PACIFIC MINISTERS OF AGRICULTURE AND FORESTRY MEETING (PMAFM)

Third Meeting
Nadi, Fiji, 10 March 2023
Climate Information for Pacific Food systems planning

Summary

At the 7th Meeting of the Pacific Heads of Agriculture and Forestry in August 2021, the members requested SPC and FAO to provide a synthesis paper on what climate change will mean for agriculture and forestry across the Pacific and developing tools to help decision making and planning around future challenges and options in the sectors. Australia through the Department of Foreign Affairs and Trade (DFAT) offered technical assistance in developing the concept. This was provided through the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Australian National University (ANU) under the *Resilience Initiative for Food and Agriculture* (RIFA) in collaboration with SPC and FAO. Consultations were held broadly with stakeholders such as SPREP and USP and representatives of relevant ministries in 4 sample countries, Fiji, Samoa, Kiribati, and Vanuatu.

This paper outlines a concept of developing a climate adaptation tool to support agriculture and forestry decision-making, planning and investment in Pacific countries under future climate. The adaptation tool will bring together relevant information about climate trends and the likely impacts for Pacific food systems and the risks the future climate pose for food systems at national and regional levels.

The tool will be based on a systematic review of available literature, relevant expert input and available climate and food systems data sources. The tool is to be co-developed with SPC, FAO and SPREP and as endorsed by the PHOAFS, it will be housed in the Pacific Data Hub, and managed by SPC once finalised.

Recommendation:
The Ministers are invited to:

a) endorse the concept note for developing a climate adaption tool to support Pacific food systems planning.

b) request development partners to support the development of the tools' proof of concept.

CONCEPT NOTE: CLIMATE ADAPTATION DASHBOARD FOR PACIFIC FOOD SYSTEMS

1. **Summary**

- In response to the request of the Heads of Agriculture and Forestry meeting 2021, a concept note for a climate adaptation dashboard to support agriculture and forestry decision-making, planning and investment in Pacific countries under future climate.
- The proposed adaptation dashboard will bring together relevant information about:
  - climate trends and the likely impacts for Pacific food systems, and
  - the risks the future climate poses for food systems at national and regional levels.
- The dashboard will be based on a systematic review of available literature, relevant expert input and available climate and food systems data sources.
- It is recommended that the dashboard be co-developed with SPC, FAO and SPREP, if endorsed by the PHOAFs, it will be housed in the Pacific Data Hub, and managed by SPC in collaboration with SPREP once finalized.

Rationale

2. The last decade has seen a dramatic increase in both the frequency and severity of climate change related extreme events. This places significant burden and stress on existing food and forestry systems, requiring identification and adoption of new management practices and strategic planning to improve food system resilience.

3. Current climate projections and information are not well tailored to support farming, fishing, forestry and food value chain decision-making and planning. Information is rarely translated in a way that supports adaptation or provided at an inappropriate scale; in some instances, information is absent for a specific location or food system.

4. To plan for successful adaptation, communities must have a confident estimate of the likely changes they will experience in the future; have a good understanding of the impact of these changes on existing food systems; and be in a position to understand and implement alternative management approaches to manage risks and increase resilience to future climate challenges.

5. The climate adaptation dashboard we present here aims to address these gaps by drawing the latest data and information into one dashboard, to help decision makers identify priority risks to food systems and value chains that affect Pacific countries and communities.

6. It will provide consistent and current information to decision makers to support evidence-based planning and investment to improve the resilience of their food systems. This dashboard will also provide a scientific basis for supporting external engagement and investment to close existing information and knowledge gaps (e.g., linkages to the Green Climate Fund rationales).

Preliminary design

7. The climate adaptation dashboard is being co-developed with SPC and founded on input from Pacific experts, partners, and groups, as well as published scientific data.

8. The dashboard will consist of four dynamic, inter-connected elements to aid visualisation and the presentation of information, including: 1) Climate trends, 2) Amplifiers and Mitigators, 3) Key food system risks and 4) Options for action. This design is contingent on feedback and input from proposed users and stakeholders.

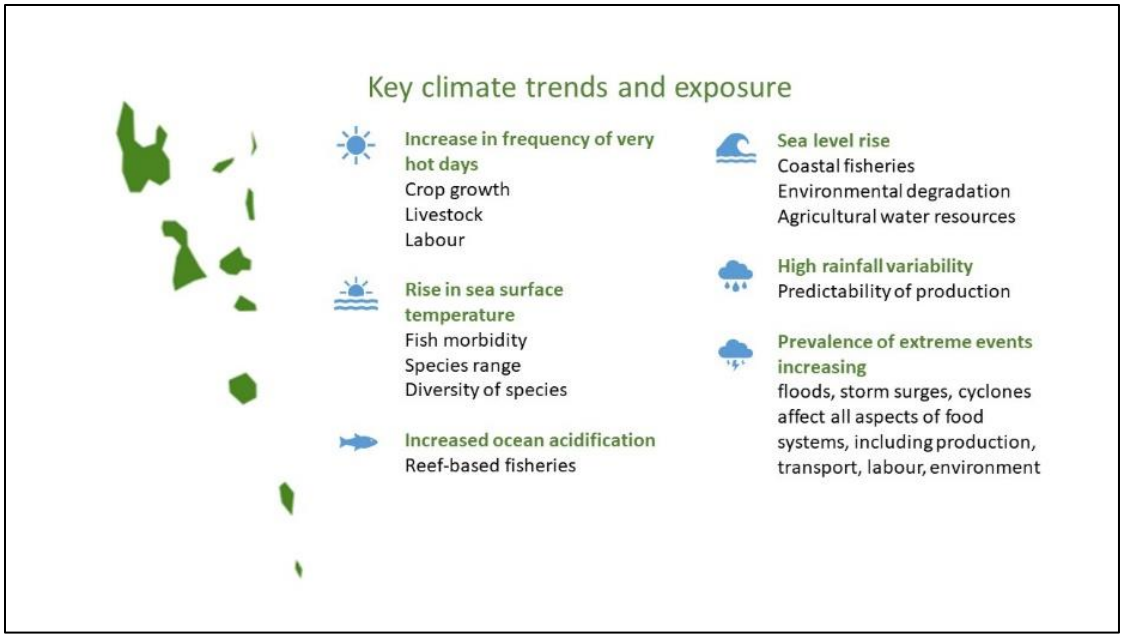
9. To illustrate the potential of the dashboard, four countries (Kiribati, Samoa, Vanuatu, and Fiji) that represent some of the diversities of the Pacific were selected to populate the prototype. The images shown below are for Vanuatu and are provided in this concept note for illustration purposes only.

Climate trends and what that means for food systems

10. Climate projections and climate data exist in multiple forms, making it difficult to make informed decisions. In some instances, projections have been made with different climate models or different emissions scenarios or are at different spatial resolutions.

11. To address this issue, the first element of the climate adaptation dashboard will draw on a consistent set of climate projections and compare them with observed climate information to demonstrate the scale of change likely between now and the near future (at 2030 and 2050) relative to current climate.

12. This climate information will be presented in ways that reveal likely stresses on existing food systems, by presenting changes to temperature, rainfall, and other climatic thresholds important for food production. There will be an interactive map of the climate trends, each with links to relevant sources for further investigation.



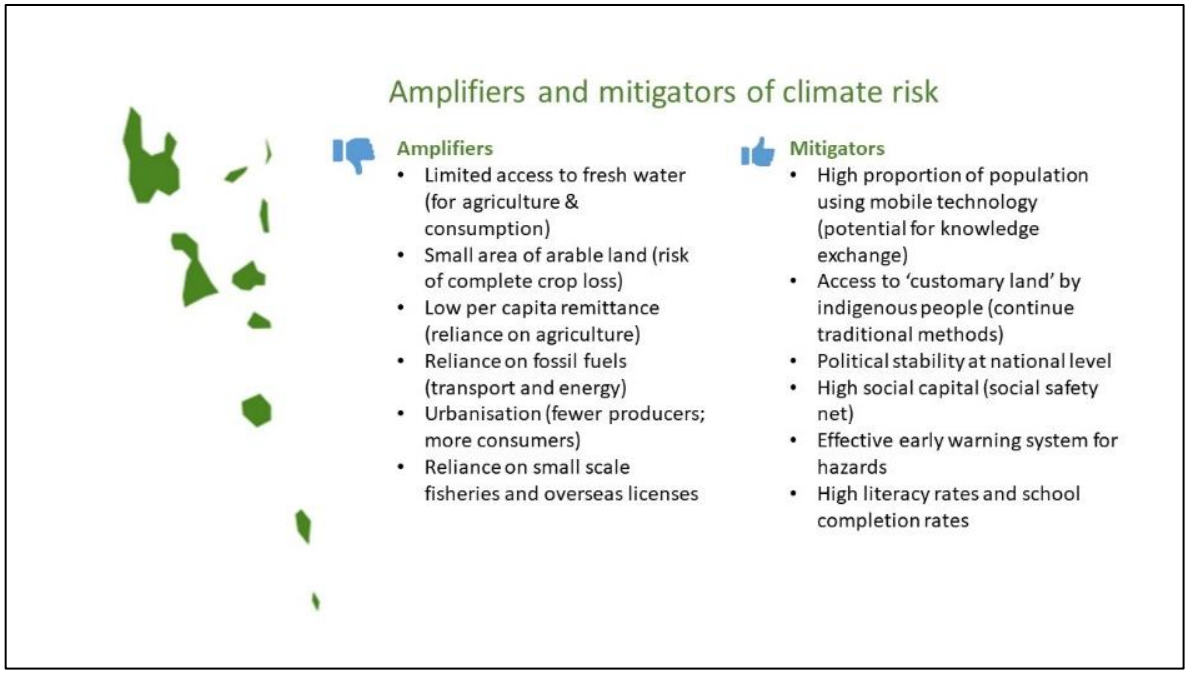
Climate trends and exposure for Vanuatu

Amplifiers and mitigators

13. The second element of the dashboard will summarise key pre-existing factors that are likely to increase (amplify) or reduce (mitigate) climate risks to food systems and that are specific for each country. Examples of amplifiers might include the current lack of or ageing transport infrastructure, low soil fertility, or high costs of inputs. Examples of mitigators would include accessible digital technology or agricultural extension services, or strong traditional practices and institutions.

14. Information for this element will be sourced from existing datasets and literature and will be supplemented by expert input obtained during interviews. Users will be able to interact with this element to gain further information on amplifiers and mitigators of interest.

15. Understanding the existing amplifiers and mitigators provides the user with important insights into the sensitivity of a food system to shocks, the underlying weaknesses and strengths of the system and the likely scale of the impact if climate thresholds are reached.

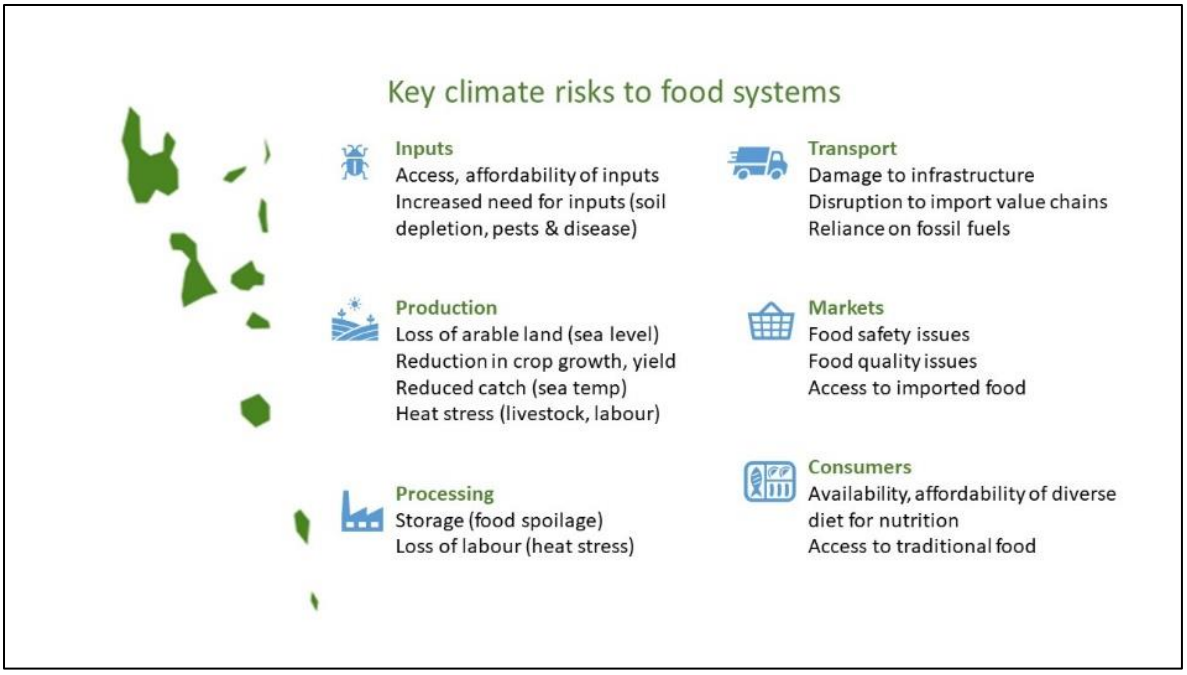


Amplifying and mitigating factors identified for Vanuatu

Key food system risks

16. This third element of the dashboard will provide a summary of priority climate risks to the food systems. The risks are described according to six food system components (farm inputs, production, processing, transport, markets and consumers). The climate risk is a function of the climate projections and the existing mitigators and amplifiers outlined in the previous two elements.

17. This element will be informed by interviews with relevant regional experts.



Climate risks identified for Vanuatu

Options for action

18. The fourth element offers a non-exhaustive set of adaptation options that can be considered by policy makers to address climate risks to agriculture and fisheries across three-time horizons: immediate, intermediate, and longer-term.

19. While some options can be collected from literature and ongoing initiatives, expert regional input will be critical. This element is intended as a discussion starter, rather than a defined list of activities.

Data sources

20. There are three key data sources for the information dashboard.

20.1 The first source is key climate trend data (2030 and 2050 relative to current climate), which is being collated from a range of available programs and initiatives. The adaptation dashboard will be aligned with existing climate and data initiatives including (but not limited to): Digital Earth Pacific, Regional Climate Consortium for the Asia Pacific, Pacific Climate Change Portal, Pacific iCLIM, Pacific Climate Change Data Portal and World Bank Climate Change Knowledge Portal. Consultations so far include: SPC, Secretariat of the Pacific Regional Environment Programme, Food and Agriculture Organisation, Australian Bureau of Meteorology, Australia Pacific Climate Partnership.

20.2 A systematic review of existing literature has been conducted to build an evidence base of risks and impacts associated with climate change on Pacific food systems over the last 10 years, as well as any adaptation strategies or policy-relevant recommendations or findings.

20.3 The third source is expert interviews, which are being used to address significant knowledge and data gaps, particularly for amplifiers and mitigators, national and sub-national risks and feasible options for action.

Ongoing support for the dashboard

21. Whilst some updates to climate trend data can be automated, it will be necessary to regularly seek relevant expert knowledge to review, update and prioritise risks for each country. Systematic reviews and expert interviews will be required every 3 to 5 years to ensure the dashboard remains up to date. A systematic update of the online dashboard will then be undertaken.

22. In future versions, it would be possible to expand the dashboard's capability by including scenario or decision support functions (based on enhanced modelling and data collation) so that the influence of proposed mitigation or adaptation activities can be explored.

23. The Pacific Data Hub is the preferred home for the climate information dashboard. It is a vehicle for investment and provision of a sustainable data infrastructure that already houses a range of dashboards and information. Specifications, logistics and links will be defined between implementing partners.

Next steps

24. If this concept is endorsed by Ministers, the RIFA[1], SPC, FAO and SPREP team will develop an implementation plan and budget for the development of a working version of the web-based information dashboard, with a small number of case study countries as examples of how information can be applied at a national level.

25. A limited functionality dashboard will be circulated with the PHOAFs to gain further feedback and a final version of the dashboard will be released. Subject to further funding support, the dashboard can be expanded to cover as many Pacific countries as possible.

[1] RIFA is a partnership between the ANU, DFAT and CSIRO to deliver science-backed, development-ready solutions for pressing agriculture and food security needs in Asia and the Pacific.

The 3rd Ministers of Agriculture and Forestry Meeting is organized as part of the 2023 Pacific Week of Agriculture and Forestry hosted by the Government of Fiji

with support from the Food and Agriculture Organization of the United Nations (FAO) and the Pacific Community (SPC)