KINGDOM OF CAMBODIA

Nation Religion King

Ministry of Agriculture Forestry and Fisheries

ROADMAP OF CAMBODIA CONSERVATION AGRICULTURE AND SUSTAINABLE INTENSIFICATION CONSORTIUM (CASIC) 2022 – 2026

Towards modernization and agroecology in Cambodia

Prepared by CASIC Executive Board and under the leadership of CASIC Steering Committee

Phnom Penh, August 2021

Table of Contents

List of Tables ii
List of Figures ii
Acronyms iii
Preface v
Acknowledgements vi
1. Introduction 1
1.1 Purposes of the Roadmap 2
1.2 Guiding Principles 2
1.3 Preparation Process 2
2. Background of CA & SI and Agroecology 3
2.1 Concept and Importance of CA & SI and Agroecology 3
2.2 History of CA & SI and Agroecology Development in Cambodia 4
2.3 Development Outcomes of CA & SI and Agroecology in Cambodia 7
3. Policy Framework for Sustainable Agriculture Development 10
4. Institutional Profile and Structure of CASIC 12
4.1 Vision 12
4.2 Mission 12
4.3 Governance and Executive Structure of CASIC 12
5. SWOT Analysis of CASIC 14
6. CASIC's Roadmap for 2022-2026 15
6.1 Overall Objective 15
6.2 Strategic Objectives 15
6.3 Strategic Objective 1: CASIC and relevant stakeholders strengthened and coordinated 17
6.4 Strategic Objective 2: Knowledge and research on CA & SI and agroecology enhanced 18
6.5 Strategic Objective 3: CA & SI and agroecology services improved and scaled up 19
7. Roles and Interests of Stakeholders in CASIC's Roadmap Implementation 20
7.1 CASIC's Internal Stakeholders 20
7.2 Other Key Stakeholders 20
8. Strategic Mechanisms for Roadmap Implementation 22
8.1 Enabling Conditions 23
8.2 Resource Mobilization 23
8.3 Risk Assessment and Management 24
8.4 Inclusiveness of Smallholder Farmers and Women 25
9. Monitoring and Evaluation 25
References 27
Appendix 1: MAFF's Decision Letter on the Establishment of CASIC 30
Appendix 2: CASIC's Roadmap Matrix (2022-2026) 33
Appendix 3: Budget Estimates of CASIC Roadmap (2022-2026) 38
Appendix 4: List of Consulted Key Informants 43

List of Tables

Table 1: Summary of CA, SI and Agroecological Approaches 4
Table 2: Evidences of Economic, Agronomic and Environmental Impacts of CA Practices 9
Table 3: SWOT analysis of CASIC 14
Table 4: Priority Actions under Strategic Objective 1 17
Table 5: Priority Actions under Strategic Objective 2 18
Table 6: Priority Actions under Strategic Objective 3 19
Table 7: Risk Assumptions and Mitigation Strategies 24

List of Figures

Figure 1: Indicative Timeline of CA and SI Development in Cambodia 5
Figure 2: Structure of CASIC 13
Figure 3: Objectives and Expected Outputs of CASIC Roadmap for 2022-2026 16

Acronyms

ACIAR	Australian Centre for International Agricultural Research
ACTAE	Towards Agroecological Transition in South-East Asia
AFD	French Agency for Development
AIMS	Accelerating Inclusive Markets for Smallholders Project
ALiSEA	Agroecology Learning alliance in South East Asia
ASEA	Agroecology for Southeast Asia (formerly known as CANSEA)
ASMC	Appropriate Scale Mechanization Consortium (project)
ASPIRE	Agriculture Services Programme for Innovation, Resilience and Extension Program
ASSET	Agroecology and Safe food System Transitions Project
CA	Conservation Agriculture
CARD	Council for Agricultural and Rural Development
CARDI	Cambodian Agricultural Research and Development Institute
CASC	Conservation Agriculture Service Center (DALRM/GDA/MAFF)
CASF	Conservation Agriculture Services with a Fee Project
CASIC	Cambodia Conservation Agriculture and Sustainable Intensification Consortium
CAVAC	Cambodia-Australia Agricultural Value Chain Program
CCC	Cambodia Chamber of Commerce
CCCA	Cambodia Climate Change Alliance
CCCSP	Cambodia Climate Change Strategic Plan
CE SAIN	Center of Excellence on Sustainable Agricultural Intensification and Nutrition
CHAIN	Horticulture Advancing Income and Nutrition Project
CHIP	Cambodia Horticulture Investment Platform
CICT	China Institute for Conservation Tillage
CIMMYT	International Maize and Wheat Improvement Center
CIRAD	French Agricultural Research Centre for International Development
CPSA	Cambodia Partnership for Sustainable Agriculture
CSAM	Centre for Sustainable Agricultural Mechanization (UN ESCAP)
CSDGs	Cambodia Sustainable Development Goals
DAEng	Department of Agricultural Engineering (GDA/MAFF)
DALRM	Department of Agricultural Land Resources Management (GDA/MAFF)
DEAFF	Department of Extension for Agriculture, Forestry and Fisheries (MAFF)
ECAF	European Conservation Agriculture Federation
EISOFUN	Ecological Intensification and Soil Ecosystem Functioning
ERECON	Institute of Environmental Rehabilitation and Conservation of Tokyo University of Agriculture
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
EU	European Union
FA	Forestry Administration (MAFF)
GDA	General Directorate of Agriculture (MAFF)
GDAHP	General Directorate of Animal Health and Production (MAFF)
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GIZ	German Society for International Cooperation *(English translation)*
ICERD	International Conference on Environment and Rural Development
IPM	Integrated Pest Management

ISA	Innovation for Sustainable Agriculture (project)
ITC	Institute of Technology of Cambodia
KCNIA	Kampong Cham National Institute of Agriculture
MAFF	Ministry of Agriculture, Forestry and Fisheries
MIGIP	Mekong Inclusive Growth and Innovation Program
MoE	Ministry of Environment
MoEYS	Ministry of Education, Youth and Sports
MoI	Ministry of Interior
MoWA	Ministry of Women's Affairs
MoWRAM	Ministry of Water Resource and Meteorology
NAP	National Action Program to Combat Land Degradation
NBSAP	National Biodiversity Strategy and Action Plan
NCARD	National Conference on Agriculture and Rural Development
NCSD	National Council for Sustainable Development
NDC	Cambodia's Updated Nationally Determined Contribution
NC A&T	North Carolina Agriculture and Technology State University
NUBB	National University of Battambang
PADAC	Projet d'Amélioration de l'Agriculture Cambodgienne (project)
PDAFF	Provincial Department of Agriculture, Forestry and Fisheries (MAFF)
PLNIA	Prek Leap National Institute of Agriculture
PAMPA	Multi-country Agroecology Action Program
RGC	Royal Government of Cambodia
RUA	Royal University of Agriculture
RUPP	Royal University of Phnom Penh
S3	Scaling Suitable Sustainable Technologies (project)
SANREM-CSRP	Sustainable Agricultural and Natural Resources Management - Collaborative Research Support Program
SDC	Swiss Agency for Development and Cooperation
SI	Sustainable Intensification
SIIL	Sustainable Intensification Innovation Lab
SRU	Svay Rieng University
UHST	University of Heng Samrin Tboung Khmum
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WAgN	Women in Agriculture Network (project)
WAT4CAM	Water Resources Management and Agro-ecological Transition for Cambodia

Preface

Conservation Agriculture and Sustainable Intensification and Agroecology presents a new pathway to sustainable agriculture production and land management, while safeguarding biodiversity and soil organic carbon accumulation. Conservation Agriculture presents an innovative practice in agriculture production systems, leading to improved livelihoods and greater ability of farmers and communities to be resilient to climate change impacts and economic shocks. The main goal of Conservation Agriculture and Sustainable Intensification is to make better use of natural and human resources such as land, water, biodiversity, knowledge, and technologies. Thus, Conservation Agriculture and Sustainable Intensification increases the resilience of production systems and strengthen farmers' ability to cope with economic, climate shocks, and the effects of climate change.

The Roadmap of Cambodia Conservation Agriculture and Sustainable Intensification Consortium (CASIC) has been prepared based on the legal framework. The Roadmap has been prepared following a sound analysis of the strengths and weaknesses, opportunities, threats, and challenges in the implementation of Conservation Agriculture and Sustainable Intensification in Cambodia since 2004. The lessons and experiences from other countries have also been taken in account. Several meetings with various stakeholders and development partners have been carried out while preparing this document.

On behalf of the Ministry of Agriculture, Forestry and Fisheries, I would like to sincerely thank the CASIC's Steering Committee and the Executive Board for preparing the RoadMap; and the development partners, especially the French Agency for Development (AFD), the United States Agency for International Development (USAID), and the Swiss Agency for Development and Cooperation (SDC) for their support. I would also like to thank the French Agricultural Research Centre for International Development (CIRAD), Swisscontact, and Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE-SAIN)/Royal University of Agriculture for their active collaboration in the formulation of the Consortium and the Five-year Roadmap in addition to their commitment to participate in the execution of CASIC and the Roadmap. The Roadmap will support in promoting Conservation Agriculture and Sustainable Intensification and agroecology transition in Cambodia. The Roadmap also aims for Cambodia to be a ''model for the transition'' in Southeast Asia.

I would request all relevant organizations and development partners to participate and cooperate in the implementation of this Roadmap and call on the international community to provide additional financial and technical support for the successful and effective implementation of the five-year CASIC Roadmap.

Phnom Penh, ...2021

MINISTER

Acknowledgements

The 5-year Roadmap of the Cambodia Conservation Agriculture and Sustainable Intensification Consortium (CASIC) was developed under the leadership of the Steering Committee and the coordination of the Executive Board of CASIC (as identified in the tables below) under the financial support from Swisscontact, French Agricultural Research Centre for International Development (CIRAD), and Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE SAIN). The development process was facilitated by the consultant team of BDtruS.

First and foremost, CASIC would like to express its sincere gratitude to the Ministry of Agriculture, Forestry and Fisheries (MAFF) for endorsing the establishment of CASIC and therefore the commitment of the Royal Government of Cambodia to supporting the promotion of Conservation Agriculture (CA) and Sustainable Intensification (SI) in Cambodia. This has laid out an important milestone in the long history of CA and SI development.

Second, the roadmap has been significantly benefited from the technical inputs and expertise of all members of the Executive Board and its four Sub-committees in shaping the roadmap framework and key priority areas. Initial inputs were also received from regional and international team of experts in the field of agroecology, including the regional offices of CIRAD, GRET, and Food and Agriculture Organization (FAO), as well as Kansas State University, Global Research Alliance (GRA) and Centre for Sustainable Agricultural Mechanization (CSAM). With these groundworks, CASIC has been able present its corporate potentials and priorities to wider stakeholders for boarder scope of consultations.

Third, CASIC would like to extend its gratefulness to the existing development partners including French Agency for Development (AFD), Swiss Agency for Development and Cooperation (SDC) and United States Agency for International Development (USAID), who have been actively supporting CA and SI initiatives and interventions in Cambodia and offered strategic inputs and guidance to the roadmap document. In addition, a number of other key development partners active in supporting agriculture sector and sustainable development, including Asian Development Bank (ADB), FAO Phnom Penh office, European Union (EU), and GIZ, were highly appreciated for their invaluable inputs.

Last but not least, CASIC would like to thank for the participation from a number of private sector stakeholders including Cambodia Rice Federation (CRF), Association of Banks in Cambodia (ABC), Cambodia Microfinance Association (CMA), agricultural machinery and cover crop seed suppliers, financial institutions, and traders of safe agricultural produce, in the consultative workshop and bi-lateral consultations. Their inputs and comments are crucial to strengthen private sector engagement in CA and SI development.

CASIC Steering Committee Members

No	Name	Position and Organization	Role
1	H.E. Om Kimsir	Secretary of State, MAFF	Chair
2	H.E. Dr. Yoeu Asikin	Under Secretary of State, MAFF	Vice Chair
3	H.E. Soun Dara	Deputy Director General of General Directorate of Administration, MoI	Member
4	Mr. Ouk Navann	Deputy Director General of General Directorate of Local Communities, MoE	Member
5	Mr. Sum Vansan	Deputy Inspector of Central Inspectorate, MoWA	Member
6	Mr. Yin Savuth	Director of Department of Hydrology and River Works, MoWRAM	Member
7	Mrs. Sok Sotheavy	Chief of Administrative Office, Cambodia Chamber of Commerce (CCC)	Member

CASIC Executive Board Members

No	Name	Position and Organization	Role
1	H.E. Dr. Chan Saruth	Under Secretary of State, MAFF	Chair
2	H.E. Dr. Ngo Bunthan	Rector, Royal University of Agriculture (RUA)	Vice Chair
3	Mr. Ho Puthea	Deputy Director General, General Directorate of Agriculture (GDA), MAFF	Vice Chair
4	Dr. Seng Vang	Director of Department of Agricultural Land Resources Management (DALRM), GDA, MAFF	Member
5	Mr. Ngin Kosal	Director of Department of Agricultural Engineering (DAEng), GDA, MAFF	Member
6	Dr. Lor Lytour	Dean of Agricultural Engineering Faculty, RUA	Member
7	Dr. Hok Lyda	Director of CE SAIN, RUA	Member
8	Mr. Lor Bunna	Deputy Director, Cambodian Agricultural Research and Development Institute (CARDI)	Member
9	Mrs. Hou Sopor	Deputy Director of Department of Extension for Agriculture, Forestry and Fisheries (DEAFF), MAFF	Member
10	Dr. Florent Tivet	CIRAD Agronomist for Cambodia	Member
11	Mr. Rajiv Pradhan	Country Director, Swisscontact	Member

1. Introduction

Agriculture sector is one of the priority sectors of the Royal Government of Cambodia (RGC), supporting economic growth, food security, rural development and poverty in Cambodia. The commitment of the RGC in sustainable agriculture development has been reflected in its overarching Rectangular Strategy IV and National Strategic Development Plan (2019-2023), as well a number of agriculture policies and plans of the Ministry of Agriculture, Forestry and Fisheries (MAFF) and the Cambodia's commitment towards to achieving the targets set in the Cambodia Sustainable Development Goals (CSDGs), the United Nations Convention to Combat Desertification (UNCCD), United Nations Convention on Biological Diversity (UNCBD) and the United Nations Framework Convention on Climate Change (UNFCCC). In addition, agriculture is one of the important sectors contributing to the RGC's efforts in combatting land degradation, conserving the national biodiversity, and climate change mitigation and adaptation, which are also highlighted in a number of relevant policy measures.

However, as per the Food and Agriculture Organization (FAO) of the United Nations, the global food production is estimated to increase by almost 30% by 2030 and 50% by 2050 in response to the future food demand as a result of rising population, growing income in developing countries, and changing consumption patterns. One of the main solutions to increase food production is by expanding the amount of farmland; however, agriculture related land-use change may generate more greenhouse gas (GHG) emissions and loss of biodiversity. Studies also indicates that climate change may significantly impact on the reduction of crop yields in the long run (FAO, 2017). Therefore, increased efficiency of natural resource use is the most important step toward meeting both sustainable food production and environmental goals, meaning that food production is increased through yield growth (intensification) with protection of ecosystems (WRI, 2018). This will require innovative and climate-resilient agriculture production systems and technologies to ensure productivity growth and also respond to climate change mitigation and adaptation.

Conservation Agriculture (CA), Sustainable Intensification (SI) and agroecology present a new pathway to sustainable agriculture production and land management, while safeguarding biodiversity and soil organic carbon accumulation. CA & SI and agroecology increase the resilience of the production systems and strengthen farmers' ability to cope with economic and climate shocks and the effects of climate change. With proven results from the existing CA and SI-related research and on-farm support in different agroecological systems in Cambodia since 2004, the RGC and more particularly MAFF show concrete commitment in promoting CA & SI and agroecology by establishing an inter-governmental and multi-stakeholder platform, namely Cambodia Conservation Agriculture Sustainable Intensification (CASIC), endorsed by a decision letter from the Minister of MAFF in mid-2020. This strategic initiative aims to effectively coordinate the promotion and adoption of CA and SI among relevant stakeholders in Cambodia and also to contribute to achieving the RGC's commitment to sustainable agriculture development, food security, combating land degradation, protection of biodiversity, and climate change adaptation and mitigation under the framework of CSDGs, UNCCD, UNCBD, and UNFCCC. To guide the coordination of priorities in CA and SI development and the operation of CASIC, a roadmap for the years 2022-2026 was initiated and developed under the technical and financial support from Swisscontact and French Agricultural Research Centre for International Development (CIRAD).

1.1 Purposes of the Roadmap

The main purposes of the roadmap are to:

- Translate the vision and mission of CASIC into a high-level plan by defining strategic objectives and outlining priority actions and milestones to be achieved by 2025;
- Support the Steering Committee to guide, supervise and monitor the performance of CA and SI related interventions in Cambodia;
- Provide strategic direction to the Executive Board to plan, implement, monitor and review activities to address the main challenges and priorities in CA and SI; and
- Serve as the coordination masterplan to guide the CA and SI activities to be carried out by different stakeholders in Cambodia; and
- Establish priority areas for cooperation, coordination and networking among existing members and potential stakeholders in the country as well as in the region.

1.2 Guiding Principles

The development framework of CASIC's 5-year roadmap include the following key principles:

- *Measurable:* milestones to be achieved with clear timelines and key performance indicators to track progress;
- *Impactful:* focusing on strategies and activities with the most impact for CA and SI, supported by strong sustainability mechanisms;
- *Inclusive:* fostering collaboration among stakeholders to support and benefit smallholder and women farmers;
- *Pragmatic:* leveraging the national policies and aligning with the members' mandates / priorities and stakeholders' interests; and
- *Time-bound:* five years (2022-2026), renewable with future priorities to be determined by CASIC's Steering Committee and Executive Board.

1.3 Preparation Process

The development of CASIC's roadmap has undergone comprehensive and participatory processes starting in October 2020 from a review of project documents and research reports relevant to CA, SI, agroecology, biodiversity and CASIC, and several consultations with the Executive Board and Sub-committees of CASIC, as well as expert groups at national and regional level. The regional and international team of experts that were consulted include the regional offices of CIRAD, GRET, and Food and Agriculture Organization (FAO) of the United Nations, as well as Kansas State University, Global Research Alliance (GRA) and Centre for Sustainable Agricultural Mechanization (CSAM) of the United Nations Economic and Social Commission for Asia and Pacific (ESCAP). A draft roadmap framework was then developed and intended for a national consultative workshop planned in November 2020. However, the workshop was postponed twice and eventually cancelled due to restrictions imposed by Covid-19 pandemic outbreaks.

In these difficult situations, the CASIC Executive Board worked closely with the consultant team and organized a consultative meeting on 3 February 2021 with participation from CASIC members, policy makers from MAFF and Ministry of Environment (MoE) (Department of Biodiversity), as well as other stakeholders, including a few private sector representatives from Cambodia Rice Federation (CRF), Association of Banks in Cambodia (ABC) and Cambodia Microfinance Association (CMA) to collect initial inputs for the roadmap document. Furthermore, key contents of the draft roadmap were refined and further consulted in several bi-lateral virtual meetings with National Council for Sustainable

Development (NCSD) and MoE (Department of Climate Change and Cambodia Climate Change Alliance – CCCA), private sector stakeholders (a total of 13 companies including machinery and seed suppliers, financial institutions, and traders of safe agricultural produce), and key relevant development partners (including AFD regional and Phnom Penh offices, SDC, USAID, ADB, FAO Phnom Penh office, EU, and GIZ) in order to introduce the concept of CA, SI and CASIC, and to understand their interests and perspectives on CA and SI so as to shape the key priorities of CASIC in the coming 5 years.

2. Background of CA & SI and Agroecology

2.1 Concept and Importance of CA & SI and Agroecology

Conservation agriculture (CA) is one of the agroecological practices[1] aiming at improving and sustaining agricultural productivity, profits and food security while preserving and enhancing the resource base and environment (Castella & Kibler, 2015). CA is characterized by three main principles: (1) minimum or no soil tillage, (2) permanent organic soil cover (crop residues or cover crops), and (3) crop species diversification (intercropping, crop rotation, etc.). These principles trigger ecological processes, a continuous flow of fresh organic matter, driving soil biota diversity and functionality, soil structure and soil organic C and N accumulation contributing to the resilience of the system (Séguy et al., 2006). Based on these principles, CA presents an innovative practice in agricultural production systems, contributing to enhancing biodiversity, land resources management and soil resource conservation, and leading to greater ability and livelihood of farmers and communities to be resilient to climate change impacts and economic shocks. Practical evidences have shown that CA-based cropping practices have improved land and labor productivity when appropriate-scale mechanization is available, and have had positive impacts on soil biological functioning, soil organic accumulation, water infiltration rate and nutrient cycling (Hok et al., 2015; Pheap, Lefèvre et al., 2019).

CA covers approximately 180 million hectares (11% of the worldwide arable land) with the following area per continent: South America million hectares, North America 63 million hectares, Africa 1.5 million hectares, Europe 3.6 million hectares, Russia and Ukraine 5.7 million hectares, Asia 14 million hectares, Australia and New Zealand 23 million hectares. Major increases in the adoption of CA cropping systems are expected across Asia in the coming decades. In many Asian countries, CA is being mainstreamed in national agricultural development programs or backed by suitable policies and institutional support (Kassam et al., 2019).

On the other hand, sustainable intensification (SI) is an approach widely known as a "combination of agricultural processes in which production is maintained or increased while environmental outcomes are enhanced" (Pretty, 2018). The main goal of SI is to make better use of natural and human resources such as land, water, biodiversity, knowledge and technologies, so that cultivation of more land and loss of natural capital could be avoided. SI is based on three non-linear stages in transition towards sustainability: (1) Efficiency making better use of on-farm and imported resources, (2) Substitution focusing on the replacement of technologies and practices and (3) Redesign (transformative) harnessing ecological processes and connecting scales (field to markets). There has been evidence that farmers who adopt various SI approaches could increase productivity by either applying new and improved varieties with changes of agronomic-agroecological management, or diversifying farms into a range of crops, livestock or fish in addition to the existing cropping. In other words, SI systems should generate more

[1] The agroecological practices in the Mekong countries include organic farming, integrated farming/home gardening, conservation agriculture (CA), integrated pest management (IPM), and agro-forestry.

food, fiber and fodder, on a sustainable basis with minimal use of additional land while protecting biodiversity and ecological systems, which is central to the global efforts in improving food security.

Agroecology is a holistic approach that aims at addressing complex and interrelated challenges of poverty, malnutrition, environmental degradation and climate change (Altieri, 2002). Agroecology intends to move towards integrated sustainable development in its three dimensions – environmental, social and economic – and places the co-generation and sharing of knowledge as the cornerstone of the intervention, combining science, traditional and practical knowledge of smallholder farmers and others stakeholders (FAO, 2018). Agroecology is based on territorial approach combining ecological, economic and social dimensions. Agroecology values biological diversity and natural processes (i.e. the cycles of nitrogen, carbon, and water), seeking to improve food yields for balanced nutrition, strengthen fair markets for their produce, enhance healthy ecosystems, and build on local and science-based knowledge. Agroecology relies on five main principles: (1) recycling (organic matter and nutrient cycling), (2) minimizing losses of energy, water, nutrients and genetic resources, (3) diversity of species and genetic resources (over time and space at the field and landscape level), (4) regulation, and (5) synergies promoting key ecological processes and services).

These three approaches are considered to share common biophysical principles and allow combining a diversity of scales from soil, field, farm, landscape, territory (including value-chain), the engagement of farmer communities, agricultural cooperatives, local private sector, agri-business and consumers to deliver both productivity improvements and benefits to ecosystem services. Therefore, the redesign of agroecosystems is a continuing effort of transformation and improvement. Conducive policies to sustainably manage soil fertility while maintaining productivity and to produce safe and nutritive-density food is of paramount importance to reach these goals.

Table 1: Summary of CA, SI and Agroecological Approaches

Level	Scale	Objectives	Approach
Increase efficiency (water, nutrient, labor and land)	Field to farm	- Lower costs and lessen environmental impacts - Builds new economic opportunities for agriculture cooperatives and local private sector	CA, SI, and agroecology
Substitute alternative practices and inputs	Field to farm	- Support shift to alternative practices - Identify financial mechanisms (carbon & payment for ecosystem service market)	CA, SI, and agroecology
Redesign agro-ecosystems	Farm, landscape, region (territorial approach)	- Build sustainability at farm scale - Build societal, institutional and financial supports	SI and agroecology
Re-establish connections between smallholder farmers and consumers	Local, provincial, national	- Form direct and supportive relationships - Re-structure local economies, re-create values of agricultural products (standards, certification/label) - Influence values and behaviors	SI and agroecology

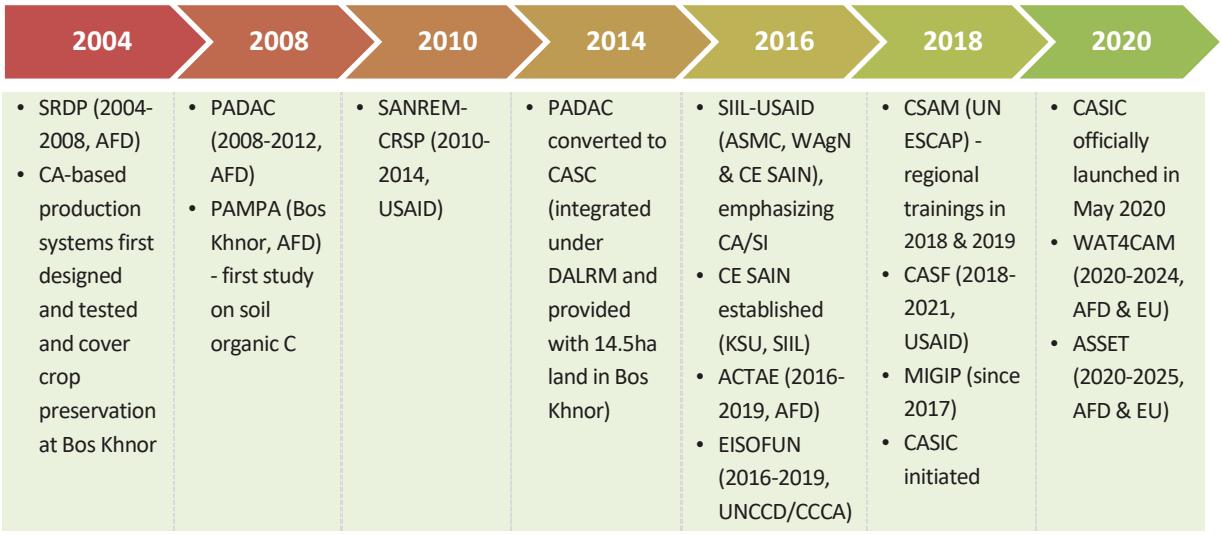
2.2 History of CA & SI and Agroecology Development in Cambodia

The development of CA in Cambodia has been benefited from the technical and financial support from various development projects and programs with particular institutional support and commitment

from the RGC through the MAFF since the commencement of the design and testing of CA-based cropping in different agroecological systems in Cambodia in 2004 (referring to the project documents and Kong et al, 2020).

With reference to an indicative timeline of CA development, presented below, the first CA-related research activities started in 2004 as part of the Crop Diversification and Smallholder Rubber Development Project (SRDP) Phase 2, funded by the French Agency for Development (AFD) and implemented by the General Directorate of Rubber of MAFF in partnership with the French Agricultural Research Centre for International Development (CIRAD). Since then, Cambodia has capacitated necessary human resources with CA technical knowledge and experiences through the experiments and testing of cropping systems of upland annual crops as well as the development of a cover crop genetic bank leading to the start of crop genetic conservation in Bos Khnor commune, Chamkar Leu district, Kampong Cham province.

Figure 1: Indicative Timeline of CA and SI Development in Cambodia



From 2008, CA was implemented by the General Directorate of Agriculture (GDA) under the AFD-funded 5-year PADAC project (Projet d'Amélioration de l'Agriculture Cambodgienne) with technical support from CIRAD. The main target areas were in Kampong Cham and Battambang provinces with focus on design, promotion and assessment of CA-based cropping systems for annual crop production in both upland and lowland areas. In addition, some other activities were also implemented in Battambang under the Sustainable Agricultural and Natural Resources Management - Collaborative Research Support Program (SANREM-CSRP) funded by United States Agency for International Development (USAID) in 2010-2014 under the partnership between Department of Agricultural Land Resources Management (DALRM) of GDA, CIRAD and North Carolina Agriculture and Technology State University (NC A&T). In 2009, long-term experiments have been implemented and research studies on soil organic C initiated at the Bos Khnor Station under the Multi-country Agroecology Action Program (PAMPA) funded by AFD.

Following the assessment of institutional arrangement at the end of PADAC project, the Conservation Agriculture Service Center (CASC) was established in 2014 as a unit of DALRM and with the support of CIRAD. In 2016, GDA provided to DALRM an area of 14.5 hectares located in Chamkar Leu Upland Crop Seed Production Station in Chamkar Leu district, Kampong Cham province. This parcel of land, widely known as Bos Khnor Conservation Agriculture Research Station since 2016, has been used for CA-related

research, training and the maintenance of a genetic bank of staple and cover crops that is unique in Cambodia. Since 2014, CASC has extended its CA-related services (including no-till planters) to rice, maize and casava farmers in Battambang province.

In 2016, the Sustainable Intensification Innovation Lab (SIIL) funded by USAID and coordinated by Kansas State University (KSU), supported the cooperation between different projects (Appropriate-scale Mechanization Consortium – ASMC, and Women in Agriculture Network – WAgN) and contributed to the establishment of the Center of Excellence for Sustainable Agricultural Intensification and Nutrition (CE SAIN) at the Royal University of Agriculture (RUA), aiming at extending CA and SI in different agroecosystems of the country.

Established in July 2016, CE SAIN aims to improve food and nutritional security in Cambodia by supporting agricultural research and education and promoting innovation. It works closely with RUA to improve skills and knowledge of public sector agricultural workers and to foster growth in the private sector. CE SAIN also provides coordination support to the Feed the Future Innovation Labs, USAID/Cambodia's implementing partners, and other government, donor, and private sector programs. CE SAIN established five Technology Parks including the support to the Bos Khnor Station.

ASMC with the support of the USAID under the Feed the Future program was initiated in 2016 on a research study on design and development of machinery prototype seed planters for farmers, under the management of RUA in partnership with Department of Agricultural Engineering (DAEng), DALRM/CASC and CIRAD. The overall objective of the project is to intensify smallholder farmers' cropping systems and on-farm operations through mechanization in a sustainable manner.

On the other hand, WAgN Cambodia project aims to empower women and improve nutrition by promoting women's participation in SI-based horticulture and rice value chains. To achieve this end, the project targets to improve socioeconomic and nutritional status of women and their families, and to identify and strengthen existing and potential SI technologies, practices and policies that promote production of nutritious and marketable food while protecting agroecological resources.

In addition, other projects contributing to CA and agroecology promotion in Cambodia included Towards Agroecological Transition in South-East Asia (ACTAE) funded by AFD in 2015-2018 and Ecological Intensification and Soil Ecosystem Functioning (EISOFUN) under United Nations Convention to Combat Desertification (UNCCD) and Cambodia Climate Change Alliance (CCCA) in 2016-2018.

Apart from these initiatives and projects, the Centre for Sustainable Agricultural Mechanization (CSAM), a regional institution of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), in partnership with GDA and other partners, organized an Asia and Pacific regional workshop in 2018 and another regional training in 2019 on topics related to mechanization in CA. The regional trainings in 2019 which gathered over 37 participants from 18 countries in the Asia-Pacific region and initiated the identification of needs for future trainings to be offered by DALRM/CASC and its partners taking advantage of the long history of Bos Khnor Station.

Over the course of CA & SI and agroecological development towards a sustainable outlook, it is crucial to engage private sector actors along the agriculture value chains in providing technologies, inputs, operation know-how and access to finance in order to support the transition process of farmers in addition to the services already offered by DALRM/CASC. Therefore, Conservation Agriculture Services with a Fee (CASF) funded by USAID and implemented by CE SAIN in partnership with DAEng, DALRM/CASC, CIRAD and Swisscontact in 2018-2021, together with Mekong Inclusive Growth and Innovation Program (MIGIP) funded by Swiss Agency for Development and Cooperation (SDC) and

implemented by Swisscontact since 2017, have facilitated the engagement of private sector and contributed to the commercialization of CA-related machinery and cover crop seed production.

Furthermore, Water Resources Management and Agro-ecological Transition for Cambodia (WAT4CAM) is a four-year (2020-2024) project funded by AFD and EU, aiming to upgrade irrigation infrastructure and to support innovative, climate-friendly farming in five provinces. One of its four component focuses on innovative farming practices and rice value chain, which is managed by MAFF and GDA. Under this agriculture component, one sub-component focuses on Research for Development (R4D) on agroecology, led by CIRAD. The R4D sub-component aims to explore new methods of interventions and cropping systems that match with the principles of agroecology for irrigated rice.

Most importantly, CA and SI relevant projects and programs stakeholders discussed and initiated in 2018 the establishment of Cambodia Conservation Agriculture and Sustainable Intensification Consortium (CASIC) which was endorsed by the Minister of MAFF and officially launched in mid-2020. Detailed profile and structure of CASIC will be presented in Section 4.

At the regional level, Cambodia has been active in a number of regional platforms and initiatives including Agroecology for Southeast Asia (ASEA),[2] CSAM of United Nations ESCAP,[3] and Agroecology Learning alliance in South East Asia (ALiSEA).[4] Most recently, the European Union (EU) and AFD have funded the Agroecology and Safe food System Transitions (ASSET) in four Southeast Asian countries including Cambodia, Laos, Myanmar and Vietnam in 2020-2025. ASSET is a project co-implemented by GRET and CIRAD under the partnership with a number of local organizations, including, in Cambodia, Institute of Technology of Cambodia (ITC), DALRM of GDA/MAFF, Swisscontact, UNI4Coop, and CIRAD. The main objective of ASSET is to "harness the potential of agroecology in Southeast Asia to transform food and agricultural systems into more sustainable systems, notably safer and inclusive" (ASSET project information).

2.3 Development Outcomes of CA & SI and Agroecology in Cambodia

Given the development of CA & SI and agroecology over the past two decades, there have been noticeable development outcomes according to the technical innovations, operational supports, and practical impacts on soil and environment that can be observed in CA & SI and agroecological systems in Cambodia.

The technical innovations include, but not limited to the followings:

- Reducing tillage, using former crop residues, and diversifying cropping to stop soil erosion and combat plough-induced land degradation;
- Using cover crops to address the concerns over herbicide mis-use and over-use;
- Introducing CA-based vegetable production along with drip irrigation;
- Identifying the best cover crop mixtures according to ecologies, agricultural systems, and expected ecosystem services, to support increased productivity and stability as compared to a single cover crop; and

[2] Formerly known as Conservation Agriculture Network in Southeast Asia, covering 8 countries including Cambodia; for more information, visit www.cansea.org.vn and https://www.cirad.fr/en/our-research/platforms-in-partnership-for-research-and-training/list-of-platforms/asea.
[3] Represented by DAEng of GDA/MAFF; for more information, visit http://www.un-csam.org.
[4] Covering 4 countries including Cambodia; for more information, visit https://ali-sea.org.

- Introducing green sowing technique to increase the flexibility of agricultural operations, reduce production costs, and improve water, nutrients, and weed control management as compared to the sowing in a dead mulch, and green sowing as a pathway towards organic CA cropping systems.

On the other hand, a range of operational supports have been in place, including:

- Facilitating farmers' access to appropriate CA mechanization and services (land plane levelers, no-till planters, seed broadcasters and roller crimpers), which have been introduced, tested and adapted to local conditions, with specific attention given to agriculture cooperatives and local service providers to increase machinery services to farmers;
- Facilitating farmers' access to diversified and open-pollinated cover crop materials, supplied by the genetic bank (currently conserving 52 species consisting of 335 varieties of crop genetics) managed by DALRM/CASC to a local enterprise and farmers to produce cover crop seeds to meet with the demand for the adoption of CA practices;
- Investing in social capital and collective learning to enhance adaptation and adoption; and
- Promoting synergies and coordination across sectors and among relevant stakeholders via policy dialogues by fostering CASIC platform.

There are no nation-wide data related to CA and SI adoption in Cambodia, but based on available project data gathered and reported by DALRM/CASC in 2020 *(in its draft note to the Minister of MAFF)*, there were 454 households practicing various components of CA principles on their farm land totaling 1,022 hectares, including those using land plane (168 hectares), using cover crop to improve soil before maize, rice, sweet potato, and bean production (60 hectares), using no-till planting services (650 hectares), using fodder crops to increase income and improve soil (2 hectares), using cover crop to improve soil after rice harvest (106 hectares), producing cover crops for own farms and distribution (32 hectares), and pilot experiment on cash crop diversification (bean, maize and vegetable) after rice harvest (4.4 hectares).

The experiments at Bos Khnor Station and on-farm sites demonstrated that CA-based production systems not only improve the effective use of agricultural resources and inputs (land, water, fertilizers and pesticide/herbicide) and productivity, but also have positive impacts on soil health restoration, food safety and security, environment and climate change adaptation and mitigation. Evidences from a number of researches, experiments and extensions conducted in various agroecosystems in Cambodia have been summarized in the table below.

Table 2: Evidences of Economic, Agronomic and Environmental Impacts of CA Practices

Impacts	Description of Impacts
Impacts on soil erosion, input use and net profit of upland maize production in Ratanak Mondul (Battambang)	Reduction of annual soil erosion by up to 92.7% in the first year of CA-based transition
	Decrease of chemical fertilizer use by approximately 42% or US$50 per hectare
	Reduction of total production costs by around 10% per hectare
	Increase of net profit by 12% or US$117 per hectare
Impacts on yield and net profit of rain-fed rice production (cv. Phka Rumdoul) in Banan (Battambang)	Increase of average yield by 0.8 tons per hectare
	Increase of net profit by about US$200 per hectare
Increase in soil organic carbon (SOC) and C fractions	Increase of average of 510 kilogram of C and 130 kilogram of N per hectare per year at 0-40 cm depth in a 3-year time after CA adoption under irrigated rice production on Yellow Podzol soil in Stung Chinit (Kampong Thom)
	Increase of SOC stocks ranging by 6% to 28% in the surface soils representing 400 kilogram of C and 75 kilogram of N per hectare per year at 0-20 cm depth in a 4-year time after CA adoption in soybean and maize cropping systems on Red Oxisol at Bos Khnor Station (Hok et al., 2015).
	Increase in particulate organic C stocks by 56% to 127% in the surface soils (Hok et al., 2015).
	Increase in labile-C and dissolved organic C by 20% to 60% in the surface soils (Hok et al., 2018).
Availability of nitrogen nutrients (NH_4^+ & NO_3^-) in soil	Increase by over two times, indicating an increase in the soil nutrient cycling and being associated with the use of cover crop (biomass inputs and nitrogen fixation), and halting soil tillage, increasing the stability and activeness of those micro-organisms in soil (Pheap, Lefèvre et al., 2019).
Increase in soil microbial communities	Increase by two times in soil respiration (0-10 cm) emphasizing a higher abundance of soil microbial communities involved in organic matter and nutrient cycling, and pests and diseases regulation (Pheap, Lefèvre et al., 2019).
	Increase in soil enzymatic activities under CA from 18% to 49% (Hok et al., 2018).
Impact on soil structure	Increase by two times of soil aggregation (0-10 cm) leading to higher soil porosity enhancing water and oxygen flows into the soil (Pheap, Lefèvre et al., 2019).
Impact on water infiltration	Increase of water infiltration rate of soil by two times (Red Oxisol in Bos Khnor and Rattank Mondoul, Battambang) (125 millimeter of water per minute under conventional management; 265 millimeter of water infiltrated per minute under CA management).

Source: Draft note of DALRM/CASC, February 2021; Hok et al. (2015; 2018); Pheap, Lefèvre et al. (2019).

3. Policy Framework for Sustainable Agriculture Development

This roadmap document is guided by the national development goals and priorities, and therefore contributes to achieving the key policies and strategies of the Royal Government of Cambodia (RGC), especially those related to sustainable agriculture development, combatting land degradation, biodiversity conservation, and climate change adaptation and mitigation. The main policy framework relevant to CASIC is shaped by the following policy documents:

- **Rectangular Strategy IV** announces the RGC's overarching commitment to (1) agriculture development to ensure food security and to transform into an "intensive, high productivity and commercialized sector", and (2) environmental sustainability and readiness to respond to climate change to promote "efficient and sustainable use of resources by implementing the principle of sustainable consumption and production".
- **National Strategic Development Plan (NSDP) (2019-2023)** sets out the priority actions for the key priorities in the Rectangular Strategy focusing on agriculture development. To mention one, modern agricultural techniques and technology development is the key to sustainable increase of product quantity, quality and diversification, while improving nutrition, adapting to climate change, and responding to local, regional and international market demand.
- **Cambodian Sustainable Development Goals (CSDGs) Framework (2016-2030)** encompasses the goals related to food security, nutrition and sustainable agriculture development that increases productivity and production, helps maintain ecosystems and capacity for adaptation to climate change, and progressively improve soil quality (Goal 2), and sustainable use of terrestrial ecosystems including forestry management, combatting lad degradation and halting biodiversity loss (Goal 15).
- **Agriculture Strategic Development Plan (2019-2023)** outlines the strategic objective to promote agriculture modernization, competitiveness, quality, safety, nutrition, as well as the effective and sustainable management of land, forestry and fishery resources. Climate resilience and sustainability are among the core principles addressing the adaptation and mitigation to climate change and issues related to agriculture land resources.
- The draft **Agriculture Sector Master Plan 2030** *(to be finalized)* reiterates the priorities in enhancing of agricultural productivity, diversification, intensification, modernization and commercialization, by maintaining sustainability of crop production and ecological systems.
- **National Action Program (NAP) to Combat Land Degradation (2018-2027)** aims at contributing to preventing and solving land degradation problems under the obligation in the United Nations Convention to Combat Desertification (UNCCD) in order to conserve and protect agroecology. One of the four strategic objectives of NAP focuses on the effective and sustainable management of agricultural land.
- **National Policy on Green Growth** (developed in 2013) emphasizes the well-being and livelihood of people in harmonization of ecological safety through green development growth. On the other hand, **National Strategic Plan on Green Growth (2013-2030)** outlines the green growth principles, including the effective sustainable management of natural resources, more specifically referencing "green agriculture" to reduction in chemical input usage, "agriculture conservation" to land quality improvement and soil erosion reduction, and "ecological agriculture" to increase in yield with decrease in adverse impacts on environment.
- **Cambodia Climate Change Strategic Plan (2014-2023)** is a national framework to respond to climate change to support sustainable development, aiming to shift Cambodia towards a green

development path by promoting low-carbon development and technologies. A number of relevant objectives include promotion of climate resilience through improving agriculture production systems, reducing vulnerability to climate change impacts, promoting payment for ecosystem services, and analyzing on low emission options and sources of emission.

- **Climate Change Priorities Action Plan for Agriculture, Forestry and Fisheries Sector (2016-2020)** highlights a number of relevant actions, including up-scaling sustainable farming systems, promoting appropriate climate-smart technologies in order to increase productivity and adaptation and mitigation of climate change impacts, developing knowledge and information system on climate change, and using integrated socio-economic and climate scenarios with climate and land use models and establishment of Carbon Accounting Systems for agriculture, forestry and fisheries.
- **National Biodiversity Strategy and Action Plan (NBSAP)** (developed in 2002 and updated in February 2016) reflects the RGC's commitment toward biodiversity under the United Nations Convention on Biological Diversity (UNCBD). NBSAP entails, under the theme on sustainable agriculture and animal production, the need to promote public awareness of value and importance of goods/services provided by agriculture biodiversity, as well as the support in research determining the most appropriate farming systems for various ecosystems by addressing water management, input usage, land protection, seed production, integrated farming systems, etc.
- **Cambodia's Nationally Determined Contribution (NDC)**, updated in 2020 from its initial NDC in 2015, shows the RGC's commitment in combatting climate change and accelerating the transition to a climate-resilient, low-carbon sustainable mode of development under the principles of the United Nations Framework Convention on Climate Change (UNFCCC). According to the Cambodia's first Biennial Update Report (BUR) submitted in August 2020, agriculture represents the second largest emitter sector (after Forest and Other Land Use – FOLU) in Cambodia, and "the main driver for the increase in greenhouse gas (GHG) emissions is the development of rice cultivations, whose activity level and emissions increased by a rate of ~2.5 in the period 1994-2016". The Updated NDC sets out the climate change mitigation targets in agriculture sector – an estimated emission reduction by 6.2 million tCO2e/year or 23% by 2030 (under the NDC scenario).[5] Some relevant mitigation measures are closely linked to NAP to Combat Land Degradation, including "conservation agriculture" (referring to the effective and sustainable agriculture land management), and organic input agriculture and bio-slurry and deep placement fertilizer technology; as well as the promotion of fodder production to support cattle production. On the other hand, other adaptation and mitigation actions measures include actions related to agroecological transition in the uplands of Battambang (adaptation action no. 1), increasing the effectiveness and sustainability of agricultural land management techniques (Conservation Agriculture, mitigation action no. 25), improvement of support services and capacity building to crop production resilient to climate change, and building climate change resilience on cassava production and processing, etc., and referencing to key words like conservation agriculture, climate smart agriculture, integrated pest management (IPM), good agricultural practices (GAP), organic farming, sustainable rice platform (SRP), system of rice intensification (SRI), etc.

[5] The estimated emissions reduction (with FOLU) by 2030 under the NDC scenario will be approximately 64.6 million tCO2e/year (41.7% reduction of which 59.1% is from the FOLU) (source: Updated NDC, 2020).

4. Institutional Profile and Structure of CASIC

As mentioned in the previous section, the establishment of the Cambodia Conservation Agriculture and Sustainable Intensification Consortium (CASIC) was initiated in August 2018 by a group of organizations sharing common interest in CA & SI and agroecology based on the understanding that collective effort is needed in order to turn CA & SI and agroecological practices into commercial ventures and to be rooted into the policy agenda. These two objectives are complementary to the existing efforts of cropping system design, soil fertility assessment, and agriculture engineering, and goes beyond the domain of RGC and development practitioners. As a result, CASIC establishment is sufficiently justified to take a lead role in bringing together all relevant stakeholders including public sector, private sector (seed producers/suppliers, machinery manufacturers/distributers, financial institutions, etc.), farmers, agriculture cooperatives, research organizations, and academic institutions. This important role of CASIC will help create a platform for the network of organizations that have interest in CA & SI and agroecology to come together. This will help address the issues of duplication of activities, improve communication between stakeholders, promote awareness of CA & SI and agroecological practices and access to necessary supporting resources, which will ultimately help farmers to speed up their technology uptake.

Since then, the initiative was discussed and the processes were planned, leading to the official endorsement of CASIC by MAFF's Decision No. 201.SSR.KSK, dated 21 May 2020 (see Appendix 1), and its official launch in June 2020.

4.1 Vision

The vision of CASIC is to become a platform for promoting conservation agriculture and sustainable intensification towards agroecological transition in Cambodia and Southeast Asia.

4.2 Mission

The mission of CASIC is to coordinate and support research for development; invest into knowledge management; create an enabling environment for policy dialogues and public-private partnerships; value creation; and explore market opportunities and enhance collaboration between various stakeholders in conservation agriculture, sustainable intensification, and agroecology.

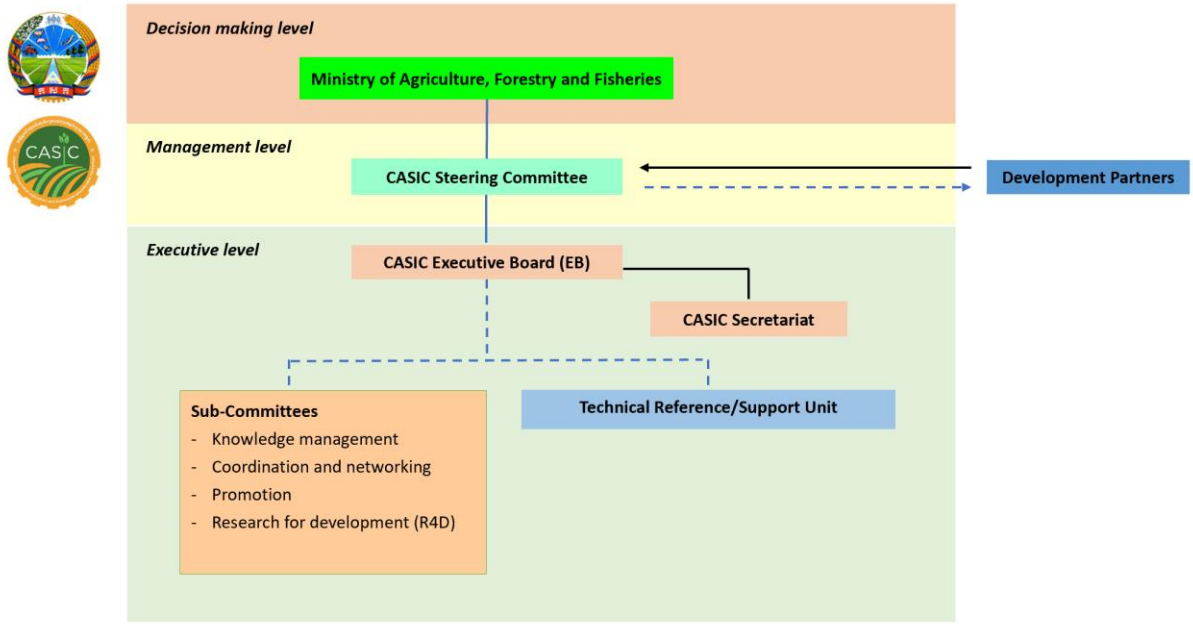
4.3 Governance and Executive Structure of CASIC

CASIC was established under the leadership of MAFF and governed by a **Steering Committee** chaired by MAFF with members from Ministry of Interior (MoI), Ministry of Environment (MoE), Ministry of Women's Affairs (MoWA), Ministry of Water Resources and Meteorology (MoWRAM), and Cambodia Chamber of Commerce (CCC). The Steering Committee plays a crucial role in leading, directing, and supervising the progress of CA & SI and agroecological development in Cambodia, with main responsibilities in reviewing, monitoring, and approving action plans, budget and reports of CASIC.

At the implementation level, CASIC is led by an **Executive Board** chaired by MAFF and consisting of representatives from the Royal University of Agriculture (RUA) and the General Directorate of Agriculture (GDA) as the vice chairs, and members from the Department of Agricultural Engineering (DAEng), the Department of Agricultural Land Resources Management (DALRM), the Cambodian Agricultural Research and Development Institute (CARDI), the Department of Extension for Agriculture, Forestry and Fisheries (DEAFF), Swisscontact and CIRAD. The main responsibilities of the Executive Board are to develop and monitor the implementation of action plans, advice and facilitate

all CA & SI and agroecology related activities, liaise, and collaborate with relevant government agencies, development partners, private sector and other stakeholders in CA & SI and agroecology related interventions.

Figure 2: Structure of CASIC



The Executive Board of CASIC is supported by a **Secretariat**, which assists and supports the overall operation of CASIC and internal coordination across four sub-committees, namely (1) Knowledge Management, (2) Coordination and Networking, (3) Promotion, and (4) Research for Development (R4D). Each of the sub-committees is led by different government institutions and co-led/supported by either a private sector or development organization. Each sub-committee has specific roles and responsibilities (as outlined below). CASIC serves and supports the members of its sub-committees and does not implement any activities under the functions and authorities of its members.

- **Sub-committee on Knowledge Management**, led by CE SAIN/RUA, is responsible for developing a repository of all relevant data, information, and knowledge regarding CA & SI and agroecology, as well as a one-stop center for relevant stakeholders to access to such repository.
- **Sub-committee on Coordination and Networking**, led by DAEng with support from Swisscontact, is responsible for identifying and connecting CA & SI and agroecology related stakeholders and market actors to pool together all available resources which will further strengthen CA & SI and agroecological development.
- **Sub-committee on Promotion**, led by DEAFF with support from Swisscontact, is responsible for activities that will support research, trainings, and CA & SI and agroecology related practical support at the local communities.
- **Sub-committee on Research for Development (R4D)**, co-led by DALRM and CARDI with support from CIRAD, is responsible for bringing together several research organizations active in the field of CA & SI and agroecology to identify research priorities (cropping systems, cover crops, mechanization, and water management), to improve the visibility of scientific knowledge and to bring science-based evidence to support policy dialogue (MAFF, MoE and NCSD) and engagement of private sector, and to support the improvement of infrastructures and resources at Bos Khnor.

In addition, the Executive Board also receives support from the **Technical Reference and Support Unit**, which will consist of a number of experts and professionals from various organizations. Some of the organizations that will be asked to part of the Unit include CIRAD, Swisscontact, European Conservation Agriculture Federation (ECAF), US CA Association, International Maize and Wheat Improvement Center (CIMMYT), FAO, UN CSAM, China Institute for Conservation Tillage (CICT), etc. On the other hand, CASIC keeps liaising with key **Development Partners** including AFD, USAID, SDC, EU, FAO, and Australian Centre for International Agricultural Research (ACIAR), etc., who have been active in supporting CA & SI and agroecological development in Cambodia and the region.

5. SWOT Analysis of CASIC

An analysis of the "Strengths, Weaknesses, Opportunities and Threats" (SWOT) of CASIC was conducted with a number of stakeholders including those internal to CASIC members and those external actors like development partners, private sector and expert groups. The SWOT analysis (presented below) consists of an internal review of strengths and weaknesses of CASIC and a sectoral overview of opportunities and threats. This analysis lays out an important basis for the development priorities of CASIC's 5-year roadmap documentation.

Table 3: SWOT analysis of CASIC

Strengths	Weaknesses
• Long history of research for development (R4D) in CA & SI and agroecology in the country and region at both Bos Khnor Station and with on-farm supports • Official endorsement from MAFF and therefore ownership of the RGC • Comprising of strong Steering Committee and Executive Board from relevant government agencies, academic/research institutions, NGOs, and Chamber of Commerce • Established group of experts with technical knowledge and capabilities in CA & SI and agroecology existing areas • Strong engagement of MAFF's line departments (including potential support from DEAFF) to support wider CA & SI and agroecology promotion and extension	• No clear operational sustainability model as CASIC is a platform, not an organization • Limited explicit visibility of CA, SI and/or agroecology in the RGC policies despite the existence of generic priority on sustainable agriculture development • Absence of a master plan guiding CA & SI and agroecological development • Early stage of stakeholder mobilization, coordination and engagement • Lack of financial and human resources supporting the effort of wider CA & SI and agroecological development and promotion • Lack of zoning assessment for prioritized / appropriate areas for CA & SI and agroecological practices • Lack of information system tracking the progress of CA & SI and agroecology
Opportunities	**Threats**
• Growing interest and support from development partners and regional initiatives/programs in agroecology	• Limited awareness of CA and SI among farmers, private sector, and other stakeholders, including misperception of CA and SI practices

• Adoption of CA & SI and agroecology by farmers showing convincing results of agronomic and economic performances • Innovations towards agroecological transitions • Positive impacts of CA & SI and agroecological practices on Soil Carbon, better water use efficiency, adaptation and mitigation to climate change (GHG emissions) • Growing income and interest of consumers in safe agricultural produce	• Risk-aversion tendency and wait-and-see behavior of farmers preventing early adopters to transition to CA & SI and agroecology practices • Lack of financial mechanisms (certification, label, C and PES market) to reward farmers who invest in soil improvement and market actors in supporting the transition processes • Limited engagement from private sector along the supply chains and financing to facilitate and speed up CA and SI adoption by farmers

6. CASIC's Roadmap for 2022-2026

6.1 Overall Objective

The key relevant policies of the RGC, CASIC's vision and mission, and SWOT analysis shape the strategic direction and priorities of the 5-year roadmap of CASIC. As a result, the overall objective of CASIC for the period of 2022-2026 is to **strengthen coordination and support stakeholders in order to promote conservation agriculture and sustainable intensification in Cambodia towards agricultural modernization and agroecological transition.**

With this overall objective, CASIC, through the implementation of the activities by its sub-committee members, intends to achieve the following milestones by 2026:

- Broader coverage of CA & SI and agroecology awareness, education and extension efforts reaching out to farmers and relevant stakeholders;
- Increased agricultural land area under full or partial CA & SI and agroecology practices;
- Agricultural land zoning priority for CA & SI and agroecology application identified; and
- CA & SI and agroecology integration into the RGC policy agenda (including national and sub-national policies, strategies and plans) further strengthened.

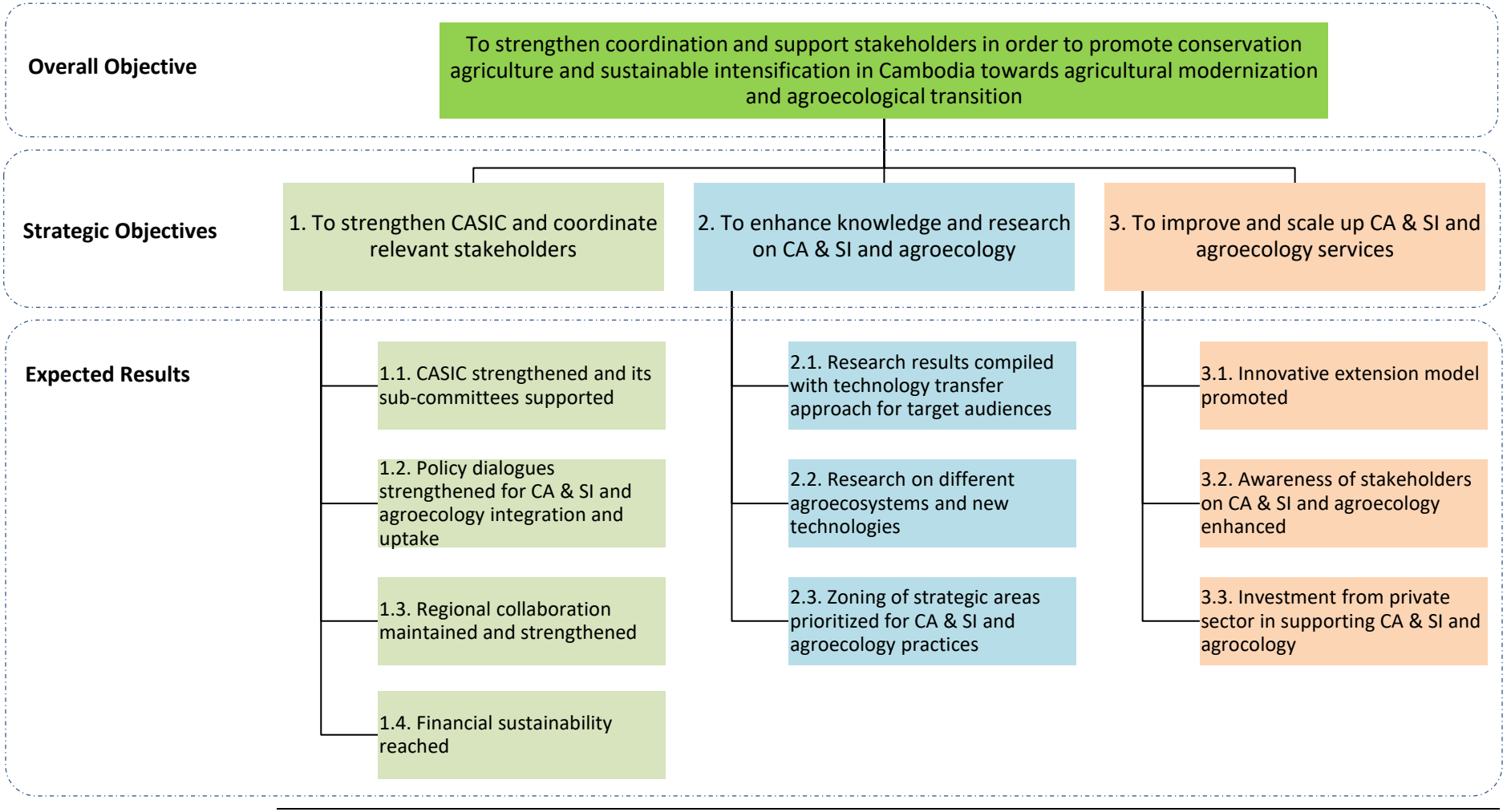
6.2 Strategic Objectives

To achieve this overall objective, CASIC defines three main strategic objectives, which are interrelated and mutually supportive.

1. To strengthen CASIC and coordinate relevant stakeholders
2. To enhance knowledge and research on CA & SI and agroecology
3. To improve and scale up CA & SI and agroecology services

Under each of the Strategic Objective, there are a number of expected results and priority actions. Since CASIC does not implement any activities but coordinates the activities on behalf of its members, the activities mentioned in Sections 6.3 – 6.6 are primarily carried out by its members. However, there are activities that the CASIC Secretariat will implement as well.

Figure 3: Objectives and Expected Outputs of CASIC Roadmap for 2022-2026



6.3 Strategic Objective 1: CASIC and relevant stakeholders strengthened and coordinated

This Strategic Objective aims to strengthen CASIC and its members, to support the activities of the sub-committees, to foster policy dialogues for greater CA & SI and agroecology integration/uptake by policy makers, to deepen regional collaboration, and to ensure financial sustainability. Four expected outputs will be supported by a number of priority actions outlined below.

Table 4: Priority Actions under Strategic Objective 1

Expected Results	Priority Actions
1.1. CASIC strengthened and its sub-committees supported	1.1.1. Conduct regular meetings with the Steering Committee, Executive Board, and sub-committees to discuss on progresses, challenges and support needed.
	1.1.2. Organize field visits for the Steering Committee, Executive Board, and sub-committee members, as well as other relevant stakeholders
1.2. Policy dialogues strengthened for CA & SI and agroecology integration and uptake	1.2.1. Conduct and showcase an economic impact assessment of CA & SI and agroecological adoption to policy makers through policy briefs
	1.2.2. Conduct national public-private forums with relevant policy makers, private sector, and development partners
	1.2.3. Continue working with NAP-Secretariat for complementary effort and joint activities to combat agricultural land degradation
	1.2.4. Work with MAFF to include CA & SI and agroecology in the agriculture related policies, strategies and plans
	1.2.5. Enhance cooperation with DEAFF, GDA and MAFF to engage PDAFF to conduct CA & SI and agroecology extensions
	1.2.6. Establish cooperation with MoE and NCSD by linking CA & SI and agroecology with NBSAP and NDC through bi-lateral consultations; research-based evidences; and policy integration
	1.2.7. Liaise with existing policy dialogue platforms like Technical Working Group on Agriculture and Water, Technical Working on Climate Change in Agriculture, National Dialogue on Sustainable Food System, etc.
1.3. Regional collaboration maintained and strengthened with access to expert group	1.3.1. Maintain current regional cooperation with ASEA, ALiSEA, and UN-CSAM including R4D, hosting regional trainings (at Bos Khnor Station and extension areas with the potential to become a regional training center), joint advocacy initiatives at regional level, etc.
	1.3.2. Include expert groups to support technical capacity development of CASIC members and partners
	1.3.3. Organize regional workshops / trainings / conferences in collaboration with regional networks and/or partners
1.4. Financial sustainability reached	1.4.1. Develop a sponsorship strategy focusing strategic packages for event-based fundraising

	1.4.2. Explore existing and new financial mechanisms with other government agencies, private sector and development partners to support the sub-committees to implement priority actions
	1.4.3. Maintain voluntary institutional contribution from the Steering Committee and Executive Board over the years to support the overall operation of CASIC
	1.4.4. Study membership structure and benefits, more particularly the feasibility in enforcement at a later stage of CASIC development

6.4 Strategic Objective 2: Knowledge and research on CA & SI and agroecology enhanced

This Strategic Objective aims to enhance knowledge management and R4D on innovative CA & SI and Agroecology related technologies and innovations for easy access and adaptation by relevant stakeholders. In addition, each of sub-committee will be strengthen in order to mobilize members and partners to join CASIC. Four expected outputs will be achieved by implementing the following actions.

Table 5: Priority Actions under Strategic Objective 2

Expected Results	Priority Actions
2.1. Research results compiled with technology transfer approach for target audiences	2.1.1. Develop CA & SI and agroecology database (or knowledge management system) with directory of related stakeholders
	2.1.2. Develop technical and educational materials to document and simplify research results for training and academic purposes *(in collaboration with other sub-committees)*
	2.1.3. Share information via various platforms of government, development partners, private sector, and regional networks, and through field visits/demonstration, as well as national and international conferences[6] *(closely linked with promotion function)*
	2.1.4. Support the integration of CA & SI and agroecology into national curriculum of higher education institutions offering agriculture and environment related majors and short-term training curriculum
2.2. Research on different agroecosystems and new technologies to respond to climate resilience and economic motivation	2.2.1. Support mechanisms to identify research priorities and to continue researches on innovative cropping systems[7]; soil carbon accumulation, GHG emission; soil improvement; new technologies (to improve yields, to be more resilient to pests and climate, to be more labor/water efficient, and to be more oriented to GAP, organic and other safe standards, etc.); and other relevant academic studies/researches
	2.2.2. Support research, conservation and sharing of staple and cover crop genetic bank
	2.2.3. Support the testing/adaptation of appropriate-scale mechanization based on local and regional landscapes

[6] Sharing research results at the International Conference on Environment and Rural Development (ICERD) and National Conference on Agriculture and Rural Development (NCARD).

[7] Cropping systems of specific crops like rice, maize, casava and soy bean, as well as others like vegetables, fruits, and medicinal cannabis.

	2.2.4. Support the improvement of infrastructures and resources at Bos Khnor Station, other relevant research centres and universities
2.3. Zoning of strategic areas prioritized for CA & SI and agroecological practices	2.3.1. Conduct an agricultural land zoning assessment to facilitate proper and effective promotion of technology adoption in CA & SI and agroecology

6.5 Strategic Objective 3: CA & SI and agroecology services improved and scaled up

This Strategic Objective intends to improve the services pertinent to CA & SI and agroecology through an extension model, awareness raising among relevant stakeholders, and investment from private sector to support and speed up the transitional processes of farmers. Three expected outputs and a number of actions are outlined in the below table.

Table 6: Priority Actions under Strategic Objective 3

Expected Results	Priority Actions
3.1. An innovative extension model promoted	3.1.1. Promote extension models (existing system of MAFF) to connect stakeholders (PDAFF, agriculture cooperatives, local service providers, and lead farmers) to support knowledge and technology transfer to farmers
	3.1.2. Support the conducts of regular TOT trainings under the extension model
	3.1.3. Work with government and donor-funded agriculture projects and programs like CHAIN, Harvest, CAVAC, ASPIRE, AIMS, ISA, S3, ASMC, ASSET, WAT4CAM, etc. and private sector to integrate CA & SI and agroecology into their capacity building programs offered to their target producers
3.2. Awareness of stakeholders on CA & SI and agroecology enhanced	3.2.1. Produce promotional videos/materials (including testimonies and documentary from farmers) and post them on media, websites and social media of CASIC, GDA and/or MAFF, and other stakeholders
	3.2.2. Conduct round table discussions on CA & SI and agroecology related topics on TVs, radios, and social media platforms
	3.2.3. Conduct regular agriculture fairs and field visits for relevant stakeholders in order to promote CA & SI and Agroecology, agricultural machinery, plant biodiversity and final produce
	3.2.4. Support the implementation of field demonstrations with agricultural cooperatives
3.3. Investment from private sector actors in supporting and engaging in CA & SI and	3.3.1. Conduct meetings with and field visits for private sector including both input suppliers and market actors (buyers), and business and crop-specific associations, and existing private sector platforms[8]

[8] Potential private sector platforms include Vegetable and Fruit Working Group under the facilitation of Cambodia Partnership for Sustainable Agriculture (CPSA) of Grow Asia, and Cambodia Horticulture Investment Platform (CHIP).

agroecology-based production systems	3.3.2. Support private sector to improve access to technologies that match with CA & SI and agroecology principles and support connections between financial institutions, input suppliers and farmers for access to finance and market linkages
	3.3.3. Support the study on financial mechanisms to reward farmers and private sector for their engagement and uptake of CA & SI and agroecology

7. Roles and Interests of Stakeholders in CASIC's Roadmap Implementation

7.1 CASIC's Internal Stakeholders

Ministry of Agriculture, Forestry and Fisheries (MAFF) plays an overarching role in CASIC leadership and management structures, and therefore ensuring an enabling environment for the 5-year roadmap implementation in terms of human and financial resources. This commitment has been shown clearly in the endorsement of top-level management of MAFF leading the Steering Committee and Executive Board of CASIC with member representatives from the General Directorate of Agriculture and also other departments and units of MAFF.

The **Steering Committee of CASIC** is responsible for providing direction and overseeing progress of the roadmap implementation, and plays a leading role in the coordination of policy dialogues within the government and overall stakeholder engagement across all sectors. The members of the Steering Committee who are from various line ministries (MoI, MoE, MoWRAM and MoWA) and private sector (CCC) are crucial actors offering broader perspectives and inter-ministerial commitments to supporting CA & SI and agroecological development in Cambodia.

The **Executive Board of CASIC** is responsible for monitoring the roadmap implementation by coordinating, consolidating and supporting its sub-committees in developing and carrying out their action plans. The Executive Board also plays an important role in facilitating and communicating all CA & SI and agroecology related activities and liaising/networking with relevant stakeholders.

A **Secretariat** was established to support the overall operations of CASIC and internal coordination across the four sub-committees.

The four **Sub-committees of CASIC** are functioning under the Executive Board and with support from the secretariat as the technical units, leading the implementation of priority actions under each of the Strategic Objectives with technical and financial support from potential partners as indicated in the Appendix table of the CASIC's roadmap matrix.

7.2 Other Key Stakeholders

In addition to the members and closely relevant stakeholders of CASIC, there are also other important external stakeholders that present potential engagement and contribution to the implementation of CASIC's 5-year roadmap, and these include, but not limited to:

Other Departments, Directorates, and Platforms of MAFF

- Other departments of General Directorate of Agriculture (GDA) of MAFF including Department of Rice Crop, Department of Industrial Crops, Department of Horticulture and Secondary Crops, Crop Seed Department, and Department of Agricultural Cooperatives, are

key stakeholders who should have the interest and potential in widening the scope of innovative CA & SI and agroecology-based production designated for specific crops.

- Other potential units of MAFF like General Directorate of Rubber to revisit the importance of CA & SI and agroecological adoption in rubber plantations, Department of Agro-industry to engage with private land concessions, Department of Planning and Statistics to support the effort in policy advocacy, as well as the Forestry Administration (FA) and General Directorate of Animal Health and Production (GDAHP).
- The Secretariat of NAP to Combat Land Degradation presents a complementary collaboration with CASIC with a common ultimate goal of soil quality conservation, under the United Nations Convention to Combat Desertification (UNCCD).
- Other research stations and centers under the management of GDA, PDAFF and/or MAFF are potential partners to support the scaling up of research activities in different landscapes and agroecological systems and therefore serves as representative CA & SI and agroecology promotion hubs for specific crops in specific locations.

Relevant Line Ministries

- There is a need for several line ministries such as MoI, MoE, and MoWRAM to participate in CASIC structure aiming to set out direction, supervision and recommendations for CA & SI and agroecological development in order to promote inter-ministerial coordination and implementation of CA & SI and agroecology in Cambodia.

National Council for Sustainable Development

- National Council for Sustainable Development (NCSD), more specifically Department of Biodiversity and Department of Climate Change, is the focal point for the Convention on Biological Diversity (UN-CBD) and United Nations Framework Convention on Climate Change (UNFCCC). Therefore, NCSD plays an important role in collaboration with CASIC for a shared goal to improve biodiversity conservation and climate change adaptation and mitigation through the promotion of CA & SI and agroecology.

Academic and Research Institutions

- Higher education institutions offer courses on agriculture and environment subjects and therefore serve as key catalysts in promoting CA & SI and agroecology related knowledge and researches among students, young researchers and scholars, and creating pool of technical human resources contributing to further efforts in areas related to agroecology and climate change.
- These include those under MAFF (Prek Leap National Institute of Agriculture (PLNIA) and Kampong Cham National Institute of Agriculture (KCNIA)) and those under Ministry of Education, Youth and Sports (MoEYS) (National University of Battambang (NUBB), Institute of Technology of Cambodia (ITC), Royal University of Phnom Penh (RUPP), University of Heng Samrin Tboung Khmum (UHST), Svay Rieng University (SRU), etc.).
- Other potential academic and research institutions/platforms include National Conference of Agriculture and Rural Development (NCARD), International Conference of Environment and Rural Development (ICERD), and Institute of Environmental Rehabilitation and Conservation (ERECON) of Tokyo University of Agriculture.

- The international academic institutions also play a very significant role in supporting the research and knowledge related to CA & SI and agroecology in Cambodia. This could be the supports for joint research activities, capacity building, and scientific knowledge peer reviews.

Development Partners

- Development partners, who are active in funding current and future projects and programs related to sustainable, climate-smart agriculture and agroecology, have always been the most crucial actors in supporting the priorities set out in this roadmap document. The interests may focus on the funding support for researches on innovative solutions to problems of soil quality, productivity, climate resilience, etc., and/or consideration of introducing CA & SI and agroecological practices in their project interventions and with their target beneficiaries.

Private Sector

- Private sector actors are crucial to move CA & SI and agroecological development beyond a donor-funded and project-based approach. Therefore, private investments show great potentials, more particularly the supply of appropriate technologies (cover crop seed, agricultural machinery and bio-products suppliers) and finance (financial institutions), in facilitating and speeding up the transition of farmers towards CA & SI and agroecology-based production systems.
- Private sector actors also play a role in CA & SI and agroecology promotion with their partnered producers (in the case of traders) and target clients (in the case of input suppliers and financial institutions) via their marketing/awareness, capacity building and technical support activities by mainstreaming technical CA & SI and agroecology concept and principles into their existing programs.
- On the other hand, traders support the market linkages for safe agricultural produce with better quality and higher yields to be offered (under CA & SI and agroecology-based production) to final consumers by meeting the standard and human health requirements of both domestic and export markets.

Regional Stakeholders and Platforms

- A number of regional stakeholders and platforms (ASEA, ALiSEA, UN-CSAM, ASSET, etc.) are potential actors supporting CASIC's technical capacity development, and a broader scope of collaboration in researches, training activities, awareness-raising campaigns, and joint advocacy efforts at regional level.

8. Strategic Mechanisms for Roadmap Implementation

In order to ensure effectiveness and sustain the implementation of the roadmap, there is a need to create a favorable environment and to strengthen human, physical, technological, institutional and financial capacity of CASIC and its members. There should be consultation and agreement among all CASIC stakeholder groups for a framework to govern partnerships, cooperation, coordination and synergies among partners, with a clear description of their roles, responsibilities and expectations. Existing institutional structures and sources of finance will be exercised and strengthened, and any new structures and funding sources will be identified and established, as needed, for the implementation of the roadmap.

8.1 Enabling Conditions

- Linkages with the existing RGC policies, strategies and plans should be well articulated to present the significance of CASIC and its alignment with the RGC efforts in sustainable agriculture sector development, agriculture modernization and diversification, climate change adaptation and mitigation, and agroecological transition. Strategic Objective 3 of this roadmap entails actions that are meant to further enhance clear visibility and strengthen the integration of CA & SI and agroecology in the RGC policy framework, which could help support and re-enforce the implementation of the other priorities in this roadmap and contribute to achieving the overall milestones.
- At the implementation level, institutional ownership and commitment of the CASIC's members are extremely important in the context of competing priorities and political complication over the course of the roadmap implementation timeline. Therefore, it is important for the members to internalize the priorities of the roadmap into their institutional action and budget plans.
- Sufficient and capable human resources should be ensured within the Secretariat (at a later stage of CASIC development) in order to effectively and strategically support the operation of CASIC and its sub-committees' functioning in the processes of roadmap execution.
- CASIC should establish and strengthen clear mechanisms in communication and management for results, by improving existing communication channels within and across sub-committees and with the Executive Board, as well as the consideration of other communication strategies, especially reaching out to external partners and stakeholders. This should also include clear reporting mechanisms, periodic reviews and adjustments (see part on the Monitoring and Evaluation).

8.2 Resource Mobilization

This roadmap is an important tool for CASIC to attract and mobilize both technical assistance and financial resources from MAFF, other relevant government agencies, local and international NGOs, development partners and especially private sector investment in order to contribute to successful execution of the key priority actions in the coming years. Therefore, resource mobilization is an essential part for operationalizing the roadmap and achieving the associated milestones. A diversified source of financing is recommended.

- Key priority actions should be integrated/mainstreamed into the Budget Strategic Plan and annual Program Budget of each of the government agencies and units (especially MAFF) by prioritizing the most important and relevant activities (considering the annual budget ceiling of the government). By doing so, some of the key priority actions, if not all, could be funded by the government budget.
- CASIC should continue the current mechanisms in collaborating with national and international platforms, and development partners on existing and new projects/programs to support the sub-committees in carrying out their key priority actions.
- CASIC should expand the scope of resource mobilization through raising the visibility and awareness of CA & SI and agroecology in various platforms of the government and development partners, including Technical Working Group on Agriculture and Water, National Dialogue on Sustainable Food System, Secretariat of the National Action Program to Combat Land Degradation, and other mechanisms working on biodiversity protection and mitigation

and adaptation to impacts of climate change (i.e. MoE and NCSD), including corporate social responsibility funds, payment for ecosystem services, REDD+ initiative, green development fund, etc.

- Efforts should be focused on attracting more interest and investment from private sector through continued support in addressing challenges of private sector in both technical and business aspects, as well as connections among input suppliers, financial institutions, farmers, and buyers along the value chains.
- With a corporate sponsorship strategy (outlined as one of the priority actions in the roadmap), CASIC could mobilize fund through strategic packages of event-based funding from especially private sector who would like to promote their images and marketing with specific audience groups in the events organized by CASIC.
- At a later stage of its development, CASIC should study the feasibility to enforce membership structure and benefits in order to mobilize additional fund to support the overall operation of CASIC and activity implementation.

8.3 Risk Assessment and Management

For the implementation of the priority actions in this 5-year roadmap of CASIC, a number of risks and corresponding mitigation strategies have been analyzed and presented in the table below. One of the most pressing risks in the current context and perhaps a few coming years within the roadmap timeline is the uncertainties caused by Covid-19 pandemic. Therefore, CASIC is required to present adaptive management capacities and preparedness to adjust working approach and methods in response to any context, especially during the initial phase of roadmap implementation. Another important risk is associated with the priorities, commitment and resources of the RGC in terms of institutional support and priority actions stated in this roadmap document.

Table 7: Risk Assumptions and Mitigation Strategies

Risk Assumptions	Risk Mitigation Strategies
Continued impacts of Covid-19 on resource prioritization of the RGC, development partners, and private sector	• Continue to assess the situation and re-adjust approach, work plan and budget as needed • Ensure high levels of flexibility and adaptive management capacity
Changes in RGC, sector and ministry strategic plans/policies, and changes in organization functions and responsibilities	• Continue effective advocacy efforts for CA & SI and agroecology integration into RGC policies, strategies and plans • Identify realistic targets and prioritise human resource investment in strategic areas • Discuss and reach consensus on priority actions among members
Impact of Covid-19 on the conducts of awareness-raising, extension, capacity building, and policy dialogue events	• Continue to assess the situation and re-adjust approach and work plan in carrying out important events on virtual platforms and campaigns

Vulnerability to be caused by natural disasters, climate change, and degradation of biodiversity, possibly affecting the results of cropping techniques transferred to farmers	• Continue the effort and acceleration of researches and experiments on cropping system and seed which are more resilient to climate shocks

8.4 Inclusiveness of Smallholder Farmers and Women

Inclusiveness is an important aspect contributing to achieving the vision stated in policy documents of the RGC and MAFF, more notably the draft Agriculture Sector Master Plan. The agriculture sector in Cambodia shall be developed with equity with participation from all value chain actors, being inclusive of smallholder farmers with small farm land, limited financial capability, and pressing challenges in terms of production competitiveness and high economic effectiveness. Gender gap in agriculture sector, especially the access to support services and agriculture extensions, remains an attentive challenge due to a number of factors facing women, including the distant location of the extension services, limited literacy, lack of time, lack child care services, household chore burdens, inability to travel far away from home, and other socio-cultural factors. In addition, women's utilization rate of tools/equipment and technology remain lower than that of men.

Taking these issues of smallholder farmers and women, this roadmap addresses the inclusiveness matter on the support on the access to technical adoption at appropriate costs in accordance to technical and financial capability of smallholder farmers and women. The research sub-committee of CASIC should focus its research on CA & SI agroecology related technologies and techniques which are easy to understand and adopt in terms of technical and financial aspects. To achieve effectiveness and efficiency in extensions and market linkages (private sector engagement), CASIC focus its coordination with stakeholders working with producer groups/networks and agriculture cooperatives, which is a basis for production (better access to agriculture inputs and support services) and collective and larger-scale supply to market in order to ensure higher economic effectiveness.

Land ownership and management and decision making in agriculture related work, are generally jointly participated by both men and women, more or less; the practices of CA & SI and agroecology contribute to the reduction in time and labor consumption as well as better and sustainable land management for both men and women. Due to the fact that women play an important role in household decision making in agriculture technical and technology adoption, especially decisions related to spending, women needs information about the financial benefits of CA & SI and agroecology. As a result, the promotion function of CASIC should ensure sufficient information provided to men and women for economic analysis.

9. Monitoring and Evaluation

Monitoring and evaluation (M&E) component is an integral part of this roadmap document. The key expected results and milestones identified in the roadmap are used to report on progresses of the action implementation and track the status of CA & SI and agroecological development in Cambodia. This roadmap will be oversighted by CASIC's Steering Committee (with final approval by MAFF), and implemented by CASIC's Executive Board, more specifically, sub-committees. The reporting will be made regularly on the actual results with comparison to the identified milestones.

It should be noted that this roadmap contains a range of actions which will be implemented by and in cooperation with various departments, agencies, and stakeholders, and under different projects and programs. Therefore, this will require a strong coordination mechanism, proper database or information system, and broad participation of all stakeholders. As such, the Executive Board is leading the process of planning, reporting and M&E based on the identified milestones in the roadmap with periodic reviews and adjustments. The M&E will inform the executive team and decision makers with important information related to the progress of the achieved and not-yet-achieved targets, challenges or barriers, opportunities and lessons learned for further implementation and adjustment of the activities in the roadmap in the remaining timeframe at both institutional and interventional level with direct relevance to beneficiaries.

A regular reporting and M&F framework are proposed and agreed upon during the roadmap development process, which includes:

- Constant updates of CA & SI and agroecology database or information system
- Monthly Executive Board meetings with monthly activity report and plan for the following month
- Bi-annual Steering Committee meetings with six-month report and plan for the next 6 months
- Annual performance report and operation plan for the following year
- Mid-term review (by end of year 3)
- 5-year evaluation on outcomes and impacts

References

Altieri, M.A. 2002. agroecology: the science of natural resource management for poor farmers in marginal environments. Agriculture, Ecosystems and Environment, 93: 1-24.

CASC/DALRM. 2021 [draft]. Brief note of CASC Achievements in 2020.

Castella J.C., & Kibler J.F. 2015. *Towards an agroecological transition in Southeast Asia: Cultivating diversity and developing synergies.* GRET, Vientiane, Lao PDR. 96 p.

Food and Agriculture Organization (FAO). 2017. *The future of food and agriculture: Trends and challenges.* Rome.

- - -. 2018. Catalyzing dialogue and cooperation to scale up Agroecology: outcomes of the FAO regional seminars on Agroecology. ISBN 978-92-5-130464-8.

Garcia, J., Chey, T. 2019. *Mid-term review of Cambodia Climate Change Strategic Plan (2014-2023).* Evaluation report for General Secretariat of National Council for Sustainable Development (NCSD).

Hok, L., Sá, J.C.M., Reyes, M., Boulakia, S., Tivet, F., Leng, V., Kong, R., Briedis, C., Hartman, D.D.C., Ferreira, L.A., Inagaki, T.M., Gonçalves, D.R.P., Bressan, P.T., 2018. Enzymes and C pools as indicators of C build up in short-term conservation agriculture in a savanna ecosystem in Cambodia. Soil & Tillage Research 177: 125-133.

Hok, L., Sá J.C.M., Boulakia S., Reyes M., Leng V., Kong R., Tivet F., Briedis C., Hartman D.D., Ferreira L.A., Magno T., Pheav S., 2015. Short-term conservation agriculture and biomass-C input impacts on soil C dynamics in a savanna ecosystem in Cambodia. Agriculture, Ecosystems and Environment 214: 54-67.

Jones, M., Leng, V., Ong, S., Mean, M., 2019. Gender technology assessment - Appropriate Scale Mechanization Consortium. Cambodia: Service provision for Conservation Agriculture. Feed the Future, Sustainable Intensification Innovation Lab. Kansas State University, Royal University of Agriculture of Cambodia, 16 p.

Kassam, A., Friedrich, T., Derpsch, R., 2019. Global spread of Conservation Agriculture, International Journal of Environmental Studies, 76:1, 29-51, DOI:10.1080/00207233.2018.1494927.

Kong, R., Canto G.B., Castella, J.C., Tivet, F., Seng, V. 2020 [draft]. *Evaluation of 10-year impacts of action-research promoting conservation agriculture in Cambodia.* Phase 1: preparation of the case study.

Kong, R., Castella, J.C., Suos, V., Leng, V., Pat, S., Diepart, J.C., Sen, R., Tivet, F., 2021. Investigating farmers' decision-making in adoption of conservation agriculture in the Northwestern uplands of Cambodia. Land Use Policy 105 (2021) 105404.

Kong, R., Castella, J.C., 2021. Farmers' resource endowment and risk management affect agricultural practices and innovation capacity in the Northwestern uplands of Cambodia. Agricultural Systems 190 (2021) 103067.

Kong, R., Diepart, J.C., Castella, J.C., Lestrelin, G., Tivet, F., Belmain, E., Bégué, A. 2019. Understanding the drivers of deforestation and agricultural transformations in the Northwestern uplands of Cambodia. Applied Geography, 102: p. 84-98. https://doi.org/10.1016/j.apgeog.2018.12.006.

Kong, R., Sar V., Leng V., Trang S., Boulakia S., Tivet F., Séguy L. 2016. Conservation agriculture for climate-resilient rainfed uplands in the Western regions of Cambodia: challenges, opportunities, and

lessons from a 10-Year R and D program. In : Sajise Percy E. (ed.), Cadiz Maria Celeste H. (ed.), Bantayan Rosario B. (ed.). Learning and coping with change: Case stories of climate change adaptation in Southeast Asia. Los Baños : SEARCA, p. 55-81.

Leng, V., Tanaka, H., Sugihara, S., Boulakia, S., Oikawa, Y., Kimura, S.D.B., Letourmy, P., Kong, R., Fujii, Y., Hok, L., Pheap, S., Seng, V., Tivet, F., forthcoming. Effect of Short-term Conservation Agriculture on Soil Organic C and N stocks, and Nutrient contents in Lowland Rice Agroecosystem in Cambodia.

MAFF. 2015. *Gender Mainstreaming Policy and Strategic Framework in Agriculture (2016-2020).*

- - -. 2016. *Climate Change Priorities Action Plan for Agriculture, Forestry and Fisheries Sector (2016-2020)*. Technical Working Group for Policy and Strategy to Respond to Climate Change of MAFF (TWG-CCAFF), March 2016.

- - -. 2018. *National Action Program (NAP) to Combat Land Degradation (2018-2027).*

- - -. 2019. *Agriculture Strategic Development Plan (2019-2023).*

- - -. 2020 [draft]. *Agriculture Sector Master Plan 2030: Modernization of Cambodia's Agriculture with Competitiveness, Inclusiveness, Resilience to Climate Change, and Sustainability.*

National Climate Change Committee. 2013. *Cambodia Climate Change Strategic Plan (2014-2023).*

National Council for Sustainable Development (NCSD) / Ministry of Environment (MoE). 2016. *National Biodiversity Strategy and Action Plan.* Department of Biodiversity, General Secretariat of NCSD, February 2016.

- - -. 2020. *First Biennial Update Report (BUR) of the Kingdom of Cambodia to the United Nations Framework Convention on Climate Change.*

- - -. 2020. *Cambodia's Updated Nationally Determined Contribution*.

National Council on Green Growth / Ministry of Environment (MoE). 2013. *National Policy on Green Growth.*

- - -. 2013. *National Strategic Plan on Green Growth (2013-2030).*

Pheap, S., Lefèvre, C., Thoumazeau, A., Leng, V., Boulakia, S., Koy, R., Hok, L., Lienhard, P., Brauman, A., Tivet, F., 2019. Multi-functional assessment of soil health under Conservation Agriculture in Cambodia. Soil & Tillage Research, 194, 104349.

Pretty, J., 2018. Intensification for redesigned and sustainable agricultural systems. Science 362, 908.

RGC. 2018. *Rectangular Strategy for Growth, Employment, Equity, and Efficiency: Building the Foundation towards Realizing the Cambodia Vision 2050 (Phase IV).* The Royal Government of Cambodia of the Sixth Legislature of the National Assembly, September 2018.

- - -. 2018. *Cambodian Sustainable Development Goals (CSDGs) Framework (2016-2030).* Council of Ministers, November 2018.

- - -. 2019. *National Strategic Development Plan (NSDP) (2019-2023): For Growth, Employment, Equity and Efficiency to Reach the Status of an Upper-middle Income Country by 2020.* Promulgated under Royal Kram 0719/011, July 2019.

Séguy, L., S. Bouzinac, et al. 2006. Direct-seeded tropical soil systems with permanent soil cover: Learning from Brazilian experience. Biological approach to sustainable soil systems. N. Uphoff, A. S. Ball, E. Fernandeset al, CRC Press, Taylor & Francis: 323-342.

Sumner, D., Christie, M.E., Boulakia, S., 2017. Conservation agriculture and gendered livelihoods in Northwestern Cambodia: decision-making, space and access. Agric Hum Values (2017) 34:347–362, DOI 10.1007/s10460-016-9718-z.

Vernet, P.A., Faysse, N., Suos, V., Oung, N., Son, S., Leng, V., Theng, D., Rendall, T., Lor, L., Reyes, R., Chan, S., Pradhan, R., Vang, S., Tivet, F., 2020. Investing in a no-till planter in Cambodia: A promising opportunity for various types of service providers? Asian Journal of Agricultural and Environmental Safety, forth-coming.

World Resource Institute (WRI). 2018. *Creating a sustainable food future: A menu of solutions to feed nearly 10 billion people by 2050.* Synthesis Report.

Appendix 1: MAFF's Decision Letter on the Establishment of CASIC

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ

លេខ ២០១ សសរ. កសក

សេចក្តីសម្រេច
ស្តីពី
ការបង្កើតគណៈកម្មការគ្រប់គ្រងទិស និងគណៈកម្មការប្រតិបត្តិ
សម្ព័ន្ធកសិកម្មអតិរក្សនិងប្រពលភប្បកម្មនិរន្តរភាពកម្ពុជា

រដ្ឋមន្ត្រីក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ

- បានឃើញរដ្ឋធម្មនុញ្ញនៃព្រះរាជាណាចក្រកម្ពុជា
- បានឃើញព្រះរាជក្រឹត្យលេខ នស/រកម/០៩១៨/៩២៥ ចុះថ្ងៃទី០៦ ខែកញ្ញា ឆ្នាំ២០១៨ ស្តីពីការតែងតាំងរាជរដ្ឋាភិបាលនៃព្រះរាជាណាចក្រកម្ពុជា
- បានឃើញព្រះរាជក្រមលេខ នស/រកម/០៦១៨/០១២ ចុះថ្ងៃទី២៨ ខែមិថុនា ឆ្នាំ២០១៨ ដែលប្រកាសឱ្យប្រើច្បាប់ស្តីពីការរៀបចំ និងការប្រព្រឹត្តទៅនៃគណៈរដ្ឋមន្ត្រី
- បានឃើញព្រះរាជក្រមលេខ នស/រកម/០១៩៦/១៣ ចុះថ្ងៃទី២៤ ខែមករា ឆ្នាំ១៩៩៦ ដែលប្រកាសឱ្យប្រើច្បាប់ស្តីពីការបង្កើតក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ
- បានឃើញអនុក្រឹត្យលេខ១៧ អនក្រ.បក ចុះថ្ងៃទី០៧ ខែមករា ឆ្នាំ២០០០ ស្តីពីការរៀបចំនិងការប្រព្រឹត្តទៅរបស់ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ
- បានឃើញអនុក្រឹត្យលេខ១០៥ អនក្រ.បក ចុះថ្ងៃទី២២ ខែសីហា ឆ្នាំ២០០៥ ស្តីពីការបន្ថែមមុខងារ ភារកិច្ចឱ្យក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ និងការបង្កើតនាយកដ្ឋានសវនកម្មផ្ទៃក្នុង នាយកដ្ឋានផែនការនិងស្ថិតិ នាយកដ្ឋានសហប្រតិបត្តិការអន្តរជាតិ និងមជ្ឈមណ្ឌលព័ត៌មាននិងឯកសារកសិកម្ម ចំណុះក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ
- បានឃើញអនុក្រឹត្យលេខ១៨៨ អនក្រ.បក ចុះថ្ងៃទី១៤ ខែវិច្ឆិកា ឆ្នាំ២០០៨ ស្តីពីការកែសម្រួលអគ្គនាយកដ្ឋាននៃក្រសួងទៅជាអគ្គលេខាធិការដ្ឋាន ការដំឡើងរដ្ឋបាលព្រៃឈើ រដ្ឋបាលជលផលឱ្យមានថ្នាក់ស្មើអគ្គនាយកដ្ឋាន ការដំឡើងនាយកដ្ឋានក្សេត្រសាស្ត្រ និងកែលម្អដីកសិកម្ម ឱ្យទៅជាអគ្គនាយកដ្ឋានកសិកម្ម និងការកែសម្រួលអគ្គនាយកដ្ឋានចម្ការកៅស៊ូ ទៅជាអគ្គនាយកដ្ឋានកៅស៊ូ ស្ថិតក្រោមការគ្រប់គ្រងរបស់ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ
- បានឃើញអនុក្រឹត្យលេខ២២៨ អនក្រ.បក ចុះថ្ងៃទី២៨ ខែតុលា ឆ្នាំ២០១៦ ស្តីពីការដំឡើងនាយកដ្ឋានផលិតកម្មនិងបសុព្យាបាល ទៅជាអគ្គនាយកដ្ឋានសុខភាពសត្វនិងផលិតកម្មសត្វ
- បានឃើញអនុក្រឹត្យលេខ៨១ អនក្រ. បក ចុះថ្ងៃទី២១ ខែមិថុនា ឆ្នាំ២០១៩ ស្តីពីការកែសម្រួលមាត្រា២ មាត្រា ២៥ មាត្រា២៦ និងមាត្រា៣៥ នៃអនុក្រឹត្យលេខ១៨៨ អនក្រ.បក ចុះថ្ងៃទី១៤ ខែវិច្ឆិកា ឆ្នាំ២០០៨ និងមាត្រា ២៧ថ្មី នៃអនុក្រឹត្យលេខ១១៨ អនក្រ.បក ចុះថ្ងៃទី២៦ ខែកក្កដា ឆ្នាំ២០១៧
- យោងលិខិតលេខ២១៧៨ សជណ ចុះថ្ងៃព្រហស្បតិ៍ ១៨រោច ខែស្រាពណ៍ ឆ្នាំកុរ ឯកស័ក ព.ស.២៥៦៣ ត្រូវនឹងថ្ងៃទី២៩ ខែសីហា ឆ្នាំ២០១៩ របស់ក្រសួងមហាផ្ទៃ

- យោងលិខិតលេខ១១២៣ សជណ.ប.ស្ដ ចុះថ្ងៃពុធ ៦កើត ខែកន្ទ្របទ ឆ្នាំកុរ ឯកស័ក ព.ស.២៥៦៣ ត្រូវនឹងថ្ងៃទី០៤ ខែកញ្ញា ឆ្នាំ២០១៩ របស់ក្រសួងបរិស្ថាន
- យោងលិខិតលេខ១៧២៥ កកន/បល ចុះថ្ងៃពុធ ១២រោច ខែកន្ទ្របទ ឆ្នាំកុរ ឯកស័ក ព.ស.២៥៦៣ ត្រូវនឹងថ្ងៃទី២៥ ខែកញ្ញា ឆ្នាំ២០១៩ របស់ក្រសួងកិច្ចការនារី
- យោងលិខិតលេខ២៨២៥ ធទឧ ចុះថ្ងៃព្រហស្បតិ៍ ៧រោច ខែស្រាពណ៌ ឆ្នាំកុរ ឯកស័ក ព.ស.២៥៦៣ ត្រូវនឹងថ្ងៃទី២២ ខែសីហា ឆ្នាំ២០១៩ របស់ក្រសួងធនធានទឹក និងឧតុនិយម
- យោងលិខិតលេខ១៧៣ សកពណ.កជ ចុះថ្ងៃពុធ ១៣រោច ខែស្រាពណ៌ ឆ្នាំកុរ ឯកស័ក ព.ស.២៥៦៣ ត្រូវនឹងថ្ងៃទី២៨ ខែសីហា ឆ្នាំ២០១៩ របស់សភាពាណិជ្ជកម្មកម្ពុជា
- យោងតាមតម្រូវការចាំបាច់របស់ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ

សម្រេច

ប្រការ១ .-

ត្រូវបានបង្កើតគណៈកម្មការតម្រង់ទិស និងគណៈកម្មការប្រតិបត្តិសម្ព័ន្ធកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពកម្ពុជា ដែលមានសមាសភាពដូចខាងក្រោម ៖

ក. គណៈកម្មការតម្រង់ទិស

១. ឯកឧត្តម ឱម គីមសា	រដ្ឋលេខាធិការក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ	ប្រធាន
២. លោកជំទាវ យ៉ើ អាស៊ីគីន	អនុរដ្ឋលេខាធិការក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ	អនុប្រធាន
៣. ឯកឧត្តម សួន តារា	អគ្គនាយករងនៃអគ្គនាយកដ្ឋានរដ្ឋបាល នៃក្រសួងមហាផ្ទៃ	សមាជិក
៤. លោក អ៊ុក ណារ៉ាន់	អគ្គនាយករងនៃអគ្គនាយកដ្ឋានសហគមន៍មូលដ្ឋាននៃក្រសួងបរិស្ថាន	សមាជិក
៥. លោក ស៊ុំ វណ្ណសាន	អគ្គាធិការរងនៃអគ្គាធិការដ្ឋាន នៃក្រសួងកិច្ចការនារី	សមាជិក
៦. លោក យិន សារុធ	ប្រធាននាយកដ្ឋាននៃការងារធារាសាស្ត្រនិងទន្លេ នៃក្រសួងធនធានទឹកនិងឧតុនិយម	សមាជិក
៧. លោកស្រី សុខ សុទ្ធាវី	ប្រធានរដ្ឋបាលនៃសភាពាណិជ្ជកម្មកម្ពុជា	សមាជិក។

ខ. គណៈកម្មការប្រតិបត្តិ

១. ឯកឧត្តម ចាន់ សារុទ្ធ	អនុរដ្ឋលេខាធិការក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ	ប្រធាន
២. ឯកឧត្តម ង៉ោ ប៊ុនថាន	សាកលវិទ្យាធិការ នៃសាកលវិទ្យាល័យភូមិន្ទកសិកម្ម	អនុប្រធាន
៣. លោក ហូ ពុទ្ធា	អគ្គនាយករង នៃអគ្គនាយកដ្ឋានកសិកម្ម	អនុប្រធាន
៤. លោក សេង វ៉ាង	ប្រធាននាយកដ្ឋានគ្រប់គ្រងធនធានដីកសិកម្ម	សមាជិក
៥. លោក ង៉ិន កុសល	ប្រធាននាយកដ្ឋានវិស្វកម្មកសិកម្ម	សមាជិក
៦. លោក ឡោ លីតូ	ព្រឹទ្ធបុរសមហាវិទ្យាល័យវិស្វកម្មកសិកម្ម	សមាជិក
៧. លោក ហុក លីដា	ព្រឹទ្ធបុរសរងមហាវិទ្យាល័យវិទ្យាសាស្ត្រកសិកម្ម	សមាជិក
៨. លោក ឡោ ប៊ុណ្ណា	នាយករងវិទ្យាស្ថានស្រាវជ្រាវនិងអភិវឌ្ឍន៍កសិកម្មកម្ពុជា	សមាជិក
៩. លោកស្រី ហ៊ូ សុពណ៌	អនុប្រធាននាយកដ្ឋានផ្សព្វផ្សាយកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ	សមាជិក
១០. តំណាងអង្គការ Swisscontact Cambodia		សមាជិក
១១. តំណាងមជ្ឈមណ្ឌលស្រាវជ្រាវកសិកម្មបារាំងសម្រាប់ការអភិវឌ្ឍអន្តរជាតិ (CIRAD)		សមាជិក។

ប្រការ២ .-

គណៈកម្មការតម្រង់ទិសសម្ព័ន្ធកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពកម្ពុជា មានភារកិច្ចដូចខាងក្រោម៖

- ដឹកនាំ តម្រង់ទិសដៅ ណែនាំ និងធ្វើការត្រួតពិនិត្យ លើដំណើរការកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាព នៅក្នុងវិស័យកសិកម្មនៅកម្ពុជា
- ពិនិត្យនិងសម្រេចលើផែនការសកម្មភាពនិងថវិកា លើការអនុវត្តសកម្មភាពកសិកម្មអភិរក្សនិងប្រពលវប្បកម្ម និរន្តរភាពនៅក្នុងវិស័យកសិកម្ម
- ពិនិត្យនិងសម្រេចលើរបាយការណ៍វឌ្ឍនភាពការងារកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅក្នុងវិស័យ កសិកម្ម
- ពិនិត្យ វាយតម្លៃ និងសម្រេចលើរបាយការណ៍វឌ្ឍនភាពកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅក្នុងវិស័យ កសិកម្ម
- ទទួលភារកិច្ចផ្សេងៗទៀត ដែលថ្នាក់ដឹកនាំក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ ប្រគល់ជូន។

ប្រការ៣ .-

គណៈកម្មការប្រតិបត្តិសម្ព័ន្ធកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពកម្ពុជា មានភារកិច្ចដូចខាងក្រោម៖

- ជាសេនាធិការឱ្យគណៈកម្មការតម្រង់ទិសសម្ព័ន្ធកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពកម្ពុជា ក្នុងការរៀប ចំផែនការសកម្មភាព គ្រប់គ្រង អនុវត្ត តាមដាន សម្របសម្រួល និងធ្វើរបាយការណ៍វឌ្ឍនភាព ស្តីពីកសិកម្ម អភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅក្នុងវិស័យកសិកម្ម
- ពិគ្រោះយោបល់និងសម្របសម្រួលការងារទាំងឡាយ ដែលពាក់ព័ន្ធទៅនឹងកសិកម្មអភិរក្សនិងប្រពលវប្បកម្ម និរន្តរភាពនៅក្នុងវិស័យកសិកម្ម
- ពិនិត្យ តាមដាន និងវាយតម្លៃលើការអនុវត្តសកម្មភាពកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅក្នុងវិស័យ កសិកម្ម
- សិក្សា ស្រាវជ្រាវ និងធ្វើការផ្សព្វផ្សាយពាក់ព័ន្ធកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅក្នុងវិស័យកសិ-កម្ម និងបំផុសការគាំទ្រដល់ការងារកសិកម្មអភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅកម្ពុជា
- ទំនាក់ទំនងនិងសហការជាមួយដៃគូអភិវឌ្ឍន៍ពាក់ព័ន្ធ ដើម្បីកៀរគរថវិកាសម្រាប់អភិវឌ្ឍសកម្មភាពកសិកម្ម អភិរក្សនិងប្រពលវប្បកម្មនិរន្តរភាពនៅកម្ពុជា
- ទទួលភារកិច្ចផ្សេងៗទៀត ដែលថ្នាក់ដឹកនាំក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ ប្រគល់ជូន។

ប្រការ៤ .-

អគ្គលេខាធិការ អគ្គាធិការ អគ្គនាយកនៃអគ្គនាយកដ្ឋានកសិកម្ម សាកលវិទ្យាធិការនៃសាកលវិទ្យាល័យភូមិន្ទ កសិកម្ម ប្រធាននាយកដ្ឋានបុគ្គលិកនិងអភិវឌ្ឍន៍ធនធានមនុស្ស ប្រធាននាយកដ្ឋានកិច្ចការរដ្ឋបាល ប្រធាននាយកដ្ឋាន គណនេយ្យ ហិរញ្ញវត្ថុ ប្រធានអង្គភាពដែលពាក់ព័ន្ធក្រោមឱវាទក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ និង សាមីខ្លួនត្រូវ ទទួលបន្ទុកអនុវត្តសេចក្តីសម្រេចនេះតាមភារកិច្ចរៀងៗ ខ្លួនចាប់ពីថ្ងៃចុះហត្ថលេខាតទៅ។

ថ្ងៃព្រហស្បតិ៍ ១៥កើត ខែចិត្រ ស័ក ឆ្នាំជូត ទោស័ក ព.ស.២៥៦៤
ធ្វើនៅរាជធានីភ្នំពេញ ថ្ងៃទី២១ ខែឧសភា ឆ្នាំ២០២០

រដ្ឋមន្ត្រី
ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ

វេង សាខុង

កន្លែងទទួល :
- ទីស្តីការគណៈរដ្ឋមន្ត្រី
- ក្រសួងសេដ្ឋកិច្ច ហិរញ្ញវត្ថុ
- ក្រសួងមហាផ្ទៃ
- ក្រសួងមុខងារសាធារណៈ
- ក្រសួងកិច្ចការនារី
- ក្រសួងធនធានទឹកនិងឧតុនិយម
- ក្រសួងបរិស្ថាន
- ក្រុមប្រឹក្សាជាតិអភិវឌ្ឍន៍ដោយចីរភាព
- សភាពាណិជ្ជកម្មកម្ពុជា
- ដូចប្រការ៤
- ឯកសារ កាលប្បវត្តិ

Appendix 2: CASIC's Roadmap Matrix (2022-2026)

Overall Objective of CASIC					
Overall Objective	To strengthen coordination and support stakeholders in order to promote conservation agriculture and sustainable intensification in Cambodia towards agricultural modernization and agroecological transition				
Milestones by 2026	(1) Broader coverage of CA & SI and agroecology awareness, education and extension efforts reaching out to farmers and relevant stakeholders				
	(2) Increased agricultural land area under full or partial CA & SI and agroecology practices				
	(3) Agricultural land zoning priority for CA and SI application identified				
	(4) CA & SI and agroecology integration into the RGC policy agenda further strengthened				
Expected Results	**Priority Actions**	**Milestones**	**Timeframe**	**Responsible Sub-committee(s)**	**Potential Partner(s)**
Strategic Objective 1: To strengthen CASIC and coordinate relevant stakeholders					
1.1. CASIC strengthened and its sub-committees supported	1.1.1. Conduct CASIC meetings	Semester and annual Steering Committee (SC) meetings	2022-2026	Secretariat	CASIC's pool fund & in-kind institutional supports **Development partners:** USAID, AFD, EU, SDC, CCCA, ADB, GEF, GIZ, ACIAR
		Monthly Executive Board (EB) meetings			
		Quarterly sub-committee meetings			
	1.1.2. Organize CASIC field visits	Two field visits per year of SC with participation from EB and sub-committee members	2022-2026	Secretariat	
		Two field visits per year of EB with participation from relevant stakeholders	2022-2026	Secretariat	
1.2. Policy dialogues strengthened for CA & SI and agroecology integration and uptake	1.2.1. Conduct an economic impact assessment of CA & SI and agroecological adoption to policy makers	Report on economic impact assessment and policy briefs (completed and disseminated)	2023 & 2026	Executive Board and Sub-committee on R4D	**Government:** MAFF, NAP-Secretariat, MoE, NCSD, MoWRAM, CARD **Development partners:** FAO, and biodiversity/climate change funding mechanisms
	1.2.2. Conduct national public-private sector forums	Annual public-private sector forum	2022-2026	Executive Board and Sub-committee on	

				Coordination and Networking	
	1.2.3. Work with NAP-Secretariat for complementary effort and joint activities to combat agricultural land degradation	CA & SI and agroecology in response to NAP implementation	2022-2026	Executive Board	
	1.2.4. Work with MAFF to include CA & SI and agroecology in the agriculture related policies, strategies and plans	At least 15 percent of strategic documents included CA & SI and agroecology terms	2022-2026	Executive Board	
	1.2.5. Enhance cooperation with DEAFF, GDA and MAFF to engage PDAFFs to conduct CA and SI extensions	At least 8 provinces where extensions conducted by PDAFFs *(strengthening the existing engagement in Battambang, Preah Vihear, Kampong Thom, and Kampong Cham, and scaling up to other 4 potential provinces including Siem Reap, Kampong Speu, Tboung Khmum, and Kratie)*	By 2026	Executive Board and Sub-committee on Promotion	
	1.2.6. Establish cooperation with MoE and NCSD by linking CA & SI and agroecology with NBSAP and NDC	Research-based policy briefs (produced and disseminated)	2022-2026	Executive Board with Sub-committee on R4D	
		CA & SI and agroecology applied at larger diversities of agroecosystems (100 hectares)	2022-2026		
	1.2.7. Liaise with existing policy dialogue platforms like Technical Working Group on Agriculture and Water, Technical Working on Climate Change in Agriculture, and National Dialogue on Sustainable Food System	Participation in the dialogue platforms = at least one time per platform per year	2022-2026	Executive Board and Sub-committee on Coordination and Networking	
1.3. Regional collaboration maintained and strengthened	1.3.1. Maintain current regional cooperation	Partnerships built with regional programs/platforms through conferences, workshops, trainings, study tours, joint research, etc.	2022-2026	Executive Board with relevant sub-committee	UN-CSAM, ASEA, ALiSEA, ASSET project and other existing regional networks
	1.3.2. Include expert groups to support capacity development of CASIC members and partners				

	1.3.3. Organize regional workshops / trainings / conferences	Regional workshops / trainings / conferences organized in collaboration with regional networks and/or partners	2023 & 2025	Sub-committee on R4D	
1.4. Financial sustainability reached	1.4.1. Develop a sponsorship strategy for event-based fundraising	Sponsorship strategy (completed)	2022 & 2024	Secretariat	Interested government agencies, private sector and relevant development partners **Private sector:** interested private companies
	1.4.2. Explore existing and new financial mechanisms with other government agencies, private sector and development partners	Potential financial mechanisms explored and utilized	2022-2026	Executive Board	
	1.4.3. Maintain voluntary institutional contribution from the Steering Committee and Executive Board	Annual contribution for CASIC operation	2022-2026	Executive Board	
	1.4.4. Study membership structure and benefits, more particularly the feasibility in enforcement at a later stage of CASIC development	Study on membership structure and fees (completed and decided)	2025-2026	Secretariat	
Strategic Objective 2: Knowledge and research on CA & SI and agroecology enhanced					
2.1. Research results compiled with technology transfer approach for target audiences	2.1.1. Develop CA & SI and agroecology database (or knowledge management system)	A CA & SI and agroecology database (or knowledge management system) up and running	By 2024	Sub-committee on Knowledge Management	**Development partners:** USAID, AFD, EU, SDC, CCCA, ADB, WB, GEF, GIZ, ACIAR, etc. **Academia:** PLNIA, KCNIA, NUBB, SRU, UHST, ITC, RUPP, etc. Research Institute: ERECON Society: ICERD, NCARD
	2.1.2. Develop technical and educational materials *(in collaboration with other sub-committees)*	Technical and educational materials readily available for trainings and academic purposes	2022-2026	Sub-committee on Knowledge Management	
	2.1.3. Share information via various platforms *(closely linked with promotion function)*	CA & SI and agroecology knowledge/information shared on various platforms and conferences	2022-2026	Sub-committee on Knowledge Management	
	2.1.4. Support the integration of CA & SI and agroecology into national curriculum	At least 1 program of curriculum integrating CA & SI and agroecology	By 2026	Sub-committee on Knowledge Management	

2.2. Research on different agroecosystems and new technologies to respond to climate resilience and economic motivation	2.2.1. Support mechanisms to identify research priorities and to continue researches	At least 4 researches/ technologies to be developed and rolled out	2022-2026	Sub-committee on R4D	**Government:** MAFF (Crop Seed Department, other research stations / centers) & MoE **Development partners:** USAID, AFD/FFEM, EU, SDC, CCCA, ADB, GEF, GRA **Academia:** local and international universities **Private sector:** machinery suppliers
	2.2.2. Support research, conservation and sharing of staple and cover crop seeds	At least 46 species and 216 varieties of staple and cover crop seeds conserved	2022-2026	Sub-committee on R4D in partnership with the Crop Seed Department of GDA and Swisscontact	
		At least 10 seed varieties shared with Technology Parks, universities and research centers			
		Contribution to the official registration of the cover crops species into the national portfolio			
	2.2.3. Support the testing and adaptation of appropriate-scale mechanization and technologies	Appropriate-scale mechanization and technology tested and validated (associated with R4D)	2022-2026	Sub-committee on R4D *(in collaboration with DAEng/GDA)*	
	2.2.4. Support the improvement of infrastructure and resources at Bos Khnor Station, other relevant research centers and universities	Bos Khnor promoted as a national research and training center on CA & SI and agroecology	2022-2026	Sub-committee on R4D in partnership with universities, PDAFF and GDA's departments	
		Research activities within other research stations and universities supported and promoted			
2.3. Zoning of strategic areas prioritized for CA & SI and agroecology practices	2.3.1. Conduct an agricultural land zoning assessment	An agricultural land zoning assessment report (completed and disseminated)	By 2024	Sub-committee on R4D	
Strategic Objective 3: CA & SI and agroecology services improved and scaled up					
3.1. An innovative extension model promoted	3.1.1. Promote an innovative extension model	Innovative extension model introduced and piloted	By 2022	Sub-committee on Promotion	**Development partners:** USAID, AFD, EU, SDC, CCCA, ADB, GEF, GIZ, ACIAR
	3.1.2. Conduct regular TOT trainings under the extension model	At least one TOT training per year	2022-2026	Sub-committee on Promotion	

	3.1.3. Work with government and donor-funded agriculture projects and programs	At least one orientation/training program on CA & SI and agroecology per year is introduced with agricultural projects and programs.	2022-2026	Sub-committee on Promotion *(with DEAFF to follow up the activity and result)*	**Projects/programs:** CHAIN, Harvest, CAVAC, ASPIRE, AIMS, ISA, S3, ASMC **Government:** local authorities
3.2. Awareness of stakeholders on CA & SI and agroecology enhanced	3.2.1. Produce promotional videos/materials and post them on media, websites, and social media	• Two videos per year • Four leaflets per year • Four newsletters per year • 200 relevant documents (including articles, etc.) uploaded in CASIC's website	2022-2026	Sub-committee on Promotion *(in coordination with other sub-committees, educational institutions, etc.)*	**Development partners:** USAID, AFD, EU, SDC, CCCA, ADB, GEF, GIZ, ACIAR
	3.2.2. Conduct round table discussions on TVs, radios, and social media platforms	Two TV/radio round table discussions per year	2022-2026	Secretariat with support from relevant sub-committees	
	3.2.3. Conduct regular agriculture fairs and field visits for relevant stakeholders	One agriculture fair and two field visits per year	2022-2026	Secretariat and Sub-committee on Coordination and Networking	
	3.2.4. Support the conducts of field demonstrations with agriculture cooperatives	One field demonstration per year	2022-2026	Sub-committees on Promotion and Coordination and Networking	
3.3. Investment from private sector actors in supporting / engaging in CA & SI and agroecology-based production systems	3.3.1. Conduct meetings/round-table discussions with and field visits for private sector	Two meetings/round-table discussions with private sector per year	2022-2026	Sub-committee on Coordination and Networking	**Development partners:** USAID, AFD, SDC, EU, & biodiversity / climate change financial mechanisms **Private sector:** business associations, financial institutions, input suppliers, and traders
	3.3.2. Support private sector to improve access of farmers to technologies, finance and market linkages				
	3.3.3. Support study on financial mechanisms to reward farmers and private sector for their CA and SI adoption and engagement	Financial rewarding mechanisms (finalized and introduced)	2022 & 2024	Sub-committee on R4D	

Appendix 3: Budget Estimates of CASIC Roadmap (2022-2026)

Expected Outputs	Priority Actions	Activities / milestones	Budget estimates (US$)						Remarks
			2022	2023	2024	2025	2026	Total	
Strategic Objective 1: To strengthen CASIC and coordinate relevant stakeholders			**46,000**	**85,000**	**46,000**	**88,000**	**46,000**	**311,000**	
1.1 CASIC strengthened and its sub-committees supported	1.1.1. CASIC meetings	Bi-annual Steering Committee meetings	1,500	1,500	1,500	1,500	1,500	**7,500**	
		Monthly Executive Board meetings	2,700	2,700	2,700	2,700	2,700	**13,500**	
		Quarterly sub-committee meetings	1,800	1,800	1,800	1,800	1,800	**9,000**	
	1.1.2. CASIC field visits	Two field visits per year of SC	6,000	6,000	6,000	6,000	6,000	**30,000**	
		Two field visits per year of EB	4,000	4,000	4,000	4,000	4,000	**20,000**	
1.2. Policy dialogues strengthened for CA & SI and agroecology integration and uptake	1.2.1. Economic impact assessment	Report on economic impact assessment and policy briefs	-	5,000	-	-	5,000	**10,000**	
	1.2.2. National public-private sector forums	Annual public-private sector forum	5,000	5,000	5,000	5,000	5,000	**25,000**	
	1.2.3. Cooperation with NAP-Secretariat	CA & SI and agroecology in response to NAP implementation	500	500	500	500	500	**2,500**	(a)
	1.2.4. MAFF policy integration	At least 15 percent of strategic documents included CA & SI and agroecology terms	500	500	500	500	500	**2,500**	
	1.2.5. Cooperation with DEAFF, GDA and MAFF on extensions	At least 8 provinces where extensions conducted by PDAFFs	3,000	3,000	3,000	3,000	3,000	**15,000**	(b)
	1.2.6. Cooperation with MoE and NCSD (NBSAP and NDC)	Research-based policy briefs	2,000	2,000	2,000	2,000	2,000	**10,000**	
		CA & SI and agroecology applied at larger diversities of agroecosystems	5,000	5,000	5,000	5,000	5,000	**25,000**	
	1.2.7. Existing policy dialogue platforms	Participation in specific platform at least one time per year	500	500	500	500	500	**2,500**	
1.3. Regional collaboration maintained and strengthened	1.3.1. Current regional cooperation	Partnerships built with regional programs/platforms through conferences, workshops, trainings, study tours, joint research, etc.	3,000	3,000	3,000	3,000	3,000	**15,000**	
	1.3.2. Expert groups for capacity development		1,500	1,500	1,500	1,500	1,500	**7,500**	

	1.3.3. Regional workshops / trainings / conferences	Workshops/trainings/conferences organized with regional networks/partners	-	30,000	-	30,000	-	**60,000**	
1.4. Financial sustainability reached	1.4.1. Sponsorship strategy	Sponsorship strategy (report)	5,000	-	5,000	-	-	**10,000**	
	1.4.2. Financial mechanisms with other government agencies, private sector and development partners	Potential financial mechanisms explored and utilized	1,000	10,000	1,000	10,000	1,000	**23,000**	(c)
	1.4.3. Voluntary institutional contribution from the SC & EB	Annual contribution for CASIC operation	3,000	3,000	3,000	3,000	3,000	**15,000**	
	1.4.4. Membership structure and benefits	Feasibility study on membership structure and fees	-	-	-	8,000	-	**8,000**	
Strategic Objective 2: Knowledge and research on CA & SI and agroecology enhanced			**102,000**	**142,000**	**142,000**	**142,000**	**182,000**	**710,000**	
2.1. Research results compiled with technology transfer approach for target audiences	2.1.1. CA & SI and agroecology database	A database (or knowledge management system) up and running	3,000	3,000	3,000	3,000	3,000	**15,000**	
	2.1.2. Technical and educational materials	Technical and educational materials for trainings and academic purposes	3,000	3,000	3,000	3,000	3,000	**15,000**	
	2.1.3. Information sharing	Related knowledge/information shared on various platforms and conferences	1,000	1,000	1,000	1,000	1,000	**5,000**	
2.2. Research on different agroecosystems and new technologies to respond to climate resilience and economic motivation	2.2.1. Mechanisms to identify research priorities and continue researches	At least 4 researches/ technologies to be developed and rolled out	10,000	-	-	10,000	-	**20,000**	(d)
	2.2.2. Support research, conservation and sharing of staple and cover crop seeds	At least 46 species and 216 varieties of staple and cover crop seeds conserved	3,000	3,000	3,000	3,000	3,000	**15,000**	
		At least 10 seed varieties shared with Technology Parks, universities and research centers	1,000	1,000	1,000	1,000	1,000	**5,000**	
		Contribution to the official registration of the cover crops species	3,000	3,000	3,000	3,000	3,000	**15,000**	

	2.2.3. Appropriate-scale mechanization and technologies	Appropriate-scale mechanization and technology tested and validated (associated with R4D)	8,000	8,000	8,000	8,000	8,000	**40,000**	(e)
	2.2.4. Improvement of R4D infrastructure and resources	Bos Khnor promoted as a national research and training center on CA & SI and agroecology	50,000	100,000	100,000	100,000	150,000	**500,000**	(f)
2.3. Zoning of strategic areas prioritized for CA & SI and agroecology practices	2.3.1. Conduct an agricultural land zoning assessment	An agricultural land zoning assessment report (completed and disseminated)	20,000	20,000	20,000	10,000	10,000	**80,000**	(g)
Strategic Objective 3: CA & SI and agroecology services improved and scaled up			**61,700**	**44,700**	**44,700**	**58,700**	**44,700**	**254,500**	
3.1. An innovative extension model promoted	3.1.1. Innovative extension model	Innovative extension model introduced and piloted	10,000	-	-	10,000	-	**20,000**	
	3.1.2. Regular TOT trainings under the extension model	At least one TOT training per year	5,000	5,000	5,000	5,000	5,000	**25,000**	
	3.1.3. Working with government & donor-funded agriculture projects and programs	At least one orientation/training program on CA & SI and agroecology per year is introduced with agricultural projects and programs.	5,000	5,000	5,000	5,000	5,000	**25,000**	
3.2. Awareness of stakeholders on CA & SI and agroecology enhanced	3.2.1. Promotional videos/materials and post them on media, websites, and social media	Two videos per year	5,000	3,000	3,000	3,000	3,000	**17,000**	(h)
		Four leaflets per year	1,000	1,000	1,000	1,000	1,000	**5,000**	(i)
		Four newsletters per year	1,000	1,000	1,000	1,000	1,000	**5,000**	(j)
		200 relevant documents (including articles) uploaded in CASIC's website	1,200	1,200	1,200	1,200	1,200	**6,000**	(k)
	3.2.2. Round table discussions	Two TV/radio round table discussions per year	3,000	3,000	3,000	3,000	3,000	**15,000**	

	3.2.3. Regular agriculture fairs and field visits for relevant stakeholders	One agriculture fair and two field visits per year	10,000	10,000	10,000	10,000	10,000	**50,000**	
	3.2.4. Field demonstrations with agriculture cooperatives	One field demonstration per year	3,500	3,500	3,500	3,500	3,500	**17,500**	(l)
3.3. Investment from private sector actors in supporting / engaging in CA & SI and agroecology-based production systems	3.3.1. Meetings/round-table discussions with and field visits for private sector	Two meetings/round-table discussions with private sector per year	2,000	2,000	2,000	2,000	2,000	**10,000**	
	3.3.2. Supporting private sector to improve access of farmers to technologies, finance & market linkages		10,000	10,000	10,000	10,000	10,000	**50,000**	
	3.3.3. Support study on financial mechanisms to reward farmers and private sector for their CA and SI adoption and engagement	Financial rewarding mechanisms (report)	5,000	-	-	4,000	-	**9,000**	(m)
TOTAL			**209,700**	**271,700**	**232,700**	**288,700**	**272,700**	**1,275,500**	

Remarks:

(a) Budget for meetings and supporting participation in NAP-related events;

(b) Budget for the Secretariat to support the Sub-committees' work on extension;

(c) Budget for general support and studies in 2023 and 2025;

(d) Budget to support the Sub-committee to conduct R4D (not full costs of activities);

(e) Budget to support the sub-committee to conduct research on appropriate scale of mechanization;

(f) Estimated costs of required infrastructure investment (according to the CASC/Bos Khnor Strategic Plan);

(g) Budget for fieldworks and meetings;

(h) In-house resources of DEAFF making videos for posting on social media and website (not including CDs for distribution);
(i) Budget for leaflet production and printing 200 copies (50 copies per topics);
(j) Budget for newsletter production and printing 200 copies (50 copies per newsletter);
(k) Budget for internet and Facebook page boosting (US$200), domain and hosting fees (US$500), and security ($500);
(l) Budget for around 30-40 participants;
(m) Budget to support the facilitation for the study (not the full costs).

Appendix 4: List of Consulted Key Informants

No	Company/Institution	Contact Person	Position
	Private Sector		
1	Kong Nuon Group	Mr. Nguon Bunna	General Manager
2	Larano	Mr. Ouchoem Lorano	Owner
3	SmartAgro	Mr. Marc Eberle	Executive Director
4	Harvest Center	Mr. En Leap	Spare Part and Supply Chain Manager
5	Angkor Green	Mr. Chan Sopheak	Managing Director
6	Acleda Bank	Ms. So Phonnary	Senior Executive Vice President and Group COO
7	Amret	Mr. Sroem Roatha	Deputy Head - Product Development
8	Cambodia Rice Federation (CRF)	Mr. Lun Yeng	Secretary General
9	Natural Garden	Mr. Thai Rithy	General Manager
10	Khmer Organic Cooperative (KOC)	Mr. Noun Tum	Partnership and Business Development Management
11	REMIC	Mr. Lang Seng Horng	General Manager
12	Tropicam	Oknha Hun Lak	CEO
13	Amru Rice	Mr. Kann Kuthy	Vice President
14	Betamore (Bayon Cereal)	Mr. Yon Sovann	CEO
	Development Partners and Development Agencies / Individuals		
1	AFD - Regional Hub of Bangkok	Ms. Naomi Noel	Regional Task Team Leader, Agriculture, Rural Development and Biodiversity Division
	AFD - Phnom Penh office	Mr. Moung Sideth	Head of Unit, Agriculture, Rural Development, Infrastructure, Environment
2	USAID / Cambodia	Dr. Theng Vuthy	Project Management Specialist - Agriculture / Economy, Office of Food Security & Environment (FSE)
		Mr. Ke Sam Oeurn	
3	SDC	Mr. Markus Burli	Director of Cooperation
		Mr. Hem Sovannarith	Program Manager - Agriculture and Food Security
4	EU Delegation to Cambodia	Mr. Aymeric Roussel	Attaché, NRM – Rural Development
		Mr. Kiet Lenghour	Program Officer
		Ms. By Sokunthea	Program Officer
5	FAO - Regional office in Bangkak	Dr. Pierre Ferrand	Agriculture Officer (Agroecology), Regional Focal Point for Family Farming, Agriculture and Food System Support Group
6	FAO - Phnom Penh office	Mr. Iean Russel	Senior Policy Advisor
		Mr. Ly Proyuth	Planning, Monitoring and Reporting Specialist
7	ADB	Mr. Hem Chanthou	Senior Project Officer - Agriculture and Natural Resources
8	GIZ	Ms. Hanna Bartels	Advisor
9	CIRAD - Vietnam	Dr. Mélanie Blanchard	Researcher - UMR Selmet

		Mr. Pascal Lienhard	Agronomist/Researcher, AIDA research unit
10	GRET - Laos	Ms. Lucie Reynaud	Regional Coordinator / ASSET Coordinator
11	CSAM / UN-ESCAP	Ms. Feng Yuee	Program Coordinator
		Mr. Anshuman Varma	Programme Officer and Deputy Head
12	Kansas State University	Dr. Manny Treyes	Research Professor, Agroecological Engineer, and SIIL Coordinator (CE SAIN)
13	Global Research Alliance (GRA)	Dr. Hayden Montgomery	Special Representative, GRA on Agricultural GHG
		Dr. Alison Watson	Consultant (investment planning in ASEAN region)
14	Consultant	Dr. Jean-Marie Brun	Consultant
15	Consultant	Dr. Kong Rada	In charge of ASSET project, based in DALRM/GDA
	Government Entity		
1	National Council for Sustainable Development / Ministry of Environment	Ms. Khlok Vichet Ratha	Deputy Director, Climate Change Department
		Mr. Leang Sophal	Chief of GHG Office, Climate Change Department
		Mr. Heng Sovanchandara	GHG Mitigation Officer, CCCA
		Ms. Tieng Thida	Adaptation Officer, CCCA
		Ms. Niina Kylliainen	Technical Advisor, CCCA