Building agricultural resilience to climate change impacts: Describing two projects undertaken in Australia and in the Pacific

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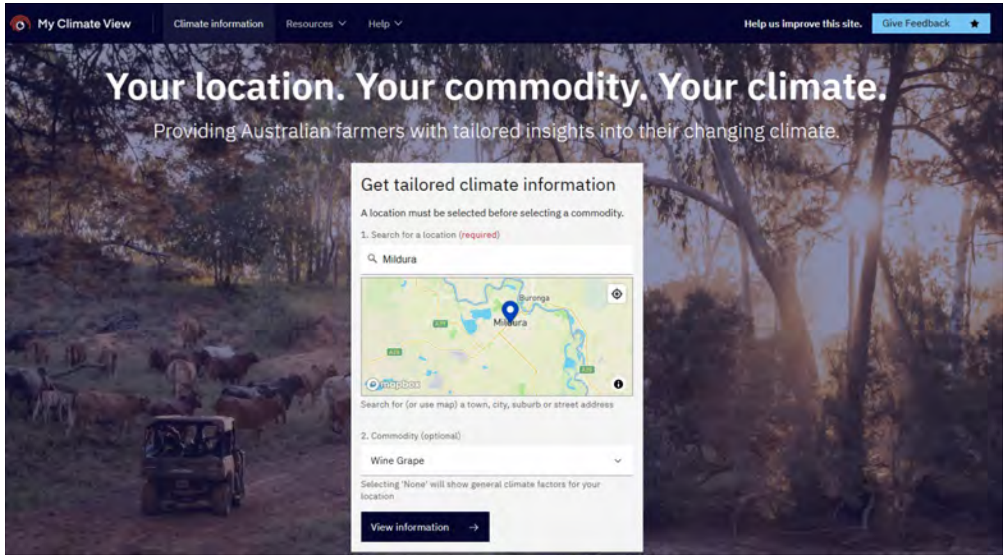
Comparison of projects undertaken in Australia and Vanuatu

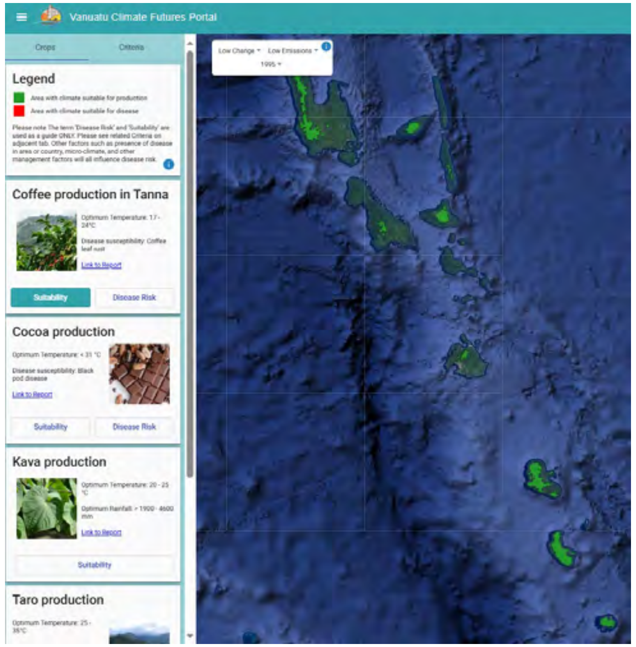
Australia: My Climate View



Targets farm management planning through helping farmers understand the future climate in relation to their location and commodity.

My Climate View

Vanuatu: Van-KIRAP



Aims to build technical capacity and deliver information and tools through application climate information into five targeted development sectors:

- **Agriculture**
- Tourism
- Infrastructure
- Water
- Fisheries

Shared objectives in relation to Agriculture

Both projects shift the paradigm towards standardised use of science-based information to inform planning decisions under changing climate conditions.

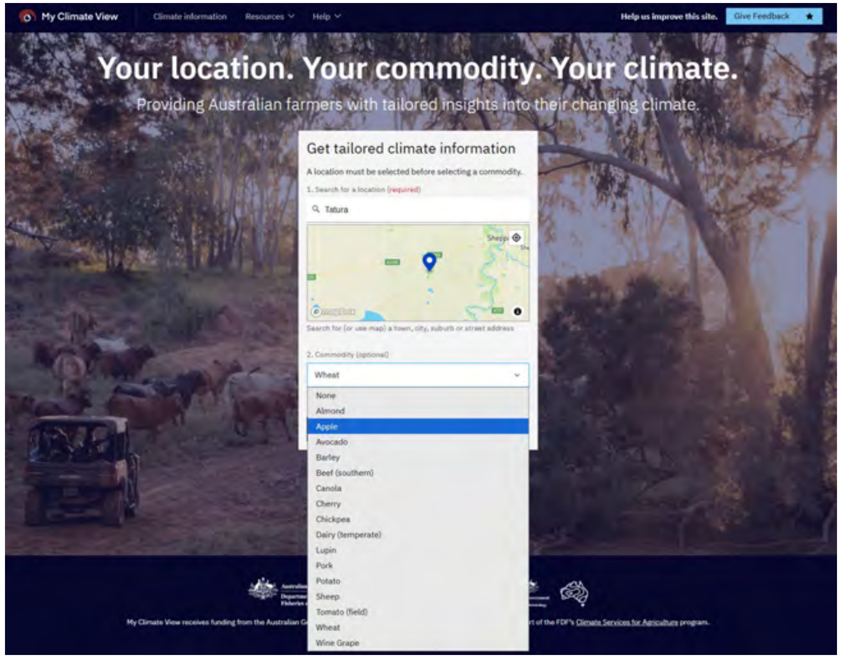
Both have web-based portal delivery.

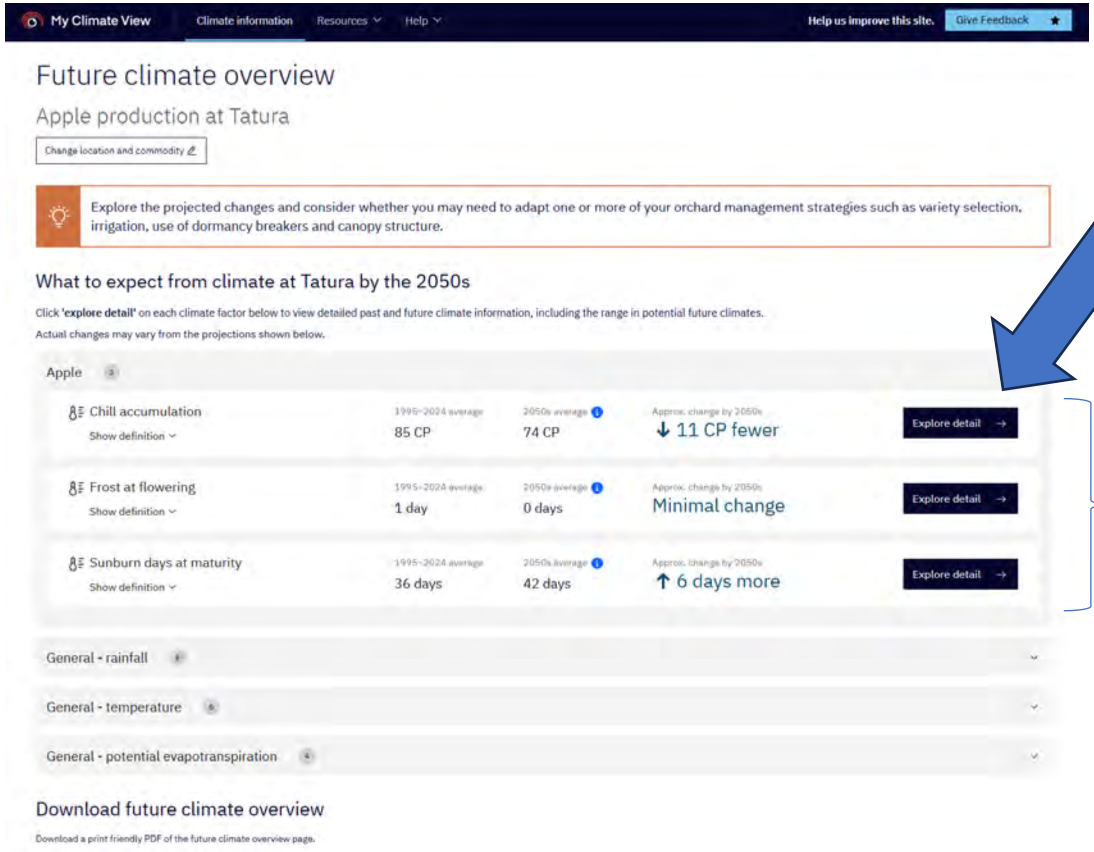
Application of climate science principles were broadly similar across both projects:

- Designed for multiple future timescales (e.g. 2030, 2050)
- Range of emissions scenarios: low, medium and high
- Range of climate model output explored

My climate view example output

Apples in Tatura (central Victoria)





3. 'Snapshot'

Data shown for 2050s

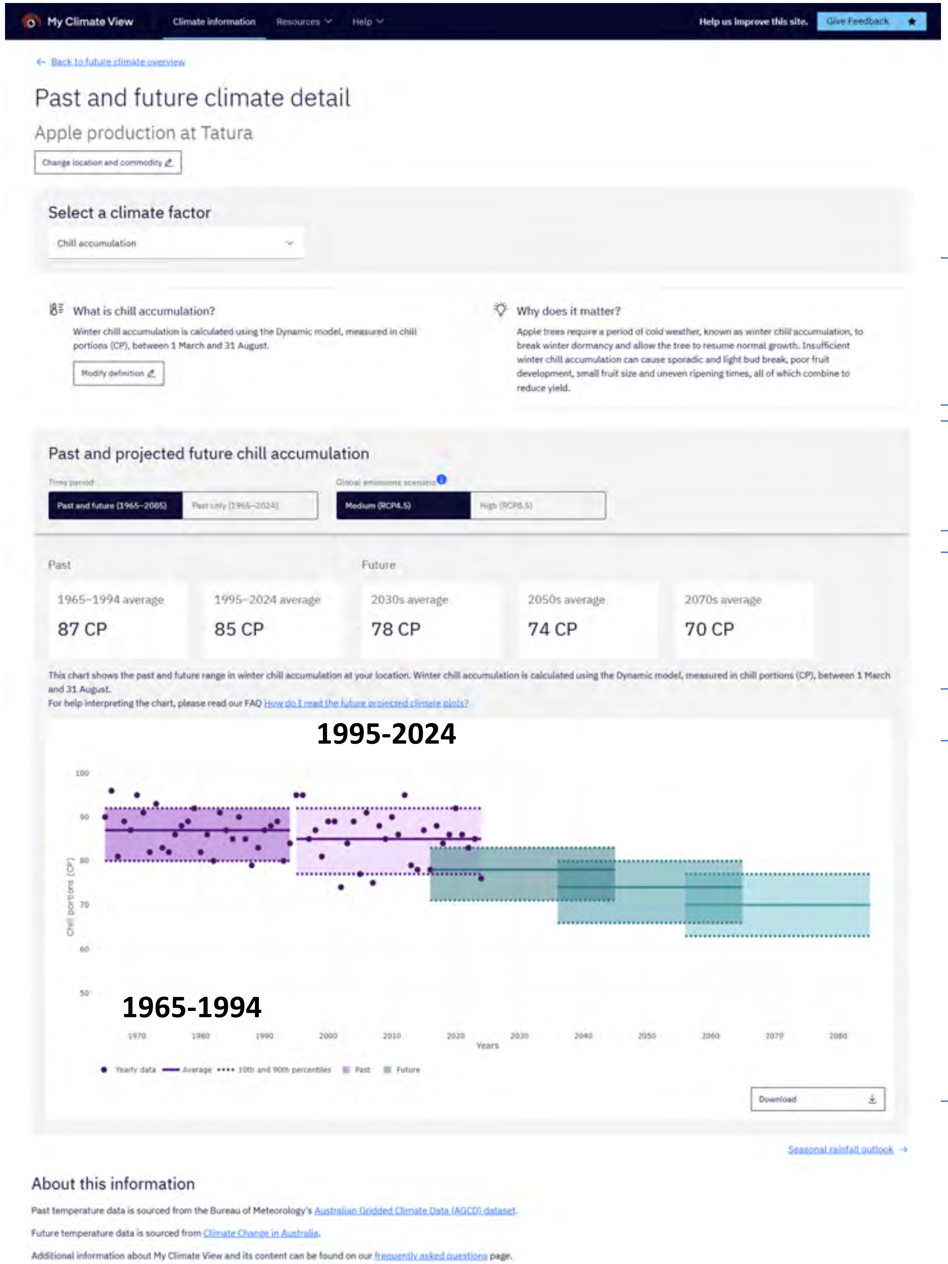
- Median results
- Medium emissions

Tailored climate risks for apple include:

- Chill accumulation
- Frost at flowering
- Sunburn days at maturity

1. **Choose your location**
2. **Choose commodity from curated list**
   - no apple option for tropical regions
   - no banana option for cooler areas

My climate view example output



4. **Explore detail**

- Chill accumulation

Limited text information to describe the climate risk and why it is included

Data presentation settings (bold is depicted):

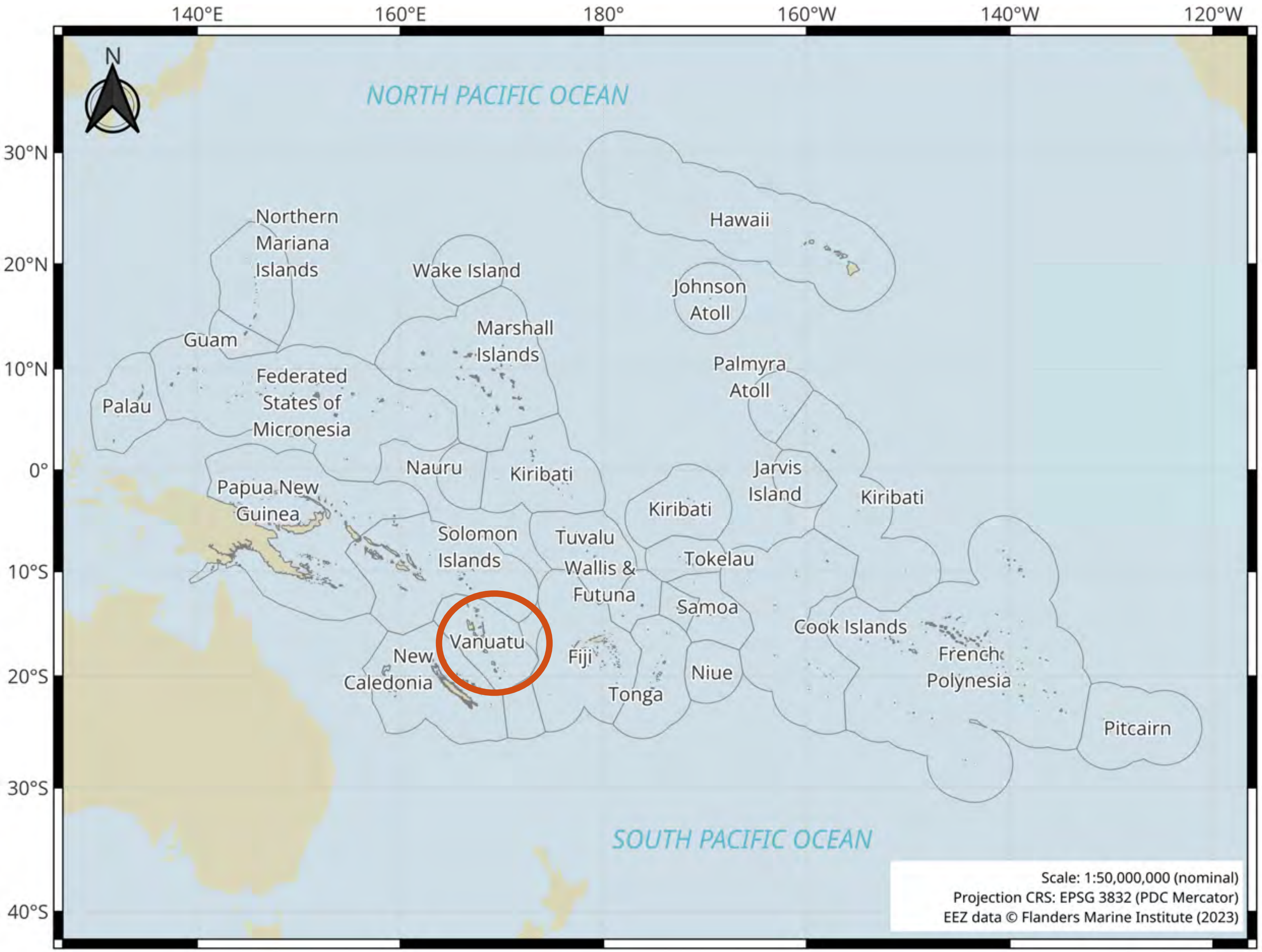
- historical only or **historical & future**
- emission scenarios (**medium** and high)

Data median through time

- consistent with summary page

- Past (2 periods; purple) Future (3 periods; green)
- Purple dots = observations
- Model range = width of bands

Vanuatu:


140°E
160°E
180°
160°W
140°W
120°W
30°N
20°N
10°N
0°
10°S
20°S
30°S
40°S
N
NORTH PACIFIC OCEAN
Northern Mariana Islands
Wake Island
Hawaii
Johnson Atoll
Guam
Marshall Islands
Palmyra Atoll
Federated States of Micronesia
Palau
Nauru
Kiribati
Jarvis Island
Papua New Guinea
Kiribati
Kiribati
Solomon Islands
Tuvalu
Tokelau
Wallis & Futuna
Samoa
Cook Islands
Vanuatu
New Caledonia
Fiji
Niue
Tonga
French Polynesia
Pitcairn
SOUTH PACIFIC OCEAN
Scale: 1:50,000,000 (nominal)
Projection CRS: EPSG 3832 (PDC Mercator)
EEZ data © Flanders Marine Institute (2023)


PLANT HEALTH CLINIC TRAINING

Vanuatu agriculture sector: Case studies and mapping tool

Four agriculture sector related case studies

Coffee | **Cocoa** | **Root Crops** | **Banana, Kava, Coconut**


CLIMATE CHANGE IMPACTS ON COFFEE IN VANUATU

AGRICULTURE

STEP 1 Understand the context and scope

STEP 2 Engage and meet with stakeholders

STEP 3 Explore relevant background information and historic climate data


CLIMATE CHANGE IMPACTS ON COCOA PRODUCTION IN VANUATU

AGRICULTURE

STEP 1 Understand the context and scope

STEP 2 Engage and meet with stakeholders

STEP 3 Explore background information and historic climate data

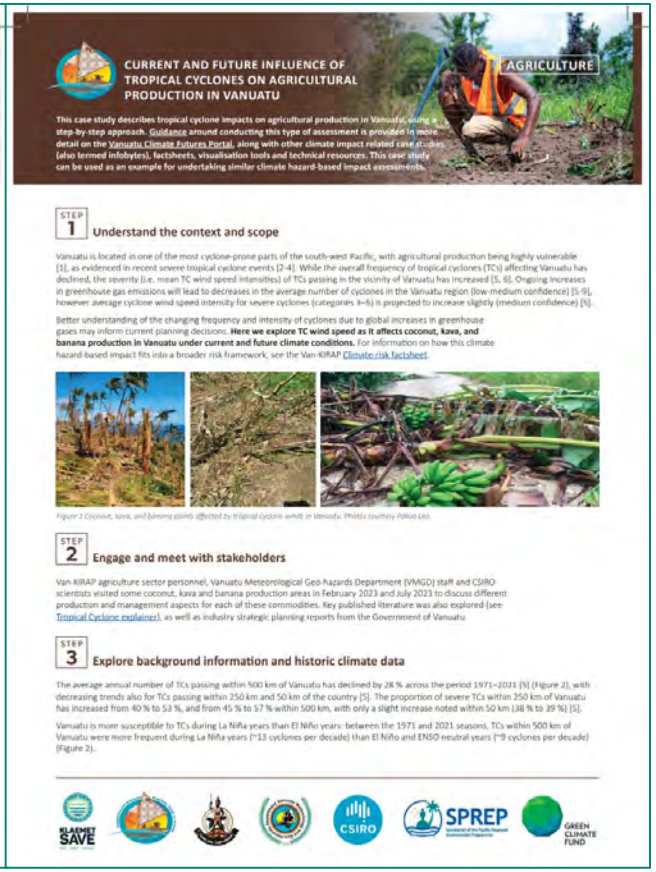

CLIMATE CHANGE IMPACTS ON ROOT CROP PRODUCTION IN VANUATU

AGRICULTURE

STEP 1 Understand the context and scope

STEP 2 Engage and meet with stakeholders

STEP 3 Explore background information and historic climate data


CURRENT AND FUTURE INFLUENCE OF TROPICAL CYCLONES ON AGRICULTURAL PRODUCTION IN VANUATU

AGRICULTURE

STEP 1 Understand the context and scope

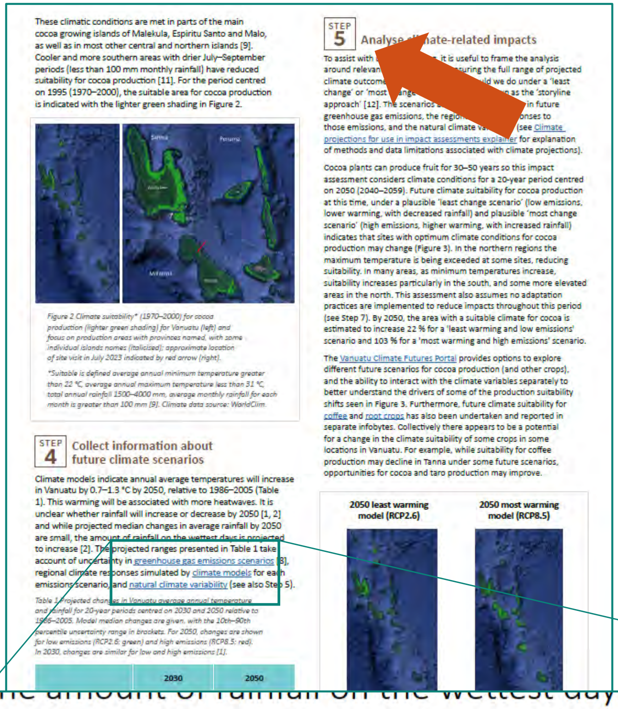
STEP 2 Engage and meet with stakeholders

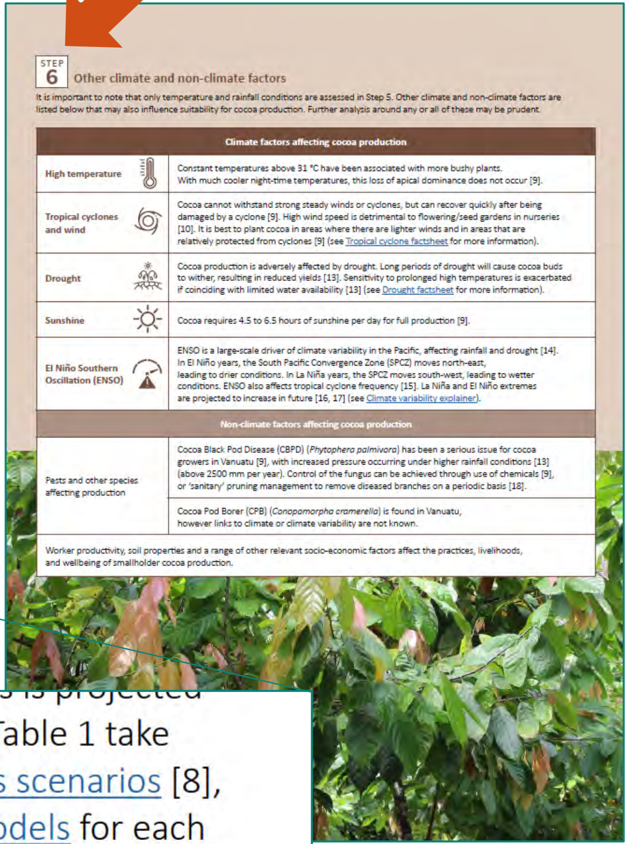
STEP 3 Explore background information and historic climate data

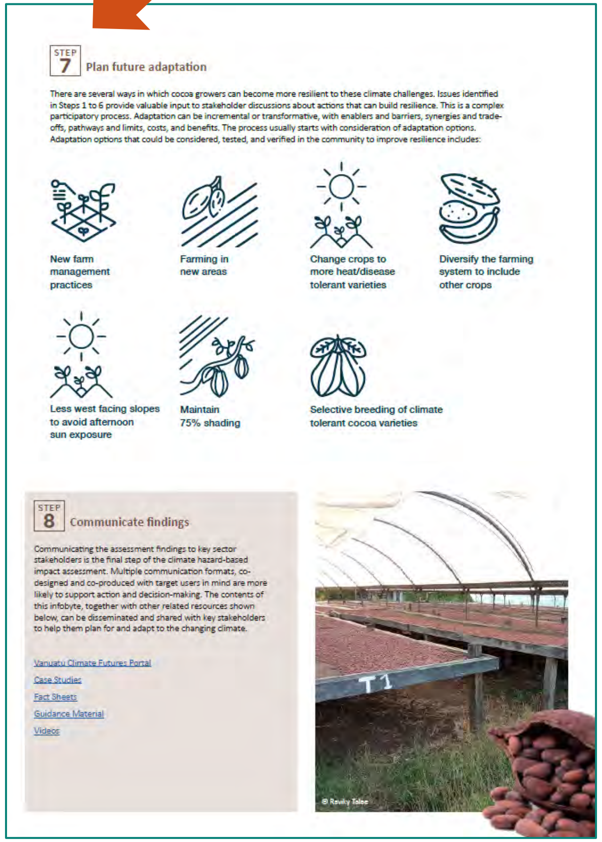
Temperature | **Temperature Rainfall** | **Temperature** | **Tropical Cyclones**

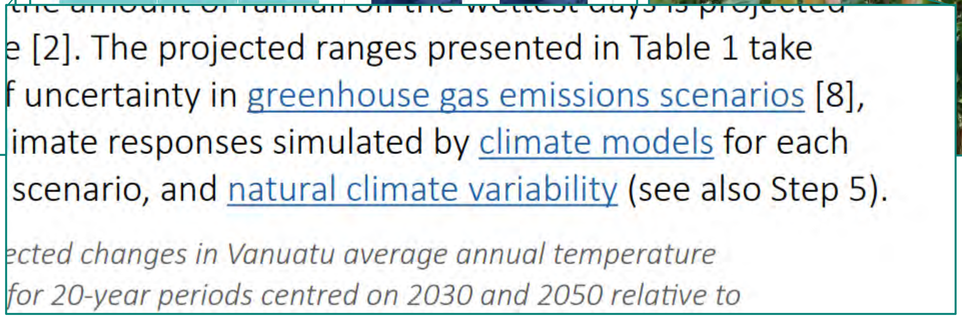
Vanuatu agriculture sector: Case studies and mapping tool

Case studies: Cocoa



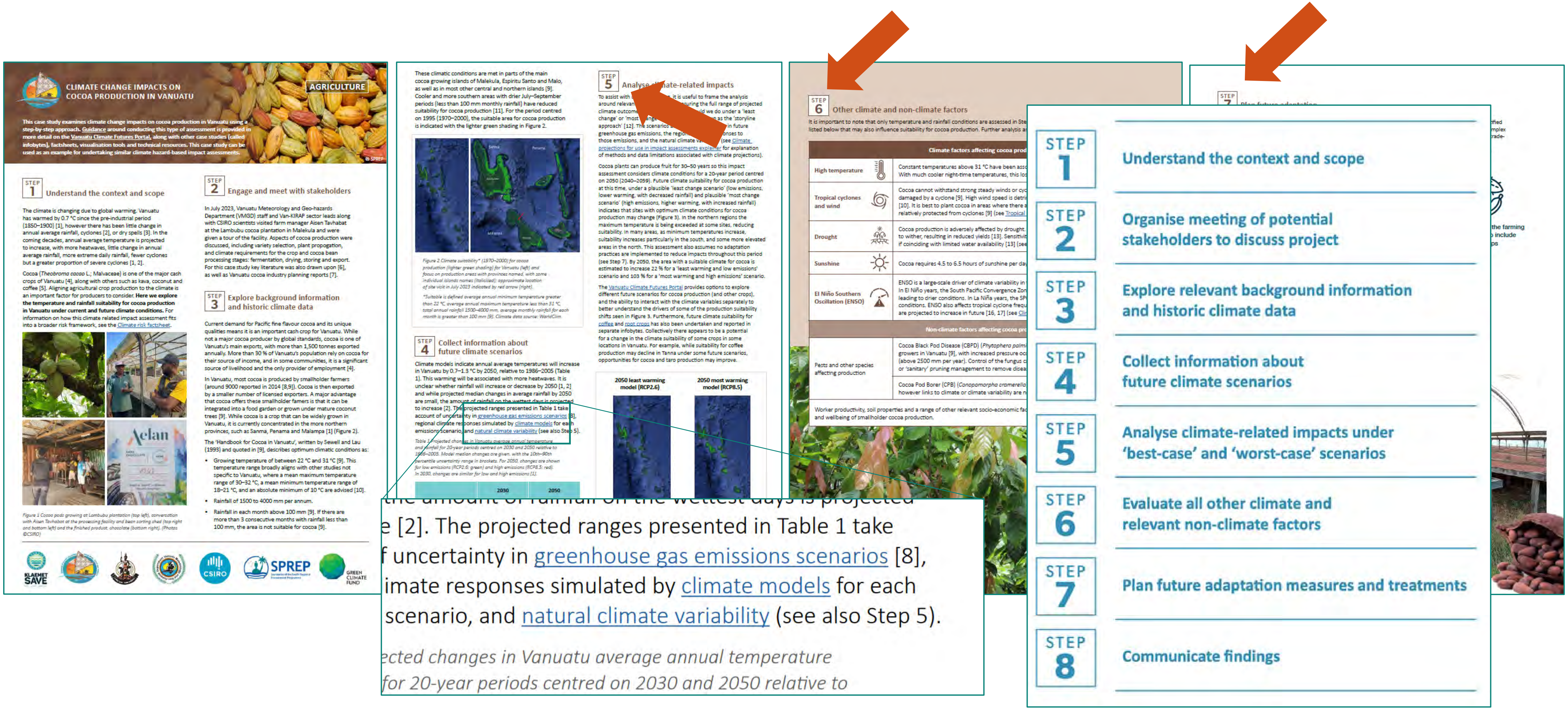






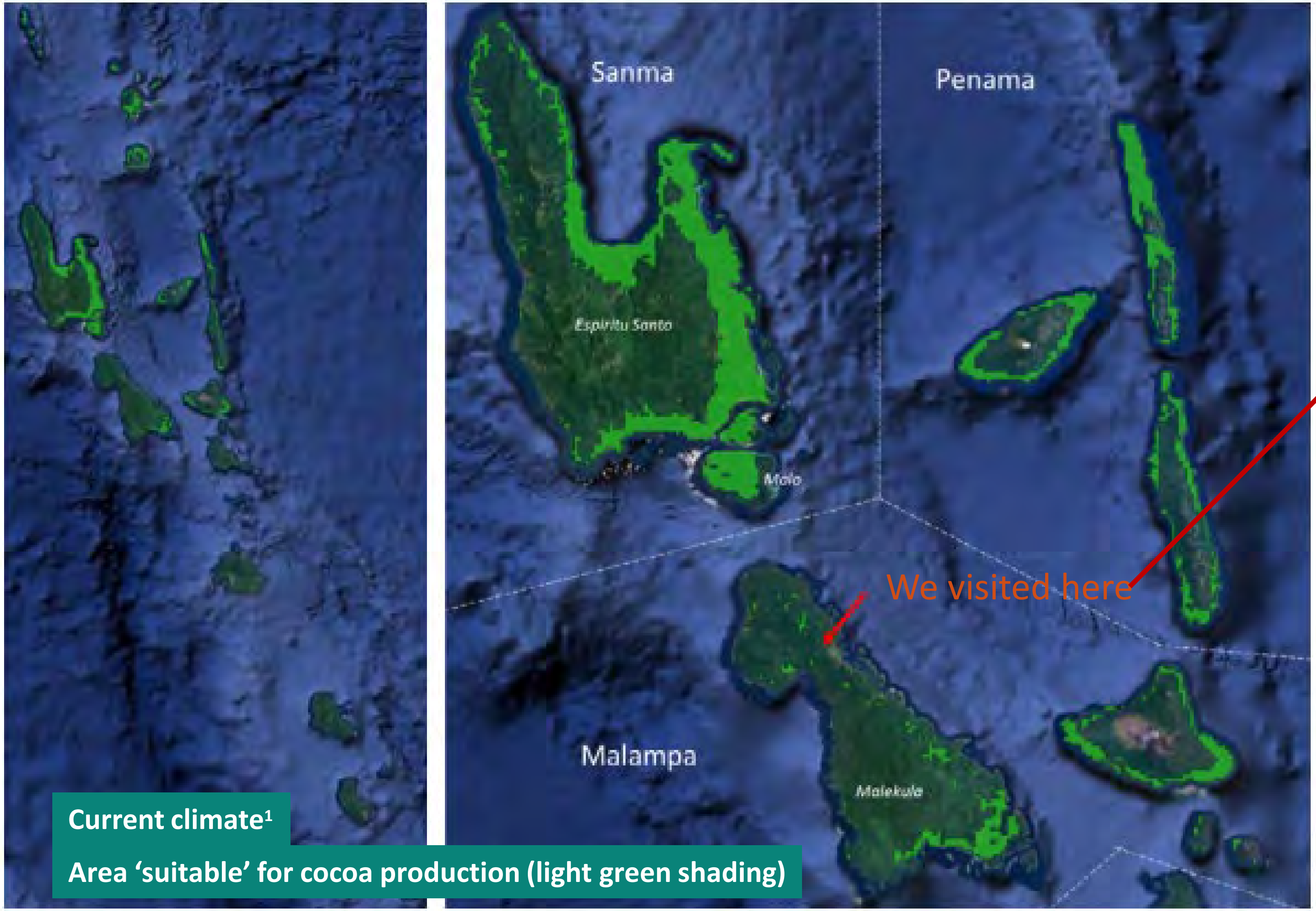
Vanuatu agriculture sector: Case studies and mapping tool

Case studies: Cocoa



Vanuatu agriculture sector: Case studies and mapping tool

Mapping tools: Cocoa



Current climate[1]

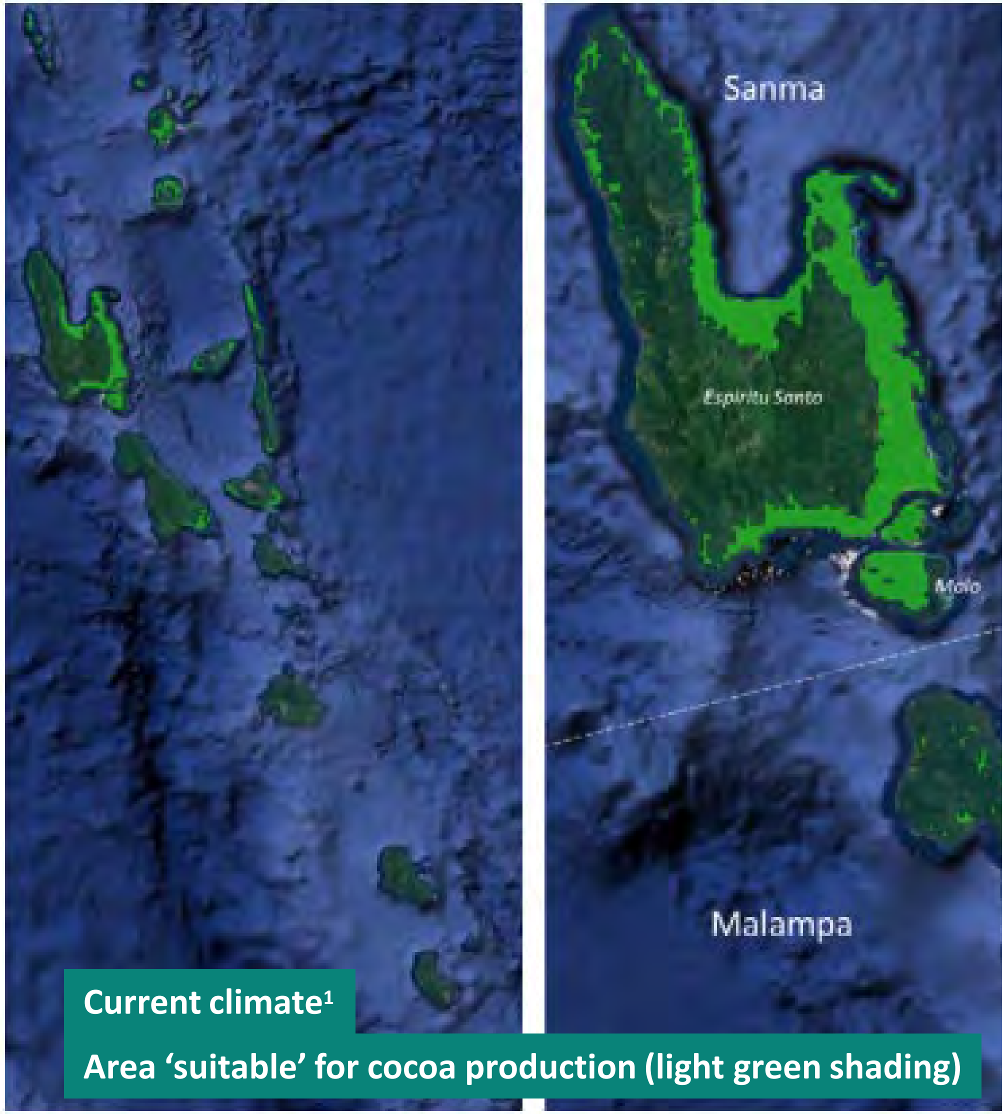
Area ‘suitable’ for cocoa production (light green shading)

‘Suitable’ for Cocoa is defined

- Not too hot:
  - average annual maximum temperature less than 31 °C
- Not too cold:
  - average annual minimum temperature greater than 22 °C
- total annual rainfall 1500–4000 mm
- average monthly rainfall for each month is greater than 100 mm

[1]WorldClim climatology

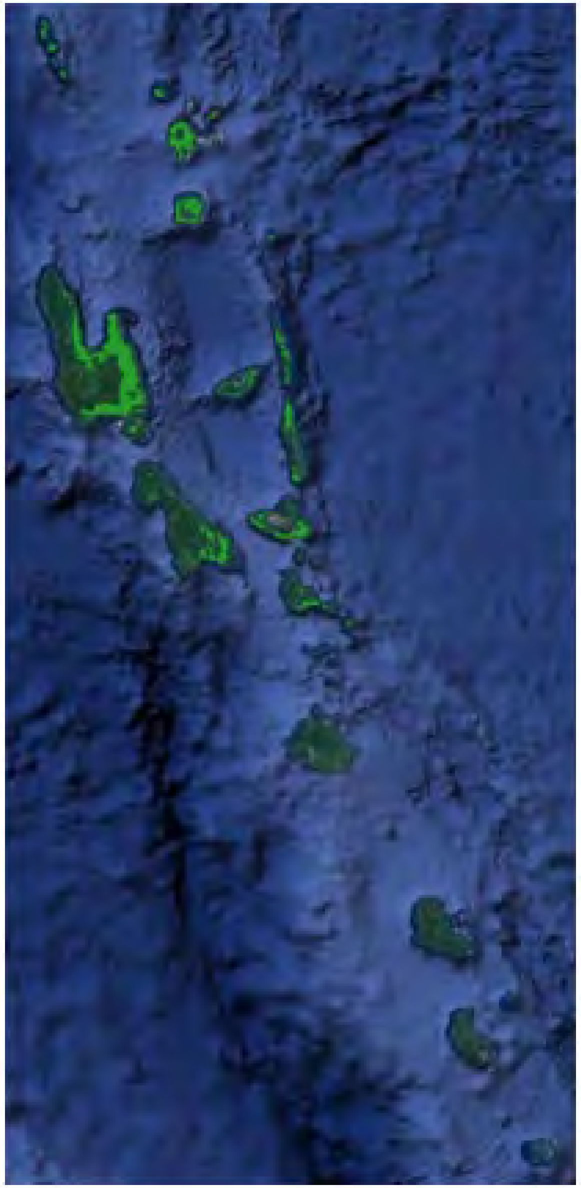
Vanuatu agriculture sector:
Mapping tools: Cocoa



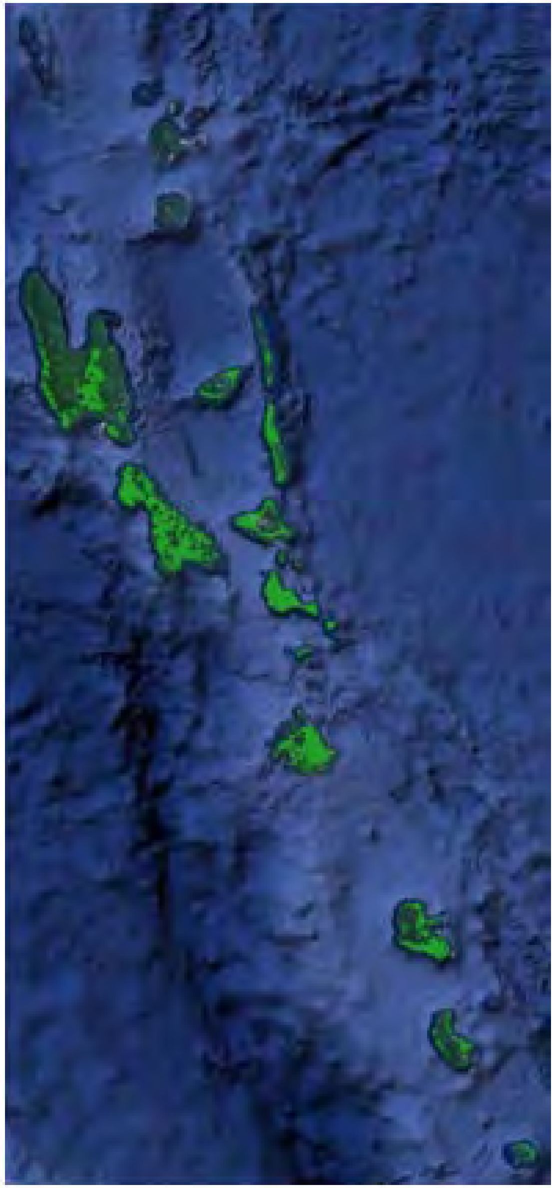
Current climate[1]

Area 'suitable' for cocoa production (light green shading)

Least change 2050

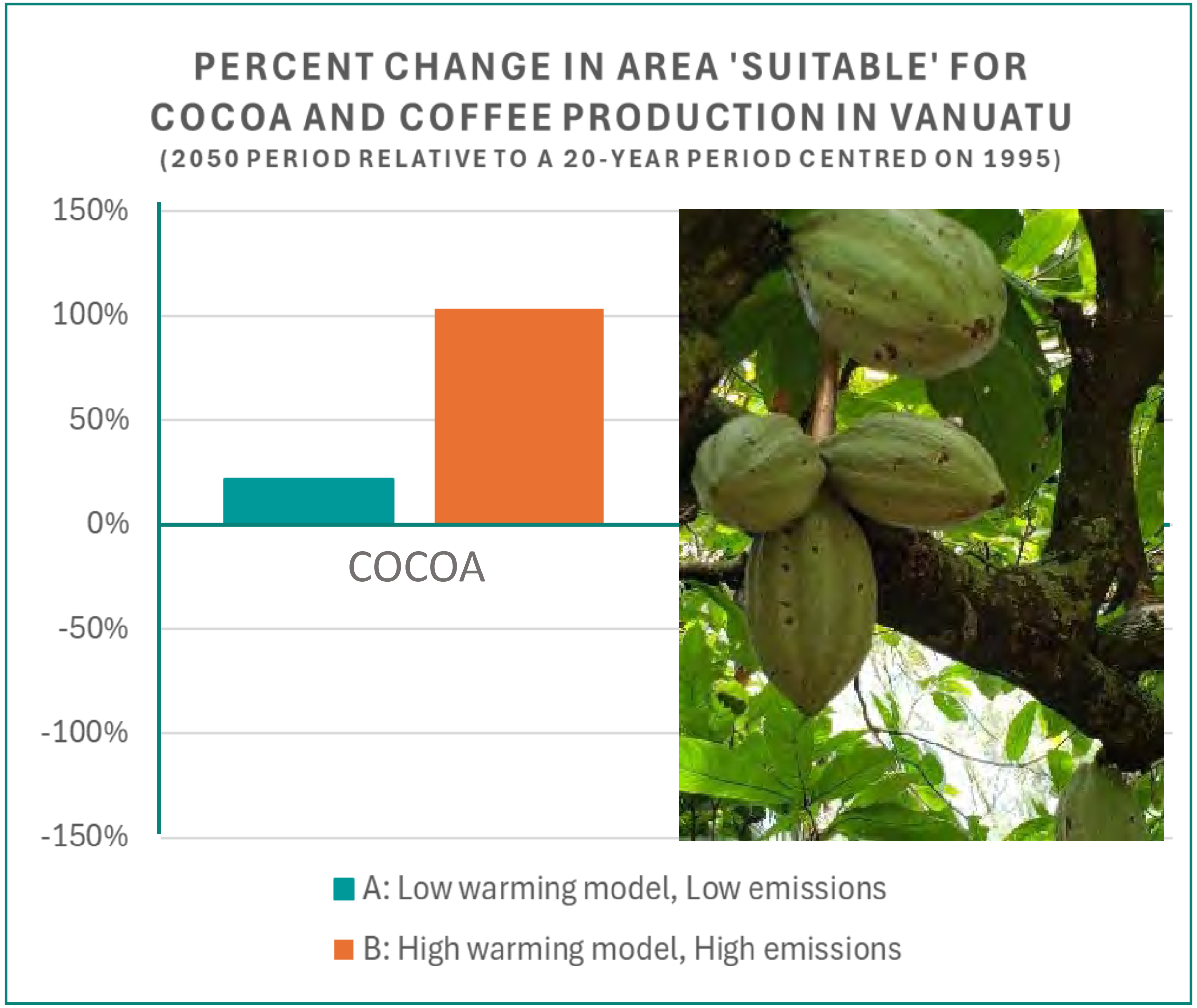


Most change 2050



[1]WorldClim climatology

Vanuatu agriculture sector:
Mapping tools: Cocoa and coffee



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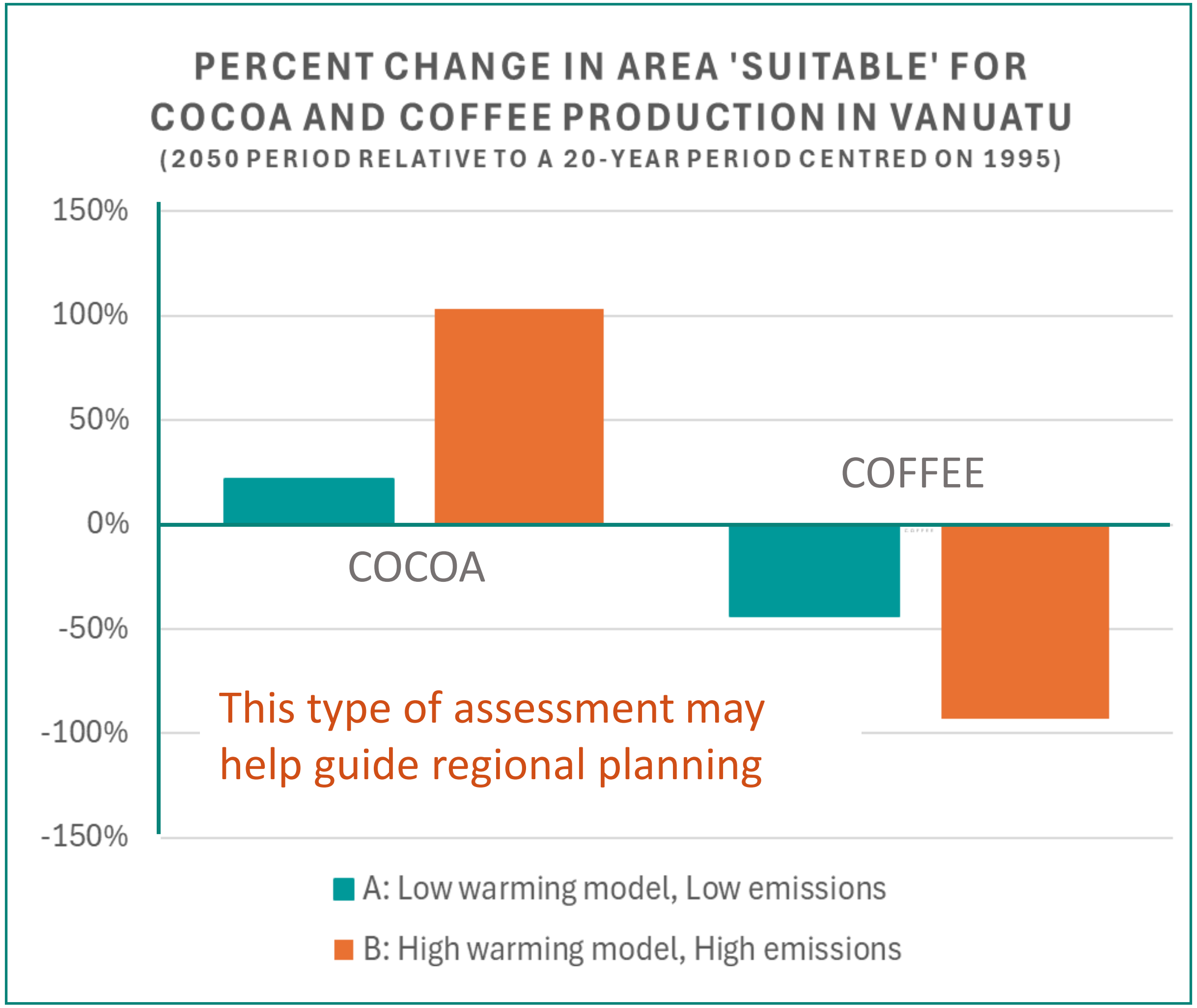
Vanuatu agriculture sector:
Mapping tools: Cocoa and coffee



'Suitable' for Cocoa is defined

- Not too hot:
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- Not too cold:
  - average annual minimum temperature greater than 22 °C
- total annual rainfall 1500–4000 mm
- average monthly rainfall for each month is greater than 100 mm

'Suitable' for Coffee is defined

- mean annual temperature (17–24 °C)

- The term 'suitable' is used as a guide ONLY.
- Other climate variables, micro-climate, soil, and other management factors will all influence productivity as well as temperature.
- This assessment also assumes no adaptation practices are implemented throughout this period.

Some differences between projects

	My Climate View
Country	Australia
Target audience	Farmer and farm advisors
Location specific	Choose a location
Multiple commodities	22 (crops and livestock)
Target	Mainly about **how** it grows
'User' dial-up input	Limited
Timeframes	Observed past changes, future
Adaptation advice	No
Output (as shown)	Data and graphs of production metrics
Support etc.	Train the trainer, field days, industry events

My Climate View

Some differences between projects

	My Climate View	Van-KIRAP
Country	Australia	Vanuatu
Target audience	Farmer and farm advisors	Sector decision makers
Location specific	Choose a location	Regional
Multiple commodities	22 (crops and livestock)	5 (crops, not livestock)
Target	Mainly about **how** it grows	Mainly about **where** it grows
'User' dial-up input	Limited	Yes, explore another crops' suitability
Timeframes	Observed past changes, future	Past, future
Adaptation advice	No	Yes, limited / with caveats
Output (as shown)	Data and graphs of production metrics	Case studies, mapping tool
Support etc.	Train the trainer, field days, industry events	Workshops, fact sheets, video (in Bislama)

Regional decision making and planning can be based on the latest science

We recommend:

- Co-development: The best ‘buy-in’ strategy when designing a project is to work with users from the beginning.
  - Build it together, go there, welcome iterations and updates.
- While progressing the project, recognize the option for capacity exchange.
  - We learn about their skills, they learn about ours
  - Better informed metrics translates to higher relevance, better take-up
- No ‘one size fits all’: “What is going to happen in future?”
  - “For where , for what, for whom, why are you asking?”

Acknowledgements My Climate View

MCV has been and continues to be developed by a large number of talented and dedicated staff and partners (more than below!)

For more information:
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My Climate View

www.myclimateview.com.au

My Climate View has been developed by CSIRO and the Bureau of Meteorology as part of the Australian Government's Future Drought Fund (FDF) Climate Services for Agriculture program, which receives funding from the FDF.

CSIRO

Australian Government
Department of Agriculture, Fisheries and Forestry

Future Drought Fund

Australian Government
Bureau of Meteorology

Van-KIRAP – Vanuatu Klaemet Infomesen blong Redy, Adapt mo Protekt

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Tankiu Tumas

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SPREP Secretariat of the Pacific Regional Environment Programme

FRONTIER SI

ngis people partnership success

Department Vanuatu Meteorology and Geo-Hazards

Australian Government Bureau of Meteorology

GREEN CLIMATE FUND

Vanuatu Klaemet Infomesen blong Redy, Adapt mo Protekt

APCC

CSIRO

www.pacificclimatechange.net | www.pacificclimatechangescience.org

www.rccap.org | www.org

Next steps

My climate view:

- Revision and update of ag-climate science
- Technical publications of supporting ag-climate science
- Upgrade to CMIP6 data
- Other user enhancing features (e.g. ‘build your own commodity’ – TBC)

My Climate View

www.myclimateview.com.au

Vanuatu:

- IPCC Pacific ‘write-shop’ journal publication. A capacity exchange initiative
- Research Partnership for Resilient Disaster Response and Recovery Food Systems in Vanuatu (2025-2026)
    - Advance a shared, evidence-based understanding of how Vanuatu can create a more resilient food system in the face of an increasing number and severity of disruptive events, whilst enhancing the role of local nutritious food within the system.