

**9th REGIONAL MEETING OF
PACIFIC HEADS OF AGRICULTURE AND FORESTRY SERVICES (PHOAFS)**

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Title	CePaCT updates on progress of implementation of its Investment Plan (2019-2023) based on two key reviews carried out in 2023.
Action	For Information
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Background

1. Established in response to the 1996 recommendation by the Pacific Heads of Agriculture and Forestry Services (PHOAFS), the Centre for Pacific Crops and Trees (CePaCT) was initiated to develop systems and mechanisms for the protection, conservation, and optimal utilization of the region's plant genetic resources. This directive aimed to address the significant challenges faced by the Pacific region, including climate change, loss of genetic diversity, and the need for sustainable agricultural practices to ensure food security, improved health, and livelihoods.
2. Over the years, CePaCT has evolved into a fundamental entity within the Pacific Community (SPC), safeguarding over 2,000 accessions of vital crops and trees, making it a cornerstone in the Pacific's strategy to combat the adverse effects of climate change, dietary health issues, and agricultural productivity challenges. The establishment and subsequent progress of CePaCT underscore the collective vision of the Pacific countries to safeguard their biodiversity heritage while fostering resilience and sustainability in agricultural practices.
3. The recent external review conducted by the Global Crop Diversity Trust (Crop Trust) in 2023 builds upon CePaCT's foundational goals, assessing the Centre's advancements since the previous review in 2017 and outlining strategic directions for further enhancements. This review emphasizes the significant strides made in genetic integrity monitoring, germplasm health and availability, and infrastructural and operational capacities, aligning with the long-term objectives set forth by PHOAFS. It identifies key areas for improvement, highlighting the critical role of safety duplication and the efficiency of procedures in genebank operations.
4. This paper aims to provide PHOAFS with a comprehensive update on the progress and implementations of CePaCT's Investment Plan (2019-2023), illustrating how the Centre continues to embody the aspirations of the Pacific countries for a resilient, sustainable, and food-secure future. Through continuous improvement and adherence to international standards, CePaCT aspires to

elevate its status as a centre of excellence, contributing significantly to the well-being and prosperity of the Pacific Community.

Purpose

5. The purpose of this paper is to update PHOAFS on the four key areas as outlined in the [2023 PHOAFS CePaCT information paper](#) for 2023/2024 focus. These four areas include:
 - a) Updates on the review of progress of implementation of the first Phase of CePaCT's Investment Plan (2019-2023) – key outcomes and recommendations
 - b) Updates on the second external audit of CePaCT by the Global Crop Diversity Trust (Crop Trust), 29 May - 2 June 2023 – key outcomes and recommendations
 - c) Updates on securing partnerships for safety duplication of aroid and yam collections – progress to date.
 - d) Update on the process of development of the next CePaCT Investment Plan.

Key Updates

Update on the [review of progress of implementation of the first Phase of CePaCT's Investment Plan \(2019-2023\)](#).

Overview and objectives.

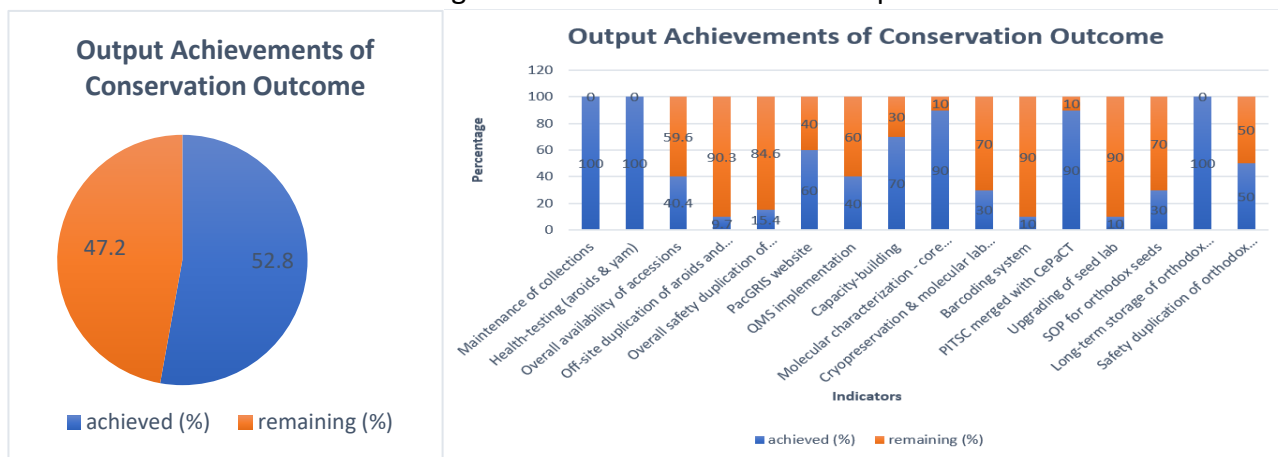
6. CePaCT's progress was evaluated by an external consultant against the 2019-2023 Investment Plan, who utilized a comprehensive set of resources for a detailed assessment. This included internal reports from SPC, LRD, and CePaCT, a 2023 external genebank review by the Crop Trust, and diverse stakeholder feedback from the PAPGREN meeting in September 2023. Further depth was added through direct interviews with SPC-LRD and CePaCT staff, an online user feedback survey, and donor insights from interviews with key development partners like the Crop Trust; the Department of Foreign Affairs and Trade (DFAT), Australia; the Australian Centre for International Agricultural Research (ACIAR), and the Ministry of Foreign Affairs and Trade (MFAT), New Zealand. The objectives of the review include:
 - a) Assess progress against the 2019-2023 Investment Plan's log frame indicators.
 - b) Evaluate strategic relevance, effectiveness, efficiency, impact, and sustainability following the Organisation for Economic Co-operation and Development - Development Assistance Committee ([OECD-DAC criteria](#)).
 - c) Identify learnings to refine CePaCT's strategy and align future plans with regional priorities.

Progress against the Investment Plan indicators.

7. **Quality Management System (QMS) Progress:** Since 2018, CePaCT has been working towards establishing a Quality Management System (QMS) with the goal of enhancing genebank operations

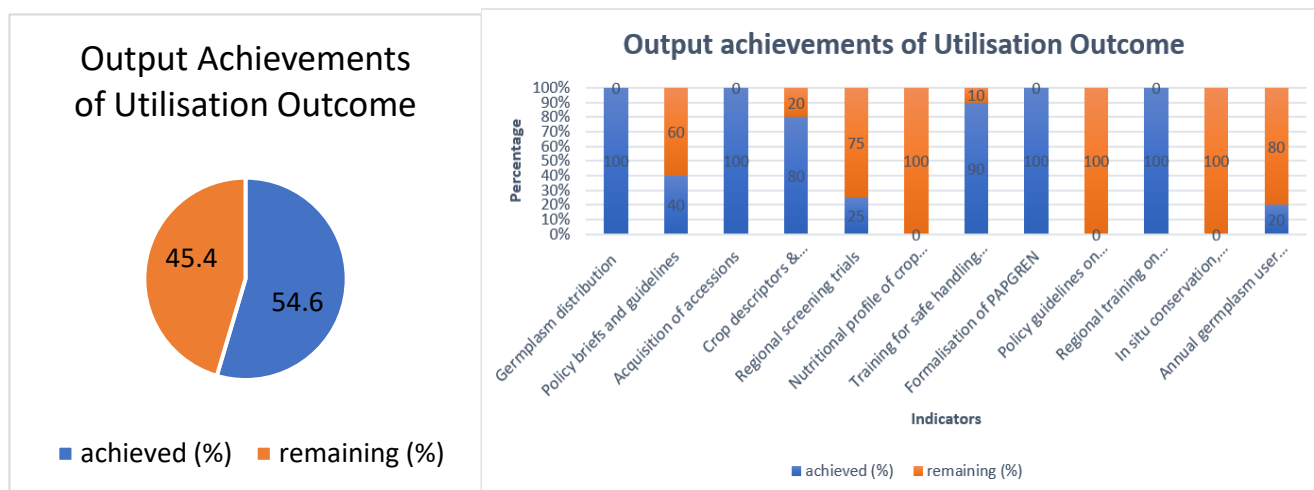
to meet the Crop Trust’s performance targets. The ambition for the first phase was to implement QMS elements to about 50% satisfaction and achieve a 75% index for germplasm health testing. However, progress reports indicate a 40% implementation of QMS elements and a 50% success rate in germplasm health testing, signifying areas for growth and improvement. A significant challenge that emerged was the COVID-19 pandemic which notably impacted the ability to meet QMS targets.

8. **Conservation Outcome achievements:** The first phase of CePaCT's Investment Plan marked significant progress, achieving 52.8% of conservation outcome indicators. This demonstrates considerable strides toward meeting established targets amid operational challenges and the impacts of the COVID-19 pandemic. Notably, the plan significantly reduced annual accession loss to less than 1%, surpassing the initial target of 5%. Progress in aroid health testing was commendable, achieving 68% of the 90% availability goal, accounting for both clean-health status and legal compliance. However, progress in yam collections was slower, at 22%, attributed to an initial focus on optimizing health testing protocols. Among the key achievements was the seamless integration of the Pacific Islands Tree Seed Centre (PITSC) with CePaCT and the initiation of orthodox seed storage, indicating a significant operational expansion. Nonetheless, establishing safety duplication, enhancing accessibility to the proposed Pacific Genetic Resources Information System (PacGRIS) website, and integrating a functional barcoding system with the GRIN-Global Community Edition (GGCE) remain pressing needs. Addressing these challenges and strategically optimizing staff deployment to achieve the 90% availability targets is crucial for bolstering CePaCT’s essential conservation role in the Pacific region as it advances into the next phase.



9. **Utilization Outcome achievements:** During the initial phase of CePaCT's Investment Plan, significant achievements were realized in germplasm distribution, with an average of 261 accessions distributed per year, of which 46% were climate resilient. The acquisition phase exceeded expectations with 118 new accessions, enhancing CePaCT’s collections diversity. Importantly, introducing coconut as a new mandate crop responded directly to the priorities set by PHOAFS, reflecting a deepened commitment to regional plant genetic resource diversity. Alongside the establishment of PAPGREN and the attainment of crop descriptor targets, these efforts have markedly improved local capacity in germplasm management. Although success has been considerable, challenges in nutritional profiling, policy development, in-situ conservation, and

conducting annual user surveys point to areas needing augmented focus. CePaCT will leverage the PAPGREN platform to deepen farmer and community engagement in conservation and utilization efforts of plant genetic resources, intensifying work on underachieved areas, especially in enhancing regional screening trials.



10. Evaluation of CePaCT's Investment Plan.

The application of [OECD evaluation criteria](#) to CePaCT's Investment Plan has illuminated the strategic alignment and operational dynamics of the program, revealing both achievements and areas requiring enhanced focus for the next phase:

- a) **Relevance:** CePaCT's interventions have been highly relevant, directly addressing the Pacific region's critical challenges such as climate change and sustainable agriculture. The conservation of crop genetic diversity aligns closely with the need for food security and ecological resilience.
- b) **Coherence:** Internally, CePaCT's activities are well-integrated within the SPC Land Resources Division, enhancing organizational goals. Externally, the efforts contribute to global sustainability agendas, including the Sustainable Development Goals.
- c) **Effectiveness:** The plan has achieved considerable success in germplasm conservation and distribution. However, effectiveness assessments are constrained by missing baseline data, emphasizing the need for improved data collection and analysis.
- d) **Efficiency:** Investments in a Quality Management System (QMS) and staff capacity indicate progress towards operational efficiency. However, external factors like the COVID-19 pandemic and staff turnover have hindered the centre's ability to meet conservation and utilization objectives on schedule.
- e) **Impact:** While it may be too early for a comprehensive impact assessment, there are indications of positive developments in QMS implementation and germplasm health testing. The full extent of the impact, especially on the environment, sector, and region, remains to be fully realized.
- f) **Sustainability:** Securing long-term funding remains a challenge, with suggestions to consider a Long-Term Partnership Agreement and full-cost recovery services to enhance

sustainability. The need for a staff succession plan is also highlighted to maintain the momentum of the Investment Plan's achievements.

11. Overall, the evaluation reflects a program that is strategically aligned to the needs of the Pacific region, making tangible progress despite some operational challenges. Recommendations for the next phase focus on bolstering outward engagement, enhancing interaction with partner countries, and addressing critical areas such as germplasm utilization and information management system improvements.

Donor Feedback:

12. Donors view their investment in CePaCT as crucial for climate adaptation efforts in the Pacific. While generally pleased with the first phase's implementation, they highlight the need for a more outward-looking approach in the next phase, with a focus on distributing, evaluating, and utilizing elite planting materials among farmers. High staff turnover and the necessity for recruitment and retention of key technical staff are concerns that donors wish to see addressed.

Recommendations for the Next Investment Phase (2024-2029).

13. For the next phase of CePaCT's Investment Plan (2024-2029), recommendations call for a strategic pivot towards more dynamic, region-centric initiatives:

- a) **Refine Technical Focus:** Balance conservation with distribution, evaluation, and utilization to promote and develop climate-smart and nutritious crops.
- b) **Strengthen Regional Engagement:** Increase collaborations with Ministries of Agriculture, NGOs, and private sector entities to scale up the distribution and evaluation of CePaCT's plant material.
- c) **Develop a Sustainable 'Value chain enhancement' System:** Draw inspiration from models like the [Farm to Market Alliance](#) for efficient seed and planting material distribution.
- d) **Formulate an Orthodox Seed Strategy:** Focus on both conservation and value chain enhancement of orthodox seeds, ensuring their integration into local and regional agriculture for the future.
- e) **Enhance Data Collection and Feedback:** Implement annual user surveys and validate results through structured interviews to refine service delivery.
- f) **Plan for Staff Continuity:** Address staffing challenges and ensure continuity of expertise and knowledge through a comprehensive succession plan.

14. These focused recommendations aim to elevate CePaCT's contributions to regional food security and sustainable agricultural practices through improved plant genetic resource conservation and utilization.

15. The first phase of CePaCT's Investment Plan has laid down a solid foundation of achievements in conserving and utilizing plant genetic resources, driven by the valuable insights from challenges encountered and stakeholder feedback. Notably, our efforts in germplasm distribution have received positive responses from across the Pacific, underscoring the impact of our work and the

need for continued engagement and improvement in areas such as regional screening and farmer participation.

16. Looking forward, the next phase (2024-2029) of CePaCT's Investment Plan is set to build on these successes, with a strategic focus on addressing the evolving challenges of climate change and technological advancements. We aim to enhance our data collection and feedback mechanisms, ensuring CePaCT's initiatives remain aligned with the needs of our Pacific community for food security and sustainable agricultural practices.
17. With a collective effort and a focus on innovation and responsiveness, CePaCT is committed to advancing our mission and contributing to a resilient and sustainable agricultural future for the Pacific.

Outcomes of the [external audit of CePaCT by the Global Crop Diversity Trust, 29 May- 2 June 2023](#).

Overview and Objectives

18. This report presents the outcomes of the second external audit of CePaCT conducted by the Crop Trust from 29 May to 2 June 2023. Following the first review in 2017, which identified 22 key recommendations focusing on areas such as genetic integrity monitoring, germplasm health and availability, infrastructure development, and staff capacity building, significant progress have been made. Out of the 22 recommendations, 15 have been fully addressed, 4 recommendations have been partially addressed, and 2 have not been implemented. One recommendation was dropped. For detailed insights into the progress made on these recommendations, please refer to the full report on this [link](#).
19. The second review in 2023 sought to evaluate the progress CePaCT has made since 2017, identify areas needing further strengthening, assess CePaCT's operational efficiency and capacity, and ensure the genetic resources are well conserved for sustainable use. This evaluation also aimed to validate CePaCT's compliance with genebank standards, key performance indicators, and eligibility for future partnerships and funding. The comprehensive insights and detailed findings of the 2023 review are documented in the full report, accessible via this [link](#).

Key Outcomes:

Assessment of CePaCT activities to sustain essential operations.

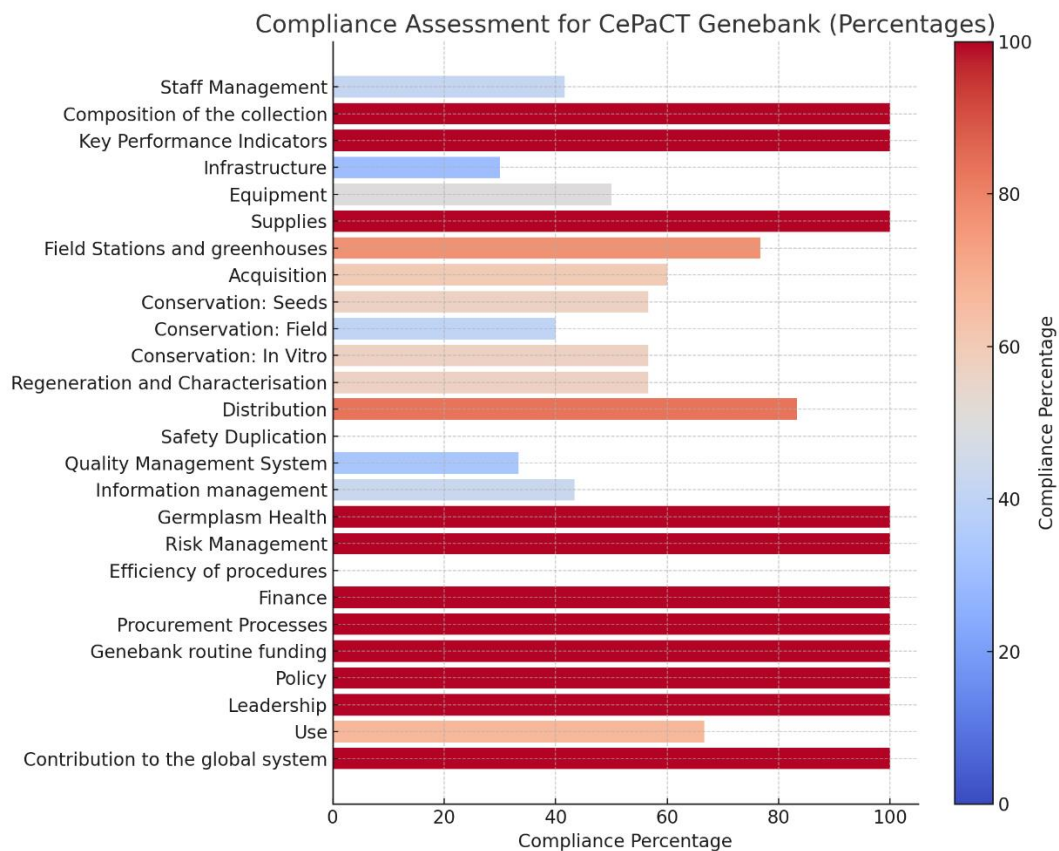
20. **In Vitro collections:** The CePaCT in vitro genebank stands out with a significant collection of 2,190 accessions, reflecting its vital role in preserving clonal crops like aroids and yams. A noteworthy aspect of CePaCT's operations is its commitment to germplasm health testing, ensuring the collection's safety and viability. Out of 1,023 accessions that have completed health testing or virus indexing, 776 have been verified as free from plant pathogens or diseases of biosecurity concern and are immediately available for distribution. This highlights CePaCT's efficiency not only in conducting thorough health checks but also in maintaining a significant portion of its collection

ready for safe distribution to partners and researchers. Furthermore, 2,170 accessions are included in the Multilateral System (MLS), highlighting CePaCT's commitment to global crop diversity conservation. This substantial contribution underscores CePaCT's operational success and its pivotal role in supporting agriculture in the Pacific.

21. **CePaCT Seed and Field collections:** The seed bank (previously known as the PITSC), an essential component of CePaCT's conservation strategy, manages 197 seed accessions alongside 33 field bank accessions, with 6 of these field accessions also maintained in vitro. This diversity is crucial for safeguarding the region's agricultural heritage. Among the seed accessions, 7 accessions are ready for immediate distribution, and 3 have viability above 85%, indicating the seed bank's effectiveness in maintaining high-quality germplasm. The seed and field banks operations, although smaller in scale compared to the in vitro genebank, play a critical role in complementing CePaCT's overall conservation efforts.
22. **Security of the Crop Collection and the Genebank:** Safety duplication efforts are highlighted by the fact that only a few in vitro accessions are duplicated at two locations, with partnerships at the International Institute of Tropical Agriculture (IITA), Nigeria, the International Centre for Potato (CIP), Peru and the International Transit Centre (ITC), Belgium. This strategic approach to germplasm security ensures that critical genetic resources are preserved against potential threats, underlining the importance CePaCT places on safeguarding its collections for future generations.
23. **Documentation and Data Availability:** Documentation and data management practices are evidenced by the proactive maintenance of the collection, with 2,190 in vitro accessions subculture multiple times over the last five years. This level of activity showcases CePaCT's dedication to keeping its collections viable and well-documented, ensuring they remain a valuable resource for research and agriculture.

Assessment of Compliance.

24. The graph below presents a summary of CePaCT's compliance landscape with percentages that intuitively reflect adherence to international standards, calculated by inversely mapping the review scores against 100% compliance. For instance, areas like 'Composition of the Collection' and 'Key Performance Indicators' excel with 100% compliance, evidencing CePaCT's stringent operational protocols. In contrast, 'Safety Duplication' and 'Efficiency of Procedures' show room for critical improvement, mirrored by lower percentages that signal the need for strategic enhancements. The overall average compliance, converted from a score of 1, emerges as a robust 66.7%, a testament to CePaCT's solid performance amidst opportunities for growth. This balanced portrayal provides clear insights for prioritizing initiatives towards excellence in genebank management.



Key Recommendations

25. The review process has culminated in a total of 22 key recommendations, focusing around six main broad areas as listed below. These categories are instrumental in guiding CePaCT's strategic enhancements and operational improvements.

- a) **Genetic Integrity and Diversity:** Efforts should be concentrated on finalizing digital documentation and developing robust identity validation mechanisms. These measures should aim to enhance the monitoring of genetic integrity within the CePaCT In Vitro Genebank.
- b) **Germplasm Health and Conservation:** The adoption of meristem dome culture should be recommended alongside optimizing in vitro conservation conditions. This should include the procurement of essential equipment and the implementation of efficient virus and bacterial elimination methods to streamline germplasm cleaning and testing processes.
- c) **Cryobank Development:** The establishment of a cryobank for long-term conservation and safety duplication should be prioritized. It should involve determining efficient cryogenic methods for crop collections and establishing clear cryobanking criteria.
- d) **Seed Bank Strategy and Operational Efficiency:** The development of a comprehensive conservation strategy should be advised for the newly established seed bank. Furthermore, a redesign of workflow and facilities should be carried out to enhance seed conservation capabilities.

- e) **Safety Duplication and Equipment Management:** Strategic emphasis should be placed on actions for the safety duplication of all CePaCT collections. This should also include the necessity for regular maintenance and documentation of genebank equipment to maintain operational standards.
- f) **Staff Training and Succession Planning:** Training for CePaCT cryobank staff at well-established genebanks should be facilitated, alongside the development of a detailed staff succession plan to ensure operational continuity and resilience.

26. The implementation of these recommendations should significantly inform CePaCT's strategic focus areas, driving its transformation into a centre of excellence for the Pacific Community. These efforts are envisioned to contribute substantially to the long-term security, conservation, and availability of plant genetic resources.

27. The 2023 external audit by the Global Crop Diversity Trust underscores CePaCT's progress and the critical paths forward to enhance our conservation efforts and operational efficiencies. With a keen emphasis on improving genetic integrity, optimizing germplasm health, and advancing our cryobank and seed bank initiatives, we are set to address the key recommendations with strategic precision. Our commitment extends to bolstering staff training and succession planning, ensuring our readiness to meet future challenges and uphold international standards.

28. CePaCT's dedication to addressing areas for improvement, such as safety duplication and procedural efficiencies, highlights our resolve to support sustainable agriculture and biodiversity conservation across the Pacific. By focusing our efforts on these strategic enhancements, CePaCT is poised to strengthen its role as a centre of excellence, contributing significantly to the long-term security and availability of plant genetic resources for the Pacific Community.

Secure partnerships for safety duplication of aroid and yam collections – progress to date.

29. In alignment with strategic directives from the 2023 PAPGREN meeting and recognizing the urgent need to secure regional collections in alignment with genebank standards, CePaCT is progressing with safety duplication efforts for aroid and yam collections. The IITA, Nigeria has committed to hosting the yam collections, with a formal agreement anticipated by mid-2024. This partnership will enable the sharing of duplicate yam collections following the agreement.

30. For the aroid collections, Samoa has shown initial support, subject to clarifying hosting responsibilities. Engagements with the Scientific Research Organisation of Samoa (SROS) and the Ministry of Agriculture and Fisheries (MAF) in March 2024 have laid the groundwork for a thorough review of the SROS-managed Tissue Culture laboratory scheduled for April 2024. This review is critical for identifying necessary upgrades to host the collections adequately, aiming for an agreement by the third quarter of 2024, prior to any material distribution.

31. Additionally, CePaCT is pursuing further partnerships, both within and out of the Pacific, following PAPGREN's recommendations for safety duplication that meet Crop Trust standards. This strategy underscores a commitment to safe and sustainable conservation practices, embodying a collective regional initiative for plant genetic resource preservation.

Update on the process of development of the next 5-year (2024-2029) of CePaCT's Investment Plan.

32. CePaCT's Investment Plan for 2024-2029, set for finalization by April 2024, is being developed with a keen focus on enhancing PGR conservation and utilization across the Pacific. This pivotal update not only integrates comprehensive reviews and external audits, including the significant findings from the CePaCT Crop Trust 2023 review/audit, but also closely aligns with the priorities and recommendations outlined by member countries during the September 2023 PAPGREN meeting. These elements are central to our strategic approach, ensuring that the new Investment Plan reflects the collective insights and needs of the Pacific community. With the support of an external consultant, the plan aims to build on the successes and lessons learned from the first 5-year phase of CePaCT's investment strategy, steering future efforts towards meeting the SPC Strategic Plan and enhancing regional food security and climate resilience.

Recommendations:

33. The members are invited to:

- a) Acknowledge the significant progress made by CePaCT, as evidenced by the comprehensive external reviews of its Genebank operations and the implementation of its Investment Plan. These reviews highlight CePaCT's dedication to excellence and continuous improvement in conserving the Pacific region's plant genetic resources.
- b) Encourage PHOAFS and relevant development partners to support CePaCT's efforts in addressing the recommendations from these reviews. Such support is crucial for enhancing CePaCT's operational capabilities and strategic initiatives, further establishing its role as a centre of excellence for the Pacific Community.