

9th REGIONAL MEETING OF
PACIFIC HEADS OF AGRICULTURE AND FORESTRY SERVICES (PHOAFS)
(15 – 17 May 2024) - Virtual

Paper reference	Session 2 Agenda Item 3
Title	Agri-food Systems & Climate Explorer (ASCE) proof of concept
Action	Decision
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Summary
<p>At the 8th Meeting of the Pacific Heads of Agriculture and Forestry in March 2023, the members endorsed the development of a tool to support climate adaptative decision making for agriculture and food security in Pacific countries. The tool is envisioned to bring together context-relevant climate modelling/projections/trends with agrifood systems information to help highlight the implications of climate change for Pacific food systems policy and planning, including the risks for agricultural communities at a national and regional levels. The members requested that the Pacific Communities (SPC) support a proof-of-concept development of this tool, now termed the <i>Agri-food Systems & Climate Explorer (ASCE)</i>, the trial of which has been initially implemented in Samoa.</p> <p>This paper outlines the results of the ASCE prototype work with the Samoan Ministry of Agriculture and Fisheries (MAF), supported by the Australian Government Department of Foreign Affairs (DFAT) and implemented by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Australian National University (ANU) with support from SPC and Food and Agriculture Organization (FAO) of the United Nations.</p>

A Project Advisory Committee comprising a range of government and research institutions was established in October 2023 and chaired by MAF with support from SPC and FAO. With direction from the Advisory Committee and in consultation with government, research and civil society organisations, the project team has developed an ASCE prototype for use in Samoa. This has been shared and tested for relevance with MAF and other relevant Samoan stakeholders, with iterative changes made in response to the feedback.

The ASCE has been designed to support food systems policy discussions, aligning with the development and implementation of Samoa's Food System Pathway 2030. Alignment with the Food System Pathway 2030 processes may help to make ASCE relevant for other Pacific countries that have adopted this or similar food system planning processes. Stakeholder consultations in March 2024 also revealed ASCE relevance for supporting Drought Policy and planning activities by the Samoan government.

Samoa's validation of the ASCE tool with further areas for development and expansion is in line with the concept as approved by the PHOAFS meeting in March 2023. Samoa highly recommends the tool to other Pacific Island Countries and Territories (PICTs).

Recommendation:

The PHOAFS are invited to:

- a) **Acknowledge** the value of the Agri-food Systems Climate Explorer (ASCE) proof-of-concept as a preliminary tool to support Pacific climate-resilient food systems planning.
- b) **request** development partners to support the further development and refinement of the ASCE for Samoa and other interested PICTs based on requests.
- c) **agree** that the refined tool and progress update is presented at the Pacific Ministers of Agriculture and Forestry meeting in 2025.

Background

1. The last decade has seen a dramatic increase in the felt impacts of climate change across ecosystems and societies. This places significant burden and stress on existing agrifood systems, requiring identification and adoption of new management practices and strategic planning to improve food system resilience in the face of a changing climate.
2. Current climate projections and supporting information are not well tailored to support adaptive farming and food value chain decision-making and planning. Information is rarely presented in a way that supports adaptation, nor is it provided at an appropriate spatial scale; in some instances, information is absent for a specific location or food system.
3. To enable successful adaptation, government agencies and communities would benefit from: a confident estimate of likely climatic changes they will experience in the future; a way to enhance understanding of those climate impacts on existing food systems; and supporting mechanisms for planning and implementing adaptive food systems pathways that manage risks and increase resilience to future climate challenges.
4. The Agri-food Systems Climate Explorer (ASCE) proof-of-concept has been co-designed to ensure the information captured and presented in the tool can represent the integration of relevant climate, agricultural and socio-cultural information for active planning and decision making by MAF.
5. ASCE has been developed to support evidence-based planning and implementation of resilient food systems, as outlined in Samoa's Food Systems Pathway 2030 document. Recent discussions with Samoan government demonstrate the potential application and alignment of ASCE for other planning activities, e.g. for informing drought policy development.

Purpose of this paper

6. This paper outlines the results of the ASCE prototype work with MAF, supported by DFAT and implemented by CSIRO and ANU with support from SPC and FAO.
7. This paper outlines the key features and benefits of the ASCE proof-of-concept, including its comparative advantage to other available climate tools in supporting agri-food system decision makers to consider and address climate impacts on food system resilience.

Key features of the ASCE Proof-of-Concept

8. The Agri-food Systems Climate Explorer proof-of-concept has been designed and developed to support policy and investment discussions associated with the development and implementation of Samoa's Food System Pathway 2030.

Climate Information

9. ASCE uses interactive maps to display climate information geo-spatially and temporally for several climactic variables. It spatially provides projected climate information at the country and district level (chosen as a relevant scale for Samoa), and temporally compares the present (now to 2023) and the near future (by 2050) climate information.
10. The climate indicators have been selected based on the academic literature regarding the climate experienced by Samoa and consultation and validation with Samoan government, research, and civil society stakeholders in 2023 and March 2024, guided by MAF and the project Advisory Committee. The climate indicators, which include hazards such as drought and heat stress as well as key characteristics of Samoan climate such as the rainfall amount and timing of the local wet season were identified as relevant and important to agrifood systems planning processes in Samoa.

Food System Information

11. The ASCE tool collates and visually presents information drawn from existing datasets on agriculture, and socio-economic factors at a district scale (chosen as relevant to and available in Samoa). Information from the available evidence base has been selected in relation to the above climate variables and their impacts on the food system. The presented variables were prioritised by relevance in identifying potential risks and key risk-mitigation opportunities in agrifood systems policy and programming decisions at both national and district levels.
12. The ASCE proof-of-concept seeks to prioritise and present key data in combination with climate information to help demonstrate relationships between climate impacts and key risk and sensitivity factors of resilient agrifood systems. The key information presented in the ASCE proof-of-concept tool reflects data on existing physical and socio-economic conditions that is currently captured in Samoa through District-level survey data.
13. In comparison to other climate tools the ASCE has enabled:
 - **Data integration:** The tool integrates and displays previously separate datasets in a way that enhance their value for decision making.
 - **Appropriate spatial scale:** While global climate models provide information at the spatial scale of 150-200 km, ASCE uses data generated by CSIRO's state-of-the-art spatial downscaling techniques to provide it at the 5 km scale appropriate for Samoa's districts.
 - **User-centric design:** Using a principled design approach, the interface has been developed to optimise user-friendliness and accessibility, avoiding complex technical presentation and providing clear text-based explanations of the variables. Maps and tables of the information presented are also provided in printable format for use in policy planning meetings and the development of fliers and infographics.
 - **Fit for purpose:** The co-design and development of the tool has involved a process of engagement that imbues ASCE content and design with the information needs of and challenges faced by the Samoan Ministry of Agriculture and Fisheries.
 - **Scalability:** The design process has carefully considered how future information could be included to scale the tool and its applications, allowing it to evolve alongside agri-food system decision makers information needs as reflected through interviews and focus group activities.

14. This proof-of-concept phase has provided several key insights regarding the purpose and functionality of the ASCE tool and articulated alignment with MAF priorities and needs in food system decision-making. These are in the process of being incorporated into a final version of ASCE for Samoa. The project team will focus on finalising a prioritised set of agreed changes before the 2024 PHOAFS meeting, with other major changes finalised by August 2024.
15. With the support from PHOAFS and subject to further funding, a phased approach to the scaling of this tool could be undertaken. This could take the form of an initial expansion of ASCE development for 3 to 5 Pacific countries, followed by further expansion after feedback and consultation with PHOAFS.
16. Samoa's validation of the ASCE tool with further areas for development and expansion is in line with the concept as approved by the PHOAFS meeting in March 2023. Samoa highly recommends the e tool to other PICTs.
17. Samoa's position in scaling up of ASCE, is that this process be hosted by each country. However, in cases where other PICTs may wish to use the tool but may not have the infrastructure or resources to host it, then a centralised data hosting option via the Pacific Data Hub could be considered. Future discussions to clarify technical specifications, resourcing requirements and relationships between implementing partners will help determine the most practical and sustainable hosting arrangements, either directly in-country or through a partner-hosted password-protected portal.
18. To progress ASCE proof-of-concept to final development of a working tool for Samoa, the following steps will be taken:
 - a. Refinement and optimisation of ASCE content and design in partnership with Ministry of Agriculture and Fisheries Samoa. Discussions regarding hosting and handover of ASCE data uploading and downloading will ensure sustainable upkeep of relevant information for decision making.
 - b. Scaling and resourcing the process for ASCE development as relevant for other interested countries in the Pacific to support planning and implementation of their Food System Pathway 2030 or similar policy documents.
19. The Agri-food Systems Climate Explorer can be accessed via this URL:
<https://global.indraweb.io/asce/>

Please note that this site is still under construction and **will not be complete nor operational until May 6th**. Stakeholders should not be directed to this website until then. Password protection will be instituted once upload and download functionality have been included.

Recommendations:

The PHOAFS are invited to:

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- b) **request** development partners to support the further development and refinement of the ASCE for Samoa and other interested PICTs based on requests.
- c) **agree** that the refined tool and progress update is presented at the Pacific Ministers of Agriculture and Forestry meeting in 2025.