

# Concept Note

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**Enhancing resilience of agriculture and food security in the Pacific Island Countries through managing climate induced transboundary plant, animal pests and invasive exotic aquatic species threats**

Fiji, Samoa, Solomon Islands | SPC

28 May 2019



# Concept Note

Programme Title:	Enhancing resilience of agriculture and food security in the Pacific Island Countries through managing climate induced transboundary plant, animal pests and invasive exotic aquatic species threats.
Countries:	Fiji, Samoa and Solomon Islands
National Designated Authorities (NDAs):	Ministry of Economy, Fiji Ministry of Finance, Samoa Ministry of Environment, Climate Change, Disaster Management, and Meteorology, Solomon Islands
Accredited Entity (AE):	Pacific Community (SPC)
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## Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
- The relevant National Designated Authority - ies (NDA) will be informed by the Secretariat of the concept note upon receipt.
- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity (ies) nominated by the NDA, if any.
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<b>A.1. Project or programme</b>	<input type="checkbox"/> Project <input checked="" type="checkbox"/> Programme	<b>A.2. Public or private sector</b>	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
<b>A.3. Is the CN submitted in response to an RFP?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, specify the RFP: _____	<b>A.4. Confidentiality<sup>1</sup></b>	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
<b>A.5. Indicate the result areas for the project/programme</b>	<p><b>Mitigation:</b> Reduced emissions from:</p> <input type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p><b>Adaptation:</b> Increased resilience of:</p> <input checked="" type="checkbox"/> Most vulnerable people and communities <input checked="" type="checkbox"/> Health and well-being, and food and water security <input type="checkbox"/> Infrastructure and built environment <input checked="" type="checkbox"/> Ecosystem and ecosystem services		
<b>A.6. Estimated mitigation impact (tCO<sub>2</sub>eq over lifespan)</b>	not applicable	<b>A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)</b>	Indirectly - 100% (CC-resilient biosecurity) Directly – 50% (public awareness)
<b>A.8. Indicative total project cost (GCF + co-finance)</b>	Amount: USD \$41.7million	<b>A.9. Indicative GCF funding requested</b>	Amount: USD \$34 million
<b>A.10. Mark the type of financial instrument requested for the GCF funding</b>	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
<b>A.11. Estimated duration of project/ programme:</b>	a) disbursement period: 5 years b) repayment period: not applicable	<b>A.12. Estimated project/ Programme lifespan</b>	20 years
<b>A.13. Is funding from the Project Preparation Facility requested?<sup>2</sup></b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Other support received <input type="checkbox"/> If so, by who: <i>SPC and FAO own funds</i>	<b>A.14. ESS category<sup>3</sup></b>	<input type="checkbox"/> A or I-1 <input type="checkbox"/> B or I-2 <input checked="" type="checkbox"/> C or I-3
<b>A.15. Is the CN aligned with your accreditation standard?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>A.16. Has the CN been shared with the NDA?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>A.17. AMA signed (if submitted by AE)</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing: <i>draft AMA received from GCF and under review by SPC legal team. Expected date of signing: July 2019</i>	<b>A.18. Is the CN included in the Entity Work Programme?</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>A.19. Programme rationale, objectives and approach of programme (max 100 words)</b>	<p>Agriculture in Pacific Island Countries is extremely vulnerable to climate change that exacerbates the exposure to transboundary plant and animal pests and invasive exotic aquatic species which impact on food insecurity, malnutrition, poverty and sustainable development as recognised in the Small Islands Development States (SIDS) Accelerated Modalities of Action Pathway goals for climate resilience and sustainable development.</p> <p>This proposed project aims to introduce climate-adapted farming systems and value chains that are more resilient to biosecurity threats, strengthen national and regional early warning and transboundary risk management and associated operational capacities (that includes monitoring) and strengthen the national and regional capacity enabling environment (for the generation and use of climate risk information) to prepare countries for the increased incidences of pests and diseases due to climate change.</p>		

<sup>1</sup> Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

<sup>2</sup> See [here](#) for access to project preparation support request template and guidelines

<sup>3</sup> Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

**B.1. Context and baseline (max. 2 pages)**

**Strategic Context**

1. Agriculture (encompassing crop, fisheries and agriculture, livestock) in Pacific Island Countries is extremely vulnerable to climate change which exacerbate food insecurity, malnutrition, poverty and sustainable development as recognised in the SIDS Accelerated Modalities of Action (SAMOA) Pathway and subsequent high level declarations like the Global Action Programme on Food Security in Small Island Developing States.<sup>4</sup> Among these risks, biosecurity threats is a significant issue which still lacks a good understanding.
2. Fiji, Samoa and the Solomon Islands (SI), as other Pacific Island Countries are highly vulnerable to climate change (CC) that threatens their food and nutrition security. These small island nations are characterised by limited land mass and high population densities living in fragile natural environments. Food production is a fine balance between conservation of the unique environment and production systems required to feed the growing population. Exacerbating food insecurity is partly due to the difficult terrain that ranges from steep volcanic slopes to the nutrient poor soils of coral atolls. The livelihoods of communities in these island nations are vulnerable to both weather and economic perturbations as they are generally dependent on subsistence, existing in traditional agricultural and fishing systems. Limited economic opportunities due to the remote locations and distance from regional and global markets, and the increased dependence on food imports are additional barriers to health and livelihood improvement.
3. According to their respective Nationally Determined Contributions (NDCs) to the Paris Agreement, Fiji, SIs and Samoa contribute respectively 0.04% (in 2015), 0.01 % (in 2015) and 0.0006% (in 2007) of global greenhouse gas (GHG) emissions. Recent CCs and future predictions identify a range of CC impacts on the South Pacific region, inter alia rising temperatures, an increase in extreme hot days and warm nights, more extreme rainfall events, increasing intensity of tropical cyclones and rising sea levels (see Pre-Feasibility Study Sections 2.3 - 2.5 for details) that exacerbate food insecurity and bring economic hardship.
4. Climate resilient sustainable development of these first programme countries and other Pacific Island Countries, is dependent on the adaptive capacity of the agriculture sector. A significant proportion of the population of each of these three nations are involved in primary crop production (Fiji= 36%, Samoa= 27%, Solomon Islands= 68%). Small-scale, coastal fisheries underpin fish consumption and livelihoods in most Pacific Island communities. Pacific Island Countries are exposed to high risks of transboundary plant, animal pests and invasive exotic aquatic species threats. Table 1 in Annex VII provides some examples of pest species, their impact and prevalence in the Pacific region. Those affected by climate change will be determined in a technical study currently being explored under a study commissioned by FAO.
5. The current biosecurity systems are struggling to manage the threats of pests and diseases carried between island nations. Countries have insufficient knowledge and awareness of the link between CC and its impact on transboundary pests; nor do they have the financial means or the capacity on their own to respond to the increasing threats of transboundary crop, livestock and fisheries pests due to climate change. These are small island states, with small populations and economies, all of which are highly dependent on agriculture. Table 2 in Annex VII provides information on the GDP per Country, Population Status and GDP per capita for selected countries.

***Climate change and transboundary plant and animal pests and invasive exotic aquatic species***

6. The movement of plant pests, animal diseases and invasive exotic aquatic organisms across physical boundaries threatens food security and creates a global public concern across all countries and all regions (FAO, 2008). In the Pacific specifically, Island nations are very vulnerable to the spread of pests and diseases. Countries across the globe allocate large resources to limit the spread and control of transboundary pests and diseases and also adapt animal and plant health services and activities and cooperate regionally and globally for prevention, early warning and control. In the Pacific Region, the Pacific Community (SPC) is the custodian of the Secretariat of the Pacific Plant Protection Organization (3PO) that was established specifically to prepare for, build capacity in and manage risks of any plant pest incursion.

<sup>4</sup> <http://www.sids2014.org/index.php?menu=1537> & [http://www.fao.org/fileadmin/templates/lon/items/GAP\\_2nd\\_draft\\_Revised\\_13\\_Jan\\_Joint\\_with\\_annex.pdf](http://www.fao.org/fileadmin/templates/lon/items/GAP_2nd_draft_Revised_13_Jan_Joint_with_annex.pdf)

7. Climate change is altering the distribution, incidence and intensity of animal and plant pests, creating new ecological niches contributing to the establishment and spread of pests into new geographical areas, often in the absence of naturally occurring biological control agents, and to an increased invasiveness from one to another region. Change in climate resulting in changes in species composition and interactions will augment the emergence of unexpected events, including the emergence of new diseases and pests. It is argued that these phenomena will push the countries and region past a tipping point that will no longer allow them to cope, without any enhancement of biosecurity systems.<sup>5</sup> Currently, the ability to enact the necessary biosecurity requirements is limited due to a lack of knowledge, skilled staff, laboratories and equipment, and small budgets (Freeman, 2012).
8. There is growing evidence that climate change increases pest and disease problems due to stresses that make crops more vulnerable to endemic pests and diseases and incursions of new pests and diseases. A study of atoll countries noted they have recent experience of new incursions of pests and diseases with none eliminated and only a few attempts to contain and manage these incursions (Freeman, 2012). More information is required for informed decisions concerning biosecurity, adaptation and regional management activities.
9. Host plant resistance, bio pesticides, natural enemies, synthetic chemicals, plant defence activators, may all be less effective due to increases in temperatures and UV radiation, and other abiotic stresses like droughts or excessive rain, and decrease in relative humidity. Some cultivars that have existing pest resilience may exhibit greater susceptibility under CC (Sharma, 2010). Further, pests and diseases can be a major biosecurity constraint in moving planting material around the Pacific and hinder the introduction of new germplasm to support climate change adaptation (Taylor, McGregor, & Dawson, 2016).
10. The following are some examples of CC impacts on pests and diseases and subsequently on agriculture production and food security in Pacific island Countries:
  - The devastation caused to the taro industry in American Samoa and Samoa in the early 90's as a result of the taro leaf blight (TLB) is a case in point of the destructive nature of a transboundary disease. The spread of the TLB was through infected fungal spores carried by cyclone Val from American Samoa to Samoa in 1991. From a Taro exporting country before cyclone Val in Samoa, production fell from 0.4 million tonnes per year to less than 5 tonnes by the end of 1995. In 1993, the export value of taro for Samoa was US\$3.5 million (about 58% of Samoa's agricultural exports) but by 1994 the value had declined to less than US\$60,000 or about 0.5% of the 1993 export figure.
  - As a result of changes in temperature, fruit fly host crops have a tendency to be fruiting more, which has been resulting in a build-up of fruit fly populations. Of particular concern is the oriental fruit fly, *Bactrocera dorsalis* (Hendel) that has all the traits for invasiveness. CLIMEX™ has been used to model global distribution under current and future climate scenarios. Significant increases in the potential distribution of *B. dorsalis* projected under the climate change scenarios suggest that the World Trade Organization (WTO) should allow biosecurity authorities to consider the effects of climate change when undertaking pest risk assessments. These pest risks pose a serious biosecurity risk impacting on trade of fresh fruit trade with Australia and New Zealand. If any live fruit fly is found in exported produce it results in the suspension of trade, risking the potential collapse of a multimillion dollar trade industry.
  - The Coconut Rhinoceros Beetle (CRB) - Guam strain (CRB-G) is an example of a recent speciation that impacts on coconut based livelihoods and ecosystems in the SIs and the region. Arthropods under CC induced higher temperatures will have faster development to maturity, faster population growth and generation cycles (White, 1984). CRB-G is an example of an exotic pest flourishing in a new environment, voracious and highly destructive. The Solomon Islands Ministry of Agriculture & Livestock Biosecurity is stretched to capacity to contain the spread and build community awareness to help clean-up potential breeding sites and contain new incursions. CRB-G is regarded as a serious threat. It can cause the death of all coconuts in areas where infestations occur; particularly of concern is the protection of coastal zones where palms have an important role as a barrier and stabilising those zones from increased intensity of waves and tidal surges as a result of climate change. CRB-G is also a threat to oil palm as reported by Guadalcanal Plains Palm Oil Ltd (GPPOL) in the SIs and to pineapple and bananas. Controlling the movement and spread of CRB-G is of highest priority of the Biosecurity units in the Pacific (PPPO, 2018).
11. Livestock is an integrated part of a traditional food production systems. Animals are raised in most households and play an important role as indicators of wealth and social status; as an exchange medium and celebratory food in cultural, social and religious activities; as a source of household protein; and as a form of investment. The sector experiences direct and indirect effects from CC. Direct impacts include mortalities from starvation, also productivity losses resulting from physiological stress caused by temperature extremes and increases in

<sup>5</sup> file:///C:/Users/BOTEI/Documents/GCF/GCF.FAO.SPC/Climate-related%20transboundary%20pests%20and%20disease.pdf

rainfall variability and frequency of drought. Indirect impacts include changes in the availability, quality and prices of inputs such as fodder, housing and water. CC will especially impact vector-borne animal diseases due to the effects on the arthropod vectors and the macro-parasites of animals. CC may also result in new transmission modalities and different host species. The effects on internal parasites (gastrointestinal parasites and liver fluke) may include changes in the distribution of the parasites and the intermediate hosts. In areas that become wetter, these will become of greater importance. Research also indicates that the changes wrought by CC on livestock infectious disease may be extremely complex. Apart from the effects on pathogens, hosts, vectors and epidemiology, there may be other indirect effects on the abundance or distribution of the vectors' competitors, predators and parasites. Livestock diseases of importance include: Leptospirosis, Bovine Tuberculosis and Brucellosis in cattle. Brucellosis infection is usually spread through contact with infected birthing tissues and fluids. These are often washed and spread downstream during floods resulting in the spread of infections to other livestock farms and human populations. Uncontrolled disposal of pig waste from infected pig farms inevitably spreads Leptospirosis to livestock during heavy rains and floods. Thus CC coupled to population densities and agricultural intensification are important drivers to the transmission of zoonotic diseases. <sup>i</sup> Table 3 in Annex VII provides an overview of some of the key plant and animal pests and diseases for selected countries.

12. To prevent these emerging and re-emerging zoonotic infections and reducing their impact on food security and public and environmental health, it is critical that they are detected early, and controlled, at the sources so that countries are able to reduce the risk of pests and disease outbreak, respond effectively in a timely manner in order to reduce their impacts.
13. Although biosecurity has long been a challenge for the Pacific, and would still be a challenge in a "without CC scenario", it is now clear that the incremental risks to biosecurity associated with CC (e.g. the likelihood of TLB spreading to locations currently free of the disease, such as Cook Islands, Fiji, Tonga and Vanuatu) would push the countries past a tipping point, whereby they can no longer cope without strengthening the requisite biosecurity systems.

#### ***Changes to the traditional food production systems and exposure to biosecurity threats***

14. Traditional food production systems are resilient in nature. These multi-crop garden systems, are protected by trees within the garden and often by forest (primary or secondary), reduce the risk to crops from natural disasters and are de-facto sustainable mitigation systems to CC. In recent years however, many of these systems have become unsustainable. Drivers such as increasing population pressure (see Table 1 in Pre-FS) and urban migration have forced farmers to abandon traditional practices. Notably, the range of crops grown decreased dramatically during the 20th century, raising concerns for adaptive capacity, genetic vulnerability and nutritional diversity. Economic incentives have encouraged farmers to adopt new crops, still usually under rain-fed production systems but often under monocultures, without understanding all of the deleterious implications. Reduced fallow periods or repeated cropping of high-value crops on the same land, often without rotations or sufficient replenishment of soil nutrients, have resulted in falling yields and an increased vulnerability to pests and disease incursions (details in Section 2.1 and Annex 1 of Pre-FS). The ecological processes which are typical in diverse cropping systems have been replaced or suppressed by the use of external inputs and these intensive mono-cropping systems are expanding, leading to lower resilience of agro-ecosystems and livelihoods. For Pacific islands, CC impacts on agricultural production are expected to be mostly negative and difficult to estimate over the longer term due to several factors including the inertia in the climate system in responding to current attempts to curb emissions, uncertainty associated with future emission scenarios and the interplay of local market forces and variation in the supply of imported staples. The limited yield data available for many of the Pacific food crops further complicates efforts to assess CC impacts.
15. Fisheries and aquaculture make vital contributions to food security and livelihoods, also economic development and government revenue. Fish is a cornerstone of food security for the people of the tropical Pacific, providing 50–90% of animal protein in the diet of coastal communities across a broad spectrum of Pacific Island Countries, and national fish consumption per person in many Pacific Island Countries is more than 3–4 times the global average. In the aquaculture sector, exotic aquatic species are playing a very important role regarding improving food and nutrition security and increasing economic generation. Currently more than 90% of the aquaculture production in the Pacific is coming from exotic (non-native) species. Aquatic animals are very vulnerable as water is their life-support medium and their aquatic ecosystems are fragile. CC impacts are predicted to include changes in pathogen virulence and transmission, local extirpations and introductions. There is also the risk of escapes from the increasing frequencies of storm-damaged facilities.

16. Declining domestic food production across many Pacific Island Countries has increased the dependence of large proportions of populations on imported foods, which, if not carefully screened via sound biosecurity systems, may well result in the accidental importation of new transboundary pests. [See case study of taro leaf blight in Samoa, Box 1 and Annex 2 of the Pre-Feasibility Study.]

**Barriers to reducing climate-induced transboundary biosecurity threats in PICTs**

17. Any uncontrolled increase in the levels of transboundary pests will act as a significant “hunger-risk multiplier” seriously jeopardising the achievement of the Sustainable Development Goals (SDGs), approved in 2015 by the Member Countries of the UN. As detailed in the Pre-FS Study (Section 2.10), all programme countries suffer from limited numbers of fully trained staff and lack of / limited infrastructure to enable them to perform their role more effectively. Details of the barriers are outlined in Table 4 of Annex VII and in Chapter 2 and Annexes 1, 2 & 4 of Pre-FS (Annex II).

**B.2. Programme description (max. 3 pages)**

18. The programme looks at climate change impacts and threats to food security with a significant emphasis on climate-adapted agriculture production systems and value chains supported by outcome 1 and both underpinned by outcome 2 with risk information.

19. The proposed three inter-related outcomes and contributing outputs are designed to achieve the desired objective and impact along with creating conditions for scaling and replicating this programme beyond the immediate target countries in the near future. Each of the outcomes and outputs comprise of a set of activities, which have been designed to remove specific barriers towards reducing vulnerability to CC- induced pests and disease threats. In addition the project anticipates adaptable smallholder infrastructure such as greenhouses, research facilities and containment facilities. All biosecurity and wider agriculture sector (e.g. extension) staff should be receiving regular professional training as biosecurity risks continue to increase and change.

<b>IMPACT</b>	<b>Enhanced food security and resilience of agriculture and livelihoods to adverse impacts of climate change, particularly climate-induced biosecurity threats (GCF Impact 1.0)</b>		
<b>OBJECTIVE</b>	<b>Empower and strengthen capacity of Pacific Island Countries and their regional alliances to fight against the increasing CC-induced threats of transboundary plant &amp; animal pests and invasive exotic aquatic species</b>		
<b>OUTCOMES</b>	1: Climate-adapted agriculture production systems and value chains that are resilient to biosecurity threats (GCF adaptation programme level outcome 7.0).	2: Strengthened national and regional early warning systems and transboundary biosecurity risk management capacity (GCF adaptation programme level outcome 6.0, 8.0).	3: Strengthened national and regional enabling environment to fight against climate-induced biosecurity threats (GCF adaptation programme level outcome 5.0).
<b>OUTPUTS</b>	1.1 Increased awareness, access and technical capacities at local and national levels to use CC information and apply practices to prevent/reduce the risk of transboundary pests and diseases 1.2 CC resilient and sustainable agriculture practices rolled out and scaled up	2.1 Enhanced national and regional early warning systems for pests and diseases in crops, livestock, fisheries and aquaculture 2.2 Increased capacities at regional, national and local biosecurity institutions to implement early warning systems	3.1 Increased capacities at all levels and regional mechanisms to generate, disseminate and use reliable and timely locally-relevant data and knowledge of CC-related transboundary pests and diseases 3.2 Regional CC-resilient biosecurity knowledge management platform established for informed decision making and dissemination of information

1.3 Increased access by the private sector and other actors of agriculture value chains to TB biosecurity risks and their capacity to implement enforced regulations and capacity to implement solutions	2.3 Reduced interception rates of transmission of CC-related transboundary pests in crop, livestock, fisheries and aquaculture systems at borders and inter/intra Islands	3.3 An integrated regional climate resilient One Health (livestock, environment, biodiversity) strategy effectively implemented
	2.4 Development of relevant and appropriate emergency response plans and SOPs to tackle outbreaks of CC-related transboundary pests	3.4 South-south cooperation and regional coordination for enhanced financial mechanisms to fund biosecurity efforts

20. Under Outcome 1, the programme will promote climate resilient and climate-adapted agriculture production systems and value chains that are resilient to biosecurity threats. Farmers and local and national government and non-government stakeholders will be supported with improved access to and capacity to use climate related TB biosecurity information and early warning produced under Outcome 2 for identification and application of risk-informed and more resilient practices on farm and throughout the food chains. GCF resources will support farmers particularly vulnerable rural communities access to information and technologies through Farmer Field Schools (FFSs) and small grants to demonstrate good practices that will influence a wider audience (via demonstration plots, exchange visits etc.) on the potentials of more resilient cropping / livestock / fisheries systems which can reduce vulnerability to the deleterious impacts of CC, particularly the impacts of transboundary pests and importantly address diversified cropping and other soil conservation practices at the national level.

21. Activities under Output 1.1 would include:

- Target publication of awareness materials for CC related livestock management, plant pests and aquatic and fisheries; public awareness programs on the impacts of TB threats to agriculture and food security and roles and responsibilities of communities;
- Livestock husbandry training;
- Develop and roll out Training of Trainers (TOT) and Farmer Field Schools (FFS) on terrestrial and aquatic animals.
- Develop, upscale and roll out Plant Health Clinics (PHC) on terrestrial and aquatic animals.
- Strengthen tertiary training and research for degree and short-term trainings

22. Activities under Output 1.2:

- Identify and provide CC resilient crop varieties and other technologies for farmers and build capacity of farmers on climate resilient and sustainable farming practices through FFS
- Develop a farm biosecurity toolkit for key pests under CC scenario.
- Empower communities with skills and knowledge to reinstate more diverse farming systems for increased resilience to TB threats to food security and nurturing ecosystem services using FFS approaches.
- Create farm biosecurity awareness for farmers on protecting farms from the entry and spread of TB pests.
- Roll out plant health clinics for information exchange

23. Activities under Output 1.3 would include:

- Provision of information of biosecurity risks in post-harvest management and supply chain and related policies and procedures.
- Facilitate PPP and other mechanisms at local, national and regional to enforce regulations as well as create incentives for the private sector contributions to TB biosecurity risk reduction.

24. Towards Outcome 2, the programme will support strengthening and improving coordination between the regional alliances (*inter alia* FAO, USP<sup>6</sup>, SPREP, ACIAR and national support mechanisms critical to CC-resilient biosecurity in the region. Specifically, the programme will strengthen mechanisms and national capacity for surveillance, early warning, testing and analysis of main Pacific and foreign plant and animal pests, including human capacity building at all levels (land users and fishers, port biosecurity officers, customs/ border officers; veterinary and plant health officers, agricultural/ fisheries extension/ NGO staff, para-vets and policy makers.
25. Activities under Output 2.1 would include:
- Assess and improve biosecurity capabilities (early warning system, rapid response and induce control) to respond and manage pest and disease incursion effectively
  - Update and improve regional and national databases
  - Develop a regional animal health database; non-signatories to the World Organization for Animal Health (OIE)
  - Establish and operationalise early warning systems (pre-border/border & post border) with an emphasis on enhanced access of farmers/fishers to the information and their capacity to act (linked to Output 2.2 and Outcome 1)
26. Activities under Output 2.2:
- Capacity building on regional operations of early warning systems
  - Capacity building on national implementation of early warning systems
  - Capacity building on local biosecurity institutions and their personnel
27. Activities under Output 2.3:
- Capacity building on border operational procedures
  - Procurement of x-ray machines and relevant border/laboratory equipment
  - Improve facilities for active surveillance, import and export treatments including fumigation and incineration
  - Strengthening post entry quarantine systems within the countries
  - Strengthen ICKM on TB pests
28. Activities under Output 2.4:
- Build capacities for National Plant Protection Organisation (NPPOs) on Emergency Response Programs (ERPs) for plant pests
  - Conduct capacity building for NPPOs on ERPs (generic & specifics) for terrestrial and aquatic animal pests
  - Conduct field simulations on plant pests ERPs
  - Conduct field simulations on terrestrial and aquatic animal pests ERPs
  - Review and update specific Standard Operations Procedures (SOPs) for the 3 countries; including a cost on response
29. Outcome 3 supports a range of regional coordination and cooperation mechanisms and associated capacities for more effective risk assessment, prevention, monitoring and control of plant & animal pests and aquatic species and to mobilize governments, the private sector and other stakeholders for sustained actions. This includes review and strengthening national systems to promote evidence based decision making and enforce regulations, consolidation of existing knowledge platforms to make them accessible to member countries, then their development to share knowledge and lessons. It will also strengthen regional biosecurity mechanisms as cross-boundary cooperation in surveillance, diagnostics, epidemiology and containment are the most effective means of combating this menace which is directly caused by CC. These actions will be reinforced through the development/ update/ operationalisation of national and community level early warning and emergency response plans
30. Outcome 3 and also Outcome 2 will be underpinned by vital research activities including: surveys of prevailing diseases/ vectors / pests (including computer modelling of key pests / diseases under CC scenarios that will enhance the assessment of biosecurity risks to inform investment in biosecurity measures; research in different Climate Resilient Agriculture systems using Pacific production systems based on traditional crop and livestock and agro-forestry). Public awareness raising initiatives, highlighting how transboundary threats can adversely impact agriculture and food security, their roles and responsibilities.

<sup>6</sup> The stakeholder analysis as part of the Pre-feasibility study. A clear implementation arrangement will be explored at feasibility or project proposal stage.

31. Activities under Output 3.1 would include:

- Baseline surveys on plant, animal pests and diseases
- Update national and regional databases (World Animal Health information Systems)
- Carry out paravet training
- Conduct plant pests and animal disease surveillance, ID and authentication
- capacity building on Entomology/Plant Pathology/Biosecurity (including identify stakeholders and carry out the training and knowledge exchanges)
- Enhance information Communication and knowledge management (ICKM)

32. Activities under Output 3.2 (Regional CC-resilient biosecurity knowledge management platform established for informed decision making and dissemination of information)

- Strengthening and institutionalising of Pacific Plant Protection Organization, Pacific Heads of Veterinary and Animal Production Services, Regional Technical Meetings for Plant Protection, Aquatic and Fisheries Biosecurity system
- Strengthening collaboration, consultation and communication through regional forums
- Strengthening and capacity building of National Plant Protection Organizations/National Heads of Animal Health Heads of Research

33. Activities under Output 3.3:

- Establish baseline prevalence data on priority zoonotic diseases in animal species for surveillance
- Collection of primary, secondary, tertiary data
- Establish baseline data for plant pests
- Create modelling studies on key pests under CC scenario

34. Activities under Output 3.4:

- Facilitate and operationalise regional forum exchange for learning and information exchange between countries
- Facilitate bilateral meetings between countries

**Alignment with national and regional regulatory and legal framework**

35. The programme is being designed to contribute to the NDCs (see Pre-Feasibility Study Annex 4) and other relevant national sector and CC policies and plans (see Section 2.14 for details). Table 5 in Annex VII summarises the climate change policies and strategies for each of the countries targeted in this programme.

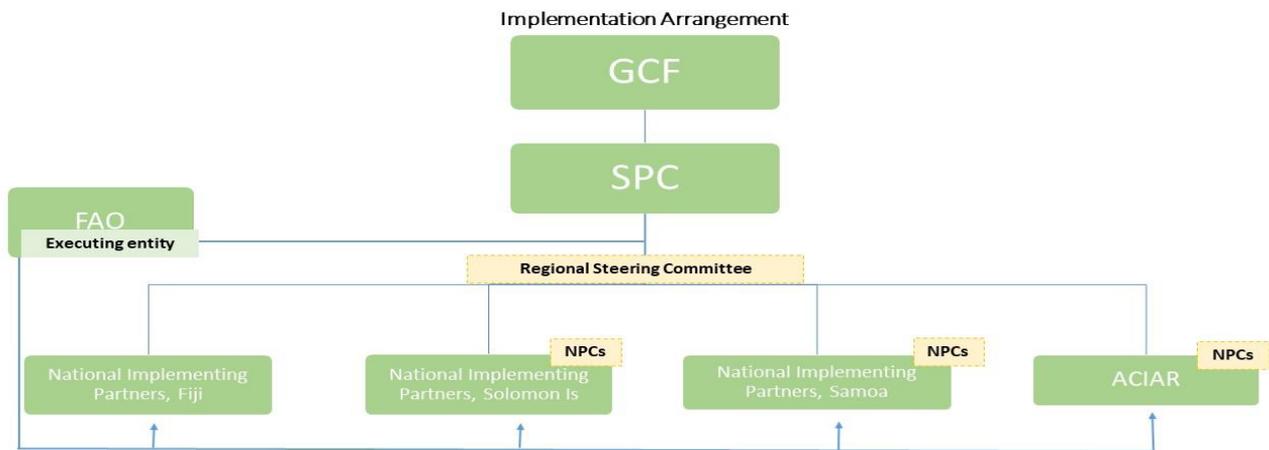
36. The national agriculture policies particularly, recognise that large-scale agriculture already faces constraints including: poor quality and availability of planting material; a lack of efficient pest control and monitoring programmes; high post-harvest losses; poor animal health and high cost of purchased feed. Key Outcome 2 of the Strategy for Development of Samoa (2016/17-2019/20) is Agriculture and Fisheries (subsistence, commercial, agri-processors and exported) aiming to increase productivity, highlighting the need to increase food, nutrition and income security. MAF's vision is "self-sufficiency in food and increased income generating opportunities in farming". Solomon Islands' plans and policies recognise agriculture as the most important sector for the national economy and the NAPA identifies first of the main vulnerable sector to be agriculture and food security.

37. The programme has also been designed to contribute to the SAMOA Pathway<sup>7</sup>, notably:

- To provide an enabling environment for effective partnership with the private sector, civil society and other stakeholders to build resilience.
- To strengthen knowledge on the causes, local impacts and responses to climate change, hazards and disasters, and build capacity for local adaptation and other risk management measures, through formal and non-formal education systems, including for loss and damage.
- To improve understanding and applications of successful strategies to increase resilience by documenting traditional, contemporary and scientific knowledge, and lessons learned, to develop and utilise appropriate awareness, communication, education and information materials for communities, media, schools, training providers and universities.

<sup>7</sup> <https://sustainabledevelopment.un.org/samoapathway.html>

**Implementation arrangements, FAO and SPC**



38. SPC<sup>8</sup> attained GCF accreditation early this year and set up a Climate Finance Unit to better engage with the GCF. FAO has been supporting SPC in the preparation of this project. SPC is the principal scientific and technical organisation in the Pacific region. It is an international development organisation owned and governed by the 26 member countries/territories. The SPC mission is to work for the well-being of Pacific people through the effective and innovative application of science and knowledge, guided by a deep understanding of Pacific Island contexts and cultures. SPC has a number of technical divisions including the Land Resources Division (LRD), Climate Change and Environment Division (CC&E), Fisheries, Aquaculture and Marine Ecosystems (FAME), among others directly and indirectly contributing to outcomes of the program. It is recognised for its ability to apply their combined technical and management expertise in responding to the specific development needs. SPC “has a strong comparative advantage to other organizations in the Region by bringing a multi-disciplinary, integrated approach to addressing some of the region’s most complex development challenges, including climate change, food and nutrition security, disasters, non-communicable diseases, gender equality, youth employment, and Sanitary – Phytosanitary Standards and biosecurity for trade”. SPC has proven capacity and experience in gender sensitive planning and mainstreaming. SPC is “particularly renowned for its knowledge and innovation in such areas as plant and animal health and biosecurity and fisheries science, public health surveillance, geoscience and conservation of plant genetic resources for food security”. SPC technical staff are recognised for their ability to apply their expertise in responding to the specific development needs of our members.
39. The core business of LRD<sup>9</sup> is to improve the food and nutritional security and building resilient communities through the sustainable management and development of land, agriculture and forestry resources. LRD will manage this project on behalf of the Accredited Entity and this is accomplished through the delivery of technical support, training and advice to our member country governments in the areas of conservation and use of plant genetic resources, sustainable natural resources management and agriculture and the coordination and building capacities of national focal points for biosecurity, value addition and trade facilitation. LRD has expertise in developing and supporting knowledge management and information networks directly concerned with sustainable agriculture and plant protection in the region. LRD will be coordinating project interventions with the FAME division (for aquaculture issues).
40. FAO<sup>10</sup> has some 70 years’ experience in delivering agriculture projects and programmes, including close to 250 from 2013-2017 in the South Pacific region, with an increasing number focusing on CC adaption. FAO demonstrates a consistent track record and relevant experience and expertise in biosecurity which is highly pertinent to the proposed programme. FAO has a new Multi-Country Programming Framework for the Pacific Islands (2018-2022), which sets out one common priority area to guide FAO partnership and support with the Governments of the Pacific Island Countries- bringing together innovative international best practices and

<sup>8</sup> <http://www.spc.int/>

<sup>9</sup> <http://lrd.spc.int/about-lrd>

<sup>10</sup> <http://www.fao.org/asiapacific/pacific-islands/en/>

global standards with national and regional expertise. The focus areas chosen for this programme reflect FAO's comparative advantages and corporate strategic objectives in agriculture (crops, livestock, forestry and fisheries), food security, natural resource management and rural development sectors while ensuring synergy with the Framework for Pacific Regionalism and the United Nations Pacific Strategy 2018-2022. Moreover, paragraph 61 of the SIDS Accelerated Modalities of Action (SAMOA) Pathway invites FAO to develop an action programme to address food and nutrition challenges facing SIDS. The Global Action Programme (GAP)<sup>11</sup> on food security and nutrition in SIDS (GAP) guides the technical substance of the CPF as this programme is intended to support countries achieve the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). The Global Action Programme focuses on three broad objectives:

- enabling environments for food security and nutrition;
- sustainable, resilient and nutrition-sensitive food systems;
- empowered people and communities for improved food security and nutrition.

41. Both SPC and FAO will be executing agencies with modalities of project implementation being established during the project formulation. Both organizations will work in synergy taking on a preventive, disaster risk management approach and contributing to incremental value of the envisaged outputs to the objective of *Enhanced food security and resilience of agriculture and livelihoods to adverse impacts of climate change, particularly climate-induced biosecurity.*

42. **National programme management units** will be set-up in each pilot country (in the national biosecurity Dept. / Unit or Ministry of Agriculture – to be agreed during preparation of the Full Project Proposal), with national steering sub-committees including implementing partners which the three countries will identify during the feasibility study, the NDA, FAO and civil society groups. A Regional Steering Committee (RSC) will be set up, co-chaired by SPC and FAO with membership including the NDAs, Ministries. A programme prerequisite will be that good lines of communication and exchange (of alerts, warnings, information, knowledge and lessons learned) are developed and maintained across the pilot countries and more widely in the region during implementation.

### Risks and Risk Mitigation measures

43. The following risks have been identified. Further risk analysis and development of risk management strategies will be undertaken when developing the full proposal:

- Political sensitivity, high turnover of staff, fund availability, internal systems
- Key financial and operational and mitigation measures will be explored in detail during full proposal stage.

### B.3. Expected programme results aligned with the GCF investment criteria (max. 3 pages)

44. The proposed programme will contribute to the GCF's Adaptation Result area of:

- 1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions, with measurable results against: 1.2 *Number of males and females benefiting from the adoption of diversified, climate-resilient livelihood options (including fisheries, agriculture, tourism, etc.).*
- 2.0 Increased resilience of health and well-being, and food and water security with measurable results against: 2.2 *number of food-secure households (in areas/periods at risk of climate change impacts).*

The programme is also expected to have a number of co-benefits for ecosystem functions and biodiversity, health, community awareness and education and carbon sequestration, all of which will be elucidated in the full project proposal.

45. The Adaptation Impact for the GCF will be measured, particularly in terms of:

- Expected total number of direct and indirect beneficiaries (male and female);
- Expected reduction in vulnerability by enhancing adaptive capacity and resilience for populations affected by the proposed activity, focusing particularly on the most vulnerable population groups and applying a gender-sensitive approach;
- Expected strengthening of adaptive capacity and reduced exposure to and increased adaptation to climate risks (PMF-A 7.0 and related indicator(s));
- Expected increase in generation and use of climate information in decision-making (PMF-A 6.0 and related indicator(s)); and/or

<sup>11</sup> Global Action Programme on Food Security and Nutrition in Small Island Developing States (FAO, 2017) Available from: <http://www.fao.org/3/a-i7297e.pdf>

- Expected strengthening of awareness of climate threats and risk-reduction processes (PMF-A 8.0 and related indicator(s)).
  - Change in frequency of pests and diseases incursions.
  - Change in distribution of pests and diseases.
46. The programme will have a strong emphasis on **training and capacity building** at national and regional level to support enhancement of the biosecurity infrastructure and regulatory frameworks to contribute to an enabling environment which will ensure the sustainability of outcomes and results beyond completion of the programme. At regional level and with support of other co-financing facilities earmarked, LRD will provide secretarial services to the Plant Protection Organization of the Pacific; it will also assume the coordination of a Sanitation and Phytosanitation coordination platform. The programme will raise awareness among the general public in transboundary pest and disease threats to food security and enhance technical capacities among policy makers; port biosecurity officers; customs / border officers; crop and livestock farmers; veterinary and plant health systems and services; agricultural / fisheries extension / NGO staff; para-vets. It will use participatory approaches, such as the Farmers' Field Schools, to catalyse land users / fishers to adopt more climate resilient practices. A wide range of research and knowledge sharing activities are proposed to reinforce the scientific basis of the programme and ensure lessons are learned across the Pacific Island Countries for incorporation in the scaling-up of this programme and / or other projects.
47. The programme will also **catalyse environmental co-benefits**, particularly through Outcome 3 which will promote a return to more diverse traditional agricultural systems, replacing the often high input monocultures which have been promoted for quick financial gains in recent years with more resilient integrated agricultural systems which require fewer / no agro-chemical inputs. These will restore soil functioning, with hydrological and biodiversity benefits, reducing flood risks, river sediment loads and pollution of rivers / coastal areas. In addition, the program will call for sound One-Health approaches, catalysing the mutual inclusive benefits of animal, public and environmental health,
48. The programme will particularly target women and youth for inclusion in the FFSs, contributing to the GCF inclusive strategic-level impacts. The programme will to ensure that women benefit fully from the programme activities on-the-ground. This will *inter alia* include: ensuring FFS activities are scheduled at times and places where women can attend; and ensuring lack of funds is not an impediment to participation. All programme activities will include gender disaggregated records. The total number of women and youth to benefit directly and indirectly of the project will be established during the project preparation when action plans will be developed.
49. The programme addresses economic and social development needs of the countries and the affected population, particularly addressing threats to food security, encouraging a return to more nutritious local foods and hence reducing the need for food imports and threats to regional trade affected by climate change. Particularly, work on-the-ground in Outcome 1 will target and prioritise the needs of women, indigenous peoples and youth. The expected positive economic impacts include a reduction in risks of programme countries' agricultural systems being devastated by transboundary pests / diseases (e.g. taro leaf blight which devastated agriculture in Samoa in the early 1990's and the legacy of which remains – see Pre-Feasibility Study Annex 2), and the improvement of more productive and resilient agricultural systems and the increased opportunities for intra-pacific trade. This will make an important and catalytic contribution toward the process of transformational change of Pacific Island Countries agricultural systems.
50. The entire populations of the programme countries (1,693,304) will be indirect beneficiaries of the programme as the improved Biosecurity Systems (BS) is expected to enhance the resilience of all 3 national food systems. The direct beneficiaries of the programme will be the staff of the BS and wider agricultural / fisheries Ministries who receive improved training (ca 2,000), also participants of the FFSs (FFS total 36,000). Effectively, this programme will benefit the entire populations of the three countries a total of 1,694,310 (2016 data) [see Table in C.2.]. There is an absence of alternative sources of financing for the proposed activities under this multi-country programme, as the current budgetary capabilities of the involved Governments are already highly stretched and can only focus on short and medium-term issues. The inadequate capacity to deal with the threat of transboundary pests is a case in point of the relative limited capacity of the Governments to cope with these issues. This programme will raise awareness of these issues, such that post programme, additional income streams as a result of import substitution can be leveraged for investing in climate change adaptation and enhanced food and nutrition security.
51. **Country ownership:** As described in B.1. (above) and fully in Section 2.14 of the Pre-Feasibility Study (Annex II of this document), the countries have a range of CC and sector policies, plans and priorities to which this adaptation programme has been designed to align with / contribute to. These include the NDCs and NAPAs. As

noted in B.1. (above), the programme is aligned with the countries' climate change adaptation strategies and plans, also wider sector policies and plans and other funded projects that deal with food and nutrition security.

52. **Efficiency and effectiveness:** This programme will help unlock additional investments in climate-resilient agriculture (crops and livestock) / fisheries in the medium to long term, for example by investing in agriculture on Atolls, whose food security is most affected by climate change in the Pacific and reassuring existing and potential investors in commercial (export) that have effective biosecurity and value chains in place to make them resilient to the CC-linked changing nature, dynamics and intensity of plant and animal pests and IASs pressures. The systems will result in economies of scale and thus in efficiencies through national and regional coordination mechanisms that promote exchange of knowledge and pursue national and regional risk reduction strategies. Table 6 in Annex VII provides information on the countries investments on biosecurity.
53. The effectiveness of the proposed implementation arrangements and proposed activities has been tested in other situations and countries. Notably:
- The Pacific Plant Protection Organization (3PO) which has been instrumental in building capacities of national plant protection agents and in creating awareness around the incursion of pests and diseases;
  - The Pacific Heads of Veterinary and Animal Production Services (PHOVAPS), established in response to the threat to exotic diseases and to collaborate regionally to prevent further outbreaks of pests and diseases.
  - Biosecurity systems will be modelled on those used in Australia and New Zealand and aligned to the plant protection work spearheaded by USDA (Compact);
  - Synergies and complementarities will be established with similar programs contributing to the same goals (EDF, EU; ACIAR, STDF, PHAMA Plus, PACER Plus, DAWR);
  - FFS exist<sup>12</sup> and prove to be highly effective as “learning-by-doing” and specialising in climate resilient food production systems including vegetables and small livestock. The Project will build on FFS tailored to the specific conditions working with women and youth specifically.

#### **B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)**

54. SPC and FAO have been working with member countries and partners to develop and deliver readiness and full-scale projects in the agricultural, fisheries and food security sectors, building on the existing coordination mechanisms addressing the biosecurity issues within the sub-region. The concept of a regional programme was one of the main recommendations from the FAO Agriculture Ministerial meeting held in Papua New Guinea in May 2015. Information for the Pre-Feasibility Study and this Concept Note has been prepared involving desk research, also short missions to Fiji and Samoa. The missions involved meeting with the national biosecurity organisations, pertinent Ministries and Departments. In Samoa, the consultant met with the NDA but was unable to do so in Fiji. The FAO Assistant Representative undertook to update the NDA about the programme. Drafts of the Pre-Feasibility Study and Concept note were shared with all pertinent Ministries / Departments including the NDAs. Meetings were also held with USP and SPREP at which the programme idea was discussed in detail. A consultation workshop was held in Fiji with various stakeholders. Solomon Islands (SI) joined the programme after the consultant's mission. A local FAO officer undertook to meet with the Ministries and other stakeholders to gather additional information and also share drafts with the NDA. Further consultations will be held during development of the full funding proposal, including with the implementing partners and potential co-financing projects. Field visits to prospective sites for activities under Outcome 3 will be organised, including participatory meetings with land users / fishers and community groups (including women's groups) also with local Ministry officials (extension staff). As appropriate, consultations with Indigenous Peoples will be organized and their Free, Prior and Informed Consent will be secured (see Section 2.11 of Pre-FS). As chiefly involved in subsistence farming, particular attention will be paid to ensure the needs of women are understood and clearly articulated in the full proposal. There was consultation between FAO and SPC held on 11-13 December 2018 to strengthen the Concept Note. A technical meeting on 21-22 January, 2019 brought together experts, executive and senior key government officials from Fiji, Samoa and the Solomon Islands along with experts from the LRD-SPC and FAO. The purpose of the meeting was to exchange views and compare methodologies which can be used to construct scenarios for the programme.

<sup>12</sup> <http://www.fao.org/farmer-field-schools/en/>

**C.1. Financing by components (max ½ page)**

Outcome	Indicative cost (USD)	GCF financing		Co-financing <sup>13</sup>		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
1: Climate-adapted farming systems and value chains are more resilient to biosecurity threats	14,487,211	11 million	grant	1,487,211	Grant	SPC
				2 Million	Grant	ACIAR
2: Strengthened national and regional early warning and transboundary risk management and associated operational capacities	11,714,755	11 million	grant	235,913 (Fiji);	Grant	SPC
				246,015 (Samoa)		
				232,827 SI		
3: Strengthened national / regional enabling environment (data, knowledge, information, policies // capacities for generation and use of climate risk information including bio-security risks)	15,497,000	12 million	grant	497,000	Grant	FAO
				3 Million- (EDF11 – PRISE)		EU
<b>Indicative total cost (USD)</b>	<b>41,698,966</b>	<b>34 million</b>		<b>7,698,966</b>		

**C.2. Justification of GCF funding request (max. 1 page)**

55. Pacific Island Countries face enormous climate change related challenges such as the effects of increasing frequencies of natural hazards (cyclones, flash floods, drought and coastal inundation) and their impact on local food production systems, degradation of ecosystems and the increased biosecurity risks which, together, increase the toll on their relatively small economies. Climate change adaptation and building resilience are critical to the livelihood of communities that face food insecurity and exposures from bio-security threats.
56. Countries are aware of these risks and their impact, however have little leeway in determining their Country allocations to the most pressing climate needs such as rehabilitation after a cyclone rather than to budget for longer term preparedness and adaptation strategies. Such sub-optimal practices are likely to continue unless external funding could be tapped in that would allow longer-term underlying factors that affect food security and biosecurity risks to be addressed sustainably.
57. The Global Environment Facility (GEF) could be a supplemental source of funding for biosecurity issues. To date, GEF projects primarily address invasive species issues from the point of view of threatening areas and species of high biodiversity value and from a biodiversity perspective rather than a climate change perspective. Complementary and co-financing funding from the GEF could be explored though.
58. The project will complement PICTs investments in preparedness and adaptation to climate change in food and nutrition security and biosecurity threats (information on the current (limited) investment by PICs will be provided in the full proposal to clarify and detail further the information provided in #56). GCF finance will boost actions and create fundamental changes in adapting to climate change/ reducing risks from degrading

<sup>13</sup> For Concept Notes – GCF guidance states “where possible, secure up-front co-financing”. This will be addressed during full programme development due to lack of time “in country” and information at that time regarding on-going projects – to be determined during the PPF stage

food production systems and transboundary crop, livestock and aquatic pests, diseases and IASs, providing value added benefits to 100% of the population in the target Pacific countries, critically supporting food security and enhancing the nutritional status of the entire population of each country.

59. Despite efforts, due to the small size of their economies, Fiji, Samoa and the Solomon Islands face fiscal constraints in using central government expenditures to support food security and build capacities in biosecurity systems beyond the systems already in place to address biosecurity issues due to 'normal' situations. The threats of climate change are expected to substantially increase the biosecurity risks and would require additional and enhanced capacity and systems to be put in place. By improving these systems with new and improved features that increase resilience to CC, investing in the supportive development of legislation, regulations and human capacity at all levels, and tangibly making available technical and technological solutions to the threats of climate-induced pests and disease, the GCF investment will assist Governments with strengthening the countries' adaptive capacities. Furthermore, the GCF support will contribute to gathering information and knowledge and monitoring on the transboundary pest and disease threats, also on tailored CSA to enhance resilience in the context of South Pacific islands' traditional agricultural systems.
60. This GCF support will contribute significantly to regional cooperation, critical in the Pacific, by providing the countries the means to put in place biosecurity measures at the key ports and airports in collaborative manner, which will contribute to safeguarding long-term socio-economic development. This will promote sustainably production systems with trade potential thus contributing to each country's economy and wider regional sustainable development.
61. The programme relies on grant finance as it will not generate revenue that lends itself to providing reflows to the GCF. Following on from the GCF programme, as the win-win benefits become clear, private sector and government funds are anticipated to follow to support continuation operation of the facilities. The sustainability of the proposed project is to be built on partnerships with the governments initiating other funding mechanisms through diplomatic relations either bilateral or other platforms.

### **C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)**

62. The sustainability of this regional adaptation program for enhanced food security/biosecurity risks in the Pacific lies in its effective establishment of climate resilient, bio-secure food production and value chains that in the medium to long-term will offset the importation of food and promote intra and interregional trade. The food security and value chain approach will promote climate resilient and low-emission sustainable and integrated production systems that will stimulate growth, market access hence allowing affected countries to reinvest the rent.
63. The program will put in place the appropriate legal, policy and institutional mechanisms and build capacities of institutions and local communities as well as other partners such as the private sector, NGOs and academia, to sustain key outcomes beyond the life of programme and a coordinated approach towards tackling issues that pertain CC and transboundary pests.
64. Under the patronage of the PPPO and the PHOVAPS<sup>14</sup> national biosecurity authorities assure that on successful completion of this project, the respective national governments will recognise the win-win advantages of the new systems, including benefits to food and nutrition security, and enhanced trade relationships (notably with New Zealand and Australia – which have stringent biosecurity regulations which Pacific Island Countries cannot currently meet) and include these ongoing costs in national budgets. Specifically, concerning the GCF funds to be used for proposed infrastructure investments, the programme will cover the up-front costs, which are beyond what governments can manage while governments will cover the (more modest) recurrent costs and O&M afterwards.
65. Depending on interest and success of this project, it is envisaged that a second project could be developed, that will bring on board other Pacific Island Countries. In the course of this project, as the implementation with focus on setting up systems, capacities and knowledge management and knowledge sharing, it will already benefit other countries in the Pacific. Specifically, experiences in Farmer Field Schools and their power to transform production systems adaptive to CC and cross-boundary cooperation in surveillance, diagnostics, epidemiology and containment are the most effective means of taking operations to scale.
66. Economies of Scale will be realized in cross boundary regulatory mechanisms and in information and monitoring, improved coordination and knowledge management. Some of the countries invested in the on-line

<sup>14</sup> The PHOVAPS network was established to respond to resolutions made at the First Regional Conference of Ministers of Agriculture and Forestry Services. The aims of the PHOVAPS network is to review available information on the state of animal health and production services throughout the region, elucidate regional work priorities, and develop strategies for improving animal health and animal production services throughout the region.

Policy Banks<sup>15</sup>. that will allow new entrants to tap into. This proposal includes the investments needed to develop knowledge sharing systems

67. GCF investment in training (e.g. development of the para-vet course) will also not require to be repeated, only materials kept up-to-date, which should fall within the budget of USP.

68. Sustainability of the GCF investments will be monitored post programme by the national biosecurity organisations, also by FAO-SAP [e.g. in reporting to the SPS Agreement, IPPC, OIE and Codex Alimentarius Commission (the 'food code')], SPC and ACIAR]

- Map indicating the location of the programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

**Self-awareness check boxes**

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes  No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes  No

<sup>15</sup> The EU funded Pacific Agriculture Policy Project facilitated the establishment of Policy Banks in 2016 in many of the PICTS. Policy banks are effective in Solomon Islands, Fiji and Samoa and provide a Government repository of information for issues that concern agriculture in general and biosecurity, animal health, plant health and other threats specifically (<http://pafpnet.spc.int/policy-bank>).

Annexes

Annex I: Programme Location Map





**Annex II: Pre-Feasibility Study**

Separate document

**Annex III: Theory of Change**

Theory of Change			
<b>IMPACT</b>	Enhanced food security and resilience of livelihoods - agriculture (and livestock and fisheries) to adverse impacts of climate change particularly climate-induced biosecurity threats		
<b>OBJECTIVE</b>	Empower and strengthen capacity of Pacific island Countries and their regional alliances to fight against the increasing CC-induced threats of transboundary plant & animal pests and invasive exotic aquatic species		
<b>OUTCOMES</b>	1: Climate-adapted farming systems and value chains that are more resilient to biosecurity threats.	2: Strengthened national and regional early warning systems, transboundary risk management, and associated operational capacities	3: Strengthened national and regional enabling environment to fight climate-induced biosecurity threats
<b>OUTPUTS</b>	1.1 Increased awareness, commitment and technical capacities at all levels to limit / reduce / prevent the risk of transmission of transboundary pests. capacities to use reliable and timely locally-relevant data and knowledge	2.1 Enhancement of national and regional early warning systems to detect outbreaks of CC-related transboundary pests and diseases in crops, livestock, fisheries and aquaculture	3.1 Increased capacities at all levels to generate, disseminate and use reliable and timely locally-relevant data and knowledge of CC-related transboundary pests and diseases
	1.2 CC resilient and sustainable farming practices rolled out and scaled up	2.2 Increased capacities at regional, national and local biosecurity institutions to implement early warning systems	3.2 Regional CC-resilient biosecurity knowledge management platform established for informed decision making and dissemination of information
	1.3 Increased access by the private sector and other actors of agriculture value chains to TB biosecurity risks and their capacity to implement enforced regulations	2.3 Reduced interception rates of transmission of CC-related transboundary pests in crop, livestock, fisheries and aquaculture systems at borders and inter/intra Islands	3.3 An Integrated regional climate resilient one health (livestock, environment, biodiversity) strategy effectively implemented
		2.4 Development of relevant and appropriate emergency response plans and SOPs to tackle outbreaks of CC-related transboundary pests	3.4 South-south cooperation and regional coordination for enhanced financial mechanisms to fund biosecurity efforts
			3.5 Regional mechanisms established to address data and information gaps and data sharing
<b>BARRIERS</b>	Limited capacity at all levels	Biosecurity legislation and regulations do not encompass rising and new CC-related threats	Absence of baseline surveys of prevailing diseases/ vectors / pests
	Limited public awareness of threats of TB pests and diseases	Biosecurity legislation and regulations not enforced	Inadequate levels of knowledge of key pests / diseases under climate change scenarios



Lack of a regional biosecurity operational strategy	Lack of assessments of CC-related biosecurity risks in the South Pacific region	Inadequate regional training provision (short courses, also degree level) and research on transboundary pests and diseases for plants / terrestrial and aquatic animals
Inadequate treatment facilities (fumigation, HTFA) for import / export screening	Low levels of scientific knowledge on integrated robust traditional production systems that will reduce biosecurity threats	Lack of scientific and field research on how the selected CSA practices contribute to enhancing the resilience of farming systems in the South Pacific
Poor regional co-ordination hindering effective risk assessment, prevention, monitoring and control of plant & animal pest and diseases and exotic alien aquatic species.	Poor capacity / lack of: local testing laboratory facilities; specialist greenhouses; plant / animal / molecular labs; containment facilities (for post-entry quarantine); active surveillance; import, export / treatment (including fumigation and incineration)	Dearth of tailored biosecurity learning materials for local groups (to extension staff, farmers, fishers, youth groups, women's groups, churches, schools) including traditional hard copy materials, also materials social media and radio
Regional co-ordination not well supported	Limited surveillance, eradication, containment strategies, management and control strategies in response to outbreaks	Array of un-coordinated and often inaccessible existing knowledge platforms not well maintained
PPPO functions limited due to inadequate funding, human resources and operation support	National monitoring systems inadequate to meet CC challenges	
	Lack of up-to-date national pest list databases	

Annex IV: Preliminary Social and Environmental Screening

Environmental and Social Risk Identification – Screening Checklist

Trigger questions

	Question	YES	NO
1	<p>Would this project:</p> <ul style="list-style-type: none"> <li>• result in the degradation (biological or physical) of soils or undermine sustainable land management practices; or</li> <li>• include the development of a large irrigation scheme, dam construction, use of waste water or affect the quality of water; or</li> <li>• reduce the adaptive capacity to climate change or increase GHG emissions significantly; or</li> <li>• result in any changes to existing tenure rights<sup>[1]</sup> (formal and informal<sup>[2]</sup>) of individuals, communities or others to land, fishery and forest resources?</li> </ul>		✓
2	<p>Would this project be executed in or around protected areas or natural habitats, decrease the biodiversity or alter the ecosystem functionality, use alien species, or use genetic resources?</p>		✓
3	<p>Would this project:</p> <ul style="list-style-type: none"> <li>• Introduce crops and varieties previously not grown, and/or;</li> <li>• Provide seeds/planting material for cultivation, and/or;</li> <li>• Involve the importing or transfer of seeds and or planting material for cultivation <u>or</u> research and development;</li> <li>• Supply or use modern biotechnologies or their products in crop production, and/or</li> <li>• Establish or manage planted forests?</li> </ul>		✓
4	<p>Would this project introduce non-native or non-locally adapted species, breeds, genotypes or other genetic material to an area or production system, or modify in any way the surrounding habitat or production system used by existing genetic resources?</p>		✓
5	<p>Would this project:</p> <ul style="list-style-type: none"> <li>• result in the direct or indirect procurement, supply or use of pesticides<sup>[3]</sup>: <ul style="list-style-type: none"> <li>▪ on crops, livestock, aquaculture, forestry, household; or</li> <li>▪ as seed/crop treatment in field or storage; or</li> <li>▪ through input supply programmes including voucher schemes; or</li> <li>▪ for small demonstration and research purposes; or</li> <li>▪ for strategic stocks (locust) and emergencies; or</li> <li>▪ causing adverse effects to health and/or environment; or</li> </ul> </li> <li>• result in an increased use of pesticides in the project area as a result of production intensification; or</li> </ul>		✓

<sup>[1]</sup> <sup>[1]</sup> Tenure rights are rights to own, use or benefit from natural resources such as land, water bodies or forests

<sup>[2]</sup> Socially or traditionally recognized tenure rights that are not defined in law may still be considered to be 'legitimate tenure rights'.

<sup>[3]</sup> Pesticide means any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest, or regulating plant growth.

	<ul style="list-style-type: none"> <li>• result in the management or disposal of pesticide waste and pesticide contaminated materials; or</li> <li>• result in violations of the Code of Conduct?</li> </ul>		
6	Would this project permanently or temporarily remove people from their homes or means of production/livelihood or restrict their access to their means of livelihood?		✓
7	Would this project affect the current or future employment situation of the rural poor, and in particular the labour productivity, employability, labour conditions and rights at work of self-employed rural producers and other rural workers?		✓
8	Could this project risk overlooking existing gender inequalities in access to productive resources, goods, services, markets, decent employment and decision-making? For example, by not addressing existing discrimination against women and girls, or by not taking into account the different needs of men and women.		✓
9	<p>Would this project:</p> <ul style="list-style-type: none"> <li>• have indigenous peoples* living outside the project area<sup>1</sup> where activities will take place; or</li> <li>• have indigenous peoples living in the project area where activities will take place; or</li> <li>• adversely or seriously affect on indigenous peoples' rights, lands, natural resources, territories, livelihoods, knowledge, social fabric, traditions, governance systems, and culture or heritage (physical<sup>2</sup> and non-physical or intangible<sup>3</sup>) inside and/or outside the project area; or</li> <li>• be located in an area where cultural resources exist?</li> </ul> <p>* FAO considers the following criteria to identify indigenous peoples: priority in time with respect to occupation and use of a specific territory; the voluntary perpetuation of cultural distinctiveness (e.g. languages, laws and institutions); self-identification; an experience of subjugation, marginalization, dispossession, exclusion or discrimination (whether or not these conditions persist).</p> <p><sup>1</sup>The phrase "Outside the project area" should be read taking into consideration the likelihood of project activities to influence the livelihoods, land access and/or rights of Indigenous Peoples' irrespective of physical distance. In example: If an indigenous community is living 100 km away from a project area where fishing activities will affect the river yield which is also accessed by this community, then the user should answer "YES" to the question.</p> <p><sup>2</sup>Physical defined as movable or immovable objects, sites, structures, group of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance located in urban or rural settings, ground, underground or underwater.</p> <p><sup>3</sup>Non-physical or intangible defined as "the practices, representations, expressions, knowledge and skills as well as the instruments, objects, artifacts and cultural spaces associated therewith that communities, groups, and in some cases individuals, recognize as part of their spiritual and/or cultural heritage"</p>		✓

**Annex V: Acronyms and Abbreviations**

ACIAR	Australian Centre for International Agricultural Research
AE	Accredited Entity (FAO)
AMA	Accredited Masters Agreement
BAF	Biosecurity Authority of Fiji
BSI	Biosecurity Solomon Islands
CC	climate change
CO <sub>2</sub>	carbon dioxide
CPF	Country Programming Framework
CSA	climate smart agriculture
EE	Executing Entity
ERP	
FAO	Food and Agriculture Organisation
FAO-SAP	FAO Sub-Regional Office for the Pacific Islands
FFS	
FPIC	Free, Prior and Informed Consent
GAP	Global Action Programme on Food Security and Nutrition in Small Island Developing States (FAO, 2017)
GCF	Green Climate Fund
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
ILK	
IAS	invasive exotic species
Ibid.	in the same source
ILK	indigenous and local knowledge
INDC	Intended Nationally Determined Contributions
IPPC	FAO International Plant Protection Convention
LDC	least developed country
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Fisheries (Samoa)
MAFFF	Ministry of Agriculture & Food, Forests and Fisheries (FSM)
MFMR	Ministry of Fisheries and Marine Resources (Solomon Islands)
MLGHE	Ministry of Local Government, Housing & Environment (Fiji)
MNRE	Ministry of Natural Resources and Environment (Samoa)
MOA	Ministry of Agriculture (Fiji)
MOFO	Ministry of Forests (Fiji)
MOFI	Ministry of Fisheries (Fiji)
NDA	national designated authority (for GCF)
NDCs	Nationally Determined Contributions
NGO	non-governmental organisation
NPPO	
NZ	New Zealand
OIE	World Organization for Animal Health
PHOVAPS	Pacific Heads of Veterinary and Animal Production Services
PMF	performance measurement framework
PPPO	Pacific Plant Protection Organization
S.A.M.O.A.	SIDS Accelerated Modalities of Action Pathway
SDGs	Sustainable Development Goals
SI	Solomon Islands
SIDS	Small Island Developing States
SOP	
SPC	Pacific Community
SPREP	South Pacific Regional Environment Programme
SPS	Agreement on the Application of Sanitary and Phytosanitary Measures (the "SPS Agreement")
SQS	Samoa Quarantine Service
UNFCCC	UN Framework Convention on Climate Change
USP	University of the South Pacific
WTO	World Trade Organization

## Annex VI: Criteria for selection of interventions locations

GCF on-the-ground interventions will target communities with the following characteristics across the three programme countries:

- \* High levels of recent damage attributable to climate change;
- \* High levels of subsistence land users / livestock keepers / fishers;
- \* Degraded areas which would particularly benefit from SLM (esp. increasing soil organic matter & N content, reducing soil erosion, increasing tree cover through agroforestry) and / or pasture enrichment;
- \* Communities which focus on crops only – which would benefit from crop-livestock integration
- \* Communities whose crops are particularly deleteriously affected by pests – which would benefit from integrated pest management
- \* Areas experiencing issues of lack of ground and rainwater, which would benefit from rainwater harvesting and storage
- \* Limited access to post-harvest storage / processing infrastructure.

The final decisions on intervention sites will be made after consultations with the communities, with guidance of local technical staff and confirmed in the validation workshop.

<sup>i</sup> <https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0004405>

## Annex VII: Tables

**Table 1:** Examples of pest species, their impact and prevalence in Pacific region

Species	Descriptions and References	Prevalence and Impacts	Country
<b>Oryctes rhinoceros (coconut rhinoceros beetle - CRB)</b>	Bedford (1976c, 1980) reviewed the life-cycle of <i>O. rhinoceros</i> and noted a wide range in the duration of the third-instar larvae (60-165 days) compared to the other stages.  This may be caused by differences in climatic and nutritional conditions of different habitats. Dry climate or low nutritional conditions often delayed larval development of <i>O. rhinoceros</i> , which can be extended to as long as 14 months, giving rise to smaller-sized adults. The CRB is known to cause distinctive and sever damages to coconut palms and other palm families, sometimes leading to the death and mortality to a lot of palm plantations.	Recorded on banana (Sharma and Gupta, 1988), sugarcane, papaya, sisal and pineapple (Khoo et al., 1991)	Fiji, Samoa, Solomon Islands
<b>Plutella xylostella (diamondback moth)</b>	Many reports describe the seasonal abundance of diamondback moth in relation to different climatic conditions ( <a href="#">Harcourt, 1957</a> ; <a href="#">Shaw, 1959</a> ; <a href="#">Wu, 1968</a> ; <a href="#">Iga, 1985</a> ). Although the moth breeds throughout the year in tropical conditions, the species, along with many other leaf-feeding insects, infests cruciferous crops such as Chinese cabbage or common cabbage during the cool and dry season. Heavy rain appears to be detrimental to infestation ( <a href="#">Talekar and Lee, 1985</a> ). However, <a href="#">Yamada and Kawasaki (1983)</a> reported that the rates of development (e.g. hatching, pupation, adult emergence) of <i>P. xylostella</i> were not affected by the level of humidity. Rainfall, along with other limiting factors (e.g. food scarcity, natural enemies), influences its population density as shown in life table and other ecological studies ( <a href="#">Harcourt, 1963</a> ; <a href="#">Iga, 1985</a> ; <a href="#">Sivapragasam et al., 1988</a> ).	Brassica/ Cabbages	Fiji, Samoa, Solomon Islands

<b>Leptospirosis</b>	Leptospirosis is an important zoonotic disease in the Pacific Islands. In Fiji, two successive cyclones and severe flooding in 2012 resulted in outbreaks with 576 reported cases and 7% case-fatality.	Transboundary diseases in animals	Fiji
<b>Diaphorina citri (Asian citrus psyllid)</b>	The Asian citrus psyllid is a vector for the dead full citrus greening diseases also known as the Huanglongbing disease. The Pacific is known to be free of this citrus greening disease. Monitoring for the psyllid should start as soon as possible. In Samoa, two hot spots have been found, one in Upolu near the brewery, and the other near the port in Savaii. A pheromone is available, and with sticky traps could be used to collect psyllids so they can be checked for the bacterium that causes Huanglongbing (greening) disease. A greater understanding helps to inform future breeding programmes, helping the crops to meet challenges such as climate change and disease, and breed characteristics desired by the consumer.	Citrus, lemons, oranges	Samoa
<b>Papaya mealybug</b>	The papaya mealybug, <i>Paracoccus marginatus</i> Williams and Granara de Willink (Hemiptera: Pseudococcidae) is a small polyphagous sucking insect with pest status that attacks several genera of host plants, including economically important tropical fruits, vegetables and ornamentals.	Fruit trees, (papaya, mango, guava, etc.)	Fiji

Table 2: GDP per Country, Population and GDP per capita for selected countries

Country	GDP <sup>i</sup> (million US \$) (2016)	Population <sup>i</sup> (2016)	GDP/capita <sup>i</sup> (US \$) (2016)
Fiji	4,703.63	898,760	9,110.0
Samoa	786.36	195,125	6,378.8
Solomon Islands	1,202.13	599,419	2,235.3
New Zealand	184,969.15	4.694 million	38,565.1
USA	18,624,475.00	323.127 million	57,638.2

Table 3: Overview of Transboundary plant pests and transboundary diseases for selected countries

All three countries – Transboundary plant pests of concern	All three countries – Transboundary diseases of concern
<ul style="list-style-type: none"> <li>Coconut Rhinoceros Beetle – Guam/ Pacific Bio type</li> <li>Exotic fruit fly species</li> <li>Brown marmorated stink bug</li> <li>Fusarium Wilt Tropical race 4 on bananas</li> <li>Bogia Coconut syndrome</li> </ul>	<ul style="list-style-type: none"> <li>Rabies</li> <li>Leptospirosis</li> <li>Highly Pathogenic Avian Influenza</li> <li>African Swine Fever</li> <li>Foot and Mouth Disease</li> </ul>
Transboundary plant pests and diseases of concern – Fiji	

<ul style="list-style-type: none"> <li>• Taro Leaf Blight</li> <li>• Giant African Snail</li> <li>• Sugarcane Smut disease</li> <li>• Asian Gypsy Moth</li> </ul>	<ul style="list-style-type: none"> <li>• Red imported fire ant</li> <li>• Little fire ant</li> <li>• Coconut Rhinoceros Beetle – G strain</li> </ul>
Transboundary plant pests and diseases of concern – Samoa	
<ul style="list-style-type: none"> <li>• Asian Citrus psyllid</li> <li>• Little Fire Ant</li> <li>• Taro leaf vein Chlorosis virus</li> <li>• Taro beetle</li> </ul>	<ul style="list-style-type: none"> <li>• Coconut Rhinoceros Beetle – G strain</li> <li>• Borbone disease of taro</li> <li>• Queensland fruit flies</li> </ul>
Transboundary plant pests and diseases of concern – Solomon Islands	
<ul style="list-style-type: none"> <li>• Citrus Canker</li> <li>• Cassava Bacterial Blight</li> <li>• Bogia Coconut syndrome</li> <li>• Fruit flies (Queensland fruit flies)</li> <li>• Cocoa pod borer</li> <li>• Coffee beery borer</li> <li>• Red Imported Fire Ants (RIFA)</li> </ul>	<ul style="list-style-type: none"> <li>• Weeds (prohibited list to be attached)</li> <li>• Sigatoka disease of banana</li> <li>• Cucurbit mosaic virus</li> <li>• Asian Gypsy Moth</li> <li>• Taro Leaf Blight</li> <li>• Taro nematodes</li> </ul>

**Table 4 :** Barriers to reducing climate-induced transboundary biosecurity threats in PICTs

<b>Knowledge and Awareness</b>	<ul style="list-style-type: none"> <li>○ <b>Lack of capacity at all levels in biosecurity due to lack of biosecurity training curriculum/modules/ facilities;</b></li> <li>○ <b>Lack of public awareness of threats of transboundary pests;</b></li> <li>○ <b>Communities lack awareness, skills and knowledge of the need to reinstate more diverse farming systems for increased resilience to transboundary threats to food security and nurturing ecosystem services;</b></li> <li>○ <b>Inadequate levels of knowledge of key pests / diseases under climate change scenarios;</b></li> </ul>
<b>Data/Research</b>	<ul style="list-style-type: none"> <li>○ Absence of baseline surveys of prevailing diseases/ vectors / pests;</li> <li>○ Lack of assessments of CC-related biosecurity risks in the South Pacific region;</li> <li>○ Low levels of scientific knowledge on integrated robust traditional production systems that will reduce biosecurity threats;</li> <li>○ Regional co-ordination ineffective (no regional mechanism for sustainability and lack of coordination at the country level) hindering effective risk assessment, prevention, monitoring and control of plant &amp; animal pest and diseases and invasive exotic aquatic species;</li> <li>○ Lack of scientific and field research on how the selected CSA practices contribute to enhancing the resilience of farming systems in the South Pacific;</li> <li>○ Array of un-coordinated and often inaccessible existing knowledge platforms not well maintained;</li> <li>○ Dearth of tailored biosecurity learning materials for local groups (to extension staff, farmers, fishers, youth groups, women’s groups, churches, schools) including traditional hard copy materials, also materials social media and radio;</li> <li>○ Lack of up-to-date national pest list databases;</li> </ul>
<b>Early warning systems</b>	<ul style="list-style-type: none"> <li>○ The future of management of invasive species will involve new tools developed from research that integrates invasion and climate-change biology.</li> <li>○ Increased monitoring and more interagency and interstate coordination will also be necessary. Monitoring and coordination similar to the Early Detection and Rapid Response System</li> </ul>

	envisioned by the National Invasive Species Management Plan may be a useful vehicle for new vigilance under climate change (NISC 2001; Westbrooks 2004).
<b>Technology</b>	<ul style="list-style-type: none"> <li>○ Technology transfer and capacity is lacking in the Pacific region particularly at pre-border, border and post-border for screening and capacity building purposes.</li> </ul>
<b>Quarantine Infrastructure and Skills</b>	<ul style="list-style-type: none"> <li>○ Inadequate treatment facilities for import / export screening at the growing numbers of entry points, which current biosecurity systems are unable to adequately monitor.</li> <li>○ Limited quarantine facilities for terrestrial and aquatic organisms;</li> <li>○ Poor capacity / lack of: local testing laboratory facilities; specialised greenhouses; plant / animal / molecular labs; containment facilities (for post-entry quarantine); active surveillance; import, export / treatment (including fumigation and incineration); efficient monitoring systems for recording and maintaining daily biosecurity operations at main access points (Biosecurity Information Facility- BIF).</li> </ul>
<b>Policy and legislative</b>	<ul style="list-style-type: none"> <li>○ Biosecurity legislation and regulations do not encompass rising and new CC-related threats;</li> <li>○ Biosecurity legislation and regulations not enforced;</li> <li>○ Lack of a regional biosecurity operational strategy;</li> <li>○ Lack of animal and plant pest &amp; disease emergency preparedness and response plans;</li> <li>○ Lack of surveillance, eradication, containment strategies, management and control strategies in response to disease/pest outbreaks and invasions of exotic species;</li> <li>○ National monitoring systems inadequate to meet CC challenges.</li> </ul>
<b>Financial</b>	<ul style="list-style-type: none"> <li>○ The costs associated with addressing the above would be prohibitive for the countries without external support.</li> <li>○ The proposed project seeks GCF resources to overcome these key technical and financial barriers.</li> </ul>

Table 5: Alignment with national and regional regulatory and legal framework

<b>COUNTRY</b>	<b>POLICIES</b>
<b>FIJI</b>	National Climate Change Policy (2012) Second National Communication to the UNFCCC (2014) Agriculture Policy (2015) Fiji Livestock Sector Strategy (2016) Fiji NDC Implementation Roadmap 2017-2030 (2017) 5-Year & 20-Year National Development Plan Transforming Fiji (2017) Republic of Fiji National Adaptation Plan. A pathway towards climate resilience (2018)
<b>SAMOA</b>	Strategy for Development of Samoa 2016/17-2019/20 (2016) National Adaptation Programme of Action (2005) Second National Communication to the UNFCCC (2010) Ministry of Agriculture and Fisheries policies including: Aquaculture Development and Management Plan (2013-2018); MAF Slaughter and Meat Supply Act (2015); Fisheries Management Act (2016); National Strategy on Aquatic Biosecurity (2018-2022)
<b>SOLOMON ISLANDS</b>	Solomon Islands National Development Strategy: 2011-2020 National Adaptation Programme of Action (2008) Second National Communication (2017) Solomon Islands' National Climate Change Policy (2012-2017) (2012) Solomon Islands Agriculture & Livestock Sector Policy (2015-2019) Solomon Islands – Aquaculture development plan (2009-2014) Strategy on Aquatic Biosecurity (2018-2022)

**Table 6:** The programme countries already make significant investments on biosecurity

Country	Ministry	Annual Budget (millions)	Year
<b>Fiji</b> (budget allocations <sup>1</sup> in Fijian \$s)	Ministry of Agriculture (“allocation”)	\$86.3	2017-18
	Biosecurity Authority of Fiji	\$6.8	2017-18
	Ministry of Forests	\$16.0	2017-18
	Ministry of Fisheries	\$18.8	2017-18
	Climate Change and International Cooperation Division (in the Ministry of Economy)	\$1.06	2017-18
<b>Samoa</b> (approved budget <sup>1</sup> in Samoa \$s)	Ministry of Agriculture and Fisheries (MAF)	\$17.34	2017-18
	Samoa Quarantine Service (SQS) (in Agriculture, Quarantine and Regulatory Services)	\$0.78	2017-18
	Ministry of Natural Resources and Environment	\$26.67	2017-18
<b>Solomon Islands</b> (latest available online in Solomon Islands \$s) <sup>i</sup>	Minister for Agriculture and Livestock Development	\$17.72	2009
	Biosecurity Solomon Islands (BSI) (a department within the Solomon Islands Ministry of Agriculture and Livestock)	\$0.416	2018
	Ministry of Environment, Climate Change, Disaster Management, and Meteorology (then Environment, Conservation and Meteorology)	\$11.43	2009