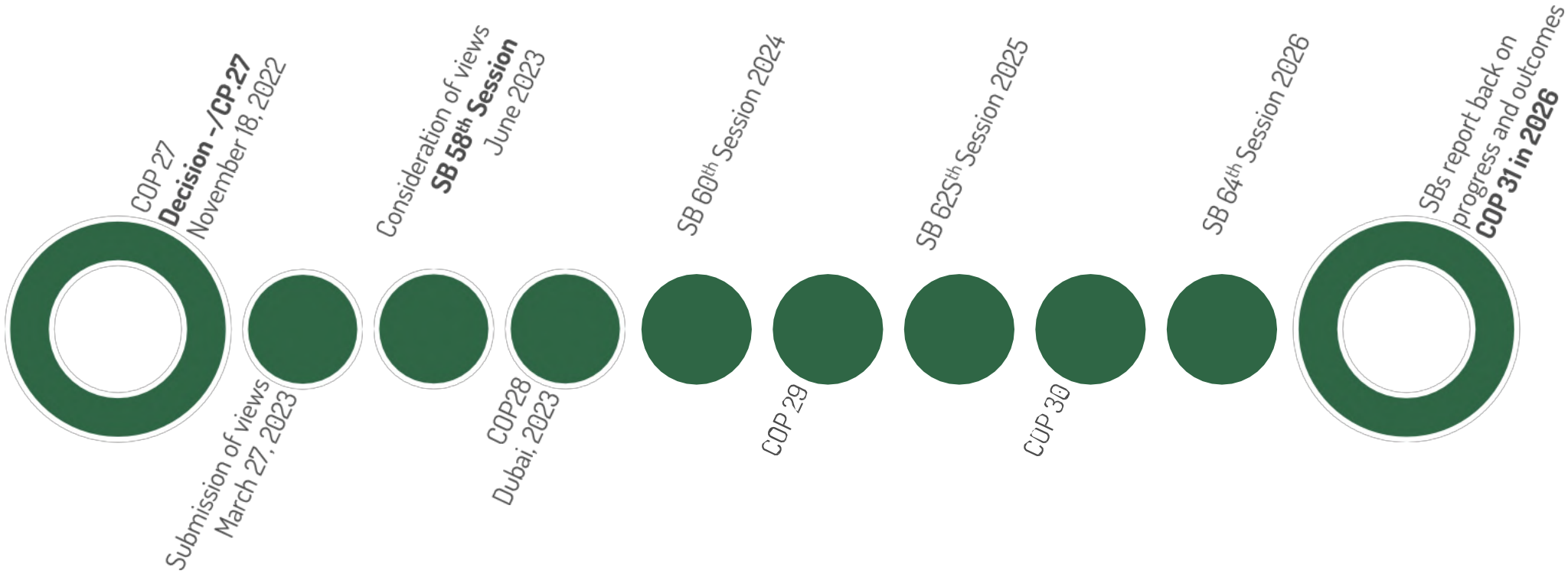
- *Promote a **holistic approach**;*
- *Enhance **coherence, synergies, coordination, communication** and **interaction;***
- *Promote **synergies** and strengthening **engagement**, **collaboration** and **partnerships**;*
- *Provide **support** and **technical advice** on climate action;*
- *Enhance **research and development** on issues related to agriculture and food security;*
- *Consolidate and share related **scientific**, **technological** and other **information**, **knowledge** (including local and indigenous knowledge), **experience**, **innovations** and **best practices**;*
- ***Evaluate progress** in implementing and cooperating on climate action;*
- ***Share information** and **knowledge** on developing and implementing **national policies, plans and strategies** related to climate change*

GLOBAL CONTEXT



Four-Year Sharm el-Sheikh Joint Work

Next Steps



Elements for the Joint Work

Towards a regional Joint Submission from the ASEAN Group

SHIFT TO IMPLEMENTATION

Defining a logical framework with outcomes, outputs and SMART (specific, measurable, achievable, realistic and time- bounded) activities and clear roles and responsibilities with a focus to facilitate implementation on the ground.

HOLISTIC APPROACH

The Joint Work must move towards a holistic approach to help address adaptation and mitigation challenges in agriculture and ensure food security for all. Focus on a broader concept of sustainable agrifood systems would help to address the root causes of the agrifood systems' underperformance.

KNOWLEDGE SHARING

Several knowledge- sharing and capacity- building forums on developing and implementing national policies, plans related to climate change, already exists and the Joint Work should capitalize and build on those.

RESEARCH, DEVELOPMENT, SCIENCE & TECHNOLOGY

Governments must invest in national research, development, science, and innovation with a focus on locally - relevant, adaptive research

ANGA Submission

REQUEST optimizing the main function of the Sharm El Sheikh "Joint work on implementation of climate action on agriculture & food security" to prioritize the climate-smart agriculture (CSA) technology innovation by identifying, sharing, and transferring the effective technologies or tools to the smallholder farmers

1. expected to **mobilize resources** to support the research and policy development to enhance the implementation of CSA at the national and regional levels.

ENCOURAGE the joint work involving multi-stakeholders move towards on the real actions on the grounds,

THANK YOU!

www.fao.org/in-action/scala

www.adaptation-undp.org/scala

Supported by:

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

based on a decision of
the German Bundestag

IKI INTERNATIONAL CLIMATE INITIATIVE

Tea/Coffee Break

10.50-11.10

Session 1: 11.10-11.40

The role of agriculture under the UNFCCC in *climate negotiations*

- ASEAN submission on Joint Sharm-el-Sheikh work on agriculture
- Launch of UNFCCC Negotiators Course: overview of course and purpose

Dr. Pham Quang Minh,
Head of Food, Agriculture and Forestry Division (FAFD), ASEAN Secretariat

Pouchamarn Wongsanga,
Regional Component Leader, GIZ

Beau Damen
Natural Resources Officer, FAO

Moch Taufique Mujib
Technical Advisor, GIZ Indonesia

E-Learning Launch (5min)

https://bit.ly/3Z68bx3

Beau Damen
Natural Resources Officer, FAO

Moch Taufique Mujib
Technical Advisor, GIZ Indonesia

Objective and Content

Objective: to onboard and enhance the ASEAN delegations' capacity to the negotiation landscape under the United Nations Framework Convention on Climate Change (UNFCCC) and its Paris Agreement, particularly on agriculture and food security in the international climate change agenda.

1. Multilateral approach to fighting climate change – The UNFCCC, the Kyoto Protocol and the Paris Agreement
2. UNFCCC Structures and Meetings
3. Negotiating and reaching agreement under the UNFCCC
4. Negotiations and Negotiation Skills

The e-learning course development is a collaboration between the GIZ ASEAN-German Cooperation projects, the Food Agriculture Organization of the United Nations (FAO) and ASEAN with technical assistance from CAOS - Borboletas e Sustentabilidade, Lda., and FAO E-Learning Academy.

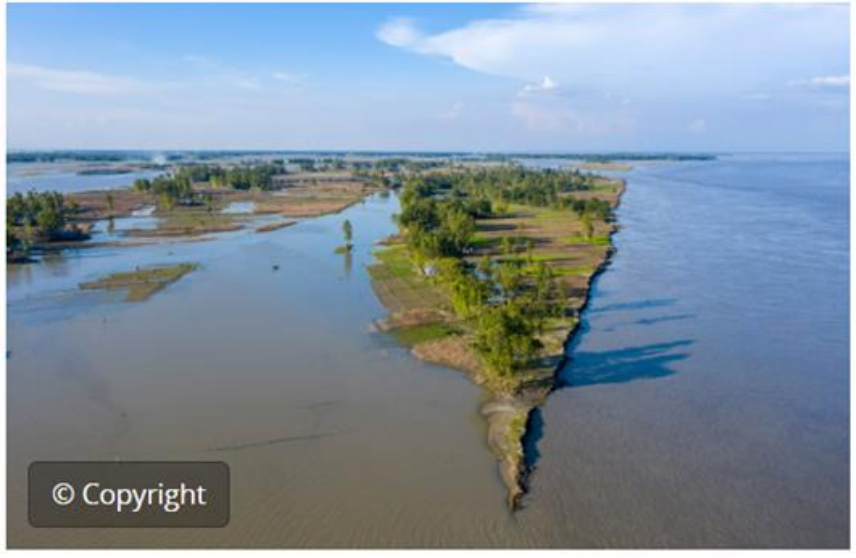
The E-Learning Course

1

To enroll and start the course, please visit
https://bit.ly/3Z68bx3

2

A digital certificate will be issued to learners once they have completed the course and passed the evaluation examination.



Climate Change Negotiations for Agriculture Stakeholders

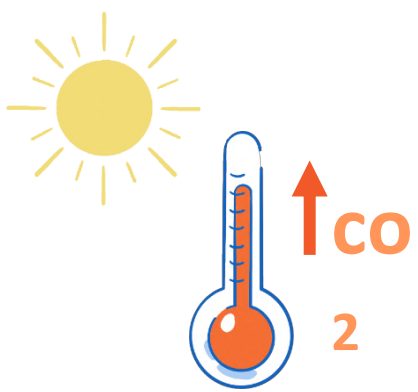
CERTIFIED COURSE

This course has been developed to provide basic knowledge on climate change negotiations in the scope of the United Nations Framework Convention on Climate Change (UNFCCC), and its Paris Agreement, in order to support onboarding of new members of the National Delegations. It has a specific focus on thematic negotiations related to agriculture.

Released in: FEBRUARY 2023

1 h 45 m of learning

Lunch on 4th Fl.



Session 2

Carbon Neutral, Low Emission Agriculture

Session 2: 13.00-13.15

Recap: Foundation of net zero in the Paris agreement

Beau Damen
Natural Resource Officer, FAO

Food and Agriculture Organization of the United Nations

Resilient & low emissions agriculture **Review**

28 March 2023

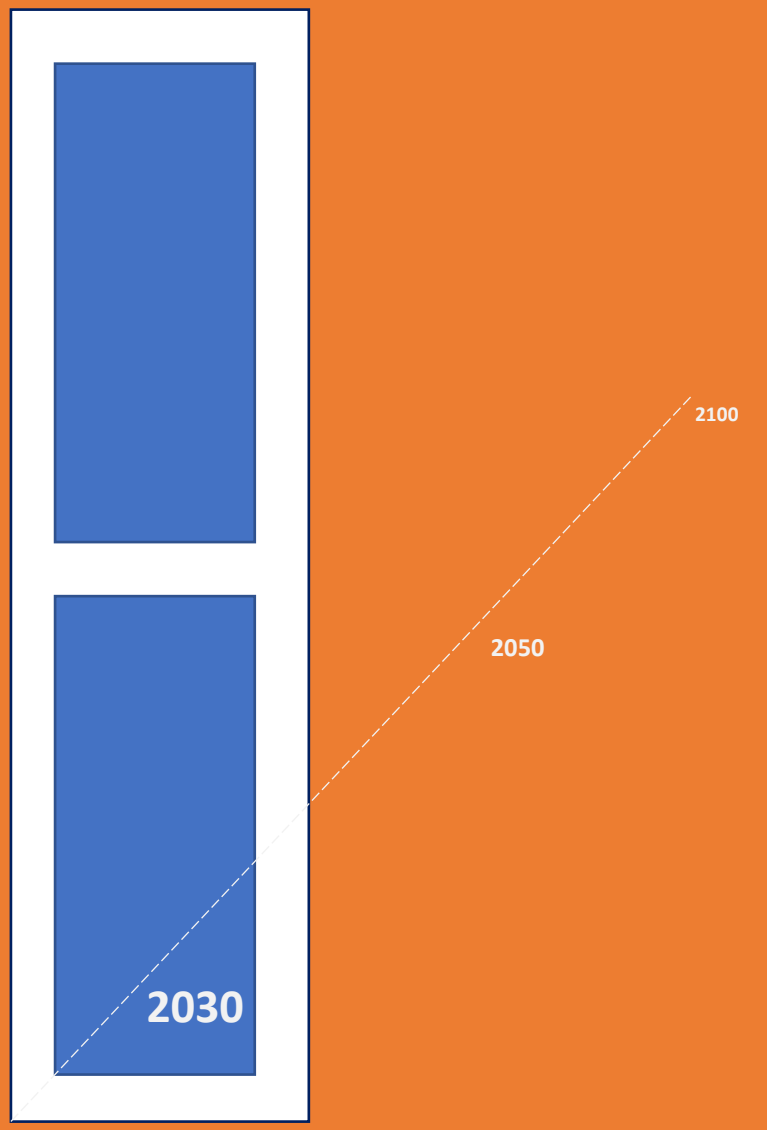
Beau Damen, FAO Regional Office for Asia and the Pacific

Food and Agriculture Organization of the United Nations

Outline

1. Paris Agreement and foundations for action on low emission development including agriculture – NDC, LTS, ETF, Art. 6
2. Net Zero concepts, definitions and issues

Food and Agriculture Organization of the United Nations



A narrow window

- Climate impact drivers of importance to agrifood systems have already changed or are changing compared to past climate conditions
- System-wide impacts of such changes could have been significant – reducing agricultural productivity by almost 20 per cent between 1961 and 2020
- Early investment is required to ensure that agrifood systems can withstand future shocks and avoid dangerous change
- Narrow window for action corresponds with the commitment period of the Paris Agreement

Food and Agriculture Organization of the United Nations

Foundations for action

Mechanism	Policy Instrument	Description
Long-term strategies (LTS) for low emission and resilient development	• Article 4 of the Paris Agreement (Para 19)	• Encourages countries to formulate and communicate long-term low greenhouse gas emission development strategies
Nationally Determined Contribution (NDC)	• Article 4 of the Paris Agreement (Para 2)	• Requires countries to define specific GHG emission reduction and adaptation targets with detailed implementation plans
Sustainable financing mechanisms	• Article 6 of the Paris Agreement	• Provides different mechanisms to leverage resources for climate action including cooperative approaches (Article 6.2 – ITMOs); new crediting mechanism (Articles 6.4–6.7); and non-market cooperative approaches (Articles 6.8 and 6.9
Enhanced Transparency for climate Action	• Article 13 of the Paris Agreement	• Requires tracking progress towards Parties' NDCs with information on the implementation and achievement of the NDC

Paris Agreement - The big picture

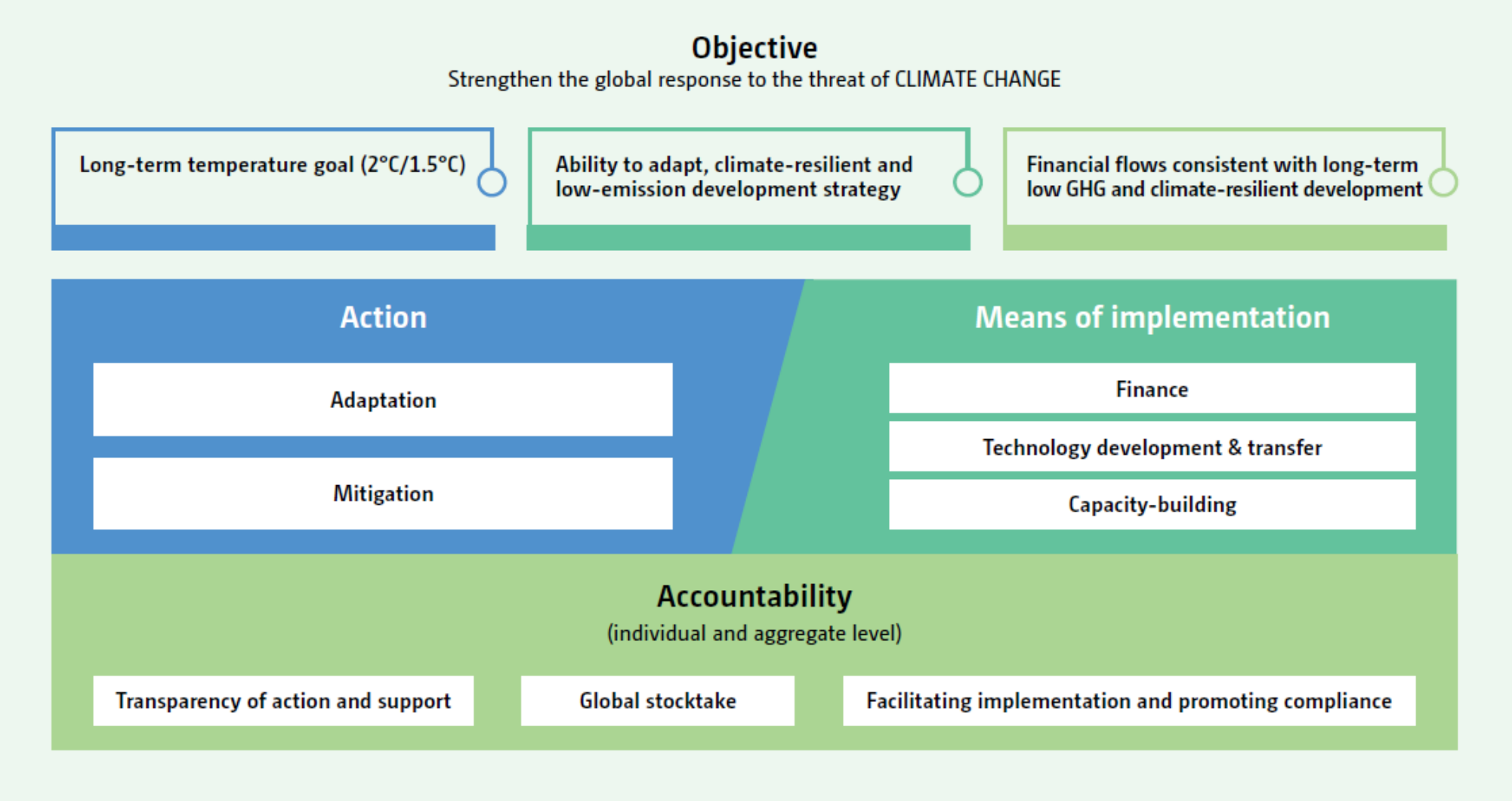
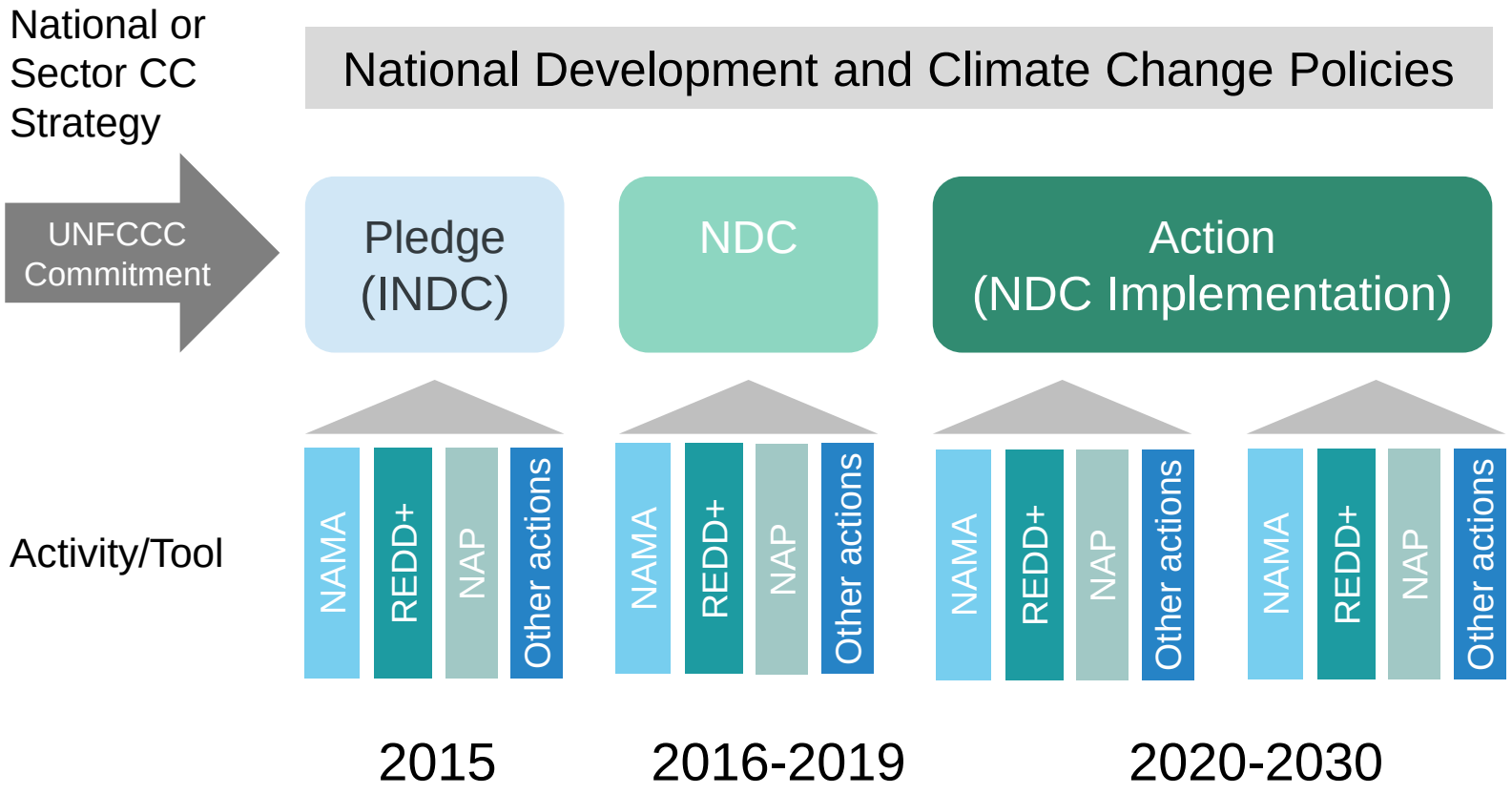


Figure: Interconnections between elements of the Paris Agreement

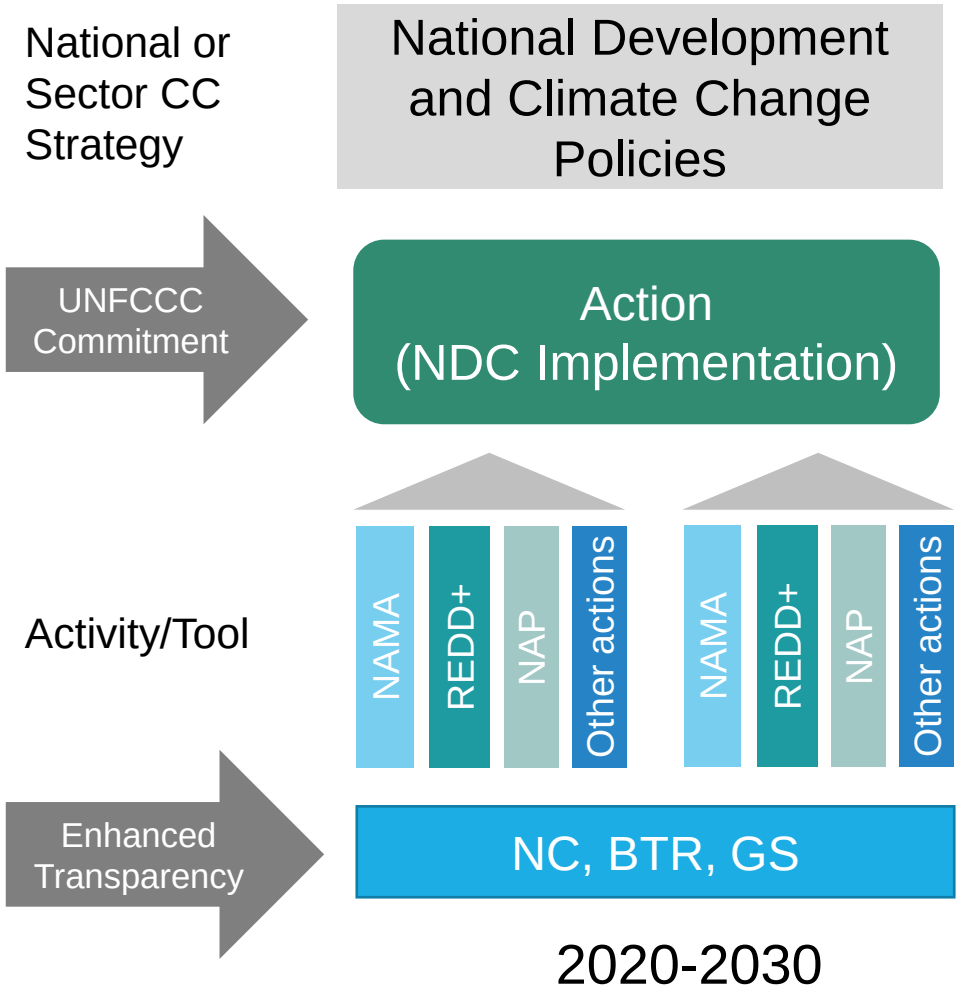
Source: CGE, 2022

NDC (following Paris)



Adapted from: GIZ, 2015

NDC (Commitment period)



Adapted from: GIZ, 2015

Enhanced Transparency Framework (ETF)

Enhanced

- Enhances existing international systems for the reporting and review of climate-relevant information.

Transparency

- No formal definition
- One of the five pillars upon which reporting and review of GHG – TACCC Principles

Framework

- For all countries based on principle common but differentiated responsibilities and respective capabilities

art. 13, par. 1

Figure: TACCC Principles

Enhanced Transparency Framework

- **Reporting** on national action and support to fight CC
  - GHG inventory
  - Policies and actions to reduce (i.e. “mitigate”) and adaptation
  - Support provided or received to meet their goals

- **Review** of the reported information

- **Multilateral consideration of countries’ progress**
  - A platform to showcase national actions and support
  - Identify and address gaps collectively
  - Facilitate more ambitious action

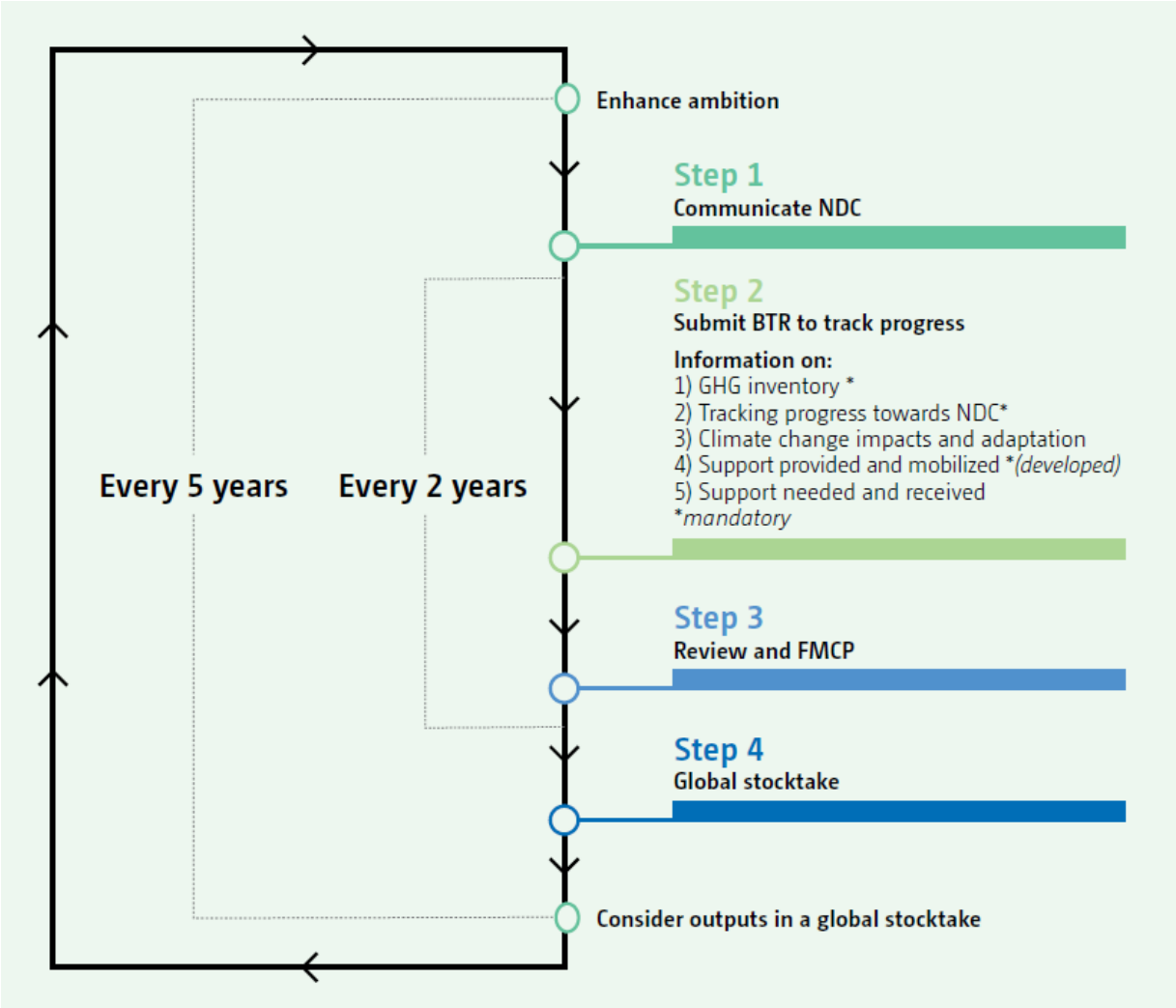


Figure: NDC accounting under Article 4 of the Paris Agreement

Food systems and transparency

- Food systems (AFOLU, food processing and waste) **feature prominently** in most **NDCs**
- Food systems are the **2nd largest source of GHG emissions** after energy (16.1 Gt CO_2eq yr^{-1} or 31% of global emissions)
- 94% of countries have included an **adaptation** section in the NDC
- Most NDC priorities related to food systems are **not quantified** or **costed**

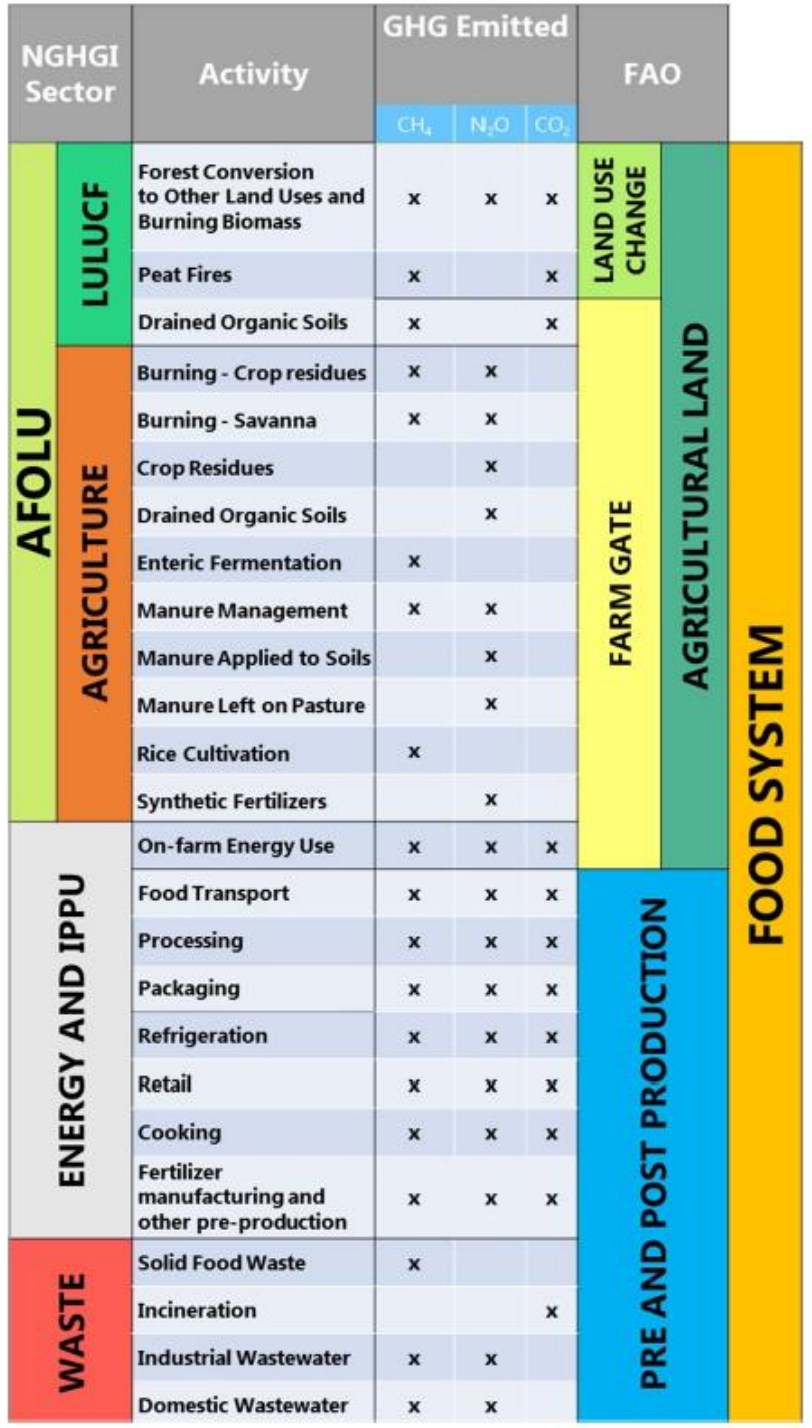
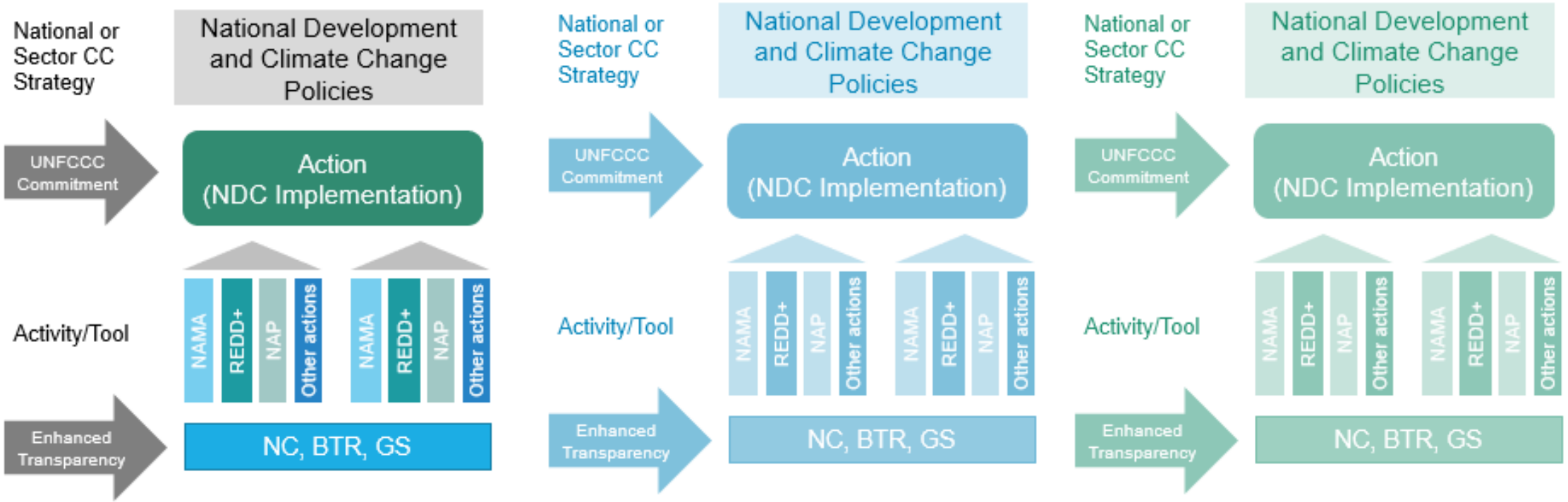


Figure - Comparative mapping between reporting categories in NGHGIs, organized by IPCC and FAOSTAT definitions used for food system accounting

Source: Tubiello et al, 2021.

NDC & LTS

LTS = National vision for low emission and resilient development.
May include commitments for decarbonization, carbon neutrality, and/or net zero GHG.



2020-2030 (Paris)

2030-2040 (?)

2040-2050 (?)

Adapted from: GIZ, 2015

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Key definitions – Low emission development

- **Carbon neutrality** - Achieving net zero carbon dioxide emissions at a global scale through the balance of residual carbon dioxide emissions with the same amount of carbon dioxide removal.
- **Net-zero carbon dioxide emissions** - Conditions in which any remaining anthropogenic carbon dioxide (CO2) emissions are balanced globally by anthropogenic CO2 removals.
- **Net-zero greenhouse gas emissions** – Emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals. Where multiple greenhouse gases are involved, the quantification of net-zero emissions depends on the climate metric chosen to compare emissions of different gases (such as Global warming potential,
- **Climate neutrality** - a state in which human activities result in no net effect on the climate system.

Source: IPCC

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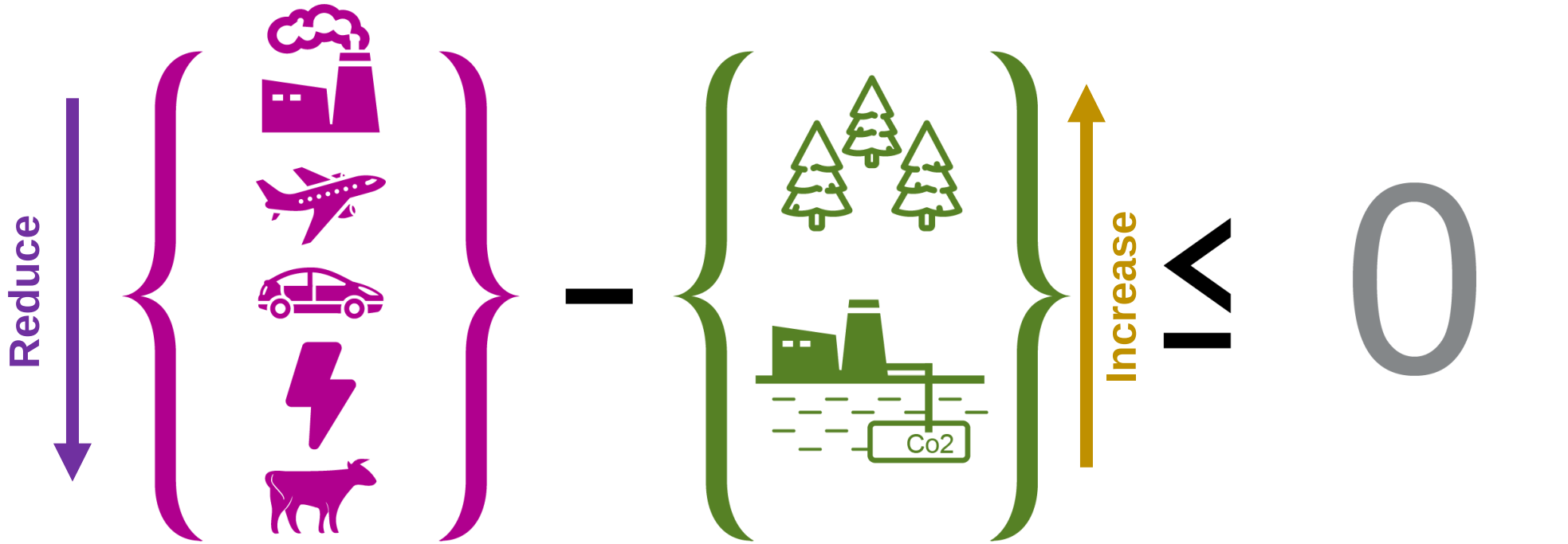
What does “net zero” mean?

What is action toward net zero?



Total greenhouse gas emissions

Emissions removed

Purchase or exchange offsets

Equal to or less than zero

Source: https://sp-bpr-en-prod-cdnep.azureedge.net/published/ECCLR/2019/3/4/Stage-1-Report-on-the-Climate-Change--Emissions-Reduction-Targets---Scotland--Bill/Net-zero.png

Food and Agriculture Organization of the United Nations

Key agriculture & land-use technologies & approaches for net zero

Forests - Protect
- Reduce deforestation
- Reduce mangrove loss
- Reduce peatland destruction

Forests – Manage
- Improve forest management
- Grassland fire management

Forests – Restore
- Afforestation and reforestation
- Mangrove restoration
- Peatland restoration

Ag –Reduce emissions
- Enteric fermentation
- Manure management
- Nutrient management
- Rice cultivation

Ag – Sequester
- Agroforestry
- Biochar
- Soil organic carbon in crop lands
- Soil organic carbon in grasslands

Demand
- Clean cookstoves
- Reduce food waste

Source: Roe et al, 2021

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of the United Nations

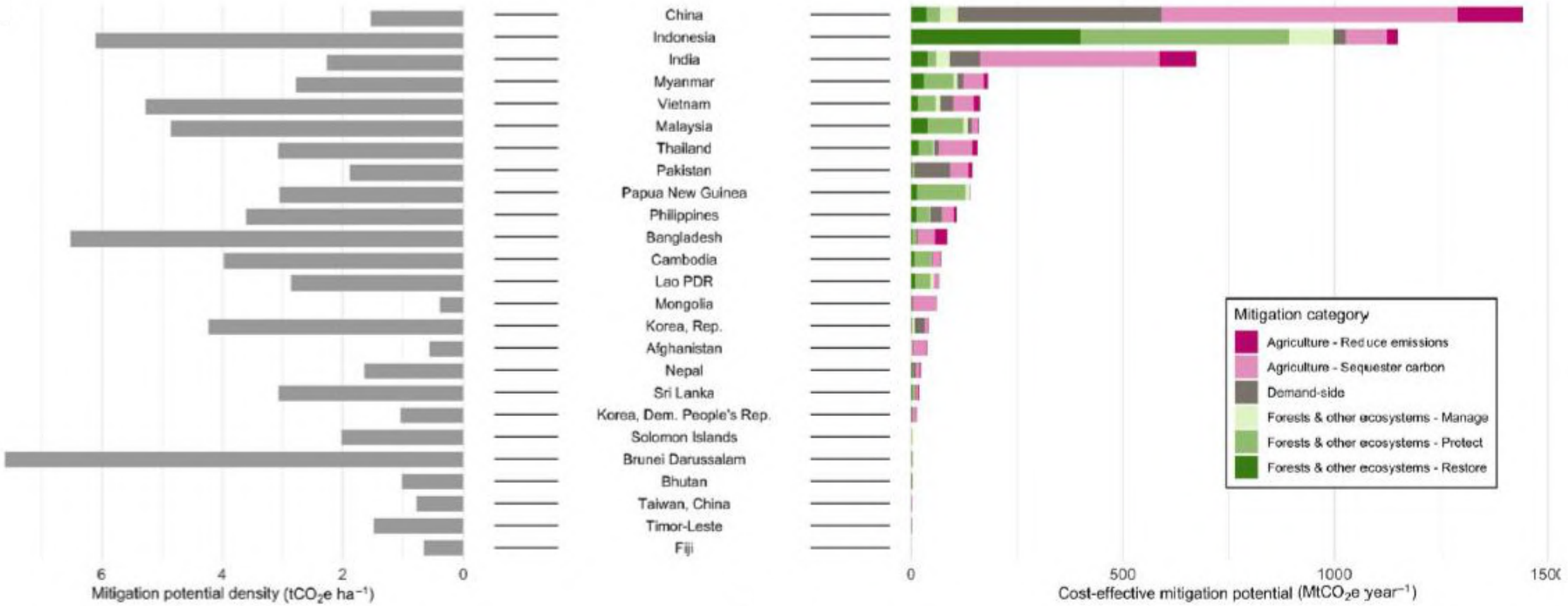

Figure - Total cost-effective mitigation potential by mitigation category (colored bars) and mitigation density of cost-effective potentials (gray bars), by country

Source: Roe et al, 2021

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Challenges

- Technologies unproven at scale – Feasibility?
- Potential trade-offs with other sustainable development priorities including food security
- Equity
- Non-permanence
- Leakage
- Maladaptation

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Climate-resilient (and low emission) agrifood systems

- Climate change results in a range of shocks to agrifood systems that will differ in frequency and extremity over space and time
- Climate resilient agrifood systems address these risks by encouraging action to:

  1) Anticipate, absorb and accommodate shocks resulting from climate variability and change; and

  2) Minimize future risks through measures that can deliver adaptation and mitigation co-benefits
- Additional benefits including biodiversity conservation and restoration




Food and Agriculture Organization of the United Nations

FAO Reginal Priority - Action to accelerate sustainable natural resources management for **climate action**

Action at the regional level

1. Enhancing climate action and partnerships
2. Agriculture climate services and decision support
3. Anticipatory Action for Disaster Risk Management
4. Scaling up access to environment and climate finance

Key Programmes / Initiatives

- ASEAN Climate Resilience Network
- Scaling Climate Ambition in Agriculture and Land-use (**SCALA** - with UNDP & BMU)
- Capacity Building Initiative for Transparency (**GEF-CBIT)**
- ASEAN Sustainable Forestry & REDD+ Lower Mekong Initiatives
- US$381 Million FAO-GEF ongoing and pipeline projects
- US$274 Million FAO-GCF ongoing and pipeline projects

Session 2: 13.15-13.35

E-READI carbon neutrality guidelines, reaction and summary of next steps

Dada Bacudo
Dr. Rathana Peou Norbert Munns
EREADI

EU project
GIZ

Stefan Boessner,
Stockholm Environment Institute

ASEAN-CRN

Funded by the European Union

ASEAN Strategies for Carbon Neutrality in Agriculture and Land Use

Enhanced Regional EU-ASEAN Dialogue Instrument

E-READI

About E-READI

The Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI), funded by the EU, is a demand-driven cooperation programme that facilitates dialogue forums between the EU and ASEAN on joint priority policy areas across all three ASEAN Community pillars (political and security, economic, and socio-cultural). E-READI started on 1st September 2017, with a budget of EUR 20 million and the foreseen implementation period lasts until December 2023.

What kind of support does E-READI provide?

E-READI can offer organisational and logistical support to EU-ASEAN meetings, workshops or study visits, related to jointly identified policy dialogue areas.

E-READI can also fund expert studies and analyses in support of the sectoral dialogue areas or provide other short-term technical assistance support.

The team

Imelda Bacudo
Overall Coordinator

Errol Perera
Guidelines / Strategy Writer

Dr Rathana Peou
Climate Foresight Expert

David Chen
Baselines and Digital MRV Expert

Decarbonisation in agriculture in ASEAN

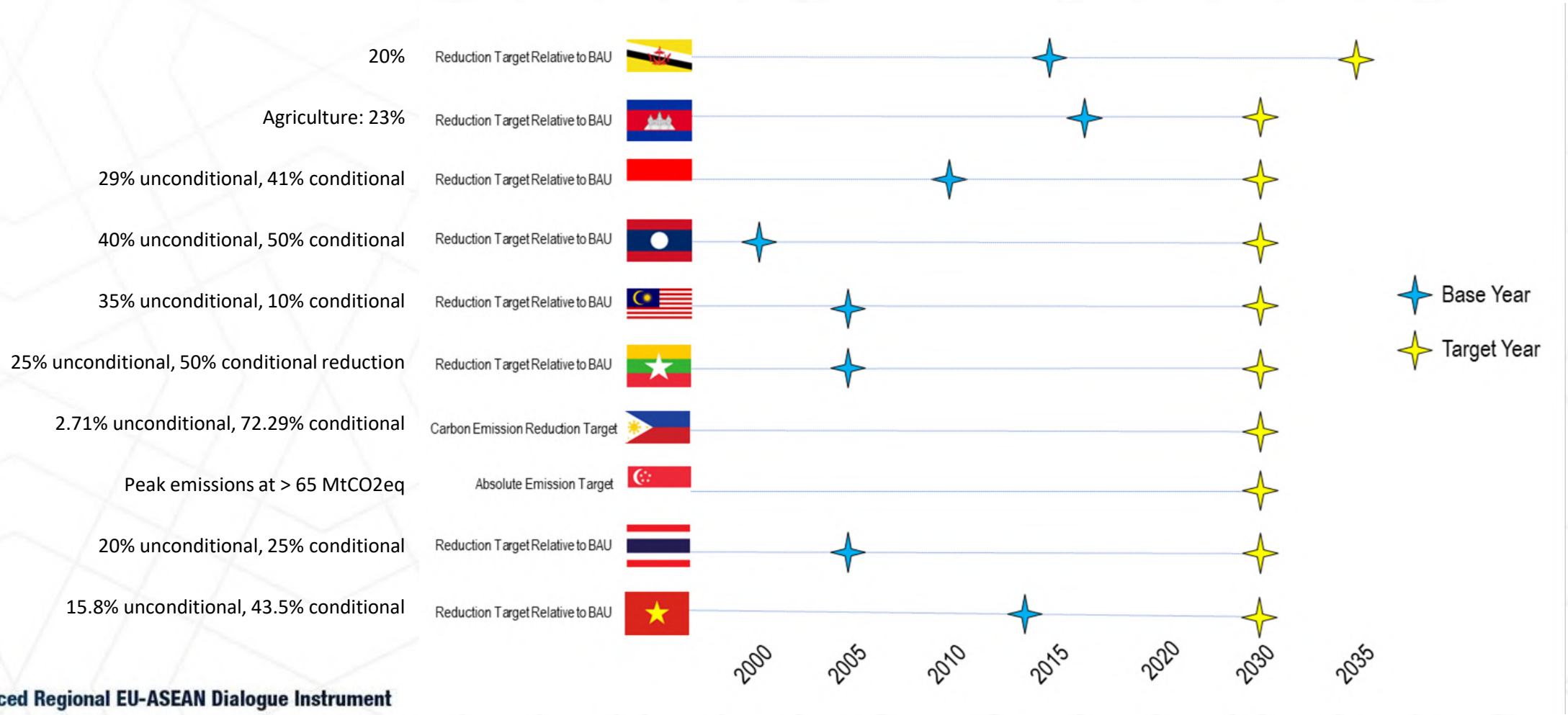
Decarbonisation: *Reduction of carbon dioxide emissions or achieving a lower output of greenhouse gasses into the atmosphere*

- Agriculture energy use and practices generate 1% of CO2 emissions and 38% of methane emissions
- ASEAN region is expected to be greatly affected by climate change because majority of its economic activities is heavily reliant on agriculture and coastal activities
- Emissions can be reduced through more sustainable farming practices, such as regenerative agriculture that enhances soil carbon storage and protects biodiversity

Initial recommendations towards decarbonisation efforts

- Reduce use of chemical-intensive farms, enhance efficient utilisation of resources (e.g., water, land, and fertiliser), promote sustainable land management techniques (e.g. agroforestry), improve agriculture systems' resilience by minimising unsustainable practices and by promoting sustainable and circular agriculture which include nature-based solutions, ecosystem-based approaches to farming, and climate-smart agriculture practices

ASEAN Member States' latest NDCs



ASEAN Member States' latest NDCs

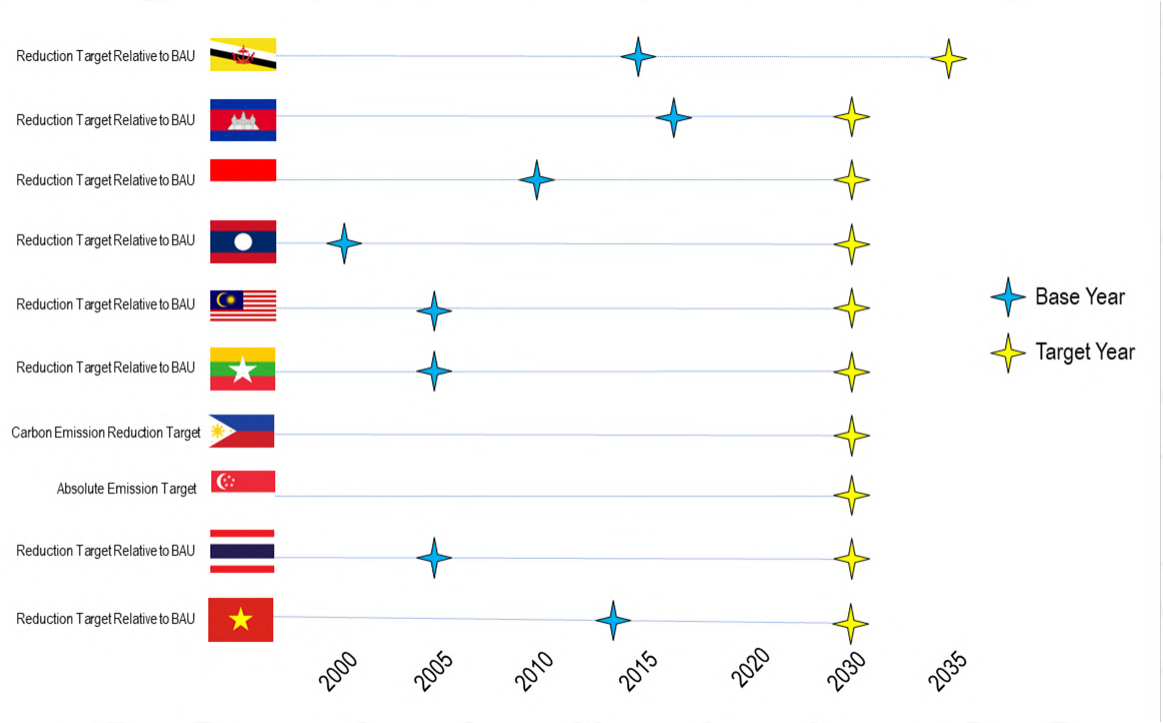
Despite these pledges, most ASEAN countries have not yet developed firm measures to help them achieve the targets

Building baselines

Baseline scenario

- A reference case that illustrates future GHG emission levels most likely to occur in the absence of GHG mitigation activities
- Usually described as the BAU (Business As Usual) scenario
- Determining the baseline scenario involves consideration of many alternative scenarios and choosing the most likely one

★ Baselines are highly specific to national contexts such as the start of intervention policies, monitoring, reporting, evaluation and data availability
★ Base years and target years vary for each and every country
★ Baseline scenarios of each country are uniquely defined and cannot broadly be compared



Modelling tools + Key databases + Measurement, Reporting & Verification (MRV)

=

More informed strategies for decarbonisation in agriculture

Modelling tools available

Tool	Developers	Users
AFOLU Carbon Calculator	United States Agency for International Development (USAID)	Practitioner
Agriculture and Land Use National GHG Inventory and Mitigation Analysis Software Tool (ALU)	National Renewable Energy Laboratory (NREL)	Practitioner
Ex-Ante Carbon-balance Tool (EX-ACT)	Food and Agriculture Organization of the United Nations (FAO)	
FLINT: The Full Lands Integration Tool	Moja Global	Practitioner
Global Methane Initiative		Generalist, Practitioner, Specialist
Open Foris		Generalist, Practitioner, Specialist
Partnership on Transparency in the Paris Agreement		Generalist, Practitioner, Specialist
The Nationally Determined Contribution Expert Tool (NEXT)	Food and Agriculture Organization of the United Nations (FAO)	Practitioner
Addressing agriculture, forestry and fisheries in National Adaptation Plans – Supplementary guidelines	Food and Agriculture Organization of the United Nations (FAO)	Practitioner, Specialist
Climate Smart Agriculture Sourcebook		Generalist, Practitioner, Specialist
Enhancing NDCs: Opportunities in Agriculture	United Nations Development Programme (UNDP), World Resources Institute (WRI)	Practitioner
Enhancing NDCs: Opportunities in the Forest and Land-Use Sector	United Nations Development Programme (UNDP), World Resources Institute (WRI)	Practitioner
Five Practical Actions Toward Low-Carbon Livestock	Food and Agriculture Organization of the United Nations (FAO)	Practitioner, Specialist
Global Research Alliance on Agricultural Greenhouse Gases: Technical Manuals	Global Research Alliance on Agricultural Greenhouse Gases	Practitioner
Initiative for Climate Action Transparency (ICAT) Guidance for Assessing GHG Impacts of Agriculture Policies	Initiative for Climate Action Transparency (ICAT)	Generalist, Practitioner

Where to find key databases

Nairobi Work Programme
Compendium on Methods & Tools (now included in the Adaptation Knowledge Portal)
Database on ecosystem-based approaches to Adaptation (now included in the Adaptation Knowledge Portal)
Database on best practices and available tools for the use of indigenous and traditional knowledge and practices for adaptation (now included in the Adaptation Knowledge Portal)
Database on the application of gender-sensitive approaches and tools for understanding and assessing impacts, vulnerability and adaptation to climate change(now included in the Adaptation Knowledge Portal)
NWP Adaptation practices interface (now included in the Adaptation Knowledge Portal)
NWP Partners and Pledges database (now included in the Adaptation Knowledge Portal)
Private Sector Initiative - database of action on adaptation
UNFCCC Local coping strategies database (now included in the Adaptation Knowledge Portal)
NWP partner's resources

National Adaptation Programmes of Action - matters relating to the least developed countries / LDC Expert Group
NAPA Priorities database
LDCF/NAPA Projects
UNFCCC Local coping strategies database (now included in the Adaptation Knowledge Portal)

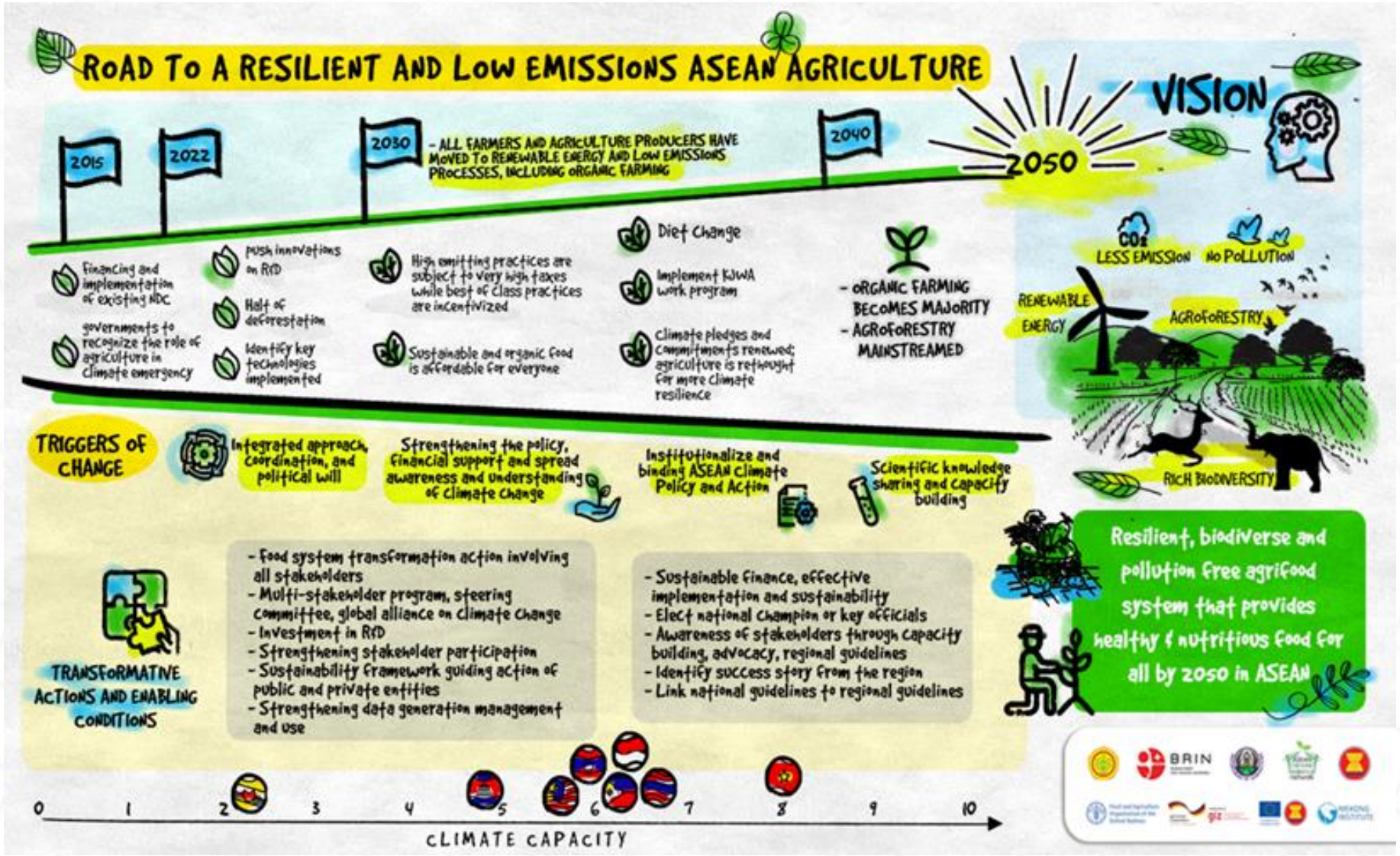
Loss and Damage
Examples of existing institutional arrangements and measures in addressing loss and damage associated with climate change impacts
Organizations working on slow onset events and the scope of their current efforts

Measurement, Reporting & Verification (MRV)

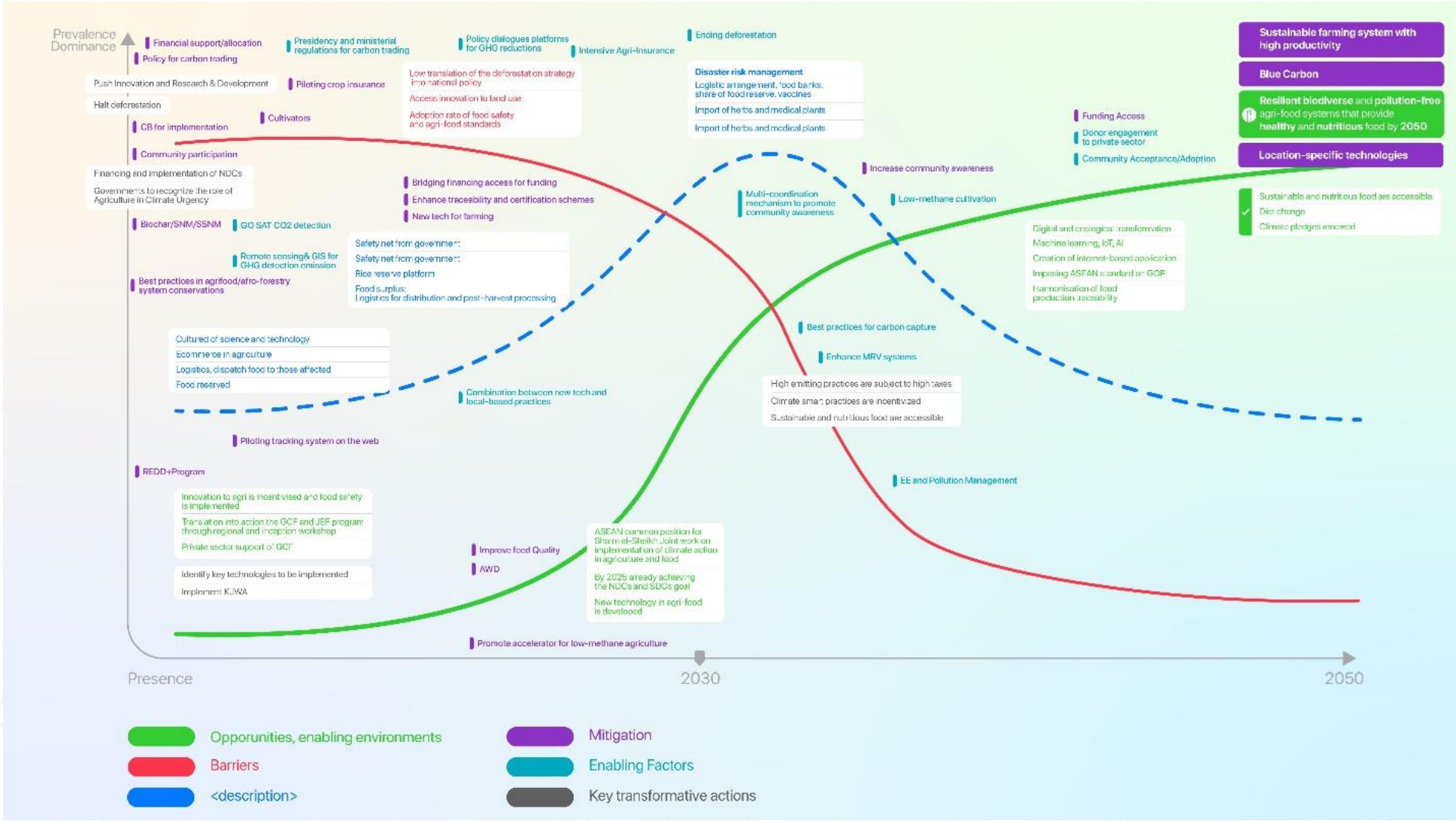
Three types of MRVs

1. **MRV of GHG emissions**, conducted at national, organizational, and/or facility level to understand an entity's emissions profile and report it in the form of an emissions inventory.
2. **MRV of mitigation actions** (e.g., policies and projects) to assess their GHG effects and sustainable development (non-GHG) effects as well as to monitor their implementation. This type of MRV focuses on estimating the change in GHG emissions or other non-GHG variables.
3. **MRV of support** (e.g., climate finance, technology transfer, and capacity building) to track provision and receipt of climate support

Climate Foresight Results: Vision 2050



Climate Foresight Results: Seeds Pathways



Key trends for next 30 years

With agriculture as the backbone of the economies of most ASEAN countries, it is imperative to understand potential threats and opportunities externally such as climate change, and internally with changing diets and economic priorities in production

Rice

- Demand for rice in Asia has been steadily decreasing
- Despite increased consumption from population growth, per-capita consumption has declined due to changes in dietary preferences
- By 2030, the expected 11.9% decline in per-capita consumption in Asia is projected to more than offset population growth and lead to overall 6.2% decline in rice consumption
- The trend in rice price will continue to increase until 2023, then the price is expected to decline to USD 476/tonne
- Effect of climate change: Increased CO2 concentration rate may lead to higher rice yield but reduces grain protein; temperature rise induces higher protein but lower yields. Effects are highly variable and need to be further investigated

Triggers of transformation

- Changes in dietary preferences + increases in food prices → expansion of land used for crops as a percentage of total land area in most of ASEAN
- Percentage of agricultural land area in ASEAN increased from 20.2% to 29.4% during 1970-2011 while forest areas have declined significantly

Substitution of Cereals for Alternative Food Items

- Pronounced shift in Asian diets towards meat and dairy products is driving animal production in Asia
- This results in higher livestock density per hectare, exerting additional pressure on the environment and resources

Biofuel Production and Livestock Feed

- Arable lands increasingly being converted to other non-food uses that provide higher economic returns than from food production, e.g. biofuel production

The challenges of net zero for agriculture, Indonesia case

Fahmuddin Agus
National Research and Innovation Agency

ASEAN-CRN Knowledge Exchange Event and Partners Meeting

28 – 30 March 2023, Amari Watergate Bangkok, Thailand

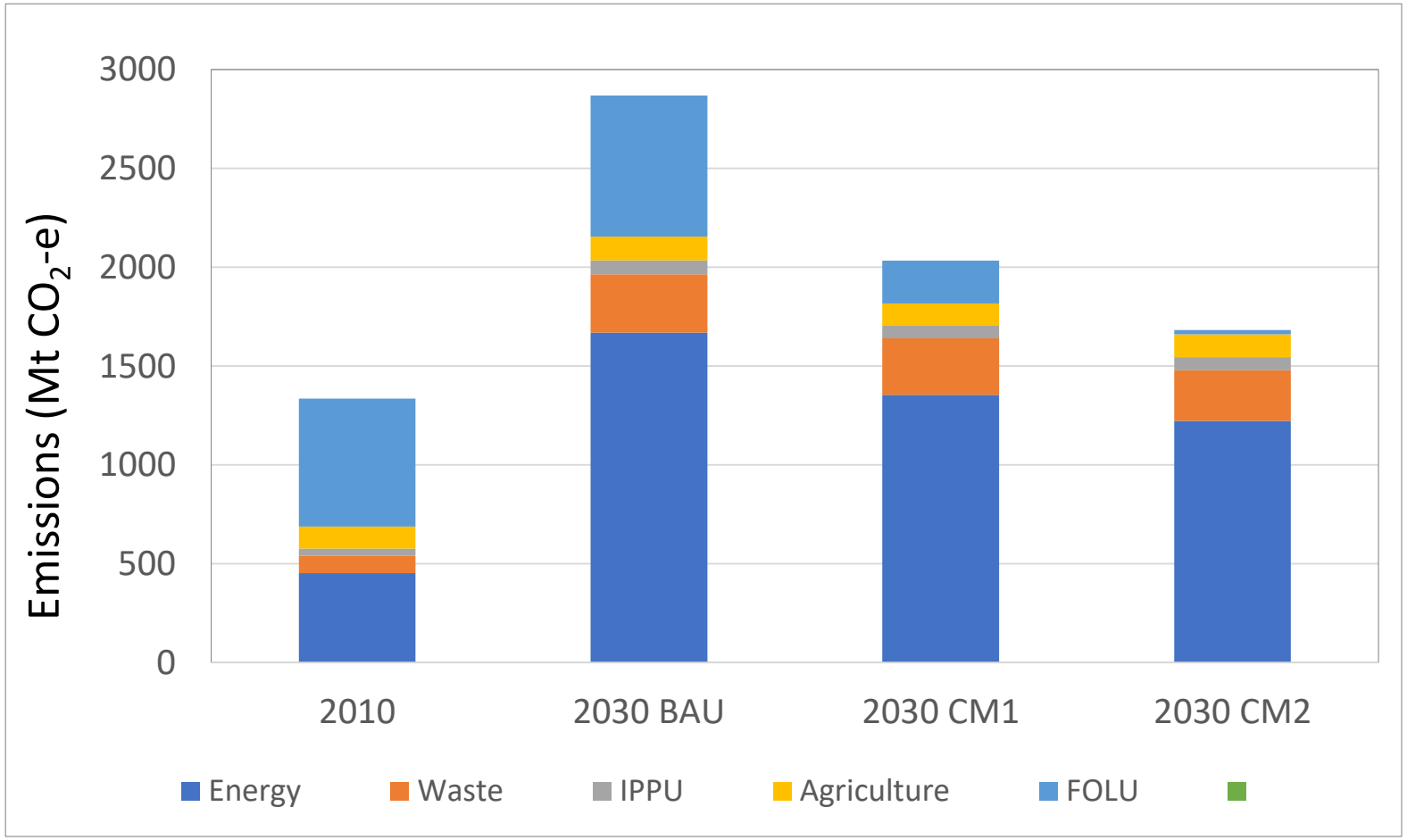
National historical and projected emissions by sectors

Source: Updated First NDC (2021)

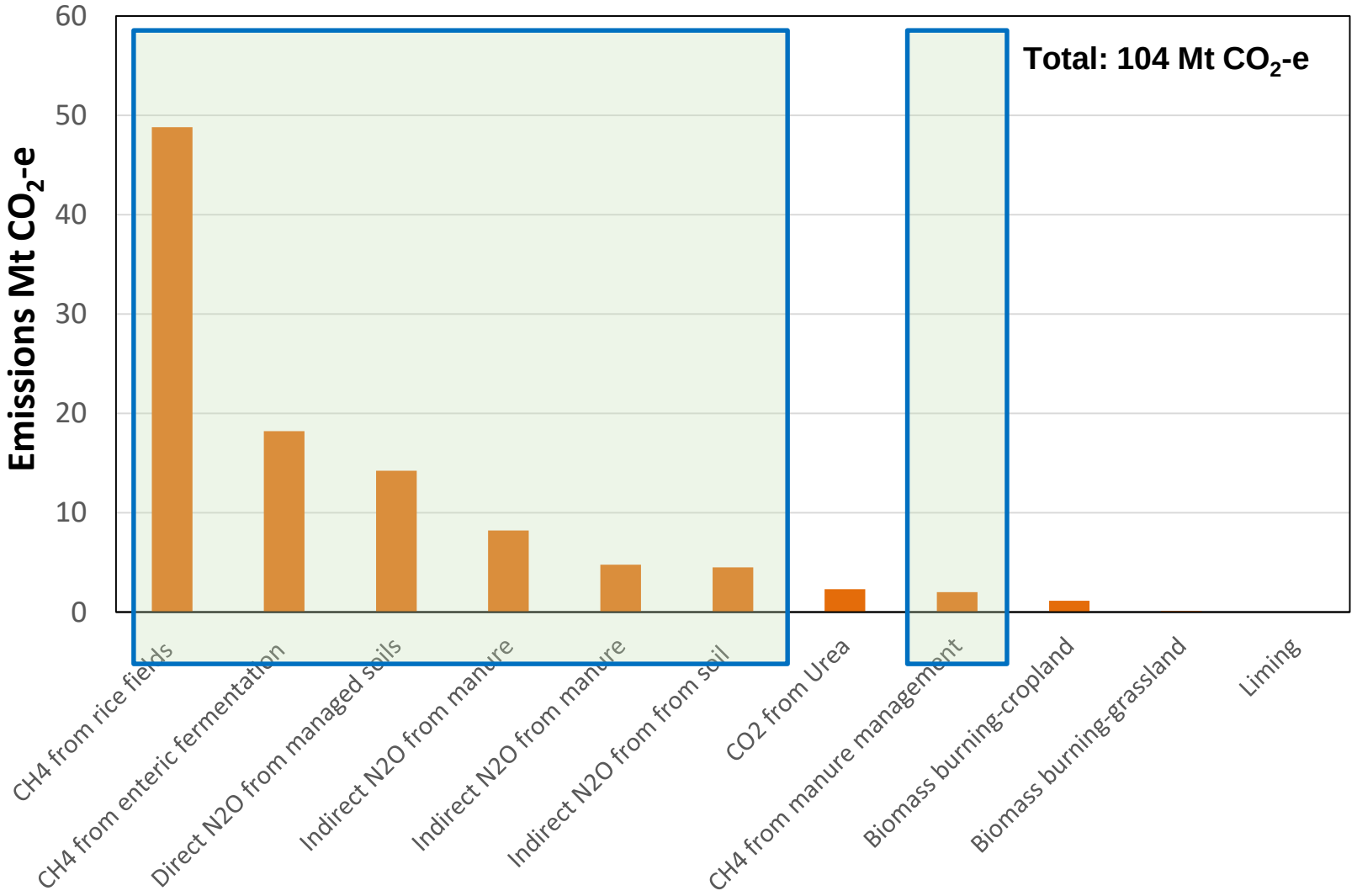
Agricultural contribution:
8% of 2010 national emissions,
4% of 2030 national BAU,
5% of 2030 CM1, and
7% of 2030 CM2.

At COP 26, Indonesia pledged for the net zero by 2060.
Can agriculture contribute?

BAU = Business as usual following historical emissions trend
CM1= Counter Measure 1 (unconditional mitigation scenario); 29% reduction from the BAU of 2030
CM2= Counter Measure 2 (conditional mitigation scenario); 41% reduction from the BAU of 2030



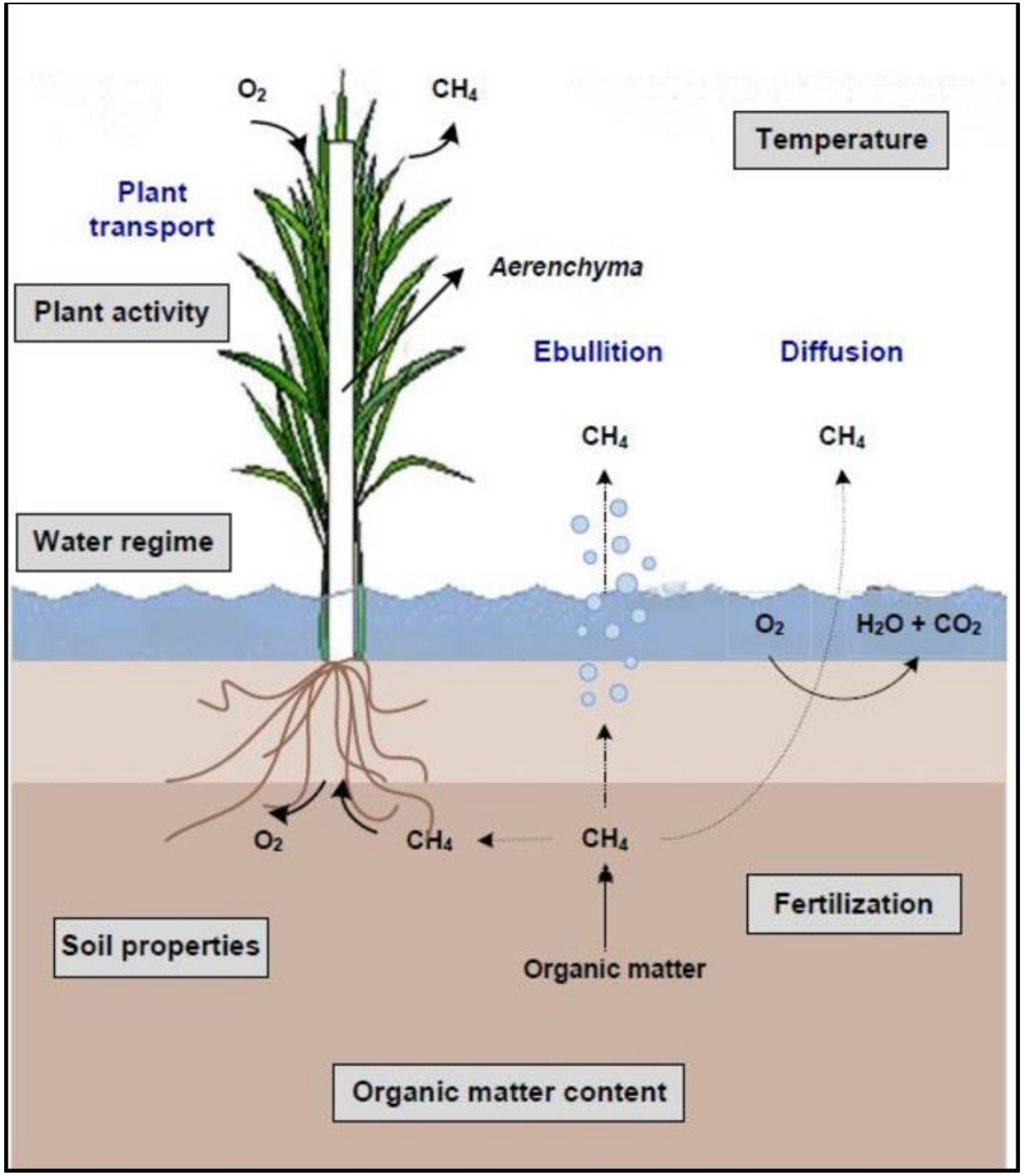
The main sources and amount of Agricultural GHG Emissions in Indonesia 2020



Factors affecting CH_4 emission from lowland rice

Factors affecting	Description	Probability of emission reduction
Number of drained days, e.g. SRI	Adoption is low despite intensive research in some areas. SRI is not in the MoA program. About 1.2 kg CH4 ha^{-1} day^{-1} from flooded rice condition (IPCC 2006). Water requirement is 30-50% lower than the conventional system (Anas et al. 2022; file:///C:/Users/User/Downloads/11532-Article%20Text-33683-1-10-20160330.pdf)	High if implementation of the system is high
Lowland rice area, e.g. extensification or land conversion	Conversion of lowland rice areas to non agricultural uses decreases CH_4 emission, although this is not the way the emission is reduced. Around 30,000 to 90,000 ha conversion per year and unmatched by extensification.	High, with the high rate of conversion
Improve irrigation system (+)	Improving irrigation infrastructure is high in the government agenda. Flooded rice system is an inherited cultural practice, but it leads to CH_4 emission. Better irrigation means higher number of flooded days.	Low
Use of low emission varieties	Some rice varieties cause a higher CH4 emission than the other. Rice genetics is not intended to produce low CH4 varieties, rather high yielding and high quality rice varieties.	Uncertain, depending on the development of

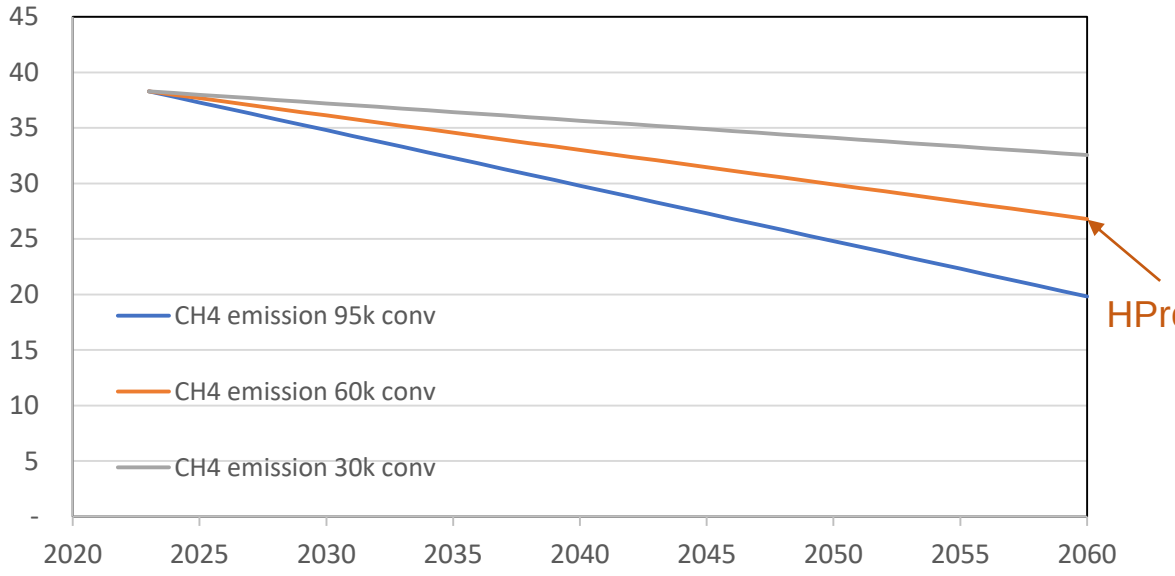
Methane emissions from flooded rice system (Sanchis et al. 2017)



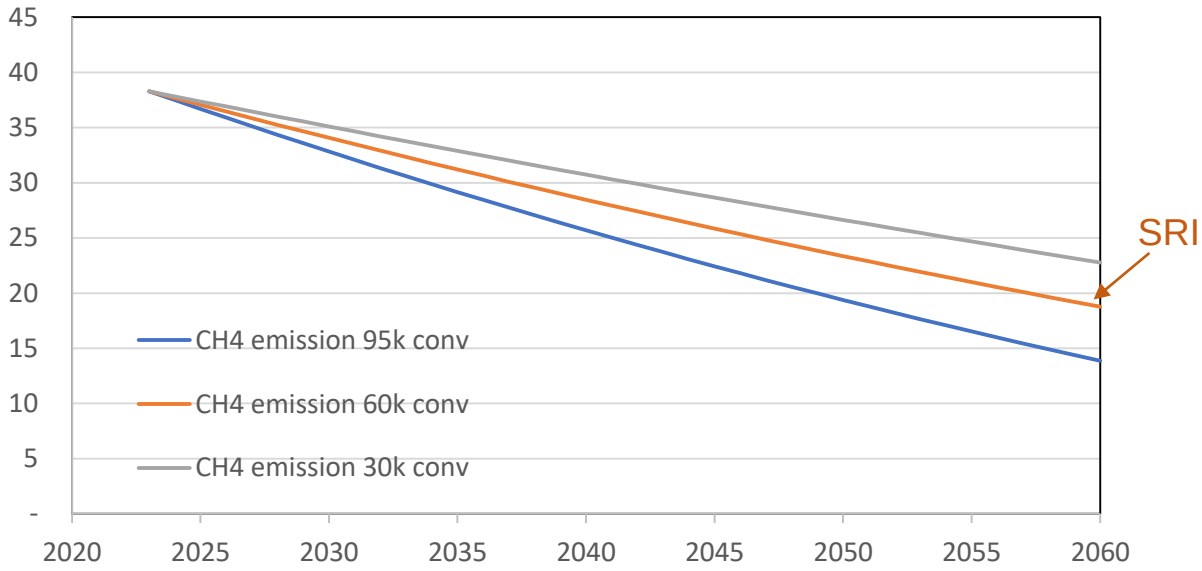
SRI and lowland rice conversion effects on CH_4 emission, assuming 30% flooded day reduction and gradual adoption by 2060. Scenarios/Assumptions

- Land conversion rates
  - 96,500ha/year (BAU, Mulyani et al. 2018)
  - 60,000 ha/year, and
  - 30,000 ha/year
- Days under flooded condition
  - 110 days (BAU)
  - 77 days (implementation of SRI, assumed 30% less, and attain gradually until 2060 than the conventional)

CH_4 emissions under different land conversion and 110 flooded day (Mt CO_2-e)



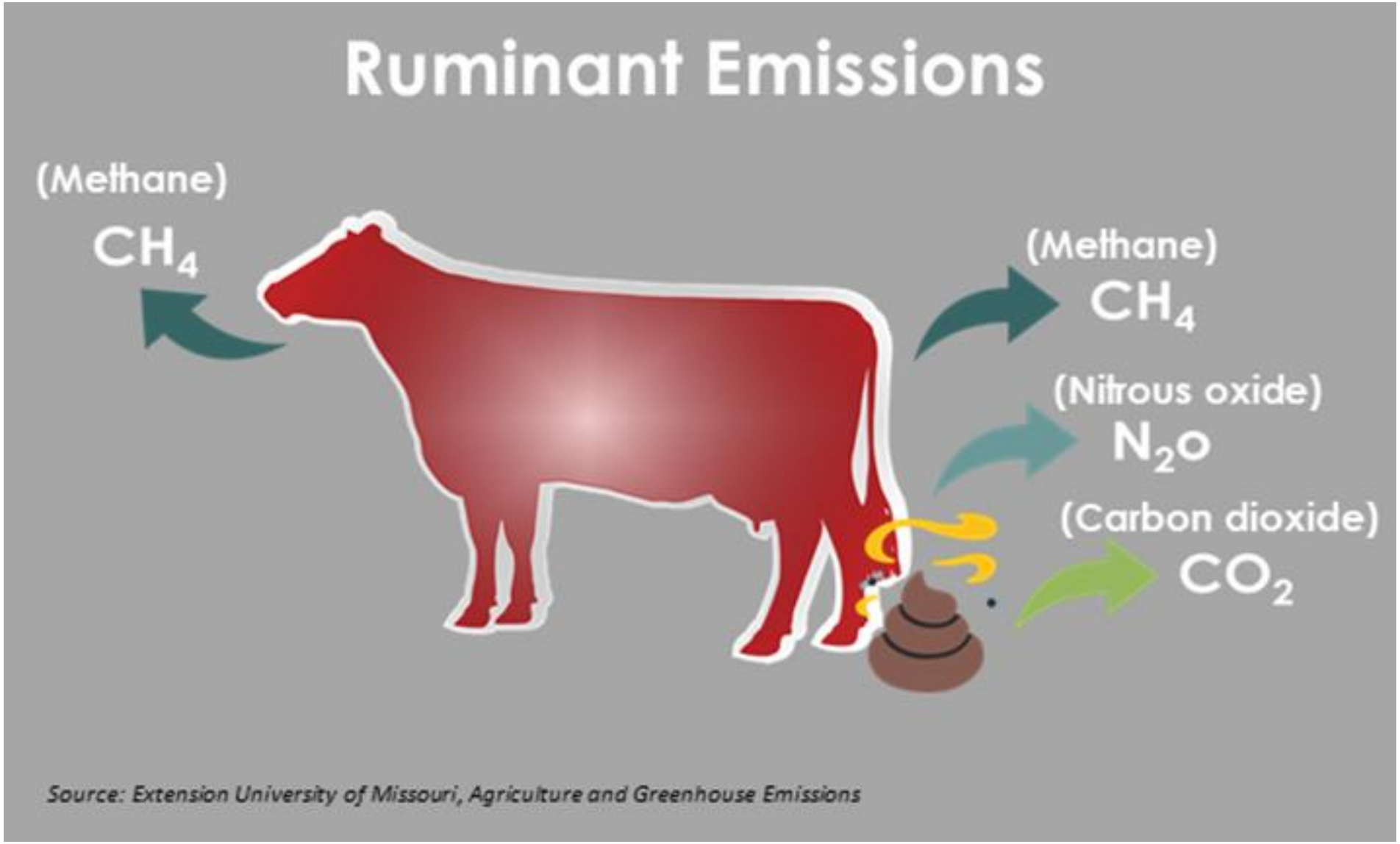
CH_4 emissions under different land conversion and gradual SRI implementation (Mt CO_2-e)



- Even with full SRI implementation, and highest rate of conversion (the condition that should be avoided), CH4 emissions could only be reduced from 38.2 in 2023 to 14.9 Mt CO_2-e in 2060.
- Implementation of SRI is not very promising at the moment and hence the emissions will likely be reduced from 38.2 in 2023 to 26.8 Mt CO_2-e in 2060, i.e. under conversion rate of 60,000 ha/yr

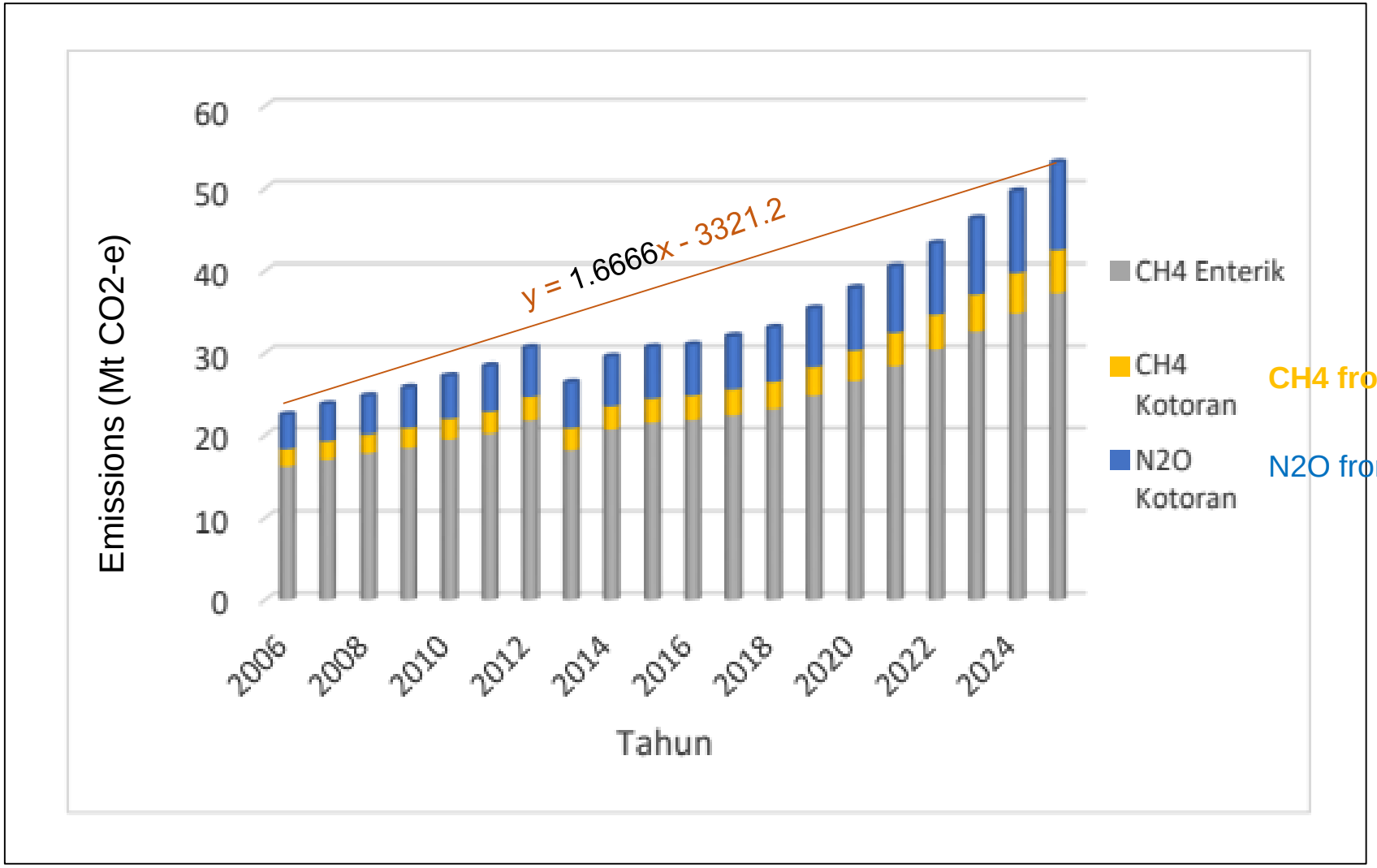
Factors affecting CH_4 emission from Enteric Fermentation

Factors affecting	Description	Probability of emission reduction
Livestock population	Increasing livestock population is one of the main program to improve protein consumption.	-
Feed quality	Better feed quality usually decrease the level of enteric CH4 emission up to 8% from about 61 kg CH4 $head^{-1}$ $year^{-1}$ of dairy cattle.	



Kohlman and Bjiurstom https://dairy.extension.wisc.edu/articles/feeding-for-efficiency-dietary-impacts-on-greenhouse-gas-production/

Historical and projected emissions from livestock

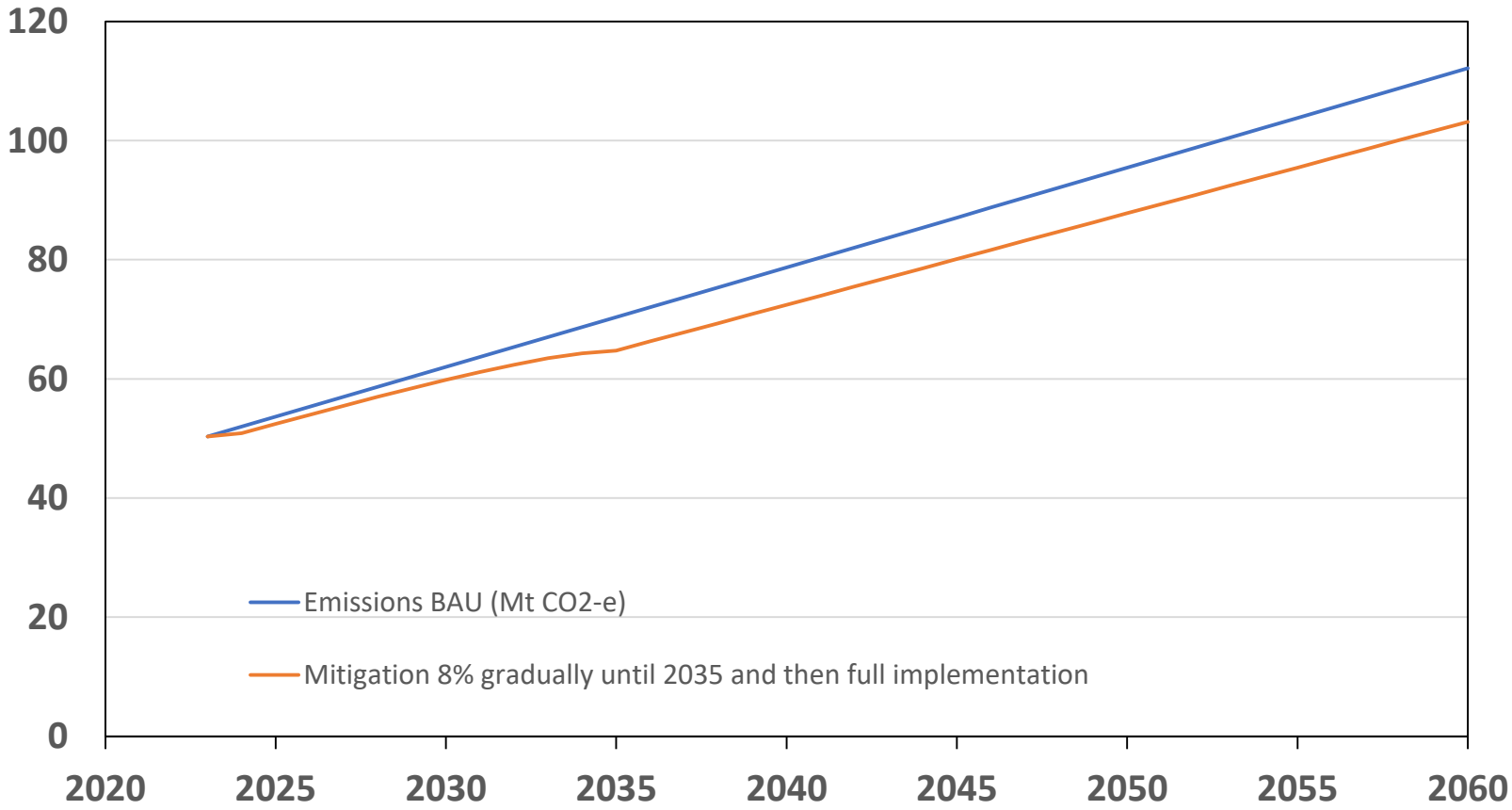


Successful feed quality improvement would reduce about 8% of enteric fermentation emission, but it can't compensate increased emissions from the increase in population.

CH4 from manure

N2O from manure

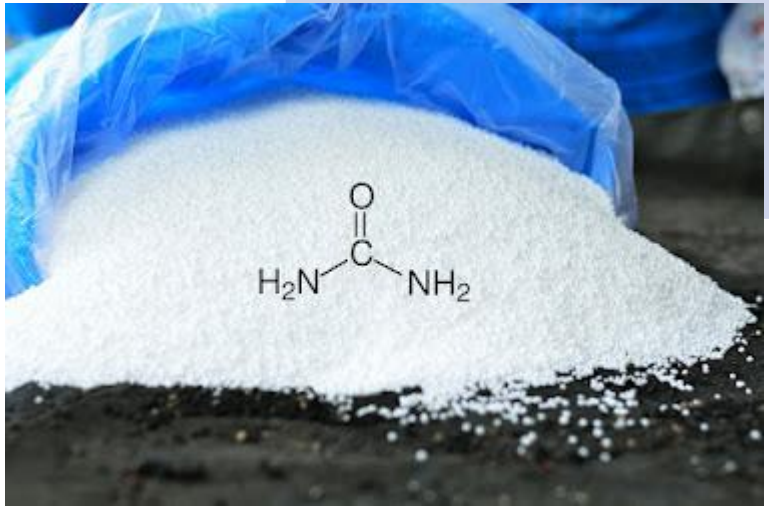
CH4, N2O emissions from Livestocks (Mt CO_2-e)



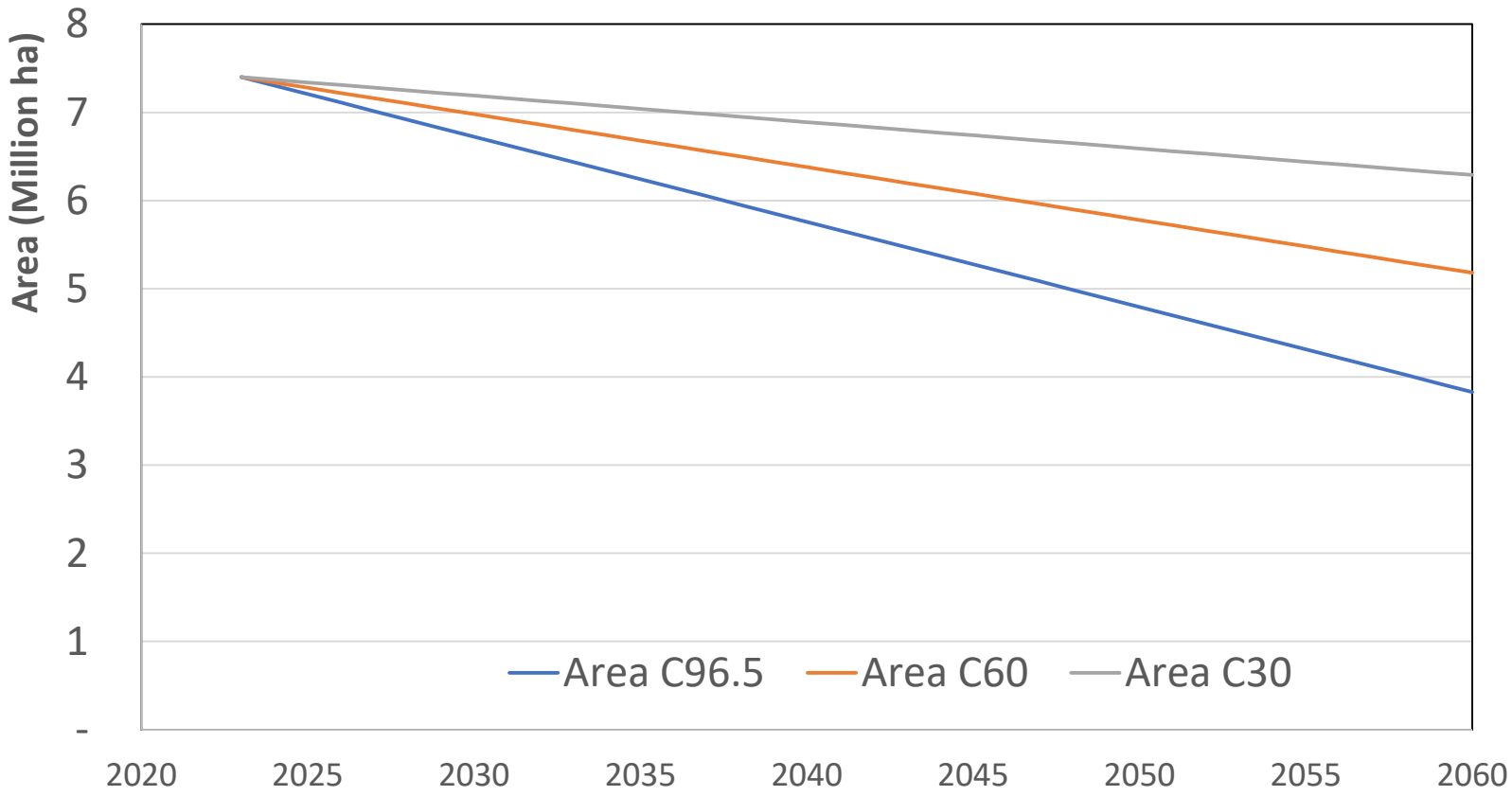
- Mitigation from improved feed is assumed to be gradually achieved at 8% in 2035, afterwards, full mitigation implementation
- Although the 8% mitigation was based on dairy cattle, it is liberally assumed applicable and achievable for other livestock.
- There may be improved technology for mitigation exist in the future, and its not currently accounted for

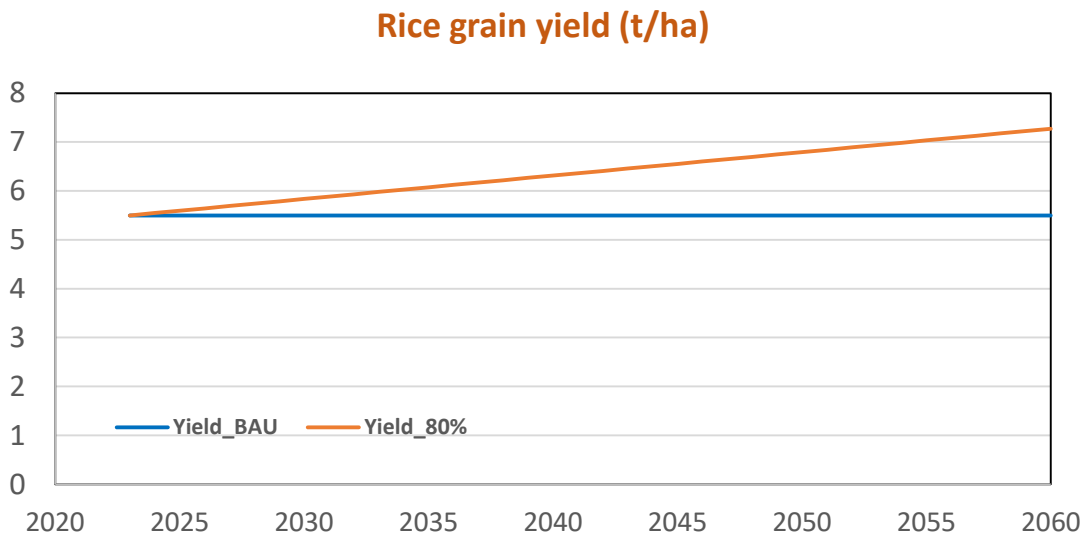
Factors affecting N_2O emissions

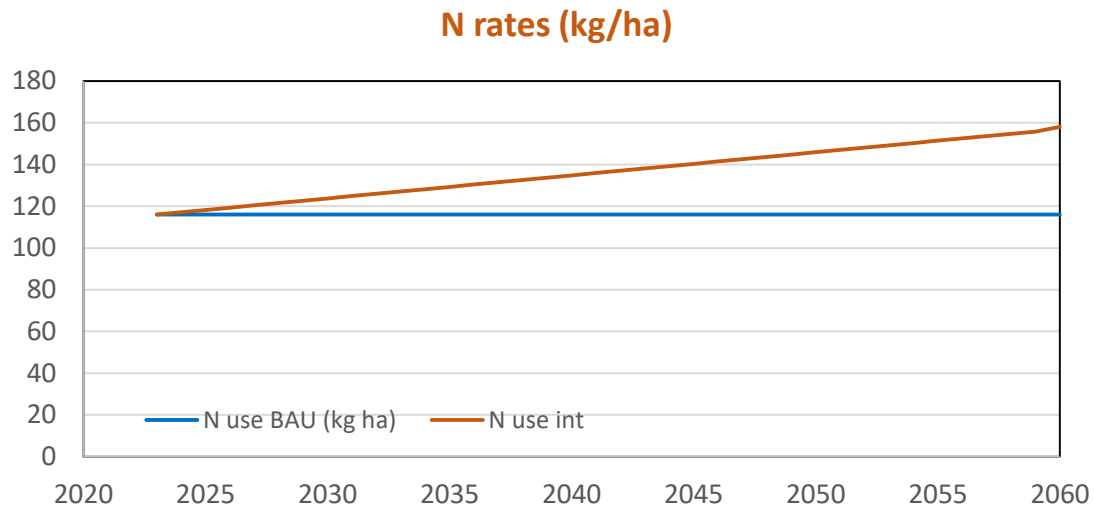
Factors affecting	Description	Probability of emission reduction
Amount of applied N, soil conditions, soil properties	About 1.6% of applied N emits as direct N_2O emissions. About 10% of applied N will be eroded and leached and about 1.4% of the eroded and leached N will be emitted as indirect N_2O emission. Reduction of N2O can be done by improving N efficiency in areas where N application is excessive, such as vegetable areas. However in most areas, especially smallholder oil palm plantations, fertilizer application, including N is still below the crop requirement, meaning that N application need to be increased.	-

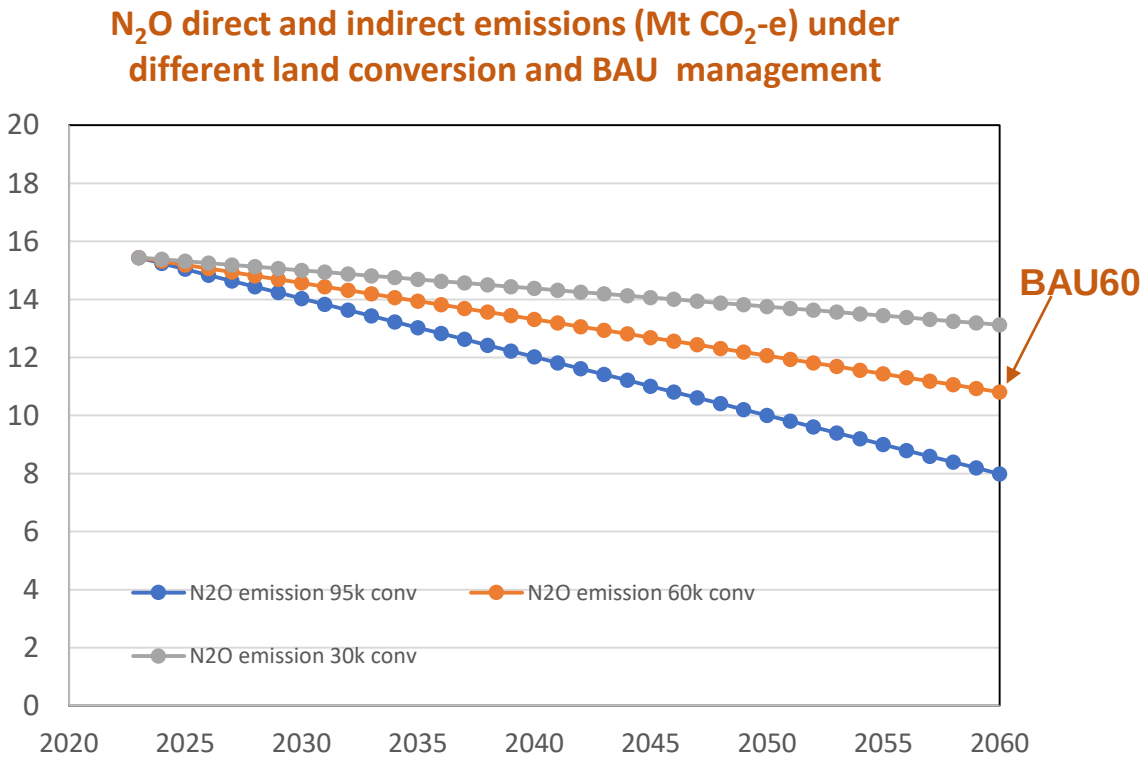


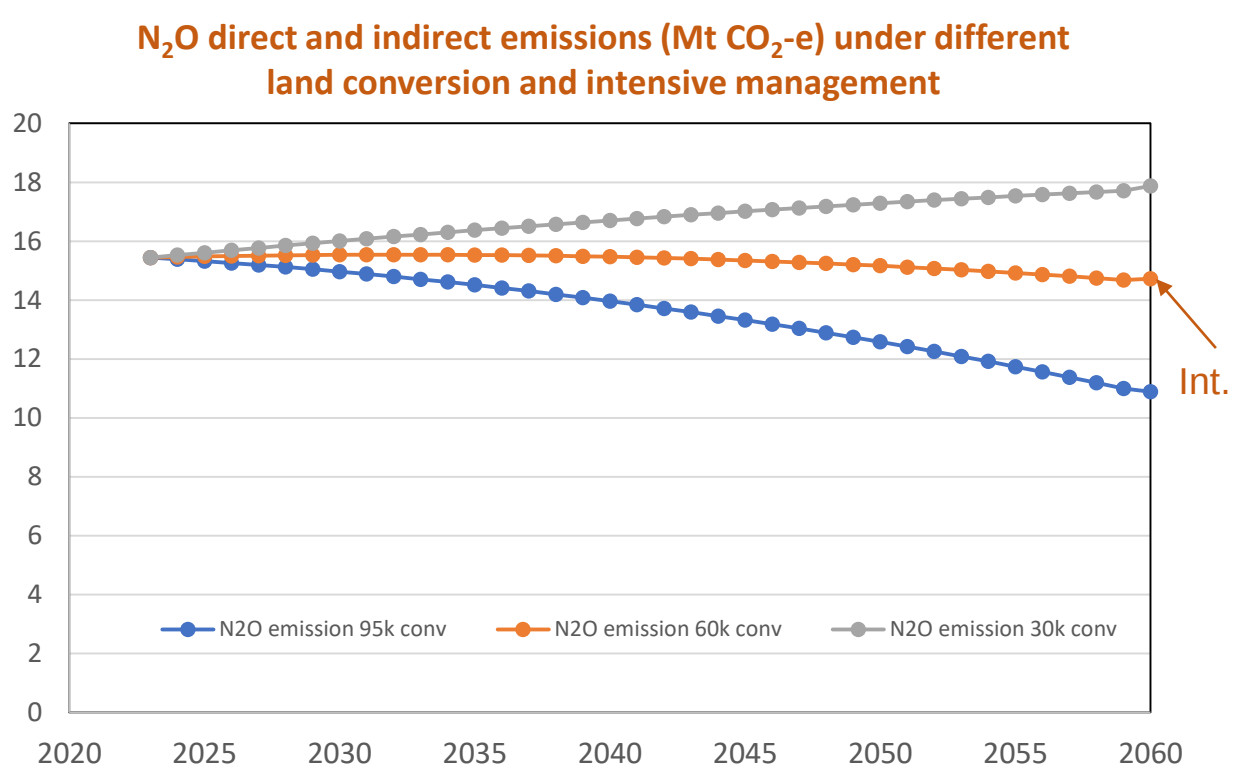
Lowland rice area under different conversion scenarios



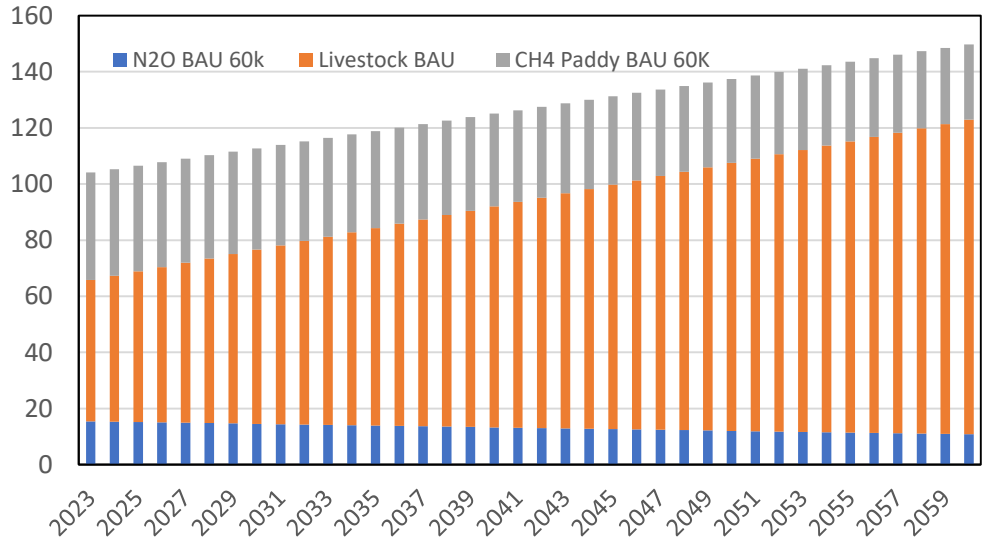

Rice grain yield (t/ha)
8
7
6
5
4
3
2
1
0
2020
2025
2030
2035
2040
2045
2050
2055
2060
Yield_BAU
Yield_80%


N rates (kg/ha)
180
160
140
120
100
80
60
40
20
0
2020
2025
2030
2035
2040
2045
2050
2055
2060
N use BAU (kg ha)
N use int

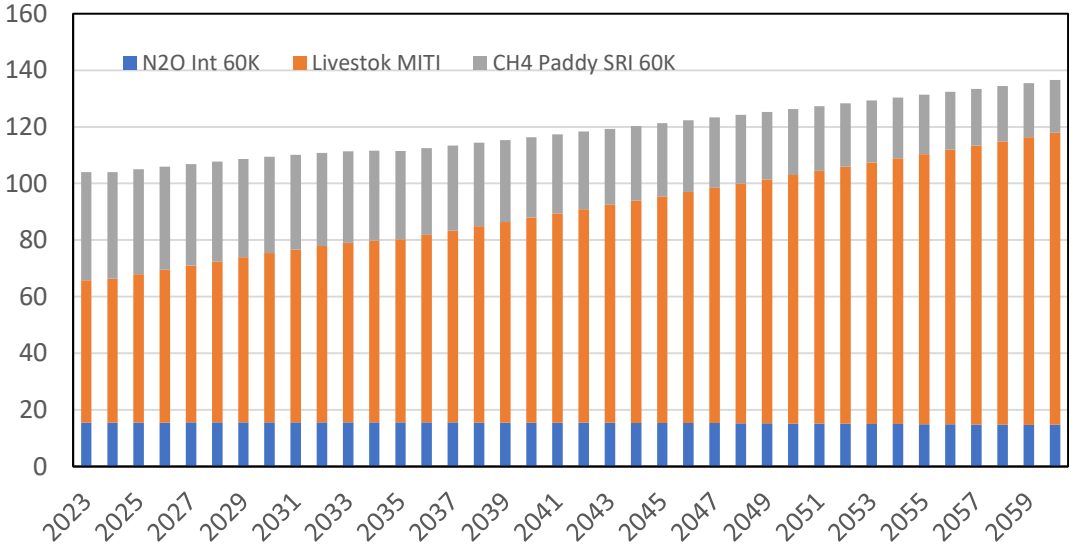

N_2O direct and indirect emissions (Mt CO_2-e) under different land conversion and BAU management
20
18
16
14
12
10
8
6
4
2
0
2020
2025
2030
2035
2040
2045
2050
2055
2060
N2O emission 95k conv
N2O emission 60k conv
N2O emission 30k conv
BAU60


N_2O direct and indirect emissions (Mt CO_2-e) under different land conversion and intensive management
20
18
16
14
12
10
8
6
4
2
0
2020
2025
2030
2035
2040
2045
2050
2055
2060
N2O emission 95k conv
N2O emission 60k conv
N2O emission 30k conv
Int.

Fertilizer N2O, Livestock, and paddy field CH4 emissions at BAU (Mt CO2-e)



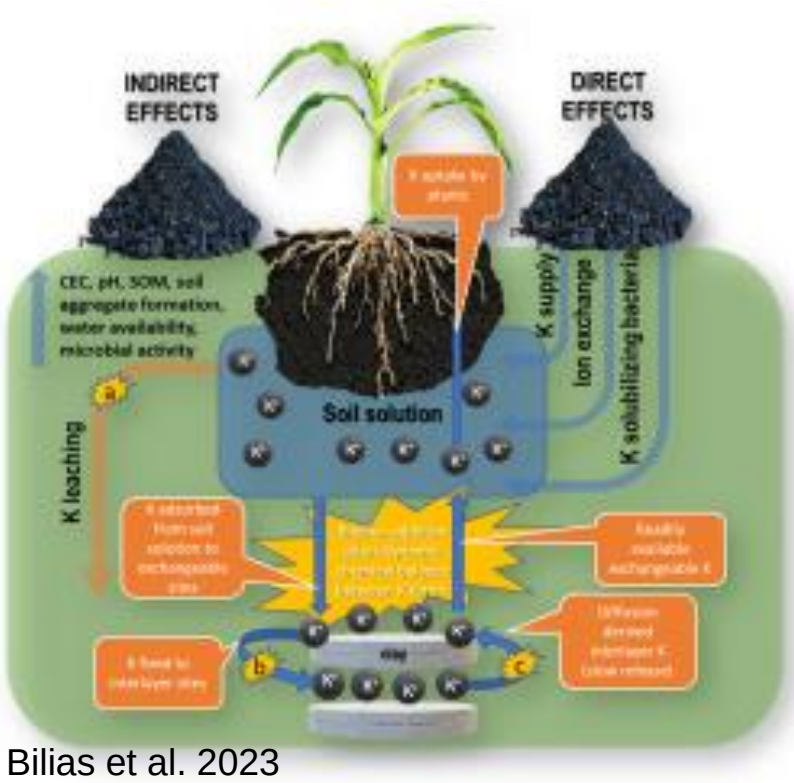
Fertilizer N2O, Livestock, and paddy field CH4 emissions at using the most probable trend (Mt CO2-e)



Emissions from the three sources will increase from 104 Mt CO_2-e in 2023 to 150 Mt CO_2-e under the BAU and to 137 Mt CO_2-e under mitigation and intensification programs

The use of biochar can significantly sequestrate carbon, as long as the feedstock is abundant.

There are additional costs, but also co-benefits associated with it its use.



Bilias et al. 2023

nature food

Article

https://doi.org/10.1038/s43016-023-00694-0

Integrated biochar solutions can achieve carbon-neutral staple crop production

Received: 21 February 2022

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Published online: 9 February 2023

Check for updates

Longlong Xia[1,2,15], Liang Cao[3,15], Yi Yang[4], Chaopu Ti[1], Yize Liu[5], Pete Smith[6], Kees Jan van Groenigen[7], Johannes Lehmann[8,9], Rattan Lal[10], Klaus Butterbach-Bahl[2,11], Ralf Kiese[2], Minghao Zhuang[5] ✉, Xi Lu[12,13,14] ✉ & Xiaoyuan Yan[1] ✉

Agricultural food production is a main driver of global greenhouse gas emissions, with unclear pathways towards carbon neutrality. Here, through

News & views

Sustainable cropping

https://doi.org/10.1038/s43016-023-00714-z

Biochar as a fast track to net zero

Annette L. Cowie

Check for updates

The capacity of carbon dioxide removal currently deployed is far below what is needed to achieve the Paris Agreement temperature target. Biochar from crop residues could help China meet its 2060 net zero goal while bringing health and environmental benefits.

the use of the pyrolysis gas and bio-oil for energy can displace fossil fuel emissions. By delivering both emissions reduction and CDR, biochar systems address both sides of the net zero balance.

Now writing in *Nature Food*, Xia and colleagues[6] have shown that producing biochar from crop residues could have a key role in supporting the achievement of China's target of net zero GHG by 2060. In China, the production of rice, wheat and corn – including on-farm and pre-farm emissions – releases 666 Tg CO_2-eq yr^{-1}, contributing around 5% of national emissions. Emissions from China's cropping

Conclusions

- Agriculture is the forth largest contributor of Indonesian GHG emissions
- Emissions of CH_4 from lowland rice, CH4 from livestock (enteric fermentation and manure), N2O from livestock manure, and N2O from fertilizers are the highest contributors.
- Emission reduction in lowland rice happens due to land conversion, but intensification which is necessary for food security and agricultural resilience, increases N fertilizer use, and hence N2O emissions
- It's very unlikely that agricultural GHG will approach net zero by 2060 from the major sources. The net zero need to be offset from other sectors.
- However, adaptation measures, such as the use of organic matter or biochar for soil, and sustainable intensification, not only will improve resilience, but also mitigate GHG directly and indirectly.

Triggers of transformation

- Changes in dietary preferences + increases in food prices → expansion of land used for crops as a percentage of total land area in most of ASEAN
- Percentage of agricultural land area in ASEAN increased from 20.2% to 29.4% during 1970-2011 while forest areas have declined significantly

Substitution of Cereals for Alternative Food Items

- Pronounced shift in Asian diets towards meat and dairy products is driving animal production in Asia
- This results in higher livestock density per hectare, exerting additional pressure on the environment and resources

Biofuel Production and Livestock Feed

- Arable lands increasingly being converted to other non-food uses that provide higher economic returns than from food production, e.g. biofuel production

german cooperation
DEUTSCHE ZUSAMMENARBEIT

implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

asean

Study on

Decarbonising the ASEAN Agriculture and Forestry Sector

1. Objectives of the study

1) To take stock of climate change impacts in the agriculture and forestry sector of the ASEAN, including the NDCs of AMS, to reduce GHG emissions

2) To define decarbonisation pathways and approaches in the agriculture and forestry sector

3) To conduct a feasibility assessment on the potential decarbonisation pathways and approaches

4) To recommend the potential pathway to decarbonise the agriculture and forestry sector of ASEAN

2. Scope of the study

(1) State of play of the ASEAN agriculture and forestry sector in the context of GHG emissions *(Chapter 1-3)*

(2) Define decarbonisation pathways (Crops, Livestock, Fishery/Aquaculture, and Forestry) *(Chapter 4)*

a) Review the climate change impact on the region's food and agriculture sector,
b) Discuss the contribution of ASEAN's agriculture and forestry sector to GHG emissions
c) Discuss the main gases responsible for the greenhouse effect
d) Discuss the relationship between the current state of play of agriculture and forestry in NDCs of AMS.
e) Questionnaires survey *(analysis in Chapter 4)*

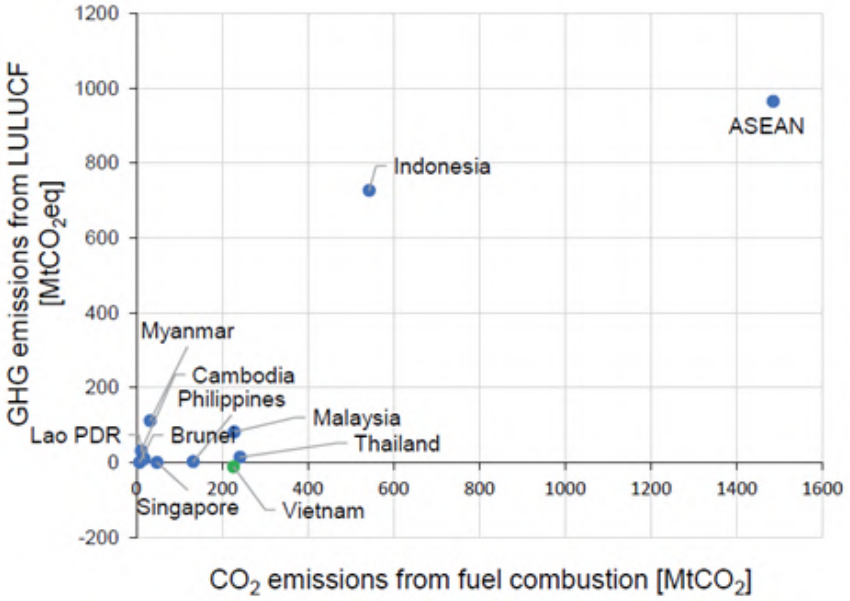
(3) Recommend actions

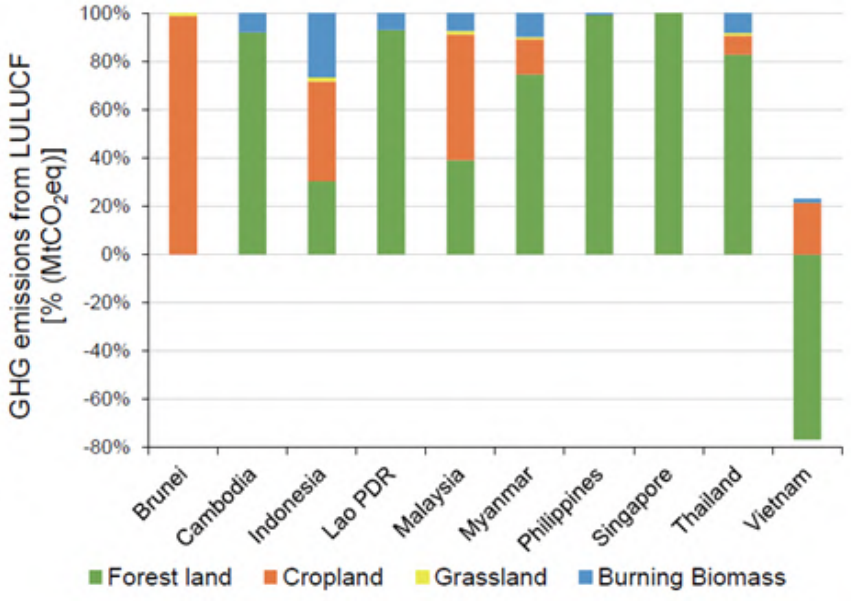
Recommend (sector-specific) pathways
Recommend pathways with the best practices to address the impact of regional methane emissions.
Identify entry points for regional cooperation to mainstream decarbonisation interventions in the agriculture and forestry sector *(Chapter 5-6)*.

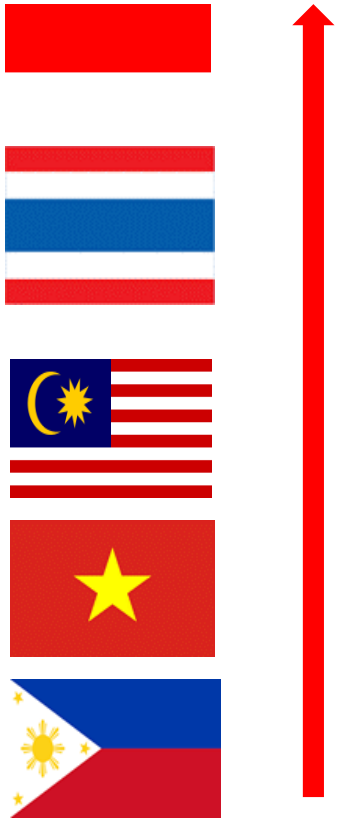
3. Key findings

- Different challenges from the impacts of climate change.
- Transformed to meet emissions reduction targets.
- Individual NDCs set for all ASEAN members with varying targets.
- Transformation of agriculture and forestry sectors.

Trends of GHG emissions from the agriculture and forestry sector



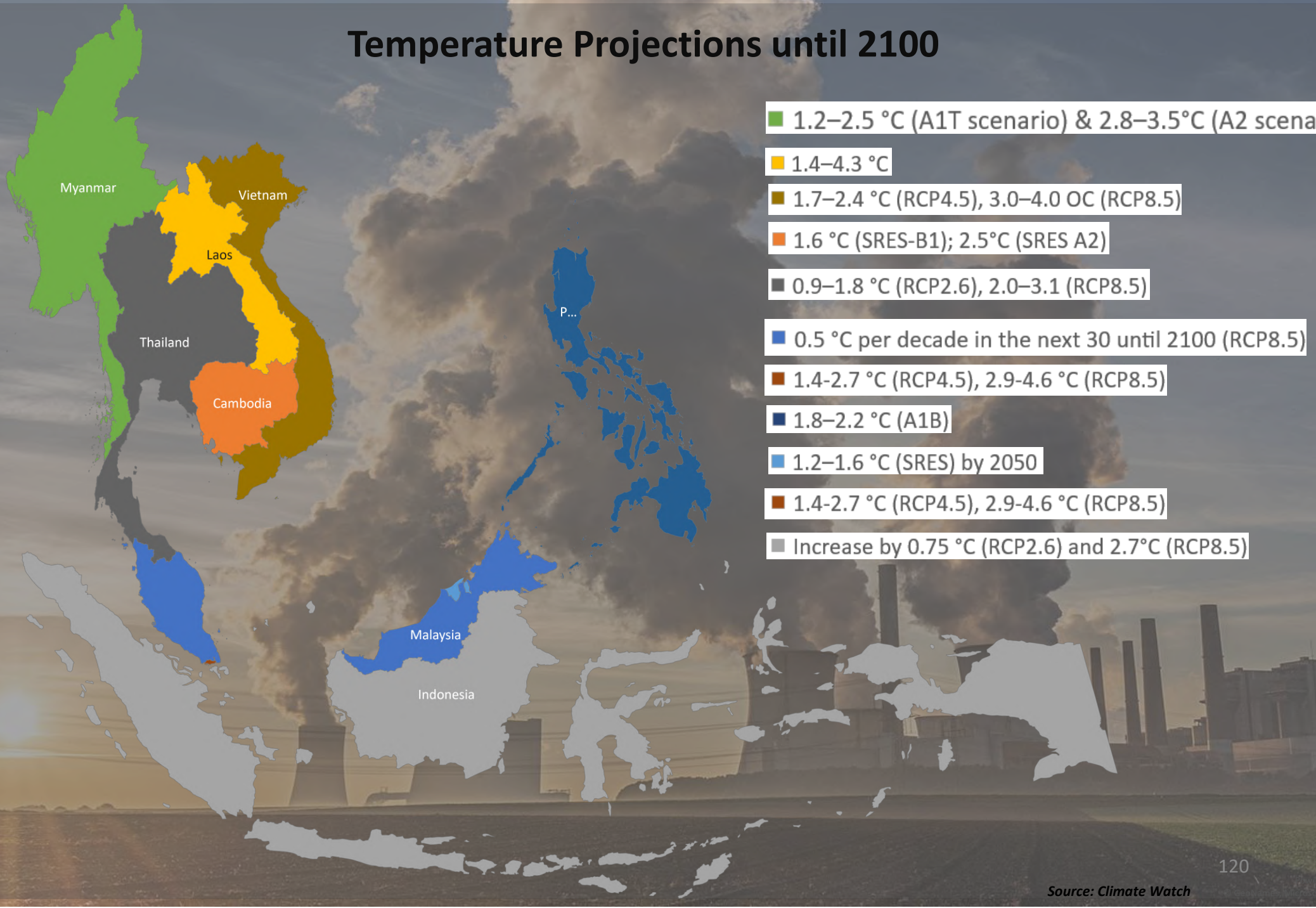




The CO2 emissions from fuel combustion, **Indonesia, Thailand, Malaysia, Vietnam, and the Philippines** are the larger emitters in ASEAN !!!!

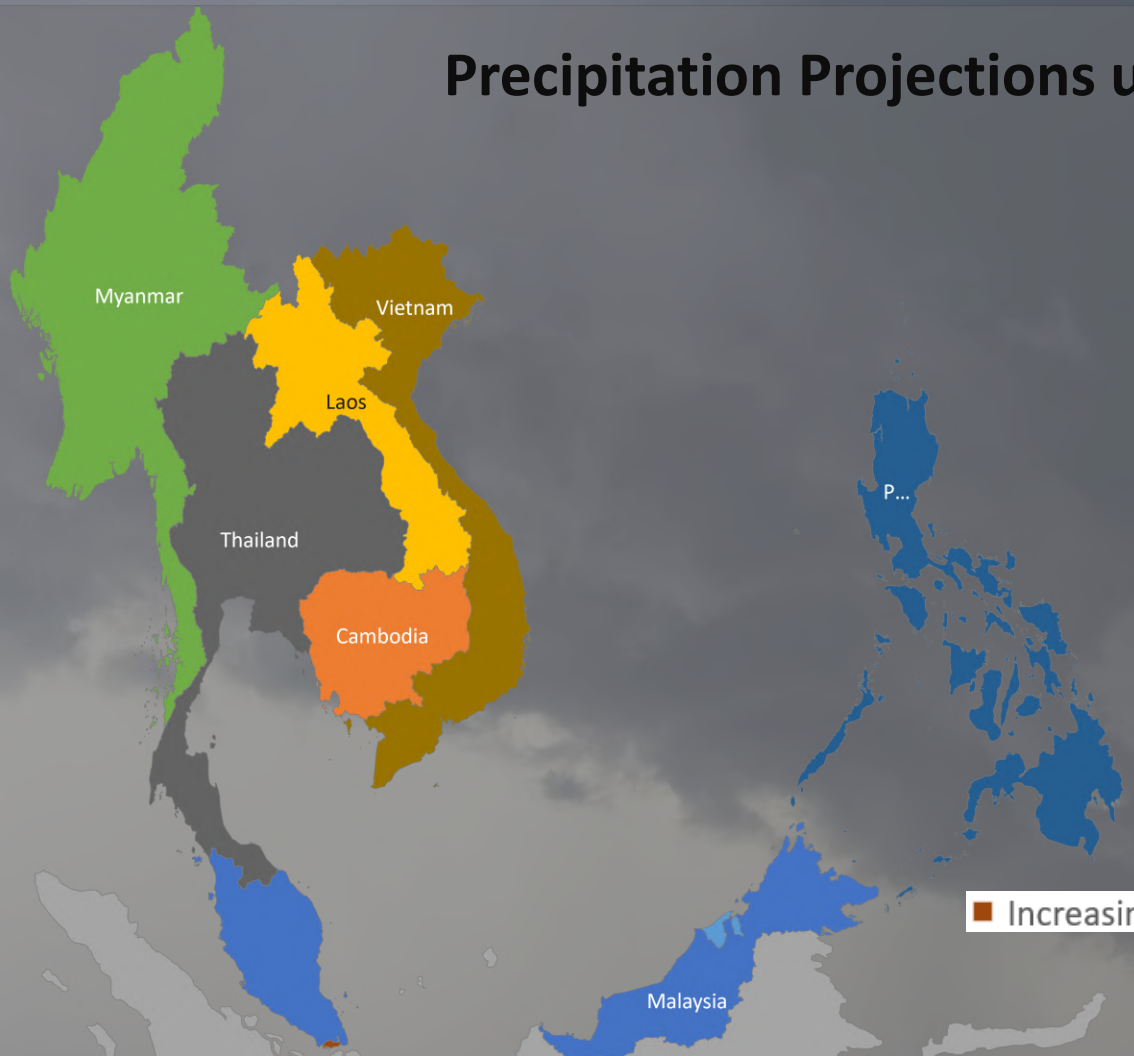
GHG Emissions from Agriculture and Forestry sector in ASEAN

Temperature Projections until 2100



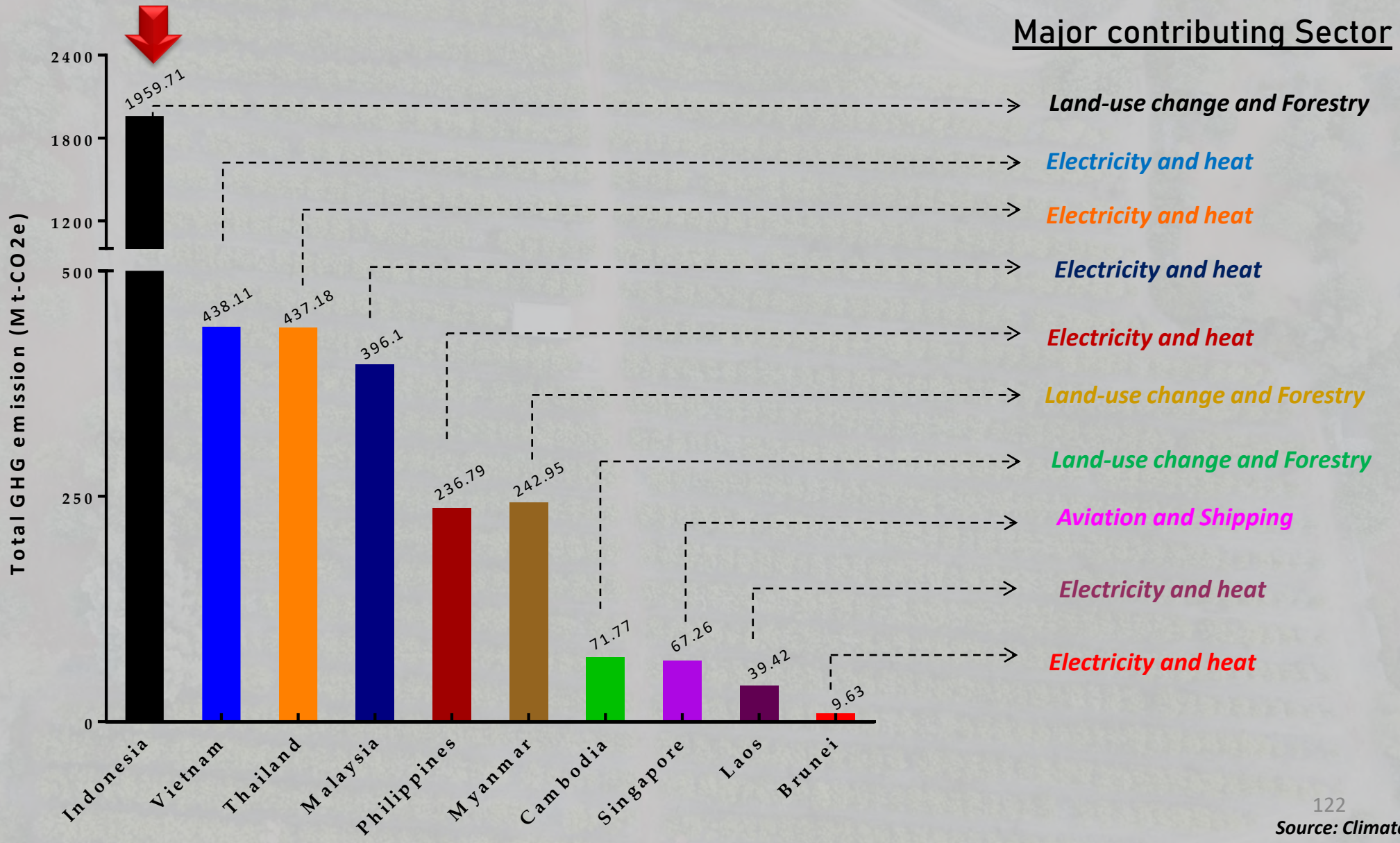
Source: Climate Watch

Precipitation Projections until 2100



- 10% increase during March to November
- 5–15% (RCP4.5), 20% (RCP8.5)
- 10–30% in eastern, southern parts
- -9.5% to 27.8% (A1B)
- (-) 66 to 193 mm (RCP2.6), (-)19 to 191 mm (RCP8.5)
- 3–35% increase (SRESA2)
- 10.8 mm per year until 2100 (RCP8.5)
- 7.1% to 10.6% increase by 2050
- 10–30% in Sumatra, Borneo by 2080
- Increasing trends in both intensity and frequency of heavy rainfall events

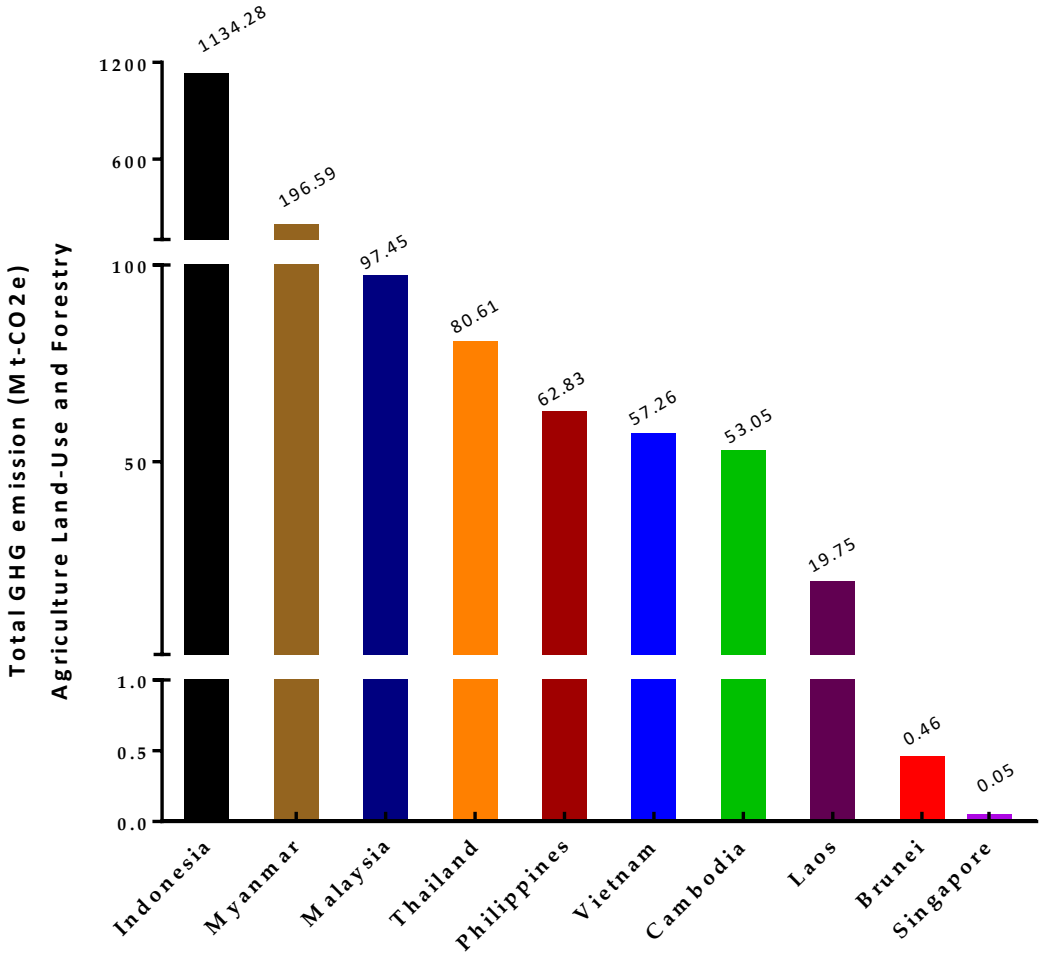
Total (all sector) GHG emission for ASEAN Region for year 2019



Source: Climate Watch

Sectoral (Agriculture, Land-Use change and Forestry) GHG emission for ASEAN Region year 2019

- Approximately 43 % of total greenhouse gas emissions from ASEAN region come Forestry Land Use Sector (FOLU).
- In the period between 2001 and 2019, Southeast Asia lost 610,000 square kilometers of forest—an area slightly less than the size of Myanmar.



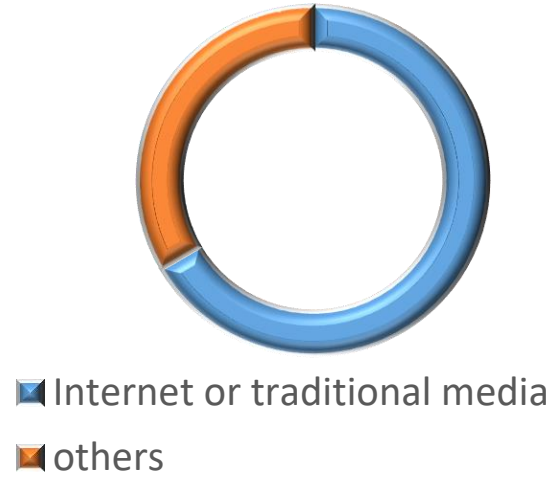
Source: Climate Watch

Part 3

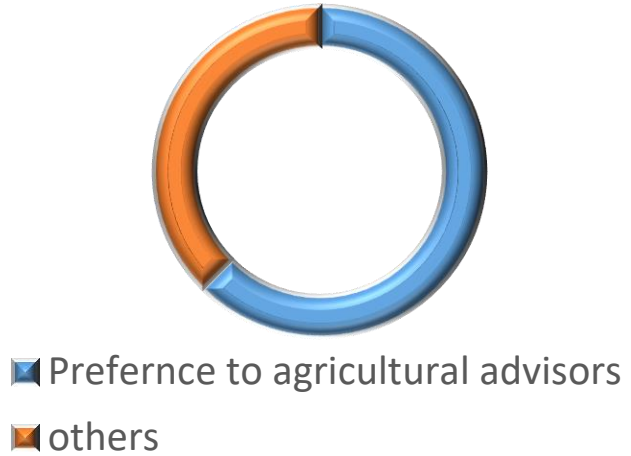
Farmer's knowledge levels and information source on GHG emissions on their farms

Knowledge and experience with on-farm GHG emissions

Sources for agricultural GHG emissions.

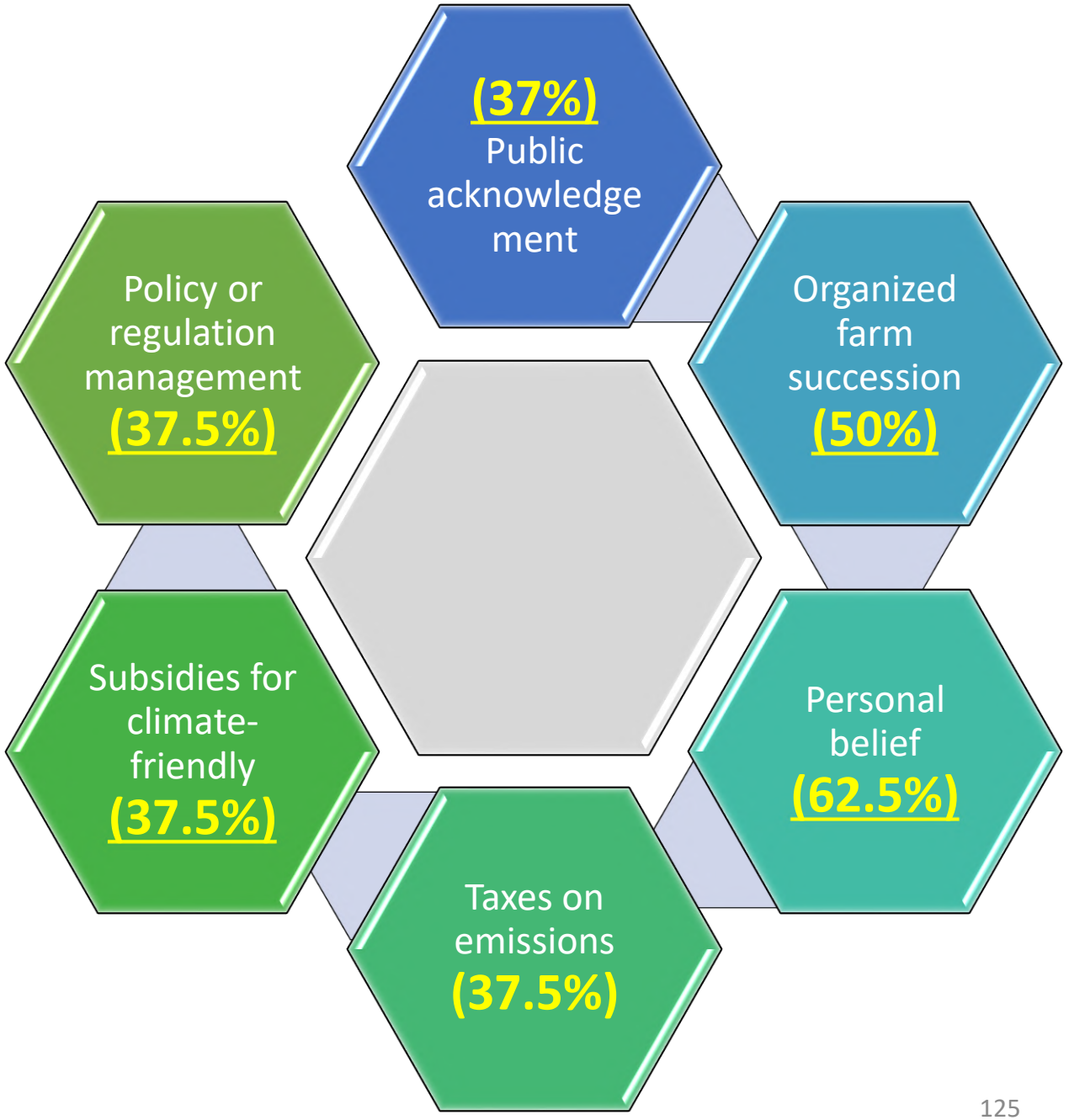


Sources for agricultural GHG emissions.



Part 3

Motivating factors for reducing on-farm and outdoor GHG emissions



Potential Decarbonisation Pathways

By: Assist. Prof. Dr. Rushikesh Kulkarni,
Symbiosis Institute of Technology, India

- ***Contribution by Agriculture and Forestry Sectors***

- Prepared using Dall-e-2 OpenAI https://openai.com/dall-e-2/

Agri and forestry emit a lot of greenhouse gases.

Decarbonizing sectors is key to Paris Agreement goals.

Agro-forestry and conservation agriculture can cut emissions and help decarbonize land.

Identifying cost-effective options is crucial for reducing emissions.

Challenges and opportunities

- Challenges
  - Lack of awareness and understanding of sustainable practices
  - Lack of funding and financing for sustainable agriculture and forestry
  - Limited availability of sustainable inputs
  - Resistance to change
- Opportunities
  - Increasing demand for sustainable products
  - Access to international markets
  - Government support
  - Improved resource efficiency
- Decarbonising agriculture and forestry in ASEAN requires a multi-stakeholder effort to overcome challenges and capitalize on opportunities.

4. Recommendations

- Decarbonising Agriculture and Forestry in ASEAN
  - Implement a multi-faceted approach.
  - Adopt low-carbon farming techniques.
  - Implement sustainable forest management practices.

4. Recommendations

- Recommended Pathways for Agri and Forest Sectors:
    - Adopt low-carbon farming techniques,
    - Implement sustainable forest management practices
    - Encourage the use of renewable energy,
    - Increase organic farming,
    - Invest in R&D,
    - Offer education and training,
    - Provide government incentives,
    - Foster public-private partnerships, and promote international collaboration.

4. Recommendations

- Future Study:
  - Focus on exploring the potential of low-carbon technologies and practices, evaluating the effectiveness of financial incentives, examining the impacts of climate change, assessing the economic and social benefits of low-carbon practices, and developing innovative solutions to reduce emissions and increase efficiency.

  - Ensure that these sectors play a vital role in mitigating the effects of climate change and promoting sustainable development by taking a comprehensive and interdisciplinary approach to reducing emissions from agriculture, forestry, and livestock.

‘Understanding the potential of land-based negative emission solutions’

A presentation by Stefan Bößner, Research Fellow @ Stockholm Environment Institute, BKK office

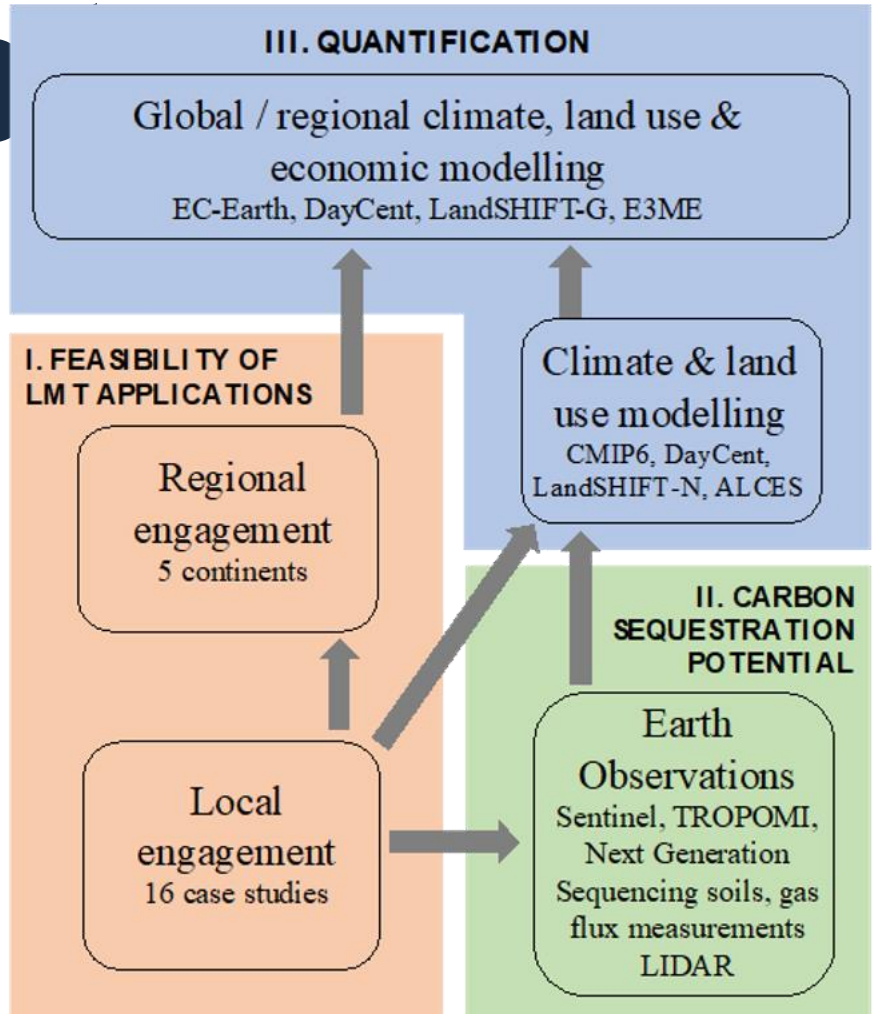
LANDMARC | This project has received funding from the European Union’s Horizon2020 research and innovation program under grant agreement No 869367

Overall concep

- The LANDMARC project looks at the **land-climate-development nexus**

Using

- **Earth Observations**
- **Simulation modelling**
- **Stakeholder engagement**
- **Assessment of climate resilience + co-benefits & trade-offs**



LANDMARC | This project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 869367

Land-use Mitigation Technologies (LMT) categories

LMT = mitigation + carbon sink potential + environmental and social sustainability

Soils

Grass lands & shrubland

Agriculture & agroforestry

Forestry

Wetlands

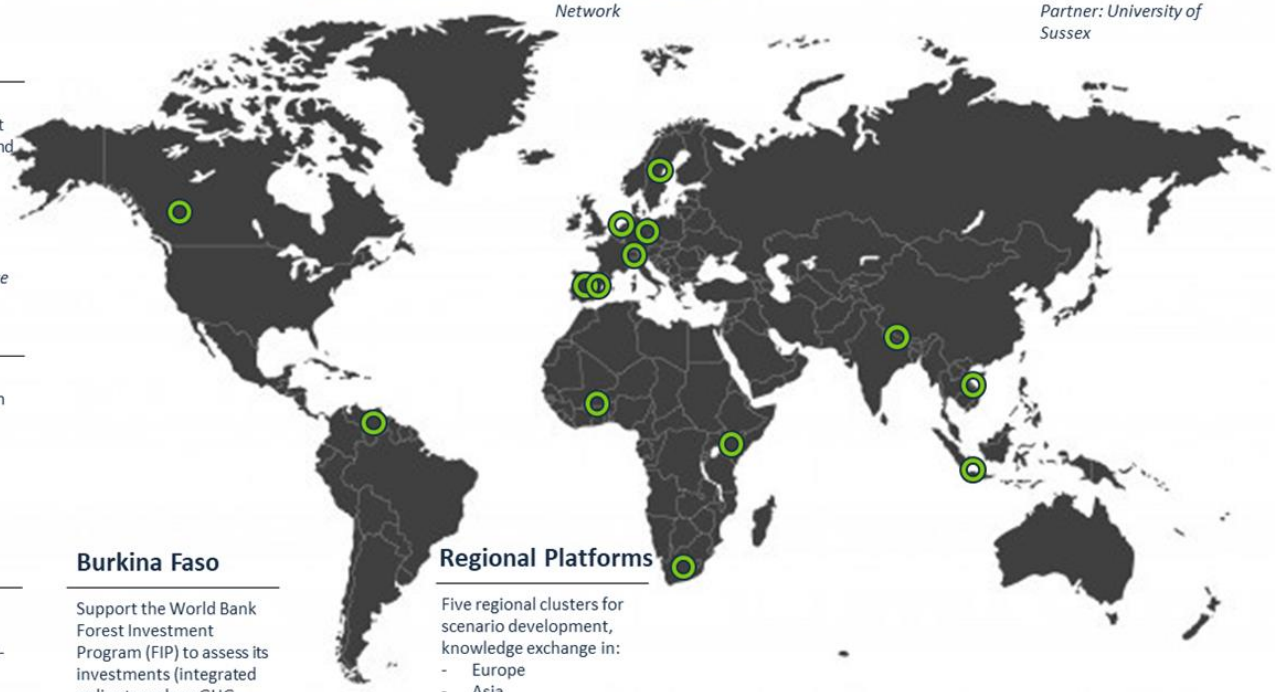
Biogenic waste /management + **BECCS (bioenergy + carbon capture & storage**

LANDMARC | This project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 869367

LMT negative emission potential grounded in empirical studies

Stakeholder engagement, data collection, and co-development of LMT scaling scenarios through:

- 16 LMT case studies
- 5 continental platforms



Canada

Willow plantations on abandoned mine sites for bio-energy generation.

Partner: Innolab Space

Sweden

Biochar applications

Partner: Stockhom Environment Institute

Germany

Forest management – Options for climate smart forestry in the private sector

Partner: Ökö Institut

The Netherlands

Agroforestry & palidiculture

Partners: Bioclear Earth & Joint Implementation Network

Switzerland

Reduced tillage & Organic cropping

Partner: ETH Zürich

Nepal

Improving farm resilience and reducing emissions through sustainable rice production

Partner: University of Sussex

Vietnam

Sustainable coffee and pepper production in Vietnam

Partner: Int. Centre for Tropical Agriculture

Venezuela

Indigenous ways of fire management to prevent catastrophic wildfires and preserve carbon sinks through sustainable agricultural practices in the Amazon forests.

Partner: Cobra Collective

Portugal

Agroecosystems In Southwest of the Iberian Peninsula in Spain (dehesas) and Portugal (montados).

Partner: Agroinsider

Spain

Carbon sequestration capacity and degraded agricultural lands refore-station program in Extremadura

Partner: Ambienta

Burkina Faso

Support the World Bank Forest Investment Program (FIP) to assess its investments (integrated policy to reduce GHG emissions from land use changes and forestry)

Partner: eLEAF

Regional Platforms

Five regional clusters for scenario development, knowledge exchange in:

- Europe
- Asia
- Africa
- North America
- South America

Partner: Stockholm Environment Institute

Indonesia

Decarbonisation from composts including biogas in Indonesia.

Partner: Sustainability & Resilience Company

Kenya

Strengthening carbon and water observatory rangeland in Kenya using a case study of ring-fencing in upper Ewaso Ng'iro North river basin & integrated soil fertility management.

Partner: ETH Zürich

South Africa

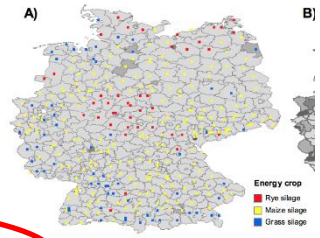
Eddy Covariance flux measurements to calibrate and validate satellite EO estimates on the role of vegetation in carbon sequestration

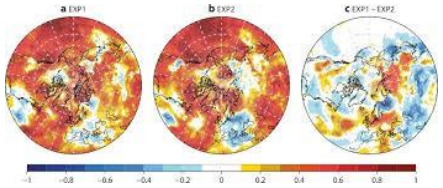
Partner: eLEAF

LANDMARC | This project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 869367

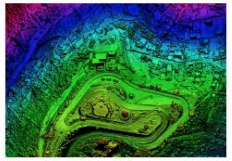
Bottom-up approach

LMTP (portfolio): scaling up to national, continental & global models (WP7):





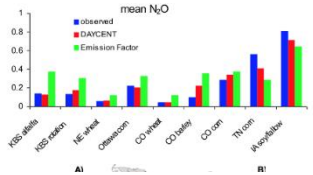
regional stakeholder narratives (WP6)

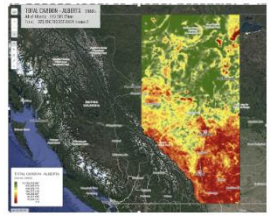


Climatic risks & capacity building (WP4)

Validation: Remote sensing for monitoring (WP3)

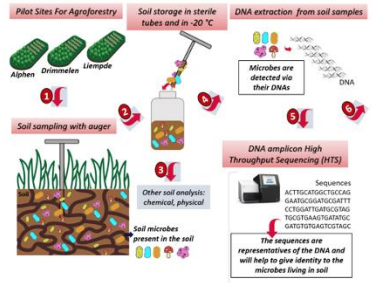
LMTS (single & portfolio): national models (WP5): stakeholder narratives (WP2)



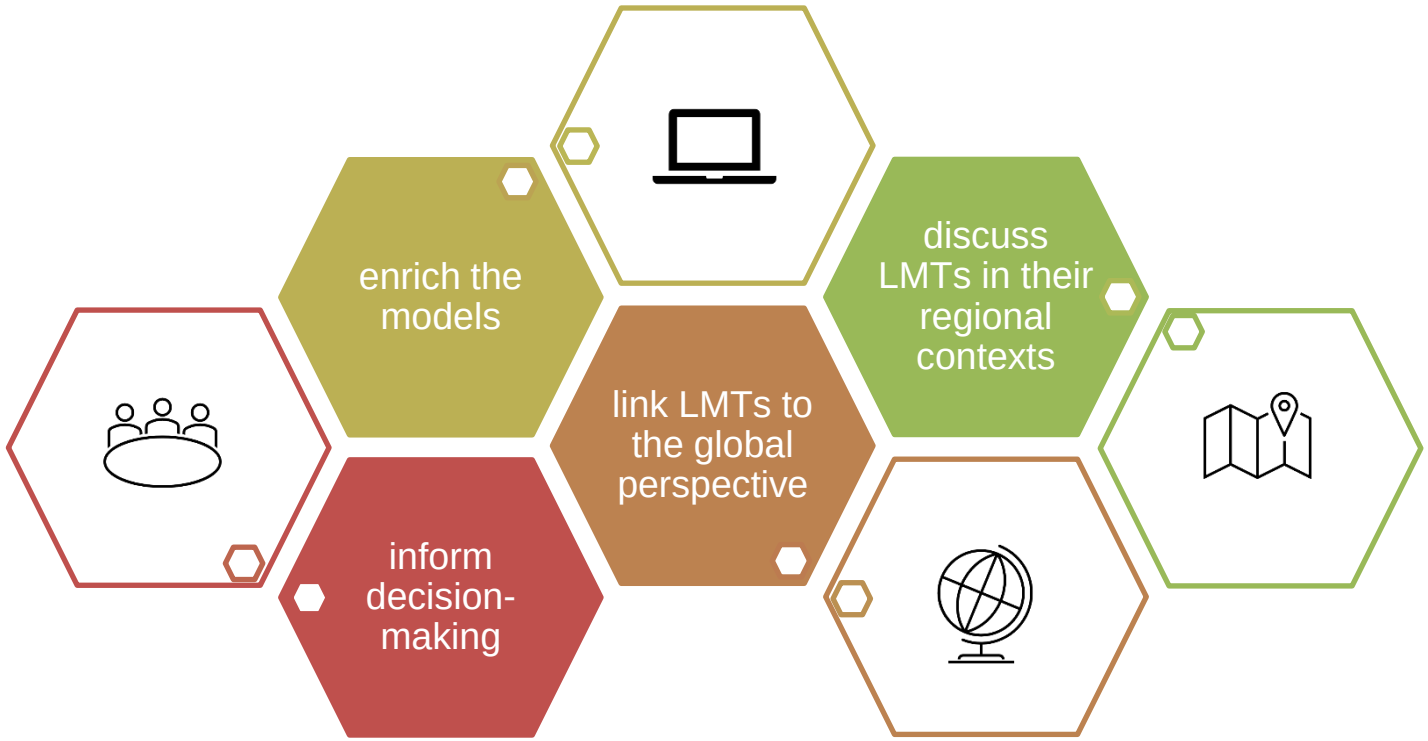


LMTS (single): case study specific models (WP2)

Validation: In-situ observations & surveying (WP3)



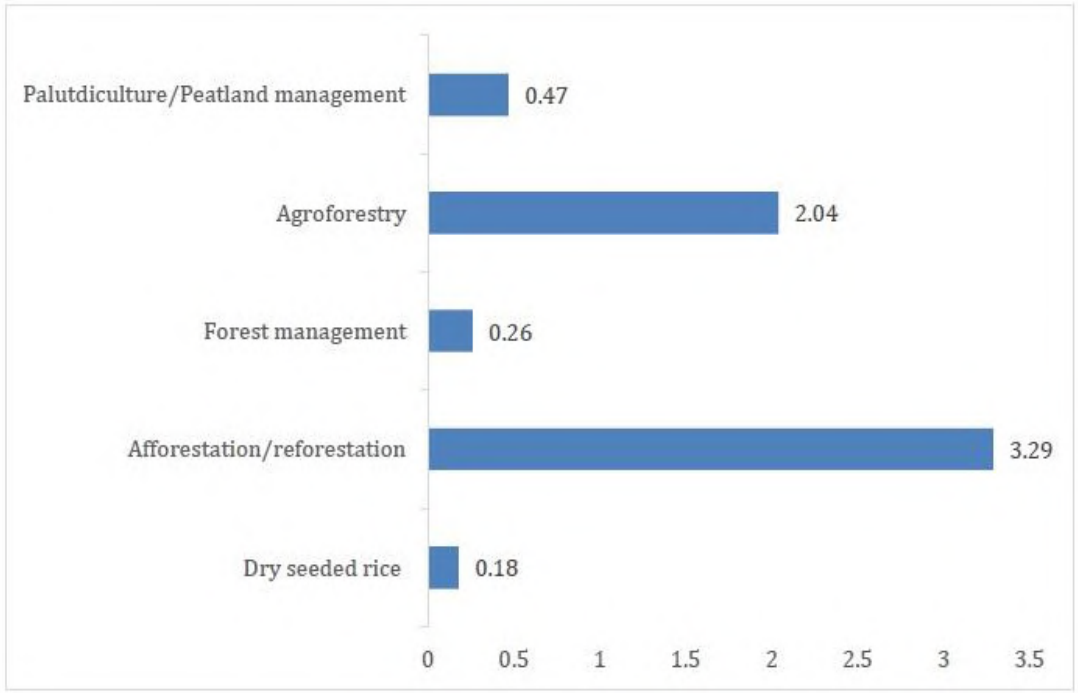
Why regional groups?



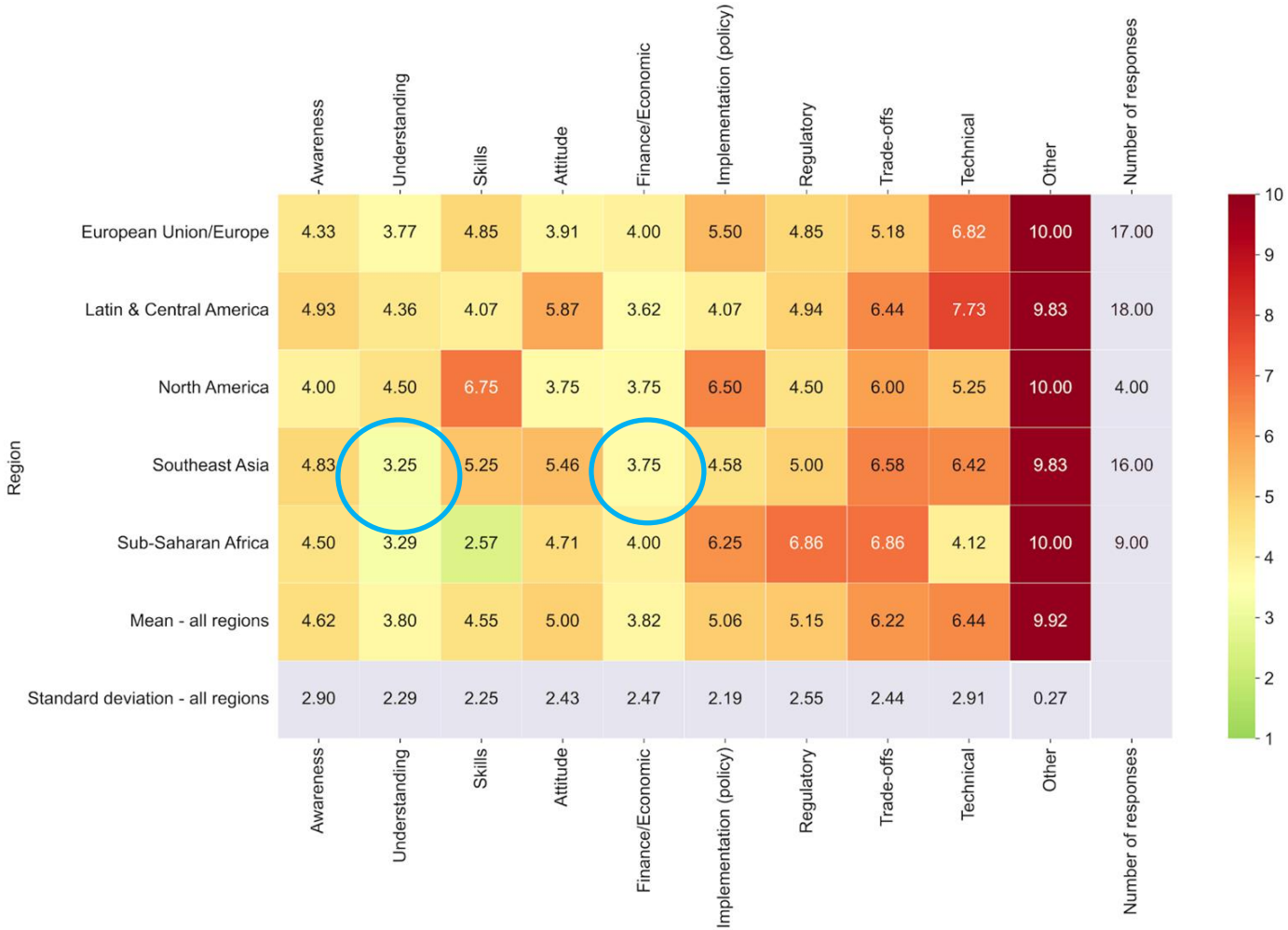
Your knowledge and expertise needed to enrich our understanding of LMTs and allow us to develop realistic recommendations.

LANDMARC | This project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 869367

Results are slowly trickling in…



GHG mitigation potential in Asia, per year in GTCo2eq (source: Lokendra Karki and LANDMARC team)



LANDMARC | This project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 869367

Many more results (modelling, risks, co-benefits) are yet to come but…

- Much more research is needed to understand the impacts on soil, people and (socio-economic) environment
- Trade-offs are not well understood
- Policy frameworks are often lacking
- People/users are not aware and/or not trained
- Even if they are aware, they are not convinced
- Only if LMTs offer tangible benefits for users with their needs in mind, they will become a success

LANDMARC | This project has received funding from the European Union's Horizon2020 research and innovation program under grant agreement No 869367

ASEAN CRN

Tea/Coffee Break

Session 3

GHG Offsets (Carbon) Markets

Session 3: 15.15-16.15

Moving ahead with GHG offset markets for agriculture

Beau Damen
Natural Resource Officer, FAO

Dr. Puttipar Rotkittikhun
Director Carbon Credit Certification, Thailand Greenhouse Gas Management Organization

Vicky Janssen
Klik Foundation

Rodney Lui
multi-partner paper with Bayer support

Deviah Aiama
Senior Manager, World Business Council for Sustainable Development (WBCSD)

Food and Agriculture Organization of the United Nations

Summary
FAO Review of Carbon Markets for agriculture sectors

Beau Damen - FAORAP

March 2023

Carbon credit mechanisms & market segments

Sources of supply

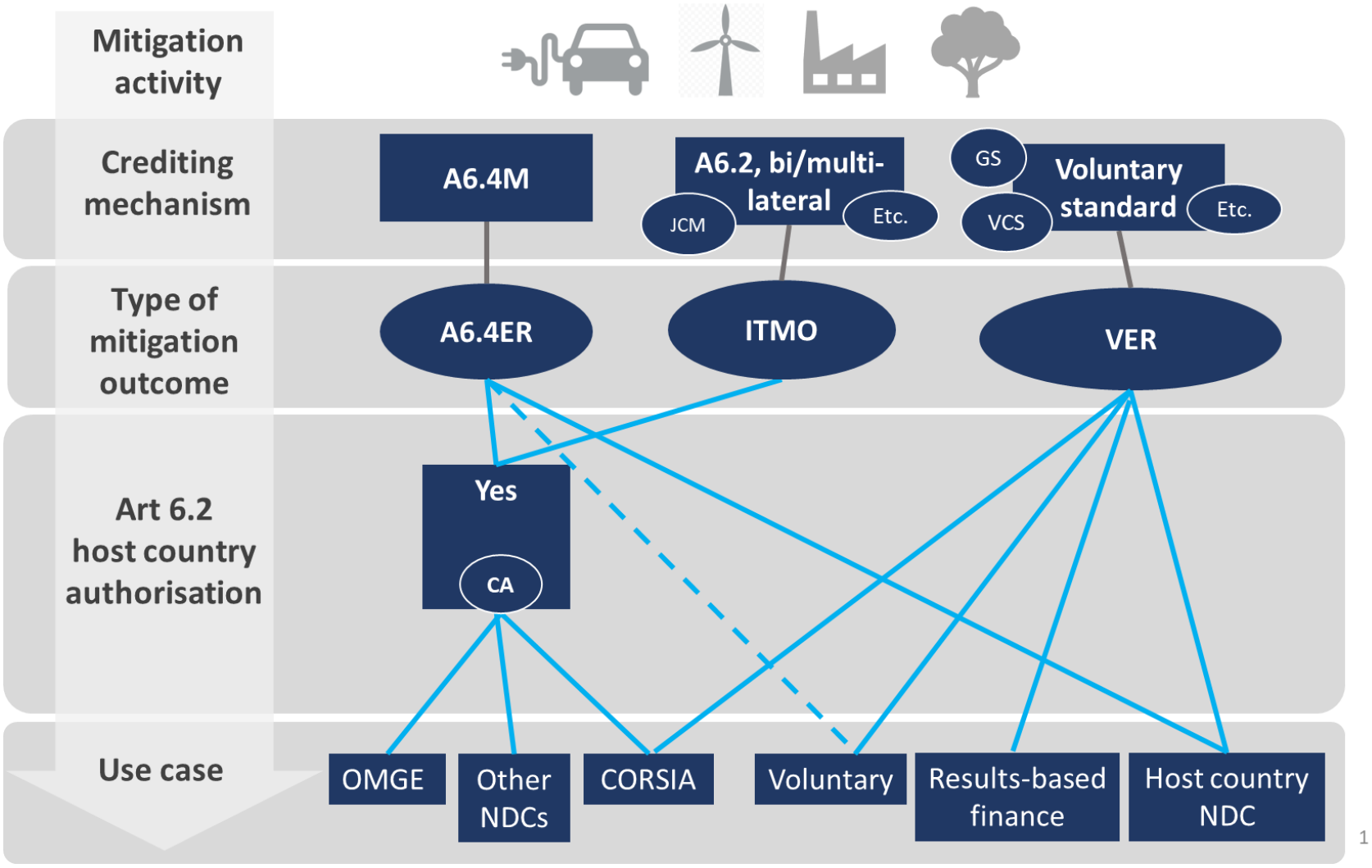
International crediting mechanisms	Regional, national & subnational crediting mechanisms	Independent crediting mechanisms
e.g. CDM, Art 6.4	e.g. California compliance offset program	e.g. VCS, Gold Standard

Market segments

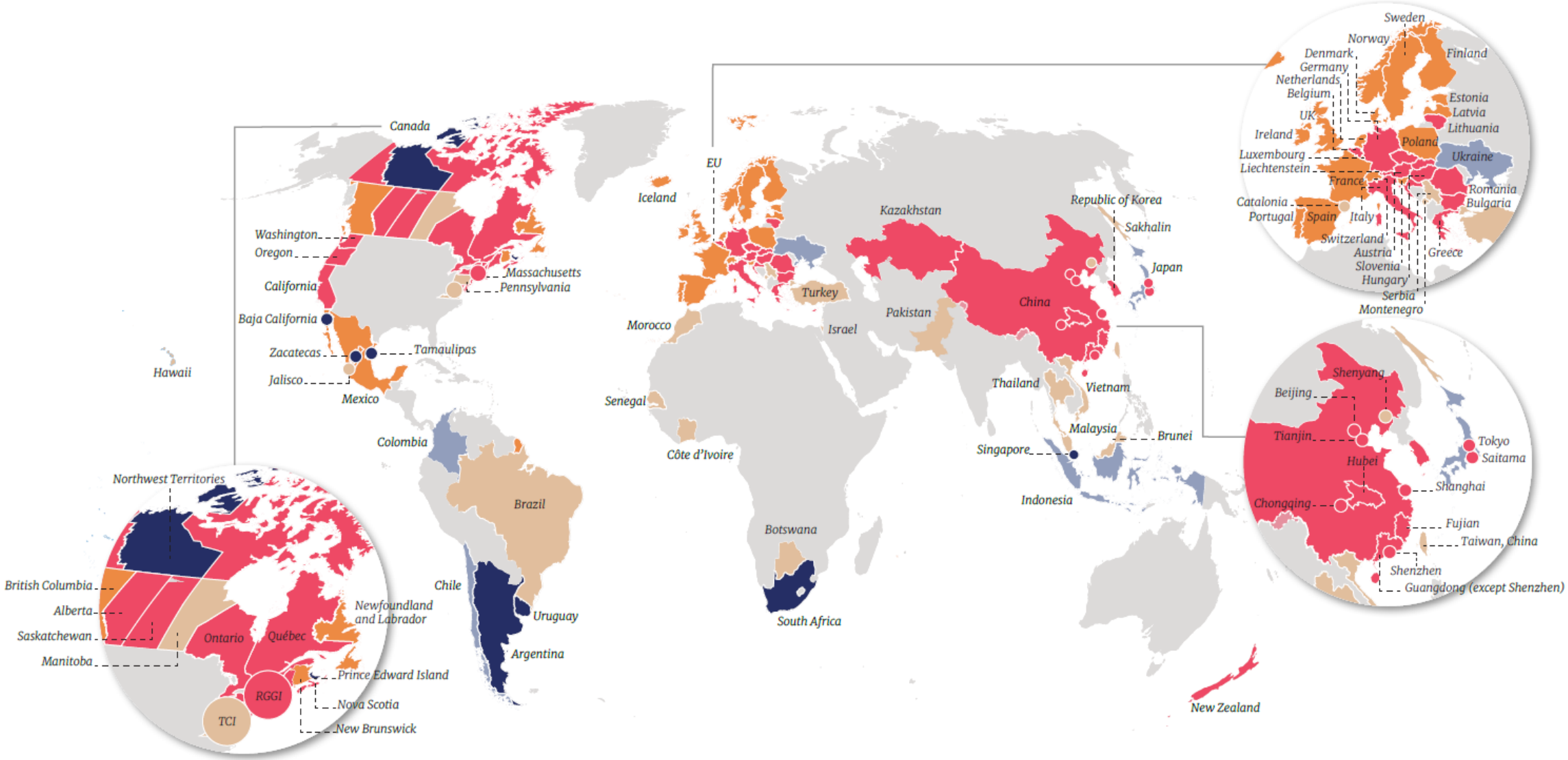
International compliance markets	Domestic compliance markets	Results-based finance	Voluntary carbon market
Credit purchases aimed at helping countries meet their NDCs and airlines comply with CORSIA	Credit purchases aimed at complying with obligations under carbon taxes, ETS	Credit purchases as public policy tool for incentivizing mitigation	Credit purchases meeting voluntary targets or commitments

Source: World Bank, 2022

The market segments after COP26

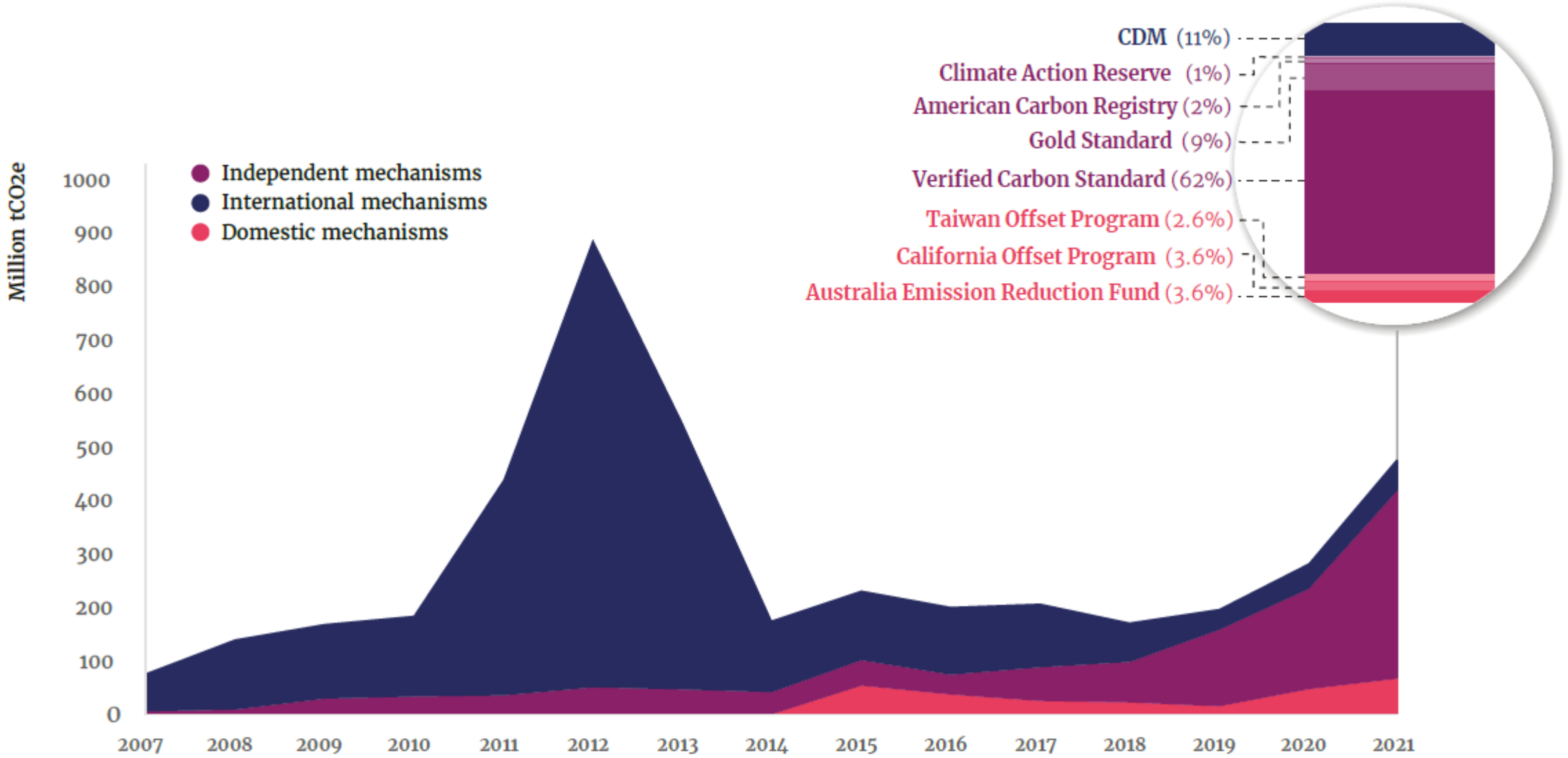


Map of carbon taxes and ETS



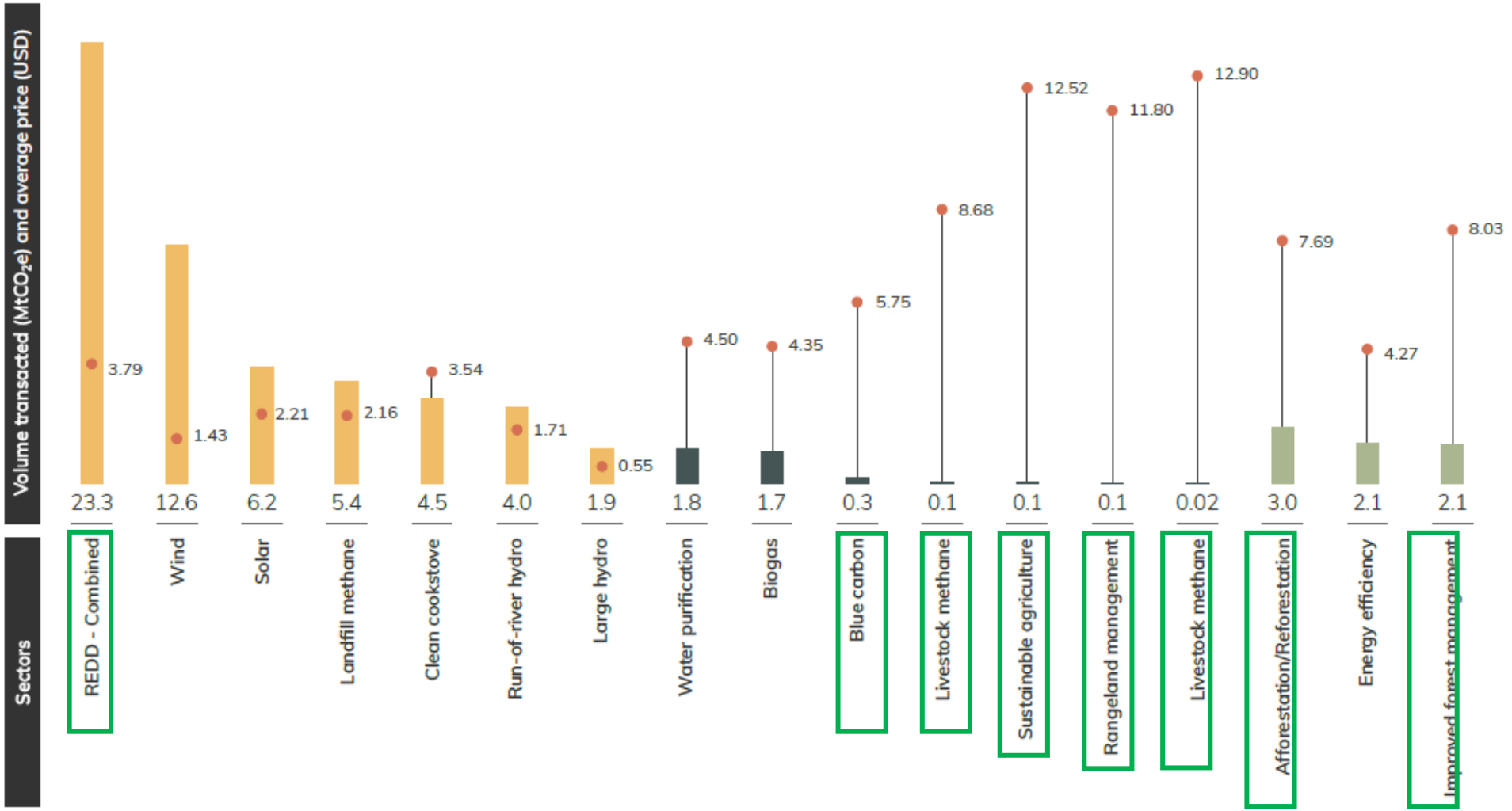
Source: World Bank, 2022

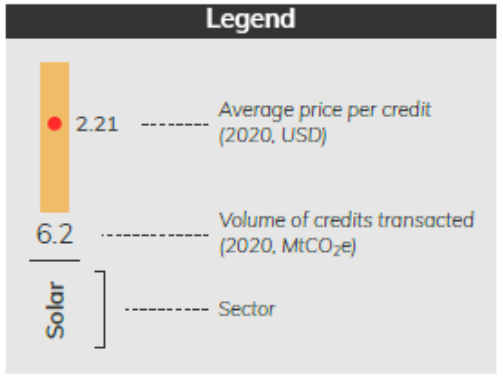
Global volume of issuances by mechanism

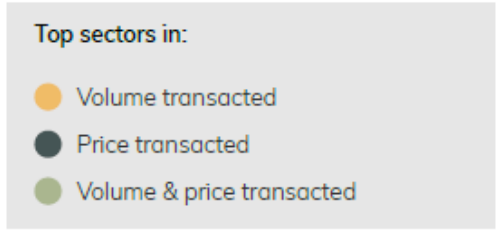


Source: World Bank, 2022

Volumes transacted and prices per sector - 2019







FAO Review

- Conducted in 2022 with the support of Perspectives Climate Group

- Aimed to better understand:
  - State of carbon markets after COP26
  - Experience with different standards and their relevance for AFOLU
  - Level of Readiness across agriculture sectors
  - Options for support

Standards covered

- Clean Development Mechanism (CDM)
- Gold Standard
- Verra (VCS)
- Plan Vivo
- American Carbon Registry (ACR)
- Climate Action Reserve (CAR)
- Label Bas Carbone (LBC)
- NORI
- FAO GSOC Protocol
- Regen Network
- Alberta

Standards covered in the review

Comparison - Baseline setting

	Similarities and Differences
CDM	• Mostly project-by-project baseline scenario, requirements determined by methodology **(no standardized baselines exist for A/R)** • Conservative baseline • If the crediting period for the project is renewed after 7 years, **the baseline has to be re-assessed.**
Gold Standard	• Mostly project-by-project baseline scenario, requirements determined by methodology • Conservative baseline • **For land use and forestry projects: baselines reset every five years.**
Verra (VCS)	• Mostly project-by-project baseline scenario, Requirements determined by methodology • Conservative baseline • **For all IFM, APDD (except where the agent is unknown), RWE, APWD, APC, and ALM project types, the baseline has to be reassessed every 10 years.**
Plan Vivo	• Project-by-project basis, **no standardized baselines** • Mentions conservative assumptions • **Baselines resets are decided on a project-to-project basis** (documents propose a 5-year renewal)
American Carbon Registry	• Mostly project-by-project baseline scenario, requirements are determined by methodology. • Conservative baseline • **For A/R projects: baselines reset every 10 years** • **For other AFOLU project types: no reset**
Climate Action Reserve	• Mostly standardized baselines • Mentions conservative assumptions • **For AFOLU project types: no reset**

Comparison - Additionality

	Similarities and Differences
CDM	• Standardised or individualised (project-by-project). Some positive lists • Two tools for assessment • Steps: investment and common practice analysis • **Barrier analysis has essentially been replaced by investment testing**
Gold Standard	• Standardised or individualised (project-by-project). • **Use of either CDM- or Gold Standard-approved tools (e.g. positive list, activity penetration)**
Verra (VCS)	• Standardised or individualised (project-by-project) • Steps: Identification of alternative scenarios, Investment analysis, Barrier analysis (and common practice analysis. • **Less robust** than CDM/GS (In contrast to the CDM, **barrier analysis is still widely used**)
Plan Vivo	• **Individualised** (project-by-project). • assessment of regulatory requirements and certain kinds of barriers • **does not include consideration of investment analysis or common practice**
American Carbon Registry	• Standardised or individualised (project-by-project). • Additionality test against a performance standard or three-prong test (regulatory context, common practice, implementation barriers
Climate Action Reserve	• **Standardised** • Legal requirements test and performance standard test • **Forestry projects must in some cases demonstrate lack of financial viability (financial barrier)**

Comparison - Permanence

	Similarities and Differences
CDM	• **Temporary credits:** Temporary CERs periodically expire and re-issuance is done upon verification • **Credits must eventually be replaced** by the purchasing party, either when the validity of the credits expire or when a mandatory monitoring report shows a decrease in carbon stocks in the project
Gold Standard	• Non-Permanence Buffer. **Fixed 20% contribution** • Permanence is only formally guaranteed **for the duration of a project's crediting period, not beyond.** Note: GS is currently trying to develop options beyond the crediting period
Verra (VCS)	• AFOLU Non-Permanence Risk Tool + **Pooled Buffer Account** • Contributions range between **10-60 %** • Permanence is only formally guaranteed **for the duration of a project's crediting period, not beyond.** Note: Verra has recently published a Proposal to Create a Long-term Reversal Monitoring System for public consultation in which Verra proposes monitoring periods of e.g. 50 or 100 years
Plan Vivo	• Non-Permanence Buffer. Contributions range from **10-30 %** • **Reversals due to poor management or breach of contract are not be covered**
American Carbon Registry	• Non-Permanence Buffer. Contributions range: **10-60%** • **AFOLU project must commit to maintain, monitor and verify project activity for at least 40 years**
Climate Action Reserve	• Non-Permanence Buffer. Contributions range: n/a • **Landowners to maintain credited carbon stocks for a period of 100 years after credits are issued** • In some individual protocols, the Reserve may offer the option of "**Tonne-Year Accounting"**

Comparison - Leakage

	Similarities and Differences
CDM	• Quantitative leakage calculation, methodology-specific, procedure elaborated in Project Design Document • **does not account for international leakage or international market shifting**
Gold Standard	• Quantitative assessment, methodology-specific • GS requirements are **less specific** compared to CDM/VCS
Verra (VCS)	• Quantitative assessment, methodology-specific • VCS AFOLU **does not account for international leakage or international market shifting**
Plan Vivo	• Quantitative assessment, project-specific • **specific** compared to CDM/VCS • **no specification how to quantify** for leakage. Project proponents choose a methodology.
American Carbon Registry	• Quantitative assessment, methodology-specific • **less specific** compared to CDM/VCS
Climate Action Reserve	• **protocols generally do not require an explicit and separate accounting for leakage effects** (due to the definition of a comprehensive GHG Assessment Boundary – which must include any and all SSRs associated with significant GHG emissions, regardless of their physical location)

Readiness of the 4 sectors

Level of readiness

\+

\-

Forestry:

- Available methodologies, previous projects/programmes experience (strong on VCM, limited in CDM)
- Discussion on key questions (permanence, leakage, etc.) ongoing, temporary credits were unattractive

Livestock:

- CDM experience on methane capture from anaerobic digestion of animal waste and use for energy.
- Some methodologies for feed supplements to reduce methane emissions of ruminants, but with limited application

Agriculture:

- VCM developing new methodologies (e.g. SOC), some experience from CDM (wet rice management, inoculant-based fertilizer reduction).
- Important barriers for SOC projects (spatial variability of SOC, high transaction costs, land tenure, etc.)
- Few project experiences so far.
- Discussion on key questions (permanence, leakage, etc.) ongoing

Fisheries:

- No existing methodology
- Important emission reduction potential for reducing fuel use in capture fisheries and aquaculture and using less energy-intensive preservation methods (freezing and salting)
- Potential carbon dioxide removal through ocean fertilization/preservation, albeit with huge challenges & side effects

Forestry – High level of readiness

- Strong pipeline of **available methodologies**
- Large pipeline of **existing projects/programmes** :
    - **Simple buffer stock approaches for permanence**
  - **Limited in the CDM**
    - **Temporary credits** used under CDM were unattractive
- Growing importance of **blue carbon** (mangrove and seagrass plantation/restoration).
- Very active ongoing discussions on key questions (**permanence**, **leakage**, etc.)
- **Crediting periods** agreed upon for Article 6 favourable for Afforestation/Reforestation projects (removals can have crediting periods of 3*15 years.

Livestock – Medium level of readiness

- **Strong CDM experience** on **methane capture from anaerobic digestion** of animal waste and use for energy:
  - Several methodologies available and substantial amount of projects and programmes registered (Pig and poultry manure: 248 projects registered of which 113 had issuances of 16.7 million CERs and **largest of all CDM programmatic activities** with ~1000 components in Brazil, 7.6 million CERs issued).
- More limited experience on **methane emissions from ruminants**; some methodologies for feed supplements developed but with limited application
- The Australian Emissions Reduction Fund (ERF) applies methodologies on a) feeding nitrates to beef cattle, b) feeding dietary additives to milking cows.

Agriculture – Medium/Low level of readiness

- **Limited experience from the CDM** on wet rice management (CDM methodology AMS-III.AU – discontinued by Verra), inoculant-based fertilizer reduction (CDM methodology AMS-III.A.).
- **Increased availability of methodologies** for the VCM whose applicability for Art.6 remains to be seen
  - **Important barriers for soil organic carbon** (SOC) projects: high spatial variability of soil carbon, high upfront investments needed to transition farms to sustainable land management practices and high transaction and monitoring costs prevent certification of smaller projects, additionality of projects often questioned, lack of comprehensive land zoning and uncertain land tenure arrangements, permanence risk (very fast reversal)
  - Besides some fringe standards on the voluntary market, only the **Australian compliance markets allow soil carbon** to date, only few projects registered under voluntary carbon markets
- Discussion on **key questions** (permanence, leakage, etc.) ongoing
  - Stakeholders have different views on how approaching this

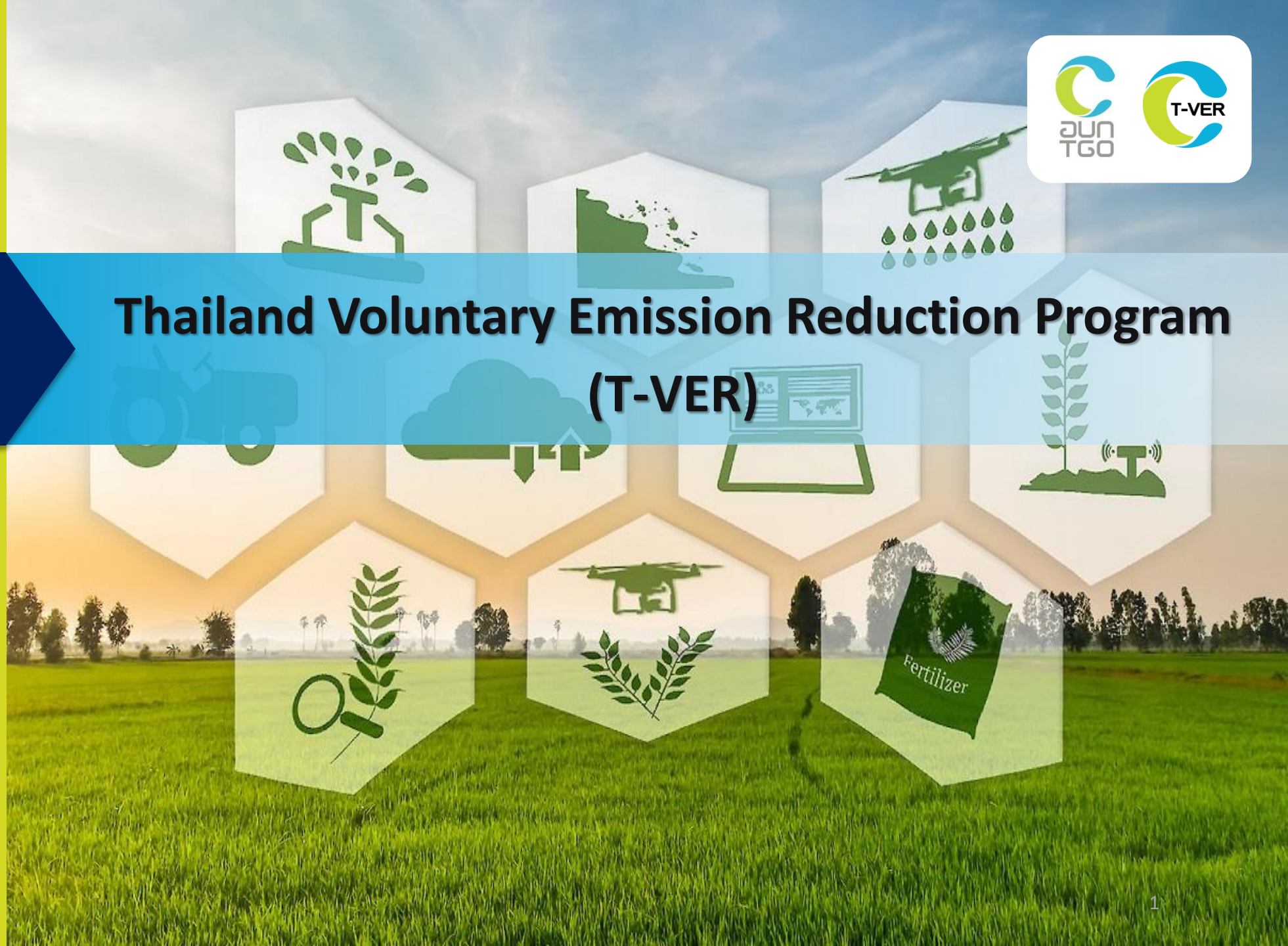
Fisheries – Low level of readiness

- **No existing methodology** (blue carbon methodologies are accounted for in the forestry category). Only one CDM methodology could be relevant: - AMS-III.BP. Emission reduction by **shore-side electricity supply system**.
- Important emission reduction potential for **reducing fuel use** in capture fisheries and aquaculture and using **less energy-intensive preservation methods** (freezing and salting):
- Potential carbon dioxide removal by **ocean fertilization/preservation**, has fisheries implication.
- Potentially huge side effects (e.g. iron fertilization experiment with salmon fisheries on Canadian West Coast or idea of whale management with whale number recovery increasing carbon sequestration).

Thank you


ASEAN-CRN
Knowledge Exchange Event
and Partners Meeting
Smallholder Farmers and Carbon Markets in Southeast Asia- Multi partner discussion paper

Thailand Voluntary Emission Reduction Program (T-VER)



Thailand Greenhouse Gas Management Organization (Public Organization)

28 March 2023

Thailand Voluntary Emission Reduction Program (T-VER)

T-VER

General Information of T-VER

- A domestic GHG mitigation mechanism,
- Aims to promote cooperation of all relevant sectors in GHG reduction,
- TGO has responsibility to define criteria, project development process, methodology, registration, and credit issuance.

Objectives of T-VER

1. To promote participation for domestic voluntary GHG mitigation in Thailand,
2. To promote domestic carbon market,
3. To prepare readiness of all sectors in cope with GHG mitigation commitment.

T-VER's Credit Reliability

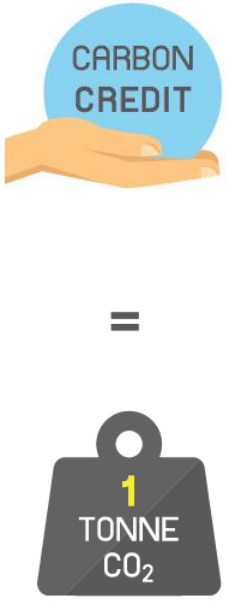
1. T-VER's framework is in correspondence with the ISO 14064-2,

   ISO 14064-2 specifies principles and requirements and provides guidance at the project level for quantification, monitoring and reporting of activities intended to cause greenhouse gas (GHG) emission reductions or removal enhancements.

2. Monitoring and Verification framework of GHG emission is also in correspondence with the ISO 14064-3,

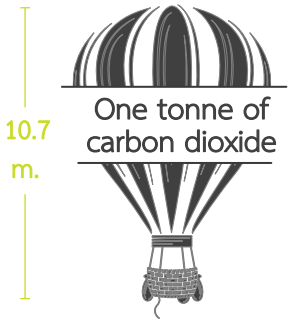
   ISO 14064-3 specifies principles and requirements and provides guidance for those conducting or managing the validation and/or verification of greenhouse gas (GHG) assertions.

3. Validation and Verification Body (VVB) is an independent auditor accredited by the CDM Executive Board (CDM EB) or accredited in the ISO 14065 by accreditation body that is a member of International Accreditation Forum (IAF) and registered by TGO.

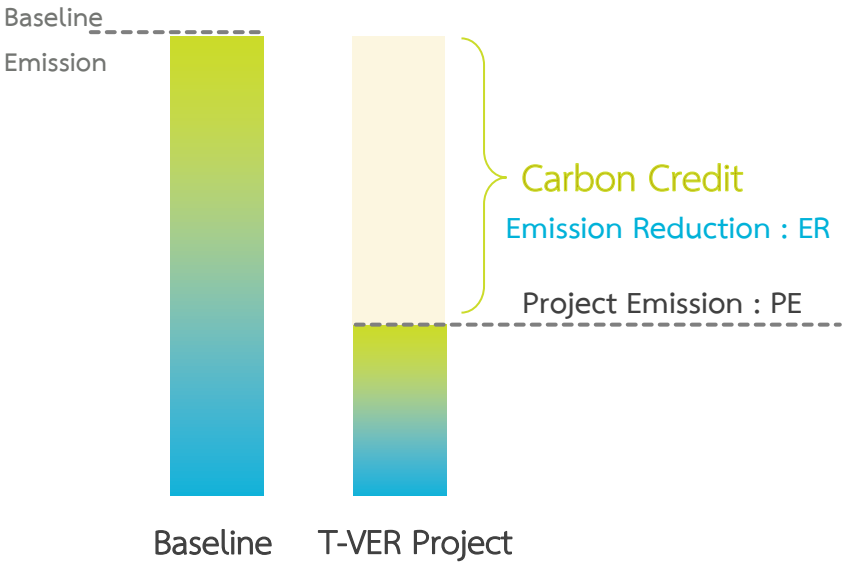


Carbon Credit

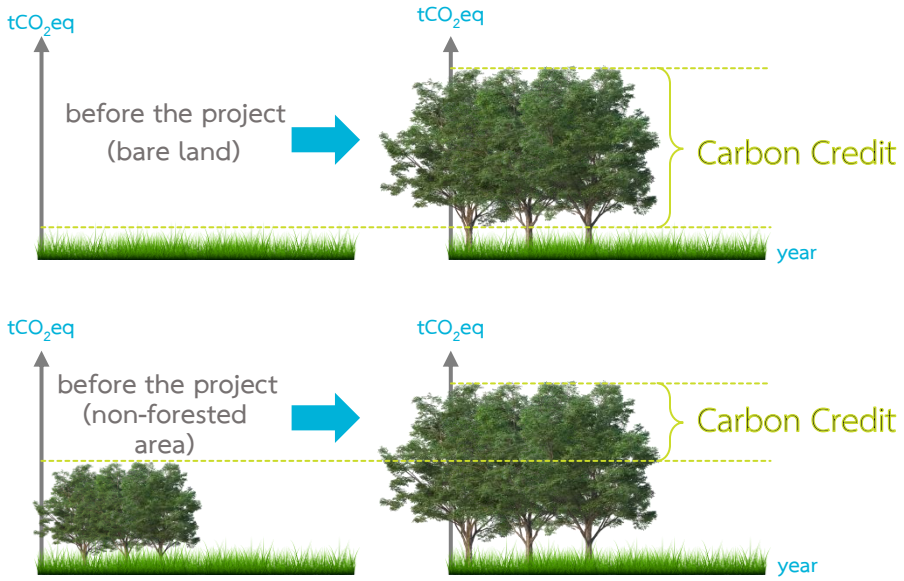
GHGs expressed in the unit of tCO_2eq that can be reduced or removed from GHG reduction project which are certified and issued in the registry system



Carbon Credits of General Projects



Carbon Credits of Forestry Projects



- Renewable Energy
- Energy Efficiency
- Transportation Management
- Waste Management
- Agriculture
- Forestry and Green Space

Thailand Voluntary Emission Reduction Program (T-VER)

T-VER

Standard T-VER

Developed since 2014

Premium T-VER

Developed since 2022

Premium T-VER requires additional demonstration to ensure high quality carbon credits

- Additional to BAU
- Public participation
- Do no Net Harm with SDG Impacts
- Permanent mitigation outcome

T-VER Registration and Credits Issuance Process

Project participant

Validation & Verification Body (VVB)

Submit Modality of Communications

Organize Local Stakeholder Consultation & prepare Project Design Document

Prepare SD & Safeguards Assessment Report

Premium T-VER

Standard T-VER

Prepare Project Design Document (PDD)

Prepare Co-benefits report

1 . Validate PDD by VVB
2. Review the report by TGO

Project registration

Monitor GHG + non-permanence risk (if any) + SD & Safeguards

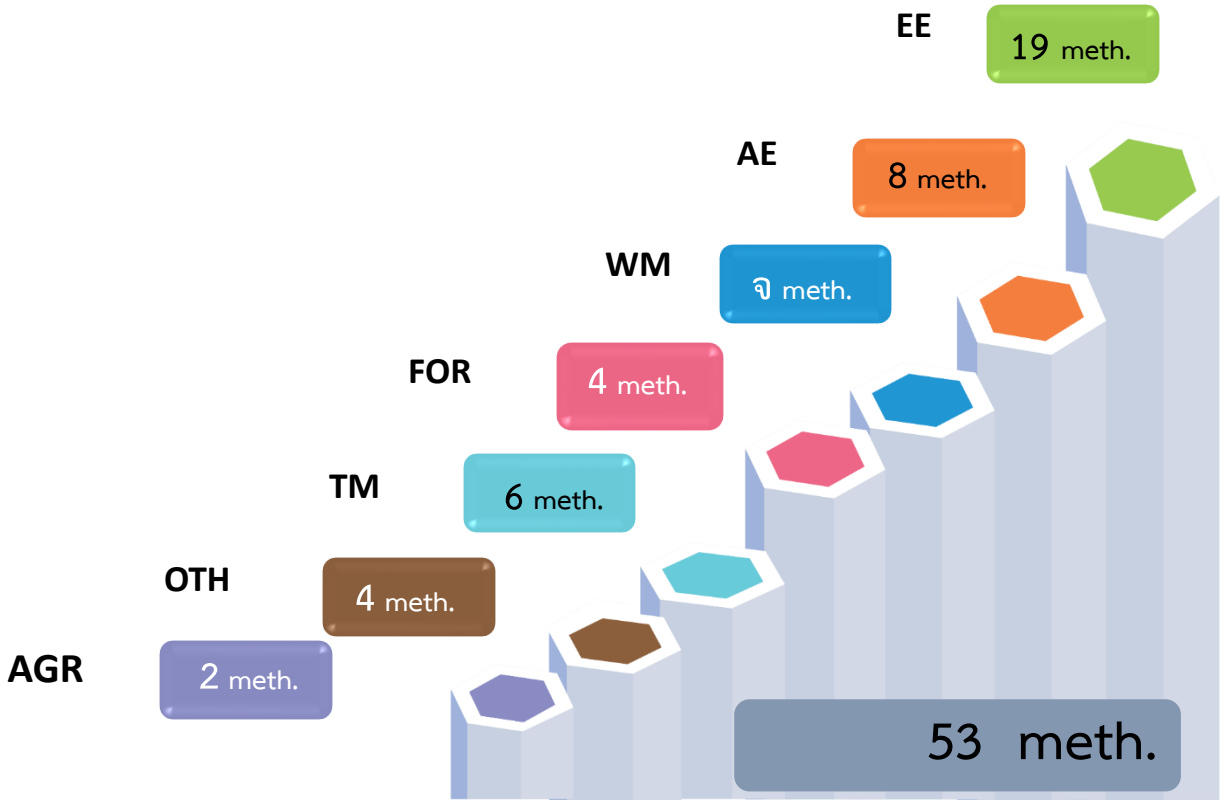
Monitor GHG

1 . Verify monitoring report + non-permanence risk by VVB
2. Review the report by TGO

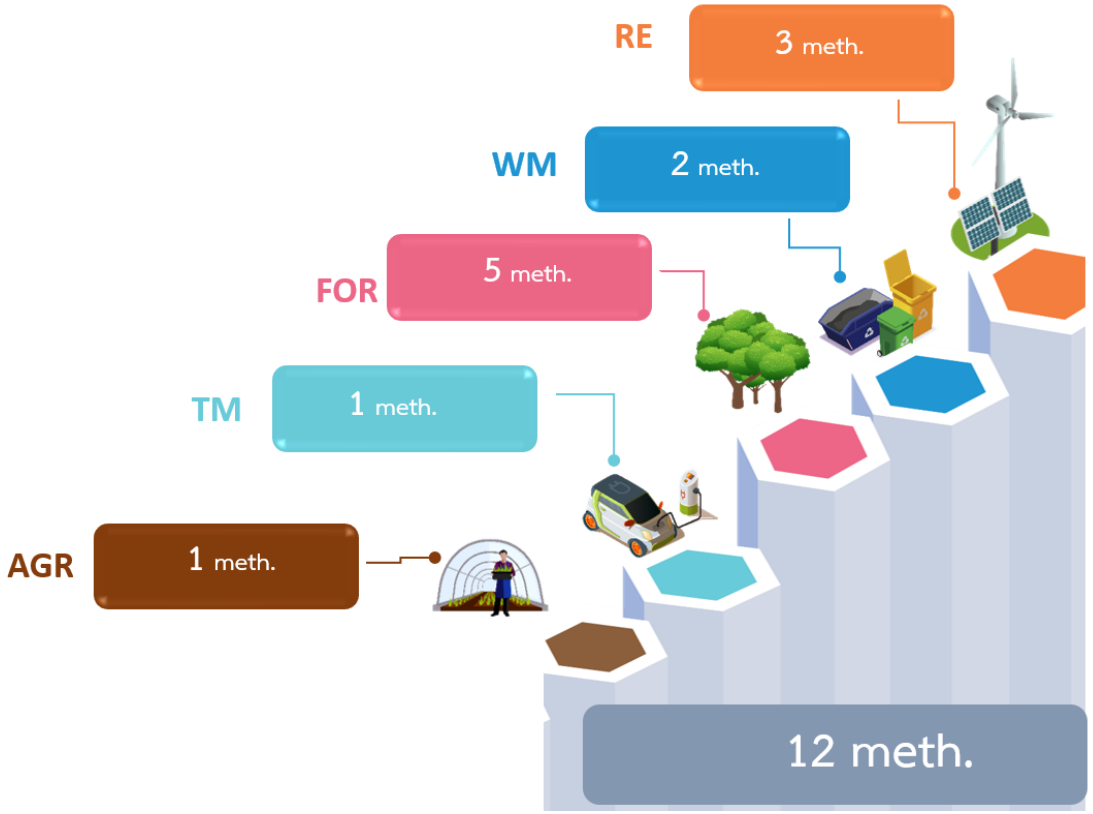
Issuance of Carbon Credits

T-VER Methodology

Standard T-VER



Premium T-VER



T-VER Methodology (Sector: Agriculture)

Standard T-VER

T-VER-S-METH-13-05

Good Fertilization Practice in Agricultural Land

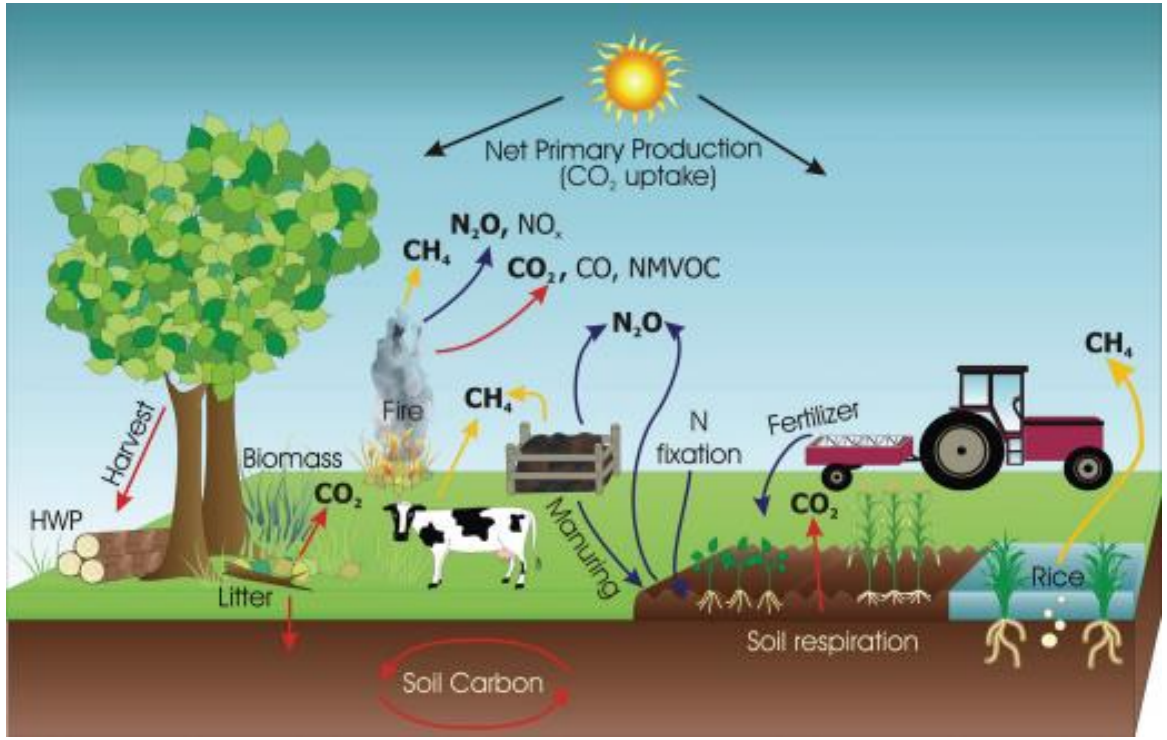
T-VER-S-METH-13-06

Carbon Sequestration and Reducing Emission for Perennial Crop Plantation

Premium T-VER

T-VER-P-METH-13-06

Enhanced Good Practices in Agricultural Land



T-VER projects and Carbon credits

Registered Projects

329 Projects

Amount of Expected GHG Reduction

10,886,149 tCO_2eq/year

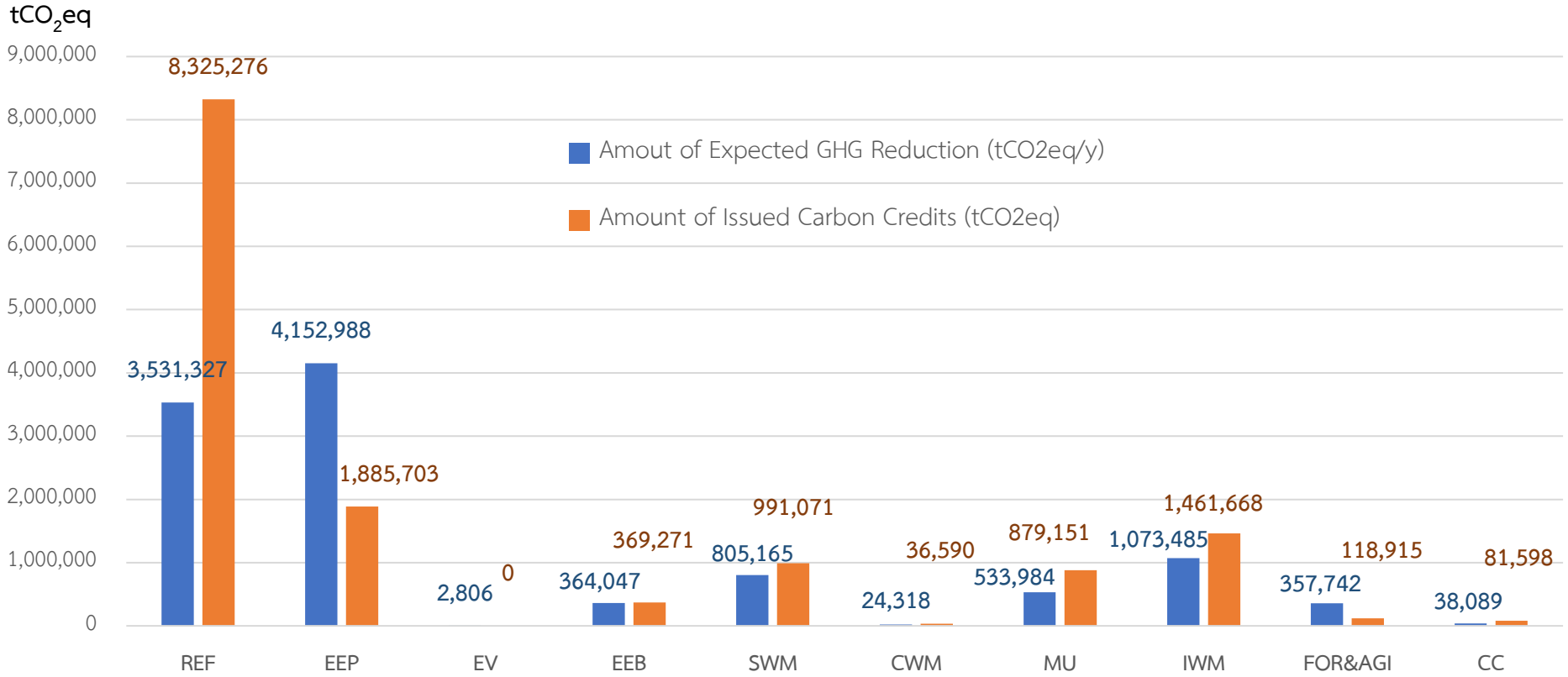
Issued Projects

144 Projects

(278 Times)

Amount of Issued Carbon Credits

14,149,243 tCO_2eq



REF	Renewable energy or fossil fuel replacement	CWM	Domestic wastewater management
EEP	Improvement of the efficiency of electricity and heat generation	MU	Methane recovery and utilization
EV	Use of electric vehicle	IWM	Industrial wastewater management
EEB	Improvement of the efficiency of energy consumption in building and factory and in household	FOR&AGI	Reduction, absorption and removal of greenhouse gases from the forestry and agriculture sectors
SWM	Solid waste management	CC	Capture, storage, and/or utilization of greenhouse gas

Standard T-VER

Good Fertilization Practice in Agricultural Land at Maeka Subdistrict, Mueng District, Phayao Province

Phayao Province

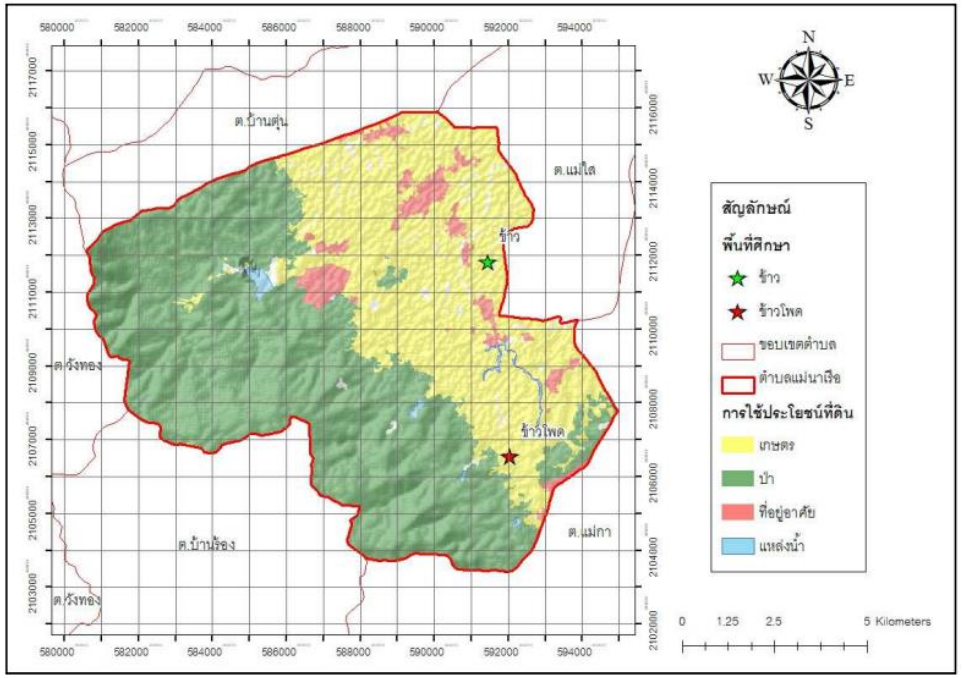
Corn field = 8.69 rai

Rice field = 22.90 rai

Meth: Good Fertilization Practice in Agricultural Land

1 Sep. 2014 - 31 Aug. 2021

1 $tCO_2eq/year$



Standard T-VER

Carbon Sequestration and Reducing Emission in Orchards of Non Hua Chang Famers, Sangkho Sub-district , Phuphan District, Sakon Nakhon Province

Sakon Nakhon Province

Orchard = 73.2 rai

Meth: Carbon Sequestration and Reducing Emission for Perennial Crop Plantation

1 Jan. 2015 - 31 Dec. 2021

69 $tCO_2eq/year$

Overview of Thailand Carbon Market Structure

Greenhouse Gas Reduction Projects
329 projects

As of 28 Feb 2023

Thailand Voluntary Emissions Reduction Programme

Carbon Credit Certification
14.14 MtCO2eq

As of 28 Feb 2023

Thailand Carbon Credit Registry System
330 Account

As of 31 Jan 2023

carbon neutral network

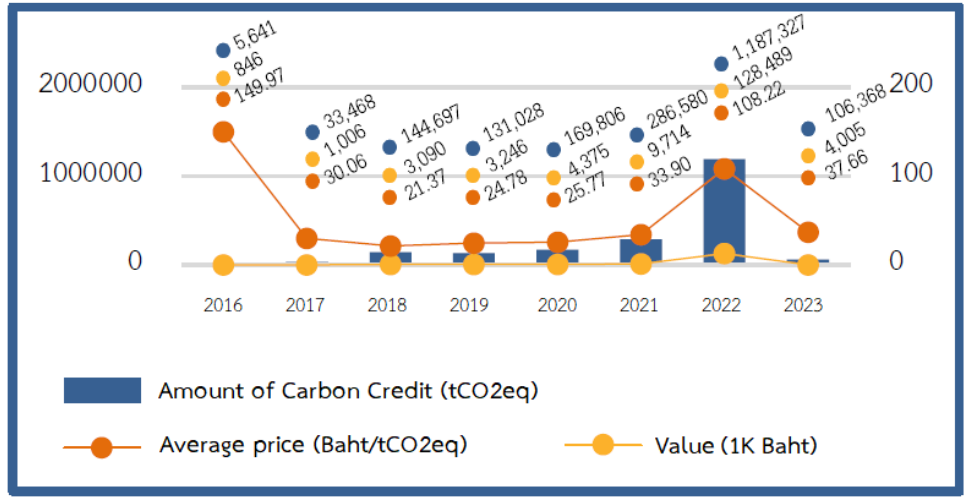
Thailand Carbon Offsetting Programme (T-COP)

carbon neutral | carbon offset

Market for Trading of Carbon Credits

Over-The-Counter (OTC)

Thailand Carbon Credit Exchange Platform - *FTIX*



Carbon Neutral Organizations
961,347 tCO_2

Carbon Neutral Products
1,456 tCO_2

Carbon Neutral Events
27,882 tCO_2

Carbon Neutral Individuals
7,661 tCO_2

As of FEB 2023

Thank you for your attention

องค์การบริหารจัดการก๊าซเรือนกระจก (องค์การมหาชน)
THAILAND GREENHOUSE GAS Management Organization
(Public Organizarion)

120 หมู่ที่ 3 ชั้น 9 อาคารรัฐประศาสนภักดี
ศูนย์ราชการเฉลิมพระเกียรติฯ ถนนแจ้งวัฒนะ
แขวงทุ่งสองห้อง เขตหลักสี่ กรุงเทพมหานคร 10210 ประเทศไทย

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Study background

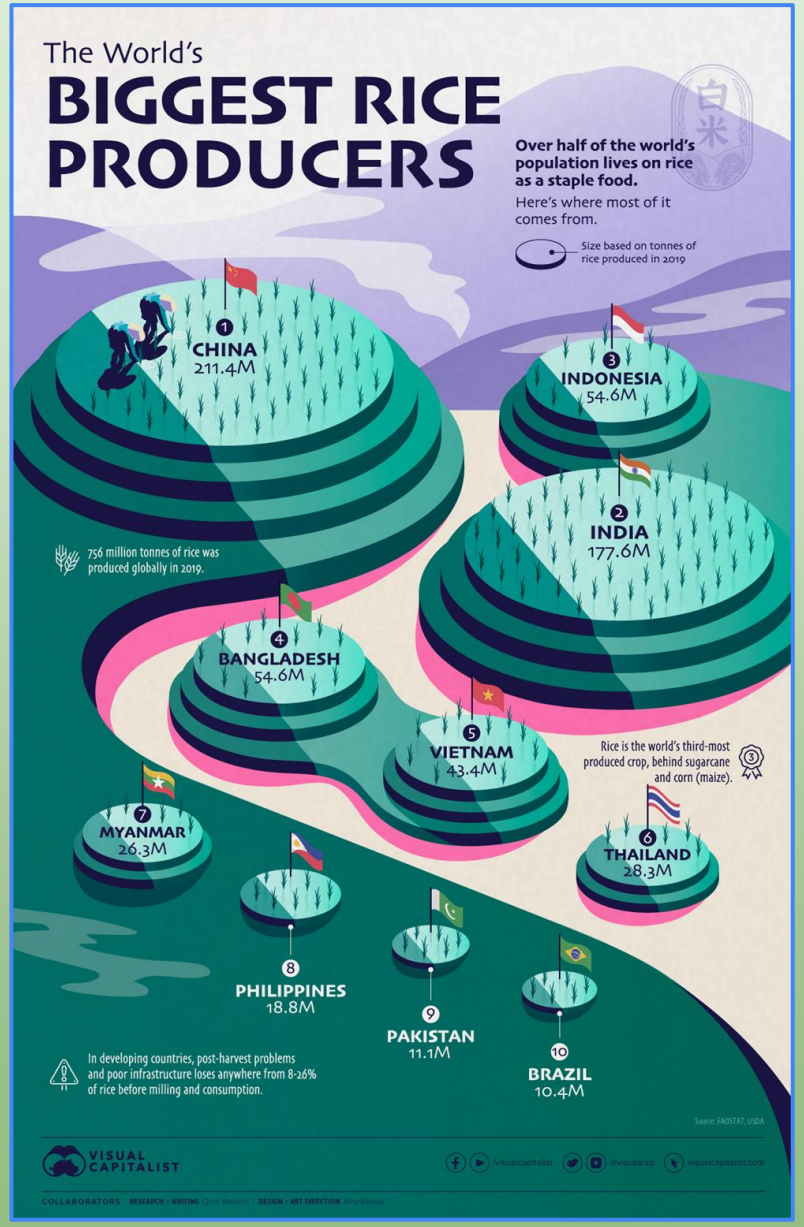
- Southeast Asia countries are interested in learning about Carbon Market opportunities available ***post COP 26;*** given the Paris Agreement has endorsed ***Article 6.1 and 6.4***.
- This paper aims to ***highlight opportunities and challenges*** available in Carbon Markets based on ***current knowledge and best practice*** with a focus on smallholder farmers and some case study examples from rice farming amongst others.
- The paper was compiled using mixed methods approach based on interviews with key informants and experts from Cambodia, Thailand, Indonesia, Singapore and Vietnam, and a review of available information.

Smallholder farmers; the scene

Country	Number of smallholder farmers (million)	Portion of smallholder farmers in total population (%)
Cambodia	3.7	22
Indonesia	38.9	14
Malaysia	1.6	5
Philippines	11.8	10
Thailand	12.7	18
Vietnam	24.4	25
India	126	~9

Source: WWF 2021

Producing the Worlds Rice



Country	Tonnes Rice Produced (2019)	% of Total
China	211.4M	28.0%
India	177.6M	23.5%
Indonesia	54.6M	7.2%
Bangladesh	54.6M	7.2%
Vietnam	43.4M	5.7%
Thailand	28.3M	3.7%
Myanmar	26.3M	3.5%
Philippines	18.8M	2.5%
Pakistan	11.1M	1.5%
Brazil	10.4M	1.4%
Others	119.0M	15.8%
Total	**755.5M**	**100.0%**

Rice production however has a significant GHG footprint with about 26.64 million tonnes of carbon dioxide annually.

Source: *Visual Capitalist*

A word on carbon markets

Cap and trade	***Carbon offset programs***	***Voluntary carbon markets****
Typically a government sets a limit or "cap" on the total amount of emissions allowed by a certain group of companies. *These companies are then given allowances, or permits, that allow them to emit a certain amount of greenhouse gases.*	*Carbon offset programs are designed to reduce emissions by encouraging companies to invest in projects that reduce or remove greenhouse gases from the atmosphere, often created & regulated by government or international organisations.*	*Markets in which individuals, companies, or organizations can purchase carbon offsets as a way to voluntarily reduce their carbon footprint or achieve carbon neutrality.* *These markets are typically not regulated by governments, and there is no mandatory requirement for companies to participate.*

Current valuation of (VCM) is around 2 billion USD

The landscape of Emissions trading schemes in Southeast Asia- Indonesia

Country	Institutions engaged in emissions trading schemes	National policy/ Governance frameworks
Indonesia	1. Coordinating Ministry for Economic Affairs 2. Coordinating Ministry for Maritime and Investment Affairs 3. Ministry of Environment and Forestry 4. Ministry of Energy and Mineral Resources 5. Ministry of Industry 6. Ministry of Finance 7. Environment Fund Agency 8. National Development Planning Agency 9. PMR Indonesia Secretariat 10. UNDP Indonesia	1. GR 46/2017 Government Regulation on Environmental Economic Instruments 2. Act No. 32/2009 on Environmental Conservation and Management 3. Law No.7/2021 Concerning Harmonization of Tax Regulations 4. Presidential Regulation No. 98 on the Instrument for the Economic Value of Carbon for Achievement of the NDC and Control of Carbon Emissions in Development.
	NOTE: The Indonesian government is supported by four policy and regulatory instruments. The Ministry of Agriculture, Forestry and Land is not engaged in this capacity. The ETS status for Indonesia is currently under development and will be released as a hybrid "cap, trade and tax" system.	

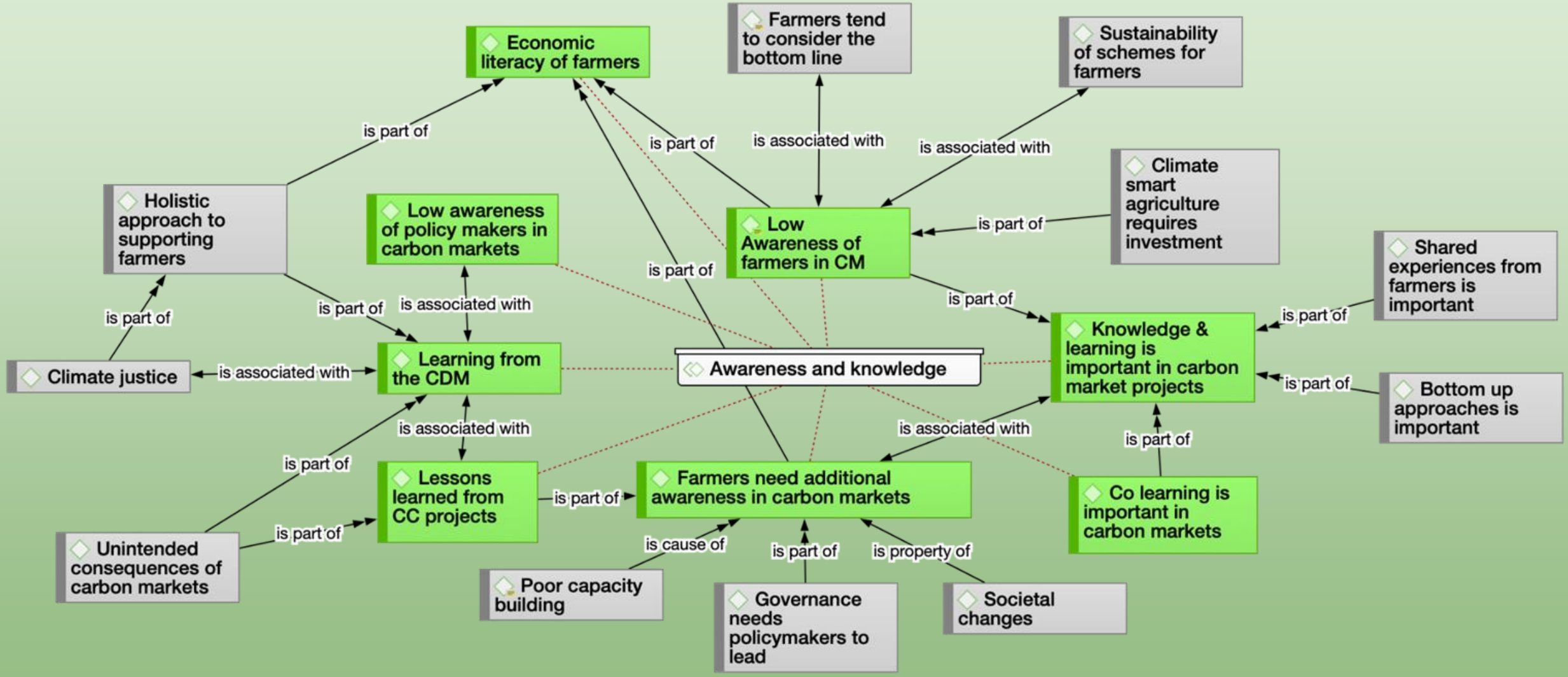
Source: International Carbon Action Partnership (ICAP)- Emissions Trading worldwide report 2022

The landscape of Emissions trading schemes in Southeast Asia- Malaysia

Country	Institutions engaged in emissions trading schemes	National policy/ Governance frameworks
Malaysia	1. Ministry of Environment and Water (KASA)	1. National Guidance on Voluntary Carbon Market Mechanisms
	NOTE: Malaysia has plans to start a voluntary carbon market trading platform in 2022. The Malaysian government is in the early stages of development for its ETS systems and processes. Since 2021 recently rolled out the National Guidance on Voluntary Carbon Market Mechanisms, this document provides guidance and a pathway for all interested stakeholders to engage with the voluntary carbon market. The government is currently exploring ETS design frameworks, registration, and alignment to international standards.	

Source: International Carbon Action Partnership (ICAP)- Emissions Trading worldwide report 2022

Awareness and Knowledge of Carbon Markets (Theme map)



Case studies included in the paper

India Rice Carbon Project (Bayer)

Started 2021

Thai Rice NAMA project (GIZ)

2018- 2023

+

Katingan Mentaya- Forest conservation project

2007- ongoing

Key contributors consulted

Sustainable Rice Platform (SRP), Agrig8, World Business Council for Sustainable Development (WBCSD), Bayer, Climate Foresight (FAO), Institute for Policy and Strategy for Agriculture and Rural Development-Viet Nam, Badan Riset dan Inovasi Nasional, BRIN – Indonesia (National Research and Innovation Agency)

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KliK Foundation

Climate cooperation under the Art. 6 of the Paris Agreement

Vicky Janssens, General Manager Southeast Asia
ASEAN-CRN Knowledge Exchange Event and Partners Meeting
28 March 2023

Who is the KliK Foundation?

- Private entity established in 2012, with a legal mandate under Swiss CO_2 Law
- Acting on behalf of Swiss motor fuel importers
- Compensating emissions from the Swiss transport sector in Switzerland and abroad
- Compensation abroad under Article 6 of the Paris Agreement through purchase of ITMOs– ***International Transferred Mitigation Outcomes*** (carbon credit equalling 1 tCO_2e)
- Obliged by Swiss law to buy ca. 20 million ITMOs abroad (t CO_2e until 2030)
- ITMOs are sourced by KliK Foundation from programmes implemented in partner country and used by Swiss government to fulfil its NDC target under the Paris Agreement.

Cooperation under bilateral climate protection agreements with Switzerland

More countries are expected to join in the next few months.

Updates available on our website: www.international.klik.ch

Requirements: General Eligibility Criteria

- **Aligned** with **host country's NDC**
- Programmes **must** be **additional** (no business-as-usual)
- **Programmes** not yet implemented
- Large programmes/projects (**500'000 t CO_2** reduced until 2030)

Criteria under Swiss CO_2 Law

- **No forestry (no biological sequestration)**
- No hydro-power **larger than** 20MW
- No nuclear power and no fossil fuel lock-in

Programs eligible in the agricultural sector

- Alternate Wetting and Drying (AWD)
- Solar irrigation
- Any type of fuel switch from diesel/gas/electricity to renewable source (ex: biofuels, biogas or biomass from agricultural residues)
- Agricultural organic waste management
- Feed additives for dairy cattle for low methane milk
- Reduction / replacement of chemical fertilizer production through production of organic fertilizer *(only if production of fertilizer happens in Thailand)*

KliK Foundation: Our Portfolio

- ✓ Solar PV programs: Ghana, Dominica
- ✓ Biogas: Senegal, Morocco, Peru
- ✓ Energy Efficiency for SMEs: Morocco, Peru
- ✓ Energy Efficiency in buildings: Georgia
- ✓ Electric Mobility: Thailand, Senegal, Dominica
- ✓ Waste management: Ghana, Senegal, Morocco
- ✓ Clean cooking: Malawi, Ghana
- ✓ Green credit lines: Morocco, Peru
- ✓ Green cooling: Ghana
- ✓ **Looking at in Thailand: AWD, green cooling, sustainable cement**

Bangkok Post City's first public EV buses start rolling

City's first public EV buses start rolling

PUBLISHED : 20 AUG 2022 AT 04:00

NEWSPAPER SECTION: NEWS
WRITER: POST REPORTERS

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Bangkok's first 40 electric public buses begin service today, said Transport Minister Saksayam Chidchob, adding that it marks an important shift away from polluting diesel engines.

Foundation for Climate Protection and Carbon Offset KliK

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Newsletter Thailand

Current Activities

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Q&A

Group Discussion

Guiding Questions

- What are the plans of your country to develop GHG offset projects for agriculture? Is the focus on compliance market (Article 6), voluntary market or both?
- Draw a scale from 1-10. How ready do you think you are to move ahead with these plans?
- What are the gaps and needs?

Session 3: 16.15-17.00

Options to advance development of results-based incentives and readiness for emissions trading for low emission agriculture

Beau Damen

Natural Resource Officer, FAO

Wrap-up and Closing of Day 1

Reminders for Day 2

PTT and documents are available for download at:

https://drive.google.com/drive/folders/14tMKyk_ULOiQyfmib0dp5YEJPsLvAitF?usp=share_link

Highlights


Agricultural insurance
in the ASEAN region:
CAMBODIA
Background


Agricultural insurance
in the ASEAN region:
INDONESIA
Background


Agricultural insurance
in the ASEAN region:
LAO PDR
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Thank you very much.