The Economics of Ecosystems and Biodiversity (TEEB)
for Agriculture and Food: Malaysia

The Impacts of MyGAP Certification among Farmers in Cameron Highlands

TEEBAgriFood Asia, Africa and Europe Regional Symposium

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Introduction

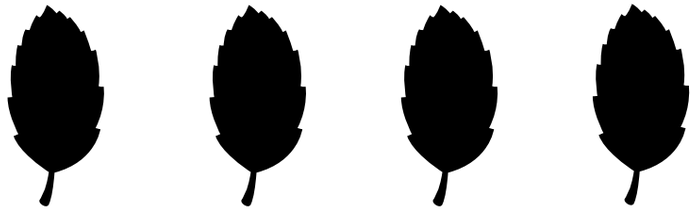
General overview

Environmental issues in Cameron Highlands are closely related to the clearance of forests or deforestation, conversion for agriculture, settlements and other forms of development
(Rahim & Samah, 2016)

Large-scale agricultural farms & uncontrollable hillside cultivations are said to be the main contributor to natural resources degradation

Changes in land use (ha) for farms & industrial equipments is estimated to reach more than 9,000 ha; as recorded 1990 (4,942 ha) to 2006 (8,772 ha)

A total of over 42% of agricultural areas in Cameron Highlands cultivated on slopes greater than 25°, which is the maximum extent permitted by law



Unsustainable agricultural & other economic activities

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Landslides, flash-floods environmental degradation

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-ve impact towards safety and economy (livelihood)

↓

Require policy changes

Introduction

Problem statement & justification of the study

Unsustainable agricultural & other economic activities

Landslides, flash-floods environmental degradation

-ve impact towards safety and economy (livelihood)

Concerns about impacts of the highland agricultural system (vegetable farming) and affected the economic, ecosystem and biodiversity of Cameron Highlands. Vegetable crops are a priority food sector and many key concerns for the region were identified, including the application of intensive chemical inputs, rise in diet-related chronic disease, water pollution, flooding, deforestation and land degradation.

Require policy changes

Why MyGAP?

- In line with the Ministry of Agriculture & Food Industries through Department of Agriculture (DOA) mission to equip the farmers with MyGAP certification

- Elements in MyGAP have been studied and hypothetically should impact to the improvement in environmental quality

Introduction

Objectives of the study

1. To measure, and evaluate the costs and benefits of agricultural activities, in Cameron Highlands taking into account the 'baseline scenario' as a basis

2. To assess the impact of MyGAP certification on future ecosystems and agro biodiversity in Cameron Highlands through several scenario suggestions

3. To assess the value of ecosystem services such as soil fertility, erosion control, water quality and quantity, non-market benefits such as biodiversity and carbon uptake, and the impact of agricultural pollution, under different policy or regulatory scenarios.

4. To identify and propose policies and programs for the enhancement of MyGAP certification to support agricultural sustainability in Cameron Highlands.

Introduction

What is MyGAP certification?

Certification scheme designed and implemented since 2002 by the Department of Agriculture to acknowledge farms that practice good agricultural practices to produce safe and quality food, sustainable, and ensure the safety and welfare of workers.

- Traceability
- Record keeping and auditing
- Site History and site managemant
- Planting Material and Root Stocks
- Soil and Substrate Management
- Fertilizer management
- Water Management
- Crop protection
- Harvesting
- Post harvest handling
- Packaging
- Pesticide Residue Analysis of Produce
- Waste and Pollution Management
- Workers Welfare
- Environmental Issues
- Records of complaints
- Recall/withdrawal procedure

Source: Department of Agriculture (2022)

Introduction

MyGAP certification: Brief status

Food safety

Health & welfare

Product quality

Environmental sustainability

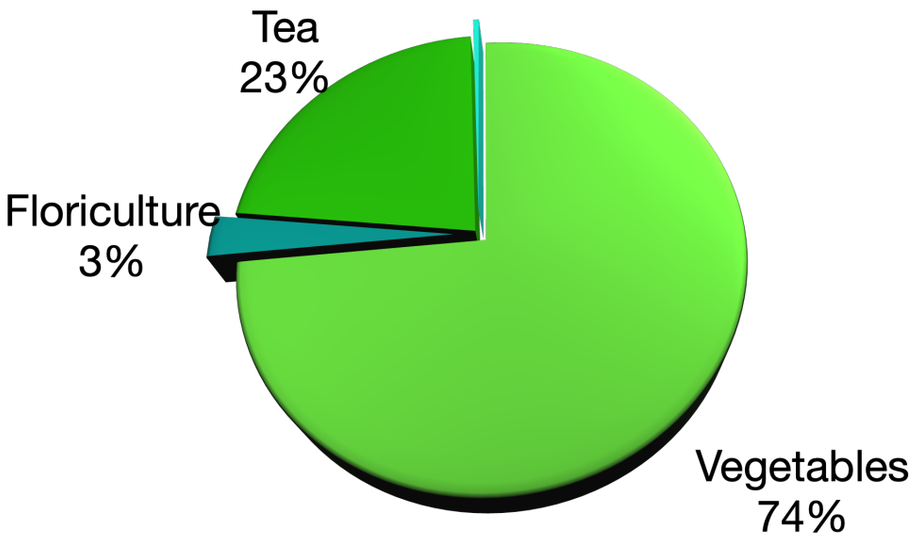

Figure 1. Major crops in Cameron Highlands

Total agriculture area = 7,382

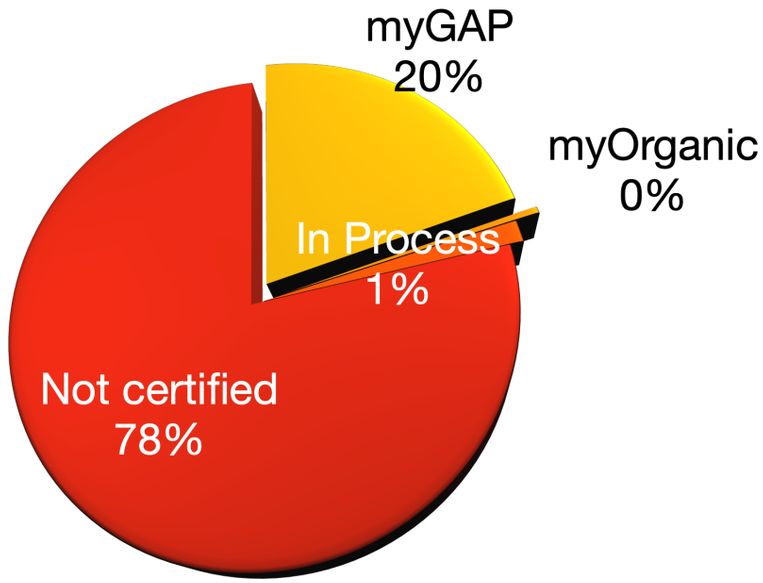

Figure 2. Current MyGAP status in Cameron Highlands

Source: Department of Agriculture (2022)

Introduction

MyGAP certification: The elements

MyGAP items selection based on the weightage from Department of Agriculture (DOA) + related previous studies

Mandatory - main

- 31/179 elements are obligatory
- Established as main factors to improve the environment & condition in Cameron Highlands except for few elements

Mandatory - not primary

- 62/179 elements are obligatory but not primary
- Important elements to be identified - consideration to be as main parameters in the study

Encouraged

- 86/179 elements are encouraged to be fulfilled by applicants
- Important elements to be identified - consideration to be as main parameters in the study

Source: Department of Agriculture (2022)

Conceptual Framework

General structure

Combination of technical and social science exercises to internalise both marketable & non-marketable values

Objective 2: Impact

System dynamics

Objective 1: Evaluate cost & benefit

Cost-benefit analysis

Choice experiment

Objective 3: Value

Baseline Scenario

Deterioration & degradation

→

MyGAP certification

Mandatory - main

Mandatory - not primary

Encouraged

→

Alternative

Improved condition

Technical exercise & analysis

Objective 2 & 3: Quantitative impact

Objective 4: Policies & programs for MyGAP enhancement

Conceptual Framework

Annex II

Item	Agricultural Production		Manufacturing & Processing	Distribution & Marketing	Household Consumption
	Landscape	Farm			
Stock/Outcomes (Change in capital)					
Natural capital	Sub-items: Soil (type/structure), vegetation cover, habitat (connectivity), water (stock), biodiversity, stored carbon				
Produced capital	Sub-items: Infrastructure, R&D, technology (equipment), financial capital				
Human capital	Sub-items: Education (skills), workforce, health				
Social capital	Sub-items: Rights & empowerment, social cooperation & governance, Institutions & agencies, rule of law (e.g. land tenure)				
Flows/Impacts					
Agriculture, forest & livestock outputs	Sub-items: Food products, timber products, income (jobs), profit (businesses)				
Purchased inputs	Sub-items: Energy (fuel, electricity), fertilizer-pesticides-tools, transportation				
Ecosystem services	Sub-items: Water quality & quantity (seasonal), soil fertility, pollination, carbon sequestration, ecotourism				
Residuals	Sub-items: Pollution, solid waste (agricultural waste), GHG emissions				

Conceptual Framework

Studies vs Annex II

Item	Agricultural Production		Manufacturing & Processing	Distribution & Marketing	Household Consumption
	Landscape	Farm			
Stock/Outcomes (Change in capital)					
Natural capital	1. Soil characteristics in Cameron Highlands 2. Land cover in Cameron Highlands 3. Water quality in Cameron Highlands 4. Contamination profile of pesticide residues in rivers of in Cameron Highlands				
Produced capital	1. Economic evaluation on the impact of MyGAP in Cameron Highlands 2. Focus group discussion on MyGAP implementation in Cameron Highlands				
Human capital	1. Overview on human capital development in Cameron Highlands				
Social capital	1. Impact of MyGAP towards social capital in Cameron Highlands				
Flows/Impacts					
Agriculture, forest & livestock outputs	1. Economic evaluation on the impact of MyGAP in Cameron Highlands				
Purchased inputs	1. Economic evaluation on the impact of MyGAP in Cameron Highlands				
Ecosystem services	1. Water quality status in Cameron Highlands 2. Soil quality status in Cameron Highlands 3. Evaluation of pollinators abundance and diversity for selected farming systems in Cameron Highlands 4. Evaluation of carbon footprints for selected farming system in Cameron Highlands				
Residuals	1. Pesticide residue study of myGAP farms in Cameron Highlands 2. Agricultural waste generated from Cameron Highlands				

Conceptual Framework

What to expect?

1

Quantify and value of future benefits and costs to farmers, surrounding communities, and the value chain impacts to agro-processors, distributors or input suppliers was evaluated

2

How natural capital contributes to agri-food value chains and how in turn agri-food value chains may impact natural capital stocks and biodiversity in the future was identified

3

The impacts on ecosystem and biodiversity from changes under each policy scenario, relative to current business-as-usual trends was evaluated

4

A policy strategy based on a theory of change will engage with government and other stakeholders was developed as a guide to a policy maker as well as recommendations on improving the livelihoods

Thank you