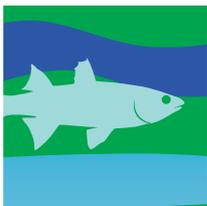
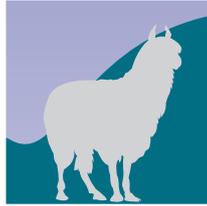


COUNTRY REPORTS



THE STATE OF THE **SOLOMON ISLANDS** BIODIVERSITY FOR FOOD AND AGRICULTURE

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A Brief Report on the State of Biodiversity for Food and Agriculture In Solomon Islands

2016

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STATE OF KNOWLEDGE OF BIODIVERSITY FOR FOOD AND AGRICULTURE

I. Assessment and monitoring of biodiversity for food and agriculture

1.1 General context¹

Solomon Islands, an archipelago of 997 islands with a total land area of 29,900km² is spread over 1.34 million km² of ocean. The country forms an arc of deep water oceanic islands that lie within the Solomon Sea. One of the larger South Pacific nations, Solomon Islands extends for over 1,700 km between Bougainville in the north-west and Vanuatu in the south-east, with main islands lying between latitudes 5-12° S and longitudes 152-163° E. The Solomon Islands archipelago is located within the Pacific's Ring of Fire, and within the cyclone belt, making it highly prone to natural hazards. It is amongst 20 countries with the highest economic risk exposure to two or more geological, hydrological and climatic hazards.

The island geography presents formidable and in some cases immutable challenges to service delivery, infrastructure, and economic integration. The difference in access to services between urban and rural areas is particularly stark. There are only 5 km of roads per 100 km², the lowest ratio in the Pacific, and travel in most rural areas is only by motorboat. Nationally, less than 20 per cent of the population has access to electricity. However, in Honiara, this figure is over 63 per cent. In many of the outer islands, less than 5 per cent have access to electricity. Access to improved water sources is unequally distributed throughout the country, with over 78 per cent of Honiara households having access to water piped either into the home or the neighborhood, compared to 33 per cent nationally.

Solomon Islands' climate is tropical with two seasons: the wet season from November to April and the dry season from May to October. In the west of the country there is a marked wet season from November to April, while rainfall is more constant year-round in the east. The El Niño-Southern Oscillation (ENSO) has a strong influence on the year-to-year variability, particularly in the wet season. The impact of the ENSO is stronger in Santa Cruz (east) than in Honiara. Annual and half-year rainfall trends show little change at Honiara since 1950 and Munda since 1962

Annual and half-year minimum temperatures have been increasing at Honiara since 1953 and Munda since 1962. Maximum temperatures have increased at a rate of 0.15°C per decade since 1951. Minimum temperature trends, however, are generally stronger than maximum temperature trends. There have been significant increases in warm nights and decreases in cool nights at Honiara and Munda. Tropical cyclones affect the country mainly between November and April. An average of 29 cyclones per decade developed within or across the Solomon Islands Exclusive Economic Zone (EEZ) between the 1969/70 to 2010/11 seasons. Wind waves vary across the country, being small at Honiara but much larger at the outlying islands, such as Santa Cruz. The sea-level rise near Solomon Islands measured by satellite altimeters since 1993 is mostly over 8mm per year, larger than the global average of 3.2 +/- 0.4mm per year.

The estimated population in 2014 was 551,000, an increase from 523,000 in 2009; the population density is very low - just 18 people per km², which is 189th in the world. The population growth rate is 2.1 per cent per year. The urban population is 20.5 per cent of the total population (2011) and the rate of urbanization is 4.65 per cent annual rate of change (2010-15 estimated). Increasing population growth has led to intensification of cropping, reduced fallow and soil degradation. Slash and burn

¹Reference: questions 2, 3, 4, 5, 6 and 7 of country report guidelines.

practices result in increasing clearance of forest for gardens, despite the knowledge that the fertility of this new land will only last for a short period. Lower yields from gardens may also be contributing to an increasing dependence on imported rice and flour-based foods like noodles and biscuits.

The Solomon Islands Human Development Index value for 2014 is 0.506— which puts the country in the low human development category—positioning it at 156 out of 188 countries and territories. Between 2000 and 2014, the Solomon Islands HDI value increased from 0.446 to 0.506, an increase of 13.4 per cent or an average annual increase of about 0.90 per cent.

Economic growth in Solomon Islands has recovered following severe floods in 2014, but longer run prospects for sustaining growth remain uncertain. Exports have been weak, and logging and development assistance are expected to decline over the medium term. The government hopes to use fiscal policy to drive economic growth. Continuing to safeguard macroeconomic stability while ensuring that increased spending is directed to areas that promote sustainable growth will be critical. Growth is forecast to slow to 3 per cent in 2016 and 2.8 per cent in 2017 as the pace of investment eases.

a) Provide a brief account on the role of biodiversity for food and agriculture in your country.²

Solomon Islands has the second highest terrestrial biodiversity of anywhere in the Pacific, surpassed only by Papua New Guinea. Solomon Islands also occupies the eastern portion of the global centre of marine diversity, known as the Coral Triangle, which also includes all or part of the Philippines, Indonesia, Malaysia, Timor Leste and Papua New Guinea. The Solomon Islands' natural forests are of recognized global significance given their unique vegetation, tropical oceanic forest typology and extremely rich biodiversity. Most rural Solomon Islanders depend on traditional agro-forests for subsistence food and livelihood needs. The forests provide multiple benefits to communities, including but not limited to protection of critical water resources, prevention of soil erosion, timber and non-timber forest products as well as important contributions to local food security and family health. The country's economy is heavily dependent on its timber industry, which brings in about 15 per cent of government revenue and 66 per cent of foreign exchange earnings.

Over 80 per cent of Solomon Islanders live in rural areas where most of the food supply comes from subsistence gardens and from the sea. Despite the increasing supply of imported foods, subsistence gardens are still the most important source of staples and vegetables in the rural diet. The economy is mainly rural-based with approximately eighty per cent of the population engaged in smallholder agriculture. The main staple crops grown are sweet potato, cassava, taro, yam, bananas, other fruits and vegetables. In addition to this are three major commercial tree crops: coconuts, cocoa and oil palm. Cocoa and palm oil are exclusively export commodities, whereas coconut products have an integral place in dietary preferences as well as being a major export commodity. Copra and coconut oil are the fifth, and cocoa the sixth highest export commodities by value, behind logs, minerals, fish and oil palm.

The coconut and cocoa industries are the most significant contributors to both smallholder livelihoods and national economy earnings. While oil palm contributes more to export earnings than coconuts and cocoa, it is grown mainly on commercial plantations and limited to Guadalcanal province. Coconuts are the most widely distributed crop in the country and form a key part of almost all farming systems in all provinces. An estimated 40,000 smallholder households (around 40 per cent of the population) produce

² Reference: question 3 of country report guidelines.

coconuts for their own consumption, to produce fuel and building materials, and to generate cash income. More than 24,000 smallholder households are engaged in cocoa production. Smallholders (and processors) living and working in rural areas capture the majority of gross margins from these crops (estimated at 77 per cent for cocoa). Food crops produced for subsistence and sale in local markets are also a key element of rural livelihoods.

The Coral Triangle comprises 76 per cent of the world's corals and 37 per cent of the world's coral reef fish species in an area that covers less than 2 per cent of the planet's oceans. 95 per cent of the Solomon islanders are associated with the coastal environment, where at least 50 to 90 per cent of proteins are obtained from the coastal biome, in particular, fish. Coral reef, mangroves, sea grass, coastal shrubs, intertidal mud and algae ecosystem supports nurseries, provides fishing ground and enables nutrient cycling. There are 1,019 fish fauna species belonging to 82 families and 348 genera. Most of these fish are caught and consumed by people or sold in the local markets. Marine biodiversity, particularly tuna species, is one of the highest contributions to the national income, second to logging.

Coral reefs provide an estimated direct use value of US \$ 75,000 - \$170,000) per km² reef per year (for subsistence and cash). Food and trade goods contribute the greatest amount to this figure, although construction materials are also important. Coral and mollusk are also important source of lime for the national betel nut coral lime trade, contributing up to 19 per cent of the total direct value of goods extracted from the reefs. Seaweed in 2010 recorded a production of 411,780 kg, sold locally with 1 per cent been exported

b) Indicate which of the production systems listed in Table 1 below are found in your country³ and briefly describe each of them (e.g. area under production, share of smallholders, importance of the production system to the incomes, livelihoods and well-being of rural communities, etc.).⁴

Table 1: Production systems present in the country.

Production system	Indicate if present in the country (Y/N)	Description ¹³
Livestock grassland-based systems	Y	Cattle
Livestock landless systems	Y	Pigs and chicken are kept in pens
Naturally regenerated forests	Y	Re-growth of forest from logged overland
Planted forests	Y	Teak and other soft wood by plantation
Self-recruiting capture fisheries	Y	Small numbers eg milk fish, coastal ponds
Culture-based fisheries	Y	Sea weed farming
Fed aquaculture	Y	Carp or Tilapia
Non-fed aquaculture	Y	Fish are closed in ponds but regularly fed.
Irrigated crops (rice)	Y	A few training Institutes and farming communities
Irrigated crops (other)	N	
Rainfed crops	Y	Most crops cultivated in Solomon Is are rain fed

³ Reference: questions 4 and 5 of country report guidelines. For the purpose of this table, aggregated production systems are used (disregarding climatic zones).

⁴ Reference: questions 5 and 7 (Table 3) of country report guidelines and FAOSTAT: <http://faostat3.fao.org/home/E>

Mixed systems (livestock, crop, forest and/or aquatic and fisheries)	Y	In situations where animals are kept in enclosures
Others (please specify)		

[Insert rows as needed]

1.2. State, trends and drivers of change of biodiversity for food and agriculture

a) Describe the main features of the state and trends⁵ of and the main drivers of change⁶ affecting plant, animal, forest and aquatic genetic resources in the country's production systems as identified in Table 1.

Globally significant biological diversity exists throughout the country, in both land and marine environments, though much of it is still undescribed. Solomon Islands forests are recognized as "Globally Outstanding" and are included as an ecoregion in the Global 200 listing, with a high degree of endemism. Marine biodiversity is at similarly remarkable levels, with Solomon Islands forming part of the Coral Triangle of four countries with extreme levels of marine biodiversity.

Animal genetic resources

Approximately 85 per cent of Solomon Islanders are smallholder farmers and rely on agriculture for food security, income and cultural purposes, primarily using locally adapted breeds. The importance and value of locally adapted animal genetic resources (AnGR) in Solomon Islands is increasingly becoming recognized. On Savo Island people establish breed sites for megapod birds, from which they collect eggs for food and population of wild fowls still exist on Santa Cruz. The Livestock Policy Guideline 2015-2020:- (Chapter 3.36) mentions cattle, pigs (exotic and wild breeds), poultry (exotic- Broiler and layers, local and wild Santa Cruz fowls), goats and honey, however, no development and conservation plans are currently in place.

There are currently no specific strategies or policies for characterizing, monitoring or conserving local breeds but strategies exist for managing AnGR. The extent of informal crossbreeding with exotic breeds has not been evaluated or quantified. The Livestock Strategy 2015-2020 (Objective 2.4) addresses AnGR improvement, conservation and development. The objective specifically promotes the conservation and development of existing AnGR to maintain fitness traits as well as improve production performance through formal breeding programmes. Cross-bred progeny are known to be in high demand due to their improved production while maintaining some of the characteristics that make them tolerant to local environmental conditions and production systems. However, while exotic breeds are continuously available, there have been no attempts to secure locally adapted breeds for future generations. The Taiwanese Technical Mission (TTM) has been responsible for pig breeding and providing piglets to farmers. The Ministry of Agriculture and Livestock has been importing cattle from Vanuatu since 2011, there are now about 1,500 heads of cattle to be used for breeding for improved stock.

⁵ Reference: (i) the First and Second Reports on the *State of the World's Plant Genetic Resources for Food and Agriculture*; the First and Second Reports on the *State of the World's Animal Genetic Resources for Food and Agriculture*; and *The State of the World's Forest Genetic Resources*; and (ii) questions 3, 11, and 20 of country report guidelines.

⁶ Reference: (i) the First and Second Reports on the *State of the World's Plant Genetic Resources for Food and Agriculture*; the First and Second Reports on the *State of the World's Animal Genetic Resources for Food and Agriculture*; and *The State of the World's Forest Genetic Resources*; (ii) Annex 3 of the country report guidelines includes a list of drivers of change and descriptions; and (iii) questions 44, 45 and 55 of country report guidelines.

Increased population in inland areas and unsustainable natural resource harvesting (especially logging) threaten the environments in which wild sources of AnGR exist, e.g. wild fowl and wild pigs. Similar to domestic breeds, there is currently no program to conserve these unique wild AnGR raising the real potential of extinctions in the future. Increasing urbanization and increasing income per capita demand increased quantity of products - these are provided by meat imports and increased domestic egg production (a product of exotic breeds).

Institutions mostly lack the capability to do research, provide strategic guidance or disseminate information into the community about conservation of AnGR.

Forest genetic resources

In the period between 1990 and 2010, Solomon Islands lost an average of 5,550 ha of forest per year, which is about 4.8 per cent of its total forest cover. In 2011 a new forest resource assessment was carried out which concluded that more than half of the primary commercial forest resources have already been logged and that approximately 30 per cent (604,000 ha) is left for extraction.

Forest management and governance practices have been poor, due to the lack of technical and human resources to conduct and monitor logging operations. The significant dependency of the national economy on timber exports is also a driver of continued deforestation. The poor forestry practices not only lead to the loss of biodiversity (it is likely that some endemic forest species that are unable to adapt to new environments will face possible extinction) and other ecosystem services, but also cause excessive soil erosion, silting of rivers and degradation of adjacent coral reefs due to sedimentation.

The main forest tree species currently managed by the Forestry department are confined mainly to species of high economic value in forest plantation such as; *Gmelina arborea*, *Tectona grandis*, *Swietenia macrophylla*, *Eucalyptus deglupta*. Most of these species are planted in forest plantations specifically for timber and pulp and are relatively important for generating income. Other high value native species grow in their natural habitat such as *Pometia pinate*, *Calophyllum kajewskii*, *Pterocarpus indicus*, *Vitex coffasus*, *Instia bijuga* and other durable native species; there is limited work to actively manage these species for productive aims. Solomon Islands has over 25 threatened tree species, including ebony, rosewood, rattan and some palms. Ebony (*Diospyros insularis*) is listed as critically endangered. A new species tubi (*Xanthoostemon melanoxyton*) was identified in Solomon Islands and in 2004 given some form of legal protection, because of its limited distribution. The status of many other forest plants is still unknown.

Forest Genetic Resources are affected by the over-exploitation of natural resources, unsustainable use of forest resources, habitat modification and destruction, illegal exploitation of wildlife, introduction of invasive species, climate change and loss of traditional knowledge.

Plant genetic resources

Over 4,500 indigenous plant species in the country have been recorded in the country, with the shortfall being made up mainly by indigenous herbaceous species, palms, epiphytes (mainly orchids) and ferns. In addition to the indigenous species, another 300 to 400 recently introduced exotic plants, mainly ornamentals, should be included in the estimated total.

The traditional staples include sweet potato, taro and yams, and in some islands, breadfruit. Many other species traditionally supply dietary carbohydrates, e.g. *Amorphophallus campanulatus*, *Tacca leontopetaloides*, sago (*Metroxylon sagum*, *M. bougainvillense* and *M. salomonense*) the Polynesian or Tahitian chestnut (*Inocarpus fagiferus*), *Haplolobus floribundus* and *Corynocarpus* sp. Some of these plants are still important food sources in certain areas, but they generally only provide seasonal or occasional food.

There are plenty of species endemic or indigenous to Solomon Islands for which the edible fruit is of prime importance. All can be described as multipurpose trees and therefore may have uses that some people may consider more important than the edible fruit. There are minor fruits and berries that are picked or occasionally gathered, and others which bear edible fruits which are eaten in times of scarcity. These are *Corynocarpus cribeanus*, *Eugenia aqueum*, *Eugenia nutans*, *Hornstedtia lycostoma*, *Passiflora foetida*, *Pouteria maclayana* and *Rubus moluccanus*. There are also a significant number of nut trees. The diet of all communities traditionally includes a large number of leafy vegetables that are collected from a range of both cultivated and wild plant foods are termed 'cabbage' in Solomon Islands Pidgin and they constitute the majority of vegetable foods eaten in the country. Sources of such 'cabbages' include ferns, climbers', shrubs and trees.

Conversion of large tracts of land, mostly fertile coastal lands into commercial plantations is a significant threat to plant genetic resources through displacement of domestic food gardening. The need to produce more food on less land or on land less suited to cultivation (steep slopes) has resulted in serious soil stress in many areas. As land is degraded it becomes a haven for invasive species, because of a diminished ability of the ecosystem to control them. Invasive species in turn affect the soil-nutrient moisture regimes of catchments, leading to poor soil structures and further fertility decline. Most soils on land that is accessible have fertility and/or micronutrient deficiencies and increased exposure results in soil leaching and erosion with great impact on soil quality and subsequently low crop yield

Aquatic genetic resources

More than 5,750 km² of coral reefs, extensive seagrass beds and mangrove forests, essential for the productivity of fisheries, are found in the country. Most rural people live on small islands and atolls, or the coastal margins of otherwise mostly mountainous and uninhabitable islands. Fish and other marine products are an essential source of income, food, and wellbeing for a large part of the population, with the per capita consumption of fish among the highest in the Pacific region. The harvest of fish and other marine resources such as trochus, bêche-de-mer and corals is an important source of income for rural communities. Additionally, the offshore tuna fishery is important for revenue and employment at the national level.

Aquaculture is limited in Solomon Islands, restricted to relatively informal backyard ponds with introduced Mozambique tilapia. Owing to the limited distribution of ponds and the absence of structured farming practices, resulting in low yields, these fish do not contribute significantly to the national diet. There are regional exceptions; however, for some inland communities, Mozambique tilapia (found in Lees Lake in Guadalcanal) can be a significant local animal-source food, consumed on a

daily basis. Three provinces (Western, Isabel and Temotu) are involved in farming of sea weed species (*Kappaphycus alvarezii*).

Most marine ecosystems such as mangroves, lagoons and reefs are also being overexploited in many areas. While population growth is responsible for additional pressure on these ecosystems almost everywhere, commercial extraction is worsening these effects in many cases. New or growing export and local markets provide a very important foundation for economic growth and development. But coupled with population growth and the high reliance on resources for subsistence, an important challenge facing Solomon Islands is to find a balance between meeting the subsistence food needs of local people and maximizing economic benefits through export and sales of marine products

Overexploitation for both subsistence and commercial use has resulted in severe depletion of several important food and commercial species. These include greensnails, blacklip and goldlip shells, coconut crabs, giant clam and sandfish (sea cucumber). Other species such as trochus, crayfish/lobster and turtles though under some form of protection (regulation) are also threatened. Two commercial companies are currently engaged in coral export but there is no monitoring system in place to check on their activities. These activities are all contributing to ecosystem decline to different degrees throughout the country. This pattern of overuse and non-existent or inadequate regulation limits the productivity of inshore fisheries to provide much needed protein in the population's diet, as well as preventing ongoing, reliable income generation from marine product exports.

Natural disasters such as cyclones, earthquakes, volcanic eruptions and tidal waves, impact greatly on coastal environments, either directly through physical damage, or indirectly through their impact on the ecosystem.

Canned tuna produced in Solomon Islands is an increasingly large proportion of the fish consumed, especially by the urban population. This increase is largely due to the high cost of fresh marine fish. However, it is predicted that fish consumption will decrease in the future due to shortfalls in supply from capture fisheries caused, for example, by poorly managed coastal resources and increasing population pressure

In the vicinity of urban areas such as Honiara, and within peri-urban or heavily populated regions such as the Auki-Langalanga region, there is considerable environmental degradation due to effluent, marine species over-exploitation and habitat destruction through land clearing and reclamation. In the vicinity of the 2007 earthquake and tsunami there has been considerable habitat loss of reefs and seagrass beds through landform lifting and underwater landslides. Logging activities continue to cause siltation problems for reefs in downstream coastal areas.

b) Indicate whether the country has any national information system in place on associated biodiversity and identify the most frequently monitored components of associated biodiversity.⁷

There is no national information system for BFA. In fisheries any information recorded relates to exports, such as catch log sheets from fishing vessels and FIMS – Fisheries Information System for recording all fisheries export data.

⁷Reference: questions 28 and 75 of country report guidelines.

- c) List associated biodiversity species that are actively managed in production systems for the provision of ecosystem services in Table 2.

Table 2. List of associated biodiversity species that are actively managed in production systems for the provision of ecosystem services.⁸

Associated biodiversity species	Ecosystem functions and services provided by the species in the production system
Species 1	Gliricida species, used as a shade tree and provides nutrients in the soil
Species 2	Mangrove tree species to provide spawning ground for fish and a habitat for other species

[Insert rows as needed]

- d) Provide in Table 3 a list of wild food species known to be harvested, hunted, captured or gathered for food in your country. Indicate the change in state of the species over the last 10 years (strongly increasing (2), increasing (1), stable (0), decreasing (-1), or strongly decreasing (-2), or not known (NK)).

Table 3. Wild food species used for food in the country.⁹

Wild food species	Change in state (2,1,0,-1,-2, NK)
Species 1	<i>Cyrtosperma</i> species, grown in the wild and corms are harvested
Species 2	Mangrove species (<i>Brugiera gymnorhiza</i>), the fruits are eaten as a vegetable

[Insert rows as needed]

- e) If available, provide information on the proportion of the population in your country that uses wild food on a regular basis for food and nutrition.¹⁰

There is no information available on the proportion of the population that uses wild food on a regular basis for food and nutrition

- f) Briefly summarize the state and trends¹¹ of and the drivers of change¹² affecting:
- Associated biodiversity¹³: micro-organisms, invertebrates, vertebrates, plants

⁸ Reference: question 27 of country report guidelines.

⁹ Reference: question 34 of country report guidelines.

¹⁰ Reference: question 59 of country report guidelines.

¹¹ Reference: questions 21, 22, 23, 24, 29, 34 and 35 of country report guidelines.

¹² Reference: Annex 3 and questions 9, 10, 12, 14, 44, 45 and 55 of country report guidelines.

- **Ecosystem services¹⁴: regulating, supporting**
- **Wild food resources¹⁵**

Less than 1 per cent of Solomon Islands land and sea areas are currently protected. Of the existing protected areas most are marine areas and are managed by local communities and NGOs, although the Government has supported a few of them. Major threats to biodiversity include: the ongoing threat of logging, mining, oil palm and other industrial agriculture and unsustainable fishing practices. In many regions of Solomon Islands valuable marine invertebrates are severely overexploited, while large vulnerable reef fishes are in serious decline in some provinces. These threats are further compounded by the increasing demand on natural resources (e.g. clearing for subsistence agriculture and local overfishing) and by a rapidly expanding human population

The main drivers of change are:

Unsustainable logging practices: Large scale unsustainable logging is the single biggest threat to biodiversity and forest ecosystems in the country. The current rate of harvesting exceeds the sustainable level and as the forest industry is a major part of the national and local economy the ongoing loss of natural forests would have serious economic, social and environmental consequences. Poorly conducted logging operations currently have major negative impacts both socially (e.g. landslides destroying farms and as a source of conflict among communities) and environmentally (e.g. siltation of coral reefs and fragmentation of forest habitats).

Population pressures: The population estimate for Solomon Islands is around half a million with average annual population growth rate of 2.8 per cent. This implies a doubling of the population every 25 years. Most of the population inhabits less than 10 per cent of the country, which consists of flat coastal plains, lagoon islands and atolls. Very few people reside in the rugged mountainous interiors of the islands. The need to produce food for an increasing population has led to reduced fallow periods, resulting in a reduction of soil fertility, with consequent reduction in crop yields. Increasingly steep lands (>20 per cent slope) are intensively cultivated leading to soil erosion, increase in pests and diseases and widespread land degradation – all affecting biodiversity and ecosystem services.

Land-use change and unsustainable resource utilization practices: There is a growing trend in the country to support and promote large-scale monoculture. The Guadalcanal Plains Palm Oil Limited company (GPPOL) runs plantations covering 15,000 hectares, of which about 2,000 ha are owned by communities through an out-grower program. While this is currently the only large palm oil estate in the country, there are proposals to develop palm oil plantations in Malaita, which could severely impact the forests there.

Climate change: Examples of climate change impacts are evident in lower lying or coastal areas, which in some parts of the country includes communities living on small man-made islands, where changing climatic and oceanic patterns are impacting on the marine resources on which such communities are heavily reliant. The productivity of food gardens and the growth of key staple food crops are also at risk from climate change. These impacts are in part because, on the larger volcanic islands, increased variability has been observed in river and groundwater systems. Such variation has impacted on the

¹³ Annex 1 of the country report guidelines provides a definition of associated biodiversity.

¹⁴ Annex 4 of the country report guidelines provides a definition of ecosystem services.

¹⁵ Reference: question 34 of country report guidelines.

productivity of food gardens that are typically located in alluvial areas, as well as on drinking water sources and the many other uses for which people depend on river systems.

Invasive species: Terrestrial and aquatic, invasive alien species of, flora, fauna and microorganisms in the Solomon Islands, though not well documented is becoming a threat to the environment. Invasive species can have significant economic impact and be a deterrent to farming, transport ways, and potential future markets. Plants have been introduced mainly for three reasons: i) agriculture purposes, ii) forestry purposes, and iii) ornamentals.

Dependence on imported foods: There is increasing dependence on imported foods which in turn does not encourage local food production.

BOX 1. Describe one or two examples of countermeasures that have been taken in the country to reduce adverse effects of drivers on associated biodiversity, ecosystem services and/or wild foods.¹⁶

The Arnavons Community Marine Conservation Area (ACMCA) started in 1995. Since the ACMCA's foundation, the Arnavons have experienced a remarkable recovery. The number of hawksbill turtle nests that are laid annually at the Arnavons has doubled and biological surveys show that other species, such as giant clams and trochus, are also thriving. And in 2008, the ACMCA won the Equator Prize at the World Conservation Congress in Barcelona, earning recognition for its efforts to alleviate poverty through conservation.

Another example is the establishment of a Ridge to Reefs Protected areas Network in Choiseul, known as the Lauru Ridges to Reef Protected Area Network (PAN). Twelve wards in Choiseul planned to establish a marine and one terrestrial areas as of 2009. It is a community driven project and guided by the Choiseul Conservation Plan. In 2008, the Lauru Land Conference of Tribal Communities (LLCTC) asked The Nature Conservancy (TNC) to assist Choiseul Province with conservation planning for the future. Subsequently, in May 2009, a participatory mapping workshop was held.

1.3 Needs and priorities

a) Identify the country's main needs and priorities in terms of the state of biodiversity for food and agriculture, and in particular of associated biodiversity, wild foods and ecosystem services.¹⁷

- In order to outline any changes in components of associated biodiversity within production systems baseline data of associated biodiversity for each production system is required and from this baseline continuous or systematic monitoring of the levels of associated biodiversity for each production system, as coded, is necessary in order to detect changes. At present, the existence of such data is virtually non-existent and can only be assumed in terms of 'healthy or not' on the basis of the general ecosystem health, assuming that is subject to some assessment.

¹⁶ Reference: question 19 of country report guidelines.

¹⁷ Reference: questions 28, 48 and 49 of country report guidelines.

- Capacity building to assist with the collection of baseline data is required, supported by the establishment of guidelines for baseline data collecting. Capacity building should ensure that collecting systems are user-friendly and efficient and in line with other similar systems being used in the country and regionally.
- Increased awareness of the importance of associated biodiversity, wild foods and ecosystem services to sustainable food production across all sectors, is needed.
- Better knowledge management of BFA data so it can be more easily accessed and utilized.

II. Sustainable use and conservation of biodiversity for food and agriculture

2.1 Sustainable use

a) List in Table 4 management and diversity based practices that support the maintenance and use of biodiversity for food and agriculture in production systems.

Table 4. Management¹⁸ and diversity based¹⁹ practices that support the maintenance and use of biodiversity for food and agriculture in production systems.

Production system	Management/ diversity based practice ²⁰	Trends in the application of the practice over the past ten years
Livestock landless systems	Integrate with aquaculture based systems	No data available on the trend, it is a new idea recently introduced
Naturally regenerated forests	Maintenance and conservation of different tree species	No data available on the trend,
Planted forests	Intercropping with under-storey tree crops (Agroforestry)	No data available on the trend, it is a new idea recently introduced
Self-recruiting capture fisheries	Establishment of enclosures	No data available on the trend, it is a new idea recently introduced
Rain-fed crops	Integrated crop management practices	Decreasing

[Insert rows as needed]

¹⁸ Annex 5 of the country report guidelines describes a list of management practices supporting the use and conservation of biodiversity for food and agriculture.

¹⁹ Annex 6 of the country report guidelines describes a list of diversity based interventions supporting the use and conservation of biodiversity for food and agriculture.

²⁰ Reference: questions 52, 53 and 56 of country report guidelines.

BOX 2. Describe a successful programme or project that has been undertaken in the country to support one of the practices listed in Table 4.²¹

Organic production:

The European Union-funded Increasing Agricultural Commodity Trade (IACT) project with the Pacific Organic and Ethical Trade Community (POETCom) and the Secretariat of the Pacific Community (SPC) have supported capacity building in organic production in Solomon Islands. In 2015 a team comprising officials from the POETCom, the Ministry of Agriculture of the Solomon Islands, Kastom Gaden Association and Zai Na Tina visited Baniata (Rendova Island), Western Province, where ngali nuts grow wild, to set up the Participatory Guarantee Systems (PGS) at Baniata. The PGS is an interactive peer auditing tool that involves groups of farmers at Baniata auditing each other's farms, to determine if they are compliant with standards identified in Pacific Organic Standard. Products that successfully pass the certification process can carry the Organic Pasifika certification mark, providing an organic guarantee to buyers. A New Caledonian enterprise is keen on buying ngalinuts on the condition they are certified organic. -

b) Provide examples whereby the diversity *per se*,²² or its lack,²³ had a direct effect on productivity; food security and nutrition; rural livelihoods; ecosystem services; sustainability; resilience; or sustainable intensification.

A survey conducted as part of an ACIAR-funded project identified Beauregard as one of seven sweet potato varieties with high levels of beta-carotene (a compound that can be converted into vitamin A in the body) and favourable agronomic traits. The variety—imported from the International Potato Center (CIP) in Peru—is by far the most popular sweet potato in Australia. Farmers in Solomon Islands like this variety because it yields well in wet and dry conditions and there is good market demand. A local farmer Samson Sonia and his wife Janet are now growing about 300 mounds of Beauregard. They chose the variety because it provides good cash returns, matures in only 3 months and because they learnt about its nutritional quality. Beauregard was identified as one of seven sweet potato varieties with high levels of beta-carotene (a compound that can be converted into vitamin A in the body) and favourable agronomic traits. Beauregard has 250–350 milligrams per kilogram of beta-carotene (dry weight basis).

c) List in Table 5 examples whereby the use of biodiversity for food and agriculture contributed to cope with climate change, invasive alien species, and natural or human-made disasters

²¹ Reference: question 54 of country report guidelines.

²² Reference: question 58 of country report guidelines.

²³ Reference: question 57 of country report guidelines.

Table 5: Examples whereby the use of biodiversity for food and agriculture (BFA) contributed to cope with climate change, invasive alien species, and natural or human-made disasters

Objective	Description
Use of BFA to adapt to and mitigate climate change ²⁴	Use of agricultural biodiversity to improve the resilience of crop production systems
Use of BFA to manage the spread of/control invasive alien species ²⁵	Ongoing – use of biocontrol agents such as flat worm to control Giant African snail, also to identify possible use of other alien species.
Use of BFA to prevent natural or human-made disasters and/or reduce their effects on livelihoods, food security and nutrition ²⁶	The Mangrove Ecosystems for Climate change Adaptation and Livelihoods (MESCAL) project aims to assist in climate-proofing coastal communities and sustaining livelihoods by promoting investments in mangrove and associated coastal ecosystems

d) List and briefly describe ecosystem/landscape/seascape approaches²⁷ that have improved the management and use of BFA in the country.²⁸

Ridges to Reefs Conservation Plan for Choiseul Province (Lauru Ridges to Reef Protected Area Network): Choiseul is the first province selected by the National government for a new approach to adaptation.

Coral Triangle Initiative: In 2007, a multilateral partnership between the six Coral Triangle countries (including Solomon Islands) called The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), was formed. CTI-CFF was established to address the urgent threats facing the coastal and marine resources of one of the most biologically diverse and ecologically rich regions on earth. Through the Coral Triangle Support Partnership (CTSP), support was available for Solomon Islands to achieve their CTI-CFF National Plan of Action – to adopt a people-centered approach to integrated resource management where communities are the primary drivers and beneficiaries of sustainable resource management.

e) Provide examples of activities undertaken to maintain and use traditional knowledge of associated biodiversity and wild foods.²⁹

²⁴ Reference: question 69 of country report guidelines.

²⁵ Reference: question 46 of country report guidelines.

²⁶ Reference: question 43 of country report guidelines.

²⁷ The ecosystem approach concept is generally understood to encompass the management of human activities, based on the best understanding of the ecological interactions and processes, so as to ensure that ecosystems structure and functions are sustained for the benefit of present and future generations. Ecosystem approaches include the Convention on Biological Diversity's Ecosystem Approach, Integrated Land Use Planning, Integrated Water Resource Management, Sustainable Forest Management, Code of Conduct for Responsible Fisheries, Ecosystem approach to fisheries management, etc.

- A "landscape approach" means taking both a geographical and socio-economic approach to managing the land, water and forest resources that form the foundation – the natural capital – for meeting our goals of food security and inclusive green growth. By taking into account the inter-actions between these core elements of natural capital and the ecosystem services they produce, rather than considering them in isolation from one another, we are better able to maximize productivity, improve livelihoods, and reduce negative environmental impacts.

²⁸ Reference: questions 60, 61 and 80 of country report guidelines.

²⁹ Reference: questions 32, 33, 38 and 39 of country report guidelines.

There is documentation of traditional knowledge in Solomon Islands but generally it appears to be project driven – so dependent on funding being available. For example, the population of Central Choiseul has traditional knowledge of its forest foods documented, thanks to an AusAID-funded research and publication project carried out by TerraCircle. The Forest Foods of Luru is the title of the book. It documents not only the foods, their processing and cooking, but also the traditional land classification system that is based on ecological zones from coastal mangrove swamp to mountain top. The zoning forms part of the traditional forest food knowledge set (<http://terracircle.org.au/publications/the-forest-foods-of-luru/>)

The Solomon Islands Nasinol Policy Framework blong KALSA (2012) sets out directions for Solomon Islands to refocus and invest in its culture sector. It provides broad policy directions and goals for the safeguarding, protection, preservation, promotion and development of the culture sector. Similarly, it identifies and addresses cross-cutting issues underpinning the country's arts, culture, kastom and heritage. Two of the five objectives are:

- Encourage and promote the teaching and transmission of culture, arts and traditional knowledge to younger generations.
- Foster the protection, preservation, revival and promotion of Solomon Islanders' heritage of indigenous cultures, art and traditional knowledge.

With specific reference to TK the Framework states that as a culture thriving predominantly on oral tradition, much of the Solomon Islands' wealth of traditional knowledge risks being lost over time due to lack of research and documentation. Past research and documentation needs to be built on. In this respect, Solomon Islanders must be encouraged through focused measures to play an active role in future cultural research and documentation. The Framework addresses intellectual property rights in TK stating that the rights of customary owners of traditional knowledge must be protected through legal and non-legal measures. Further, the commercialization of traditional knowledge is not without its ills, as individualism can set in at the cost of collective ownership of IPR. This must be prevented to ensure that customary owners and communities benefit equally and equitably from the use of their cultural resources. Similarly, traditional knowledge to which no individual claim can be proved must be treated as the common heritage of tribes, communities, islands, or cultural and linguistic groups.

f) Identify possible needs and priorities in terms of the sustainable use of biodiversity for food and agriculture, and in particular of associated biodiversity and wild foods.

- National policies and strategies in place to support sustainable use of BFA – especially for agriculture and fisheries, for example, land management policies that permit or limit production practices.
- Certification systems, such as organic certification, that encourage sustainable practices in production systems - market creation for products or services provided by ecological agriculture may be important in ensuring long-term adoption of sustainable practices, substituting public financial support after an initial phase.
- Increased awareness and education for all stakeholders including decision-makers, researchers, producers and consumers is needed to highlight the multi-functionality of agriculture and the interconnectedness of biodiversity, ecosystem functioning and human health.
 - Identification of the associated biodiversity found within the different production systems
 - Knowledge on how management practices and diversity-based interventions influence BFA
 - Knowledge (technical/field) on management practices and diversity-based interventions that

support the sustainable use of BFA

2.2. Conservation

- a) **Describe the status of *in situ* conservation of associated biodiversity and wild food species in your country³⁰:**
1. List and describe any existing national *in situ* conservation initiative(s).
 2. Indicate which species/groups of species are being conserved and with what objective(s).

Conservation of crop varieties *in situ*/on farm – community genebanks through planting material network with Kastom Gaden Association (KGA)

Marine Protected Areas, such as Arnavon Islands, the Tetepare Conservation Programme. The Solomon Islands' Arnavon Community Marine Conservation Area is located between the provinces of Choiseul and Isabel. It has an area of 15,800 hectares, and about 2,200 people live near the MPA. The MPA itself consists of three small islands and their associated coral reefs. The communities of Waghena, Kia and Katupika co-manage the MPA in partnership with the provincial government and The Nature Conservancy. Most of the livelihoods in the Arnavons depend on the marine environment. These include fishing, sea cucumber harvesting, trochus shell collection (used to make buttons), and seaweed farming.

The entire Tetepare Island is protected from commercial resource extraction but low levels of artisanal resource use by local villagers are allowed in some areas. Additionally, a 13km-long Marine Protected Area (MPA) was established in 2003 which is a permanent no-take zone. The aim of this MPA is to provide a protected nursery ground for marine species. Monitoring occurs inside and outside the MPA and results used to set harvesting limits over the remainder of the island. Monitoring programs have been established for turtles, seagrass, coconut crabs, reef check, forest, fish and trochus

3. Describe any existing sub-regional/regional *in situ* conservation initiative(s) the country is involved in.

The Framework for Nature Conservation and Protected Areas in the Pacific Islands region, 2014-2020 will provide guidance for the region on key priorities for biodiversity conservation and ecosystem management with clear linkages to NBSAPs and the Aichi Biodiversity targets. Strategic goal C is 'to improve the status of biodiversity by safeguarding ecosystems, species and diversity

Coral Triangle Initiative: Spanning 6 million square kilometers (2.3 million square miles) off the coasts of Indonesia, Malaysia, Papua New Guinea, Philippines, the Solomon Islands and Timor-Leste, the Coral Triangle and its abundant and valuable marine and coastal resources are under threat from unsustainable fishing, rapid population growth and the effects of climate change. The Coral Triangle Initiative (CTI) is an agreement forged between the governments of the Coral Triangle to work together to combat these threats and sustain this extraordinary environment and all it provides to human well-being.

The Dugong and Seagrass Conservation Project aims to enhance the conservation of dugongs (*Dugong*

³⁰Reference: questions 31 (Table 13) and 37 (Table 17) of country report guidelines.

dugon) and their associated seagrass ecosystems in eight countries in the Indo-Pacific region, namely Indonesia, Madagascar, Malaysia, Mozambique, Solomon Islands, Sri Lanka, Timor-Leste and Vanuatu. The project works with 32 local communities. This project is the first coordinated global effort to conserve dugongs and their seagrass habitats. At the heart of the project lies the ambition to mobilize community participation and ownership of dugong and seagrass conservation, focusing on introducing sustainable fisheries practices and innovative financial incentives, establishing Locally Managed Marine Protected Areas (LMMPA), and mainstreaming dugong and seagrass conservation priorities into national and regional policies and planning

b) Describe the status of *ex situ* conservation³¹ of associated biodiversity and wild food species in your country:

- 1. List and describe any existing national *ex situ* conservation initiative(s).**
- 2. Indicate which species/groups of species are being conserved and with what objective(s).**

The Solomon Islands government currently runs the National Herbarium and Botanical Gardens, while the herbarium at the University of the South Pacific, Fiji, also maintains 25,000 other specimens from the Solomon Islands. Collaboration between the Solomon Islands' government and the Taiwan's National Museum of Natural Science and Dr. Cecilia Koo Botanic Conservation Centre, is supporting capacity building in the conservation of plant resources.

The Botanic Gardens fell into a state of neglect following the times after the tensions but the Gardens are now being restored. The restoration project has been initiated by Solo Enviro Beautification and through the Honiara Beautification Committee has formed a management committee with Honiara City Council Forestry

There is a germplasm collection of fruit trees in the field experimental stations (Newi, Avuavu, Dodo Creek, Black post ,Tenaru and Ringi). Most of the stations have been taken over by land owners but most of the collections are still there, albeit now over grown by weeds. There are limited collections of sweet potato, taro and cassava maintained at the TTM farm and Henderson PEQ area.

The Nasinol Local Kaikai Framework encourages the production of local food crops, and therefore promotes the conservation and utilization of local indigenous food crops

- 3. Describe any existing sub-regional/regional *ex situ* conservation initiative(s) the country is involved in.**

The EU-funded 'Enhanced Food Security through Preservation and Improvement of Genetic Diversity of Sweet Potato and Aibika Project' is a collaborative research project between National Agriculture Research Institute (NARI) PNG and MAL. The project winds up as of July 2016.

Solomon Islands, as a SPC member country can participate in *ex situ* conservation through SPC and the University of the South Pacific (USP). In 2011, the Secretariat of the Pacific Community developed the Pacific Islands Tree Seed Centre (PITSC) to help research, conserve and disseminate seeds of socio-economically important tree species for its 22 member countries and territories, including Solomon

³¹ Reference: questions 30 (Table 12) and 36 (Table 16) of country report guidelines.

Islands.

In April 2014 the RBG, Kew and SPC signed a 10-year agreement to work together in supporting and implementing plant conservation activities in the Pacific region, specifically with the PITSC.

The vision of the Regional Strategy and Action Plan on Forest Genetic Resources Conservation and Management is: by 2020, the Pacific Island Countries and Territories are enjoying improved livelihoods, greater food security and increased environmental protection, resulting from enhanced collaboration and coordination within and between them in the conservation, management and sustainable utilization of forest genetic resources, while maintaining their unique Pacific cultures.

The SPC Centre for Pacific Crops and Trees (CePaCT) can support SPC member countries in conserving agricultural biodiversity.

The Fiji Herbarium at the University of the South Pacific houses more than 50,000 vascular plant specimens in the main collection. It also has a wet collection of plant parts, bryophytes and algae from the Pacific region. The Herbarium serves as a very important resource in matters pertaining to the taxonomy, conservation and ecology of plants, forestry, land use planning, economic plants and weed problems in the region.

- c) Identify possible needs and priorities in terms of the conservation of biodiversity for food and agriculture, and in particular of associated biodiversity and wild food species.
- Close coordination and collaboration between agriculture and environment is needed to ensure that any planned expansion in agriculture does not impact negatively on sensitive habitats – cross-sectoral collaboration
 - Improved monitoring and data gathering is needed including mapping data to enable future assessment of the environmental impacts of agriculture on the environment.
 - Increased awareness and education for all stakeholders including decision-makers, researchers, producers and consumers is needed to highlight the multi-functionality of agriculture and the interconnectedness of biodiversity, ecosystem functioning and human health.
 - Capacity building and supplementing is needed either at the national, sub-regional or regional level to support both development of conservation strategies, including prioritization and development of technologies.
 - Build capacity of communities to become informed partners in land use planning. More active participation by communities in land use planning will lay a foundation for states to develop and implement land use plans, which will set the stage for conservation of BFA.
 - Increase in use of ridge-to-reef, landscape and ecosystem approaches

2.3 Access and exchange³²

- a) Describe in Table 6 the main measures in the country (i) regulating access to; and (ii) ensuring the fair and equitable sharing of benefits arising from the utilization of biodiversity for food and agriculture (BFA).

³² Reference: questions 72 and 73 of country report guidelines.

Table 6: Description of the main measures in the country (i) regulating access to; and (ii) ensuring the fair and equitable sharing of benefits arising from the utilization of biodiversity for food and agriculture (BFA).³³

Components of BFA	Description of measures governing access to BFA	Description of measures regulating the fair and equitable sharing of benefits arising from the utilization of BFA
<i>Genetic resources</i>		
PGRFA		
AnGR		
FGR	Solomon Islands has signed the MTA with SPC regarding access to and exchange of FGR material (seeds)	
AqGR		
<i>Associated biodiversity</i>		
Micro-organisms		
Invertebrates		
Vertebrates		
Plants		
<i>Wild foods</i>		

[Insert rows as needed]

- b) Identify possible needs and priorities in terms of the policies and regulations governing the access to and ensuring the fair and equitable sharing of benefits arising from the utilization of biodiversity for food and agriculture, and in particular of associated biodiversity.**

Solomon Islands require support in ratification of both the ITPRGFA and Nagoya protocol. Because of the provincial nature of the country and the provincial administration system, consultation and capacity building must take place in each of the nine provinces.

III. Policies, institutions and capacity

3.1 Policies, programmes, institutions and other stakeholders

- a) Describe relevant policies and programmes the country has adopted and is implementing to support the conservation and sustainable use of biodiversity for food and agriculture, and specify to which extent they address associated biodiversity and wild foods.³⁴**

Relevant policies and programmes are those that aim at:

- the coordinated use and conservation of sectoral genetic resources

³³ Measures facilitating access to the different components of biodiversity for food and agriculture usually vary according to the intended use of the resource (e.g. any use, research and development, commercial use). Examples of possible measures consist of the need to obtain prior informed consent (PIC), sharing benefits based on mutually agreed terms (MAT), having special considerations in place for access to resources held by indigenous peoples and local communities, etc.

³⁴ Reference: questions 66, 67 and 78 of country report guidelines; Policies and programmes can include incentives or benefits, such as payments, provision of inputs and subsidies, to support activities for the conservation and sustainable use of biodiversity for food and agriculture.

- addressing food security and nutrition³⁵
- the sustainable use and conservation of associated biodiversity
- the maintenance of ecosystem services
- improving resilience and sustainability of production systems
- supporting farmers, livestock keepers, forest dwellers and fisher folk to adopt and maintain practices that strengthen the conservation and use of biodiversity for food and agriculture
- the application of an ecosystem/landscape/seascape approach³⁶

The National Development Strategy (2011-2020), which has nine conservation and environmental management policy objectives, including:

- to promote a holistic, sustainable approach to natural resources management addressing biodiversity, forestry, fisheries and marine resources and waste management, including community governance regimes, and sensitize the population on dangers of environmental degradation through awareness campaigns in urban and rural communities about environmental laws, regulations and ordinances on moving and harvesting of natural resources
- to support conservation and sustainable use of natural resources for food security and agriculture through integrated agriculture and land management strategies and the conservation and rehabilitation of agro-ecosystems
- to protect remaining forest resources and re-establish forests, sustainably manage logging extractions in the remaining forests, including increased taxation, and emphasize reforestation to replace the depleted forest cover, the MOFR leading a review of forestry legislation in close consultation with provinces and resource owners
- to prepare and enforce laws and regulations for conservation areas, national parks and sanctuaries on available customary and alienated land areas and marine reserves to manage and restore threatened flora and fauna and maintain biodiversity
- to establish research focus strategies to enable information on biodiversity to be collected and publish data on research findings

Solomon Islands National Climate Change Policy 2012-2017 provides the guiding principles for addressing climate change vulnerability in Solomon Islands. It outlines the key priorities, policy directives and strategies for creating an enabling environment for the country to address the challenges presented by climate change, but also the opportunities

Solomon Islands Agriculture and Livestock Policy 2015-2019: the Solomon Islands Agriculture and Livestock Sector Policy 2015-2019 is accommodative and a roadmap for MAL to execute its sustainable development programs effectively and efficiently for the next 5 years. The Policy is aligned to the National Development Strategy (NDS) 2011-2020, the Democratic Coalition for Change Government (DCCG) policy statement 2014-2020, with reference to the MAL Corporate Plan 2015-2019, and various sub-sector policies in its revision. The Policy recognizes the partnership approach MAL has with all the departments, relevant line ministries, stakeholders including the private sector and individual rural farmers, to make available and consolidate resources for the sustenance of the Agriculture Sector and Livestock subsector.

³⁵ The relevant policies and programmes should have an explicit reference to associated biodiversity and/or wild foods.

³⁶ Reference: question 67 of country report guidelines.

Ministry of Fisheries and Marine Resources

The MFMR Corporate Plan (2015 - 2018) - priority areas for their activities include:

- Improve market access for our rural fishers
- Grow livelihoods through sustainable aquaculture development
- Improve health of our fisheries and marine resources
- Grow our economy through sustainable fisheries investments
- Effective enforcement of our fisheries laws
- Increase skills and knowledge of partners in fisheries development

The Ministry's Inshore Fisheries Strategy (IFS) acknowledges that "coastal communities are the best managers of their fisheries and marine resources". The IFS defines community-based resource management as one of the five pillars of sustainable and secure inshore fisheries and aquatic resources.

The Ministry's Inshore Fisheries Strategy (IFS) acknowledges that "coastal communities are the best managers of their fisheries and marine resources". The IFS defines community-based resource management as one of the five pillars of sustainable and secure inshore fisheries and aquatic resources.

Solomon Islands Tilapia Aquaculture Action Plan 2010-2015

The Solomon Islands Tilapia Aquaculture Action Plan 2010–2015 has been prepared to set out a logical and structured pathway for sustainable tilapia aquaculture development in Solomon Islands, and identify potential roles for partner agencies in supporting tilapia aquaculture and helping meet national needs for food security and sustainable livelihoods.

Ministry of Environment, Climate Change, Disaster Management and Conservation – MECDM (Environment and Conservation Division)

Environment Act 1998 and Regulations 2008- The requirement for development control and environmental impact assessment to be applied in the approval of development projects

Wildlife Protection and Management Act 1998 and Management Regulations 2008

Objective: The Act is to regulate the international trade in the country's wildlife resources including birds, reptiles, amphibians, mammals, insects, plants and marine organisms

Protected Areas Act 2010 and Protected Areas Regulation 2012

The Protected Areas Act 2010 provides for the declaration and management of protected areas or areas where special measures need to be taken to conserve biological diversity and the regulation of biological prospecting research and for related matters.

There is also **DCC Government Policy on Environment** and the **Ministry of Environment, Climate Change, Disaster Management and Conservation (MECDM) Strategic and Corporate Plan 2015-2017**.

BFA related function of these policies:

- Environmental Impact Assessment
- Conservation area and Management & Development
- Biodiversity planning and conservation
- Invasive species management
- Environmental awareness and education

- Biological safety

The Forest Policy Statement of the Solomon Islands Government is to build a broad-based and environmentally sustainable economy in resource sector including Mines & Energy and Forestry & Reforestation.

The policy objectives of Forestry and Reforestation sector as stated in the Policy Statement are;

- To review the Forestry Act.
- To promote downstream processing of forestry and timber industry in the country.
- To encourage reforestation and replanting schemes in the country
- To establish terrestrial parks, herbarium and botanical gardens to protect endangered plant species from becoming extinct.
- To encourage small, medium and large forestry plantations in-partnership with resource owners and landholders in 'out-grower' schemes.

REDD+

Solomon Islands is adopting a national approach to REDD+, with national level carbon accounting. In February 2014 draft versions of the National REDD+ Roadmap, Guidelines for Developing Stakeholder Engagement for REDD+, and Guidelines on the Development of REDD+ Safeguards had been developed. These will inform the development of the national REDD+ strategy once they have received approval by the Cabinet or formal endorsement by the Solomon Islands Government.

b) Provide a short analysis of the strengths and weaknesses of the policies and programmes mentioned above and indicate their level of implementation.³⁷

This is what other countries have put:

Weaknesses:

- Poor implementation due to lack of coordination between relevant government agencies
- Lack of/limited capacity for monitoring and recording data on conservation
- Lack of funds to implement the policies

Strengths

- Raise awareness of the importance of biodiversity
- Provide a framework for donor intervention
- Provide guidelines to support harmonized implementation of interventions.

³⁷ Reference: questions 66 and 67 of country report guidelines.

BOX 3. Provide up to three examples to highlight how stakeholder groups in the country, such as groups or associations of farmers, forest dwellers, fisher folk and livestock keepers, NGOs or other civil society organizations, have actively contributed to the improved sustainable use and/or conservation of biodiversity for food and agriculture and the maintenance of ecosystem services.³⁸

Tetepare Descendants Association: At the beginning of this century, when the threat of logging loomed over Tetepare, the island's traditional landowners rejected logging offers and came together to together to save this pristine wilderness for themselves and for future generations. An organisation made up entirely of local community members called the Tetepare Descendants' Association (the TDA) was created, to manage and protect the resources of the island as a conservation area. Tetepare has received international recognition for its conservation and archaeological significance. Experts from around the world, including renowned ornithologist and author Jarrod Diamond, have commended the work on the island

Kolombangara Island Biodiversity Conservation Association (KIBCA) was formed by the Indigenous landholders of Kolombangara Island to represent their interests in conservation. KIBCA was formed on 10 December 2008 at a meeting of leaders, elders and chiefs of Kolombangara villages, communities and tribes. KIBCA was registered on May 2009 under the Charitable Trust Act as a non-government or community-based organization. KIBCA's office is at Ringgi, Kolombangara Island. KIBCA'S overall objective is to protect Kolombangara Islands' rich marine and forest biodiversity and to educate, promote and encourage sustainable management of natural resources through viable economic and social ventures for our communities. KIBCA manages the area of Kolombangara above 400m above sea level as a 19,400 ha conservation reserve.

Marovo Resource Management Area Network (MRMAN), Western Province -A network of communities in the Marovo region focused on the conservation and sustainable management of their resources, ultimately preserving the rich biodiversity in the region. MacArthur Foundation through the University of Queensland, a partner of SICCCP, supports this initiative, and through a Biocultural Project supported by the American Museum of Natural History (AMNH) conducts socio-scientific activities coupled to target resource management in the MRMAN region. MRMAN gets assistance from the MacArthur Foundation to conduct their activities. SICCCP (Solomon Islands Community Conservation Partnership) is a locally established NGO formed in 2007.

³⁸ Reference: question 77 of country report guidelines.

c) Provide examples of successful inter-ministerial cooperation in the area of conservation and sustainable use of biodiversity for food and agriculture and describe the relevant collaboration mechanisms.³⁹

There is limited inter-ministerial cooperation in Solomon Islands. Collaboration at the planning stage of any development project often falters at the implementation stage. Resources can be a significant constraint.

d) Identify possible needs and priorities in terms of policies, programmes and institutions governing biodiversity for food and agriculture, and in particular associated biodiversity and wild food species.⁴⁰

- Current policies and programmes should be reviewed for acknowledgment of BFA and achievable goals, and to ensure policies are harmonized.
- Needs a clear direction on which Ministry will be responsible in monitoring biodiversity for food and agriculture in each country which could be supported by an overarching national biodiversity and genetic resource policy, which should link with agriculture, forestry, fisheries, environment and climate change policies on biodiversity and genetic resources. This national policy should also establish the management, implementation and coordination mechanism of the policy.
- Capacity to implement policies should be strengthened at the national and local level

3.2 Capacity

a) Identify and prioritize training and education needs that target the conservation and sustainable use of associated biodiversity and describe possible constraints.⁴¹

- BFA education should begin at primary school level so BFA must be included in the school curriculum from primary through to and including secondary
- Educating the general public as to the link between BFA, the environment and food security is needed.
- Building/strengthening the capacity of government staff and relevant others to assess, identify and monitor components of biodiversity.
- Establish guidelines to support training needs

b) Identify and prioritize research needs to strengthen the conservation and sustainable use of associated biodiversity, wild foods and ecosystem services and describe possible constraints.⁴²

- Identify and prioritize research needs (priority species, BFA in production systems, soil micro-organisms/indicators) at the national level but ensure that any needs common to other

³⁹Reference: questions 81 and 82 of country report guidelines.

⁴⁰Reference: question 88 of country report guidelines.

⁴¹Reference: questions 85, 86 and 90 of country report guidelines.

⁴²Reference: questions 87 and 91 of country report guidelines.

countries are addressed at the regional level prioritization
 Review existing projects to assess whether data on BFA could be easily included without significant funding implications.

- Strengthen documentation and knowledge management in general.

IV. Regional cooperation

4.1 Regional initiatives the country is involved in to conserve and use biodiversity for food and agriculture

- a) Describe in Table 7 relevant regional policies and programmes embedding the conservation and/or use of biodiversity for food and agriculture, and in particular associated biodiversity, wild food species and ecosystem services.

Table 7: Description of relevant regional policies and programmes that embed the conservation and/or use of biodiversity for food and agriculture, and in particular associated biodiversity, wild food species and ecosystem services. ⁴³

Regional policies and programmes	Description
Pacific Plan	Pacific Forum leaders agreed to the development of a 'Pacific Plan' with the goal to "Enhance and stimulate economic growth, sustainable development, good governance and security for Pacific countries through regionalism. The Plan has reference to 'Improved Natural Resource Management and Environmental Management' in the plans Strategic Objective no. 5, with initiatives being promoted in: sustainable development, fisheries, forestry, coastal waters, waste management, energy, freshwater management, biodiversity and climate change.
The Framework for Nature Conservation and Protected Areas in the Pacific Islands region, 2014-2020	The Framework will provide guidance for the region on key priorities for biodiversity conservation and ecosystem management with clear linkages to NBSAPs and the Aichi Biodiversity targets. Strategic goal C is 'to improve the status of biodiversity by safeguarding ecosystems, species and diversity
Pacific Islands Regional Marine Species Programme 2013-2017	A regional strategy for cooperative conservation and management of dugongs, marine turtles, whales and dolphins in the Pacific Region. Other marine species of conservation concern will be added as the need arise.

⁴³ Reference: question 84 of country report guidelines.

A New Song for Coastal Fisheries: Pathways to Change	In March 2015, regional Pacific stakeholders and Governments engaged in collaborative planning to establish a new direction in the management of Coastal Fisheries. A New Song for Coastal Fisheries: Pathways to Change calls for a "...new and innovative approach to dealing with declines in coastal fisheries resources and related ecosystems". The paper makes five recommendations designed to strengthen community-based ecosystem approaches to fisheries management (CEAFM) across the region by adopting a capacity development approach as an integrated strategy, to develop capacity in CEAFM in information, management, monitoring and enforcement functions, from community to national government.
Pacific Islands Regional Ocean Policy and Framework for Integrated Strategic Action (PIROP)	The Pacific Islands Regional Ocean Policy is a policy for all the islands of the Pacific: it has been adopted by the leaders of all Pacific Island countries through the Pacific Islands Forum and is additionally supported by all Pacific Island territories. The Policy underscores the continuing importance of ocean and coastal resources and environments to the region's nations, communities and individuals. Central to the policy is the belief that ocean, coastal and island ecosystems contain high biological diversity that has sustained the lives of Pacific Island communities since first settlement and that it is vital to reduce the negative impacts of human activities and implement measures that protect and conserve biodiversity. It is important that biodiversity protection be pursued in a way that is compatible with community control of resources, and not unduly restrictive of social and economic development, particularly at the community level
Regional Strategic Plan on the Conservation, Management and Sustainable Utilization of Forests and Trees Genetic Resources in the Pacific	Regional Strategic Plan on the Conservation, Management and Sustainable Utilization of Forests and Trees Genetic Resources in the Pacific approved in 2008 by Ministers and Heads of Agriculture and Forestry - serves as the framework for planning and implementing the conservation, management and sustainable use of forest and tree genetic resources with the PICT. One major recommendation from that Regional Strategy and Action Plan is the establishment of the regional tree seed centre
Pacific Ridge-to-Reef Program	Goal of the programme is to maintain and enhance Pacific Island countries' ecosystem goods and services (provisioning, regulating, supporting and
Pacific Regional Action Plan on Sustainable Water Management	One of the three key messages is: Implement strategies to improve the management of water resources, and surface and groundwater catchments (watersheds) for the benefit of all sectors including local communities, development interests, and the environment.

4.2 Needs and priorities

- a) Identify possible needs and priorities in terms of embedding biodiversity for food and agriculture, and in particular associated biodiversity, wild foods and ecosystem services into regional and international initiatives.

The main priority is improved coordination and information sharing between the different initiatives,

highlighting the importance of:

- Clarifying the agency and staff responsible for this area of work which is embedded in different sectors
- Improved monitoring, evaluation, reporting and documentation to ensure information is shared across the initiatives
- Improved national to regional data collecting and reporting mechanisms
- Better knowledge management systems so data collected can be easily accessed and shared between programmes
- Increase in integrated policy planning with a ridge-to-reef /ecosystem/landscape approach
- Improved utilization of regional programmes/initiatives for capacity building
- Establishment of a regional coordination post – possibly based in FAO

V. Synthesis of needs and priorities and the possible way forward

Countries may wish to use Table 8 to summarize their needs and priorities, and possible actions to be undertaken, with respect to the four priority areas of the guidelines.⁴⁴

Table 8: List of the country’s needs and priorities, and possible actions to be undertaken, to conserve and use biodiversity for food and agriculture.

Priority areas	Needs and priorities	Possible actions to be undertaken ⁴⁵
Assessment and monitoring		
	Collection of baseline information	Include questionnaires in the proposed Agriculture Census to be implemented in Solomon Islands
	Identification of responsibilities for monitoring and assessing biodiversity for food and agriculture	Mandate a national agency with the role of data collecting, monitoring and assessing biodiversity for food and agriculture (e.g. agriculture or environment or both)
	Identification of clear goals for monitoring and assessing biodiversity for food and agriculture	Integrate assessment and monitoring of biodiversity for food and agriculture into national strategic plan
	Monitoring of effectiveness of management decisions on biodiversity for food and agriculture, at national and regional levels	Design/adopt systems to monitor the impacts of management decisions on biodiversity for food and agriculture
Conservation and sustainable use		
2.	Identification of the associated biodiversity found within the	Study associated biodiversity which will require collaboration at international,

⁴⁴ See sections 1.3 (a), 2.1 (f), 2.2 (c), 2.3 (b), 3.1 (d), 3.2, 4.2 (a) of the present guidelines.

⁴⁵ Reference: questions 92, 93, 94, 95, 96 and 97 of country report guidelines.

	different production systems	regional, and national levels to facilitate information sharing and research
	Knowledge on how management practices and diversity-based interventions influence biodiversity for food and agriculture	Study impact of specific management practices on biodiversity in different agricultural systems and at different locations and disseminate information to all relevant organizations
	Knowledge (technical/field) on management practices and diversity-based interventions that support sustainable use of biodiversity for food and agriculture	Collate and disseminate information and knowledge on the various practices and interventions and provide training for farmers, fishers, etc.
	Policy support for the sustainable use of biodiversity for food and agriculture	Review existing policies, including their implementation, as to their coverage of and possible (negative or positive) impact on sustainable use of biodiversity for food and agriculture
	Adoption of sustainable management practices, genetic resources improvement practices and diversity-based interventions that strengthen sustainable use of biodiversity for food and agriculture	Establish national policies and strategies that improve support to farmers, livestock keepers, forest dwellers, fisher folks and other stakeholders applying practices that favour the maintenance and sustainable use of BFA, strengthening food security and climate change resilience
	Integration and collaboration between key agencies and other stakeholders to improve information sharing	Explore mechanisms at the national and regional levels for strengthening collaboration, including more effective information sharing
	Use of local/traditional foods to support linkage of BFA with nutrition and health	Strengthen public awareness building on the lessons learnt of the 'Go Local' campaign, including coverage in the school curriculum
	Use of traditional knowledge supporting the sustainable use of BFA	Promote the use of traditional knowledge through documentation and sharing of the knowledge between countries
	Understanding of how ecosystem approaches can contribute to the conservation of biodiversity for food and agriculture	Evaluate ecosystem approaches and engage existing projects to contribute to information pool
	Access to information on the sustainable conservation of biodiversity for food and agriculture	Develop/adapt knowledge management systems at national and regional levels
	Conservation strategies	Develop a rational conservation strategy for BFA addressing resource constraints, in particular funding and capacity of existing

		facilities
	Policy support for the conservation of biodiversity for food and agriculture	Review existing policies, including their implementation, as to their coverage of and possible (negative or positive) impact on conservation of biodiversity for food and agriculture
Policies, institutions and capacity		
	Recognition of importance of BFA	Source, document and disseminate success stories by social media and education programmes
	Knowledge/information on policies that address BFA at the national and regional levels, identifying opportunities to address BFA issues	Review current policies for acknowledgement of BFA, and achievable goals and ensure policies are harmonized
	Coherent policies and programmes that inter-link the sectors (Agriculture, Environment, Education, Health, Forestry, Fisheries, Community, etc.)	Promote the development of cross-sectoral policies and programmes at all levels through establishment of a cross-sectoral working group taking into account existing efforts.
	Implementation of existing policies	Strengthen capacity at the national and local level to implement policies Engage and empower communities in the development and implementation of relevant policies
	Assessment of capacity and identification/prioritization of training needs at the national level	Implement training programs according to needs identified and available resources
	Implementation of BFA activities and programmes	Targeted training of committed and active staff within relevant agencies
	Information hub for research priorities, contactable people and funding sources in the PICTs for BFA	Establish/strengthen information hub to collect, maintain and disseminate information on research priorities, contactable people and funding sources
	Better understanding of biodiversity for food and agriculture	Training at required levels - targeting different stakeholders, age groups, gender etc. (Schools, Government ministries, Church groups, NGOs, short promotional videos, politicians)
	Capacity building in access and benefit-sharing	Establish guidelines and mechanisms to assist countries in access/exchange activities
	Involvement of a wide range of stakeholders in research on biodiversity for food and agriculture	Involve all relevant stakeholders in project design/planning, implementation, monitoring and reporting
	Regional and international	Regional conference on BFA supported by

	cooperation on research	regional and international organizations
Regional and international cooperation		
	Improve collaboration	Establish a national office
	Enhanced regional and international collaboration	Improve coordinating mechanism(s) between regional agencies
		Establish systems for sharing knowledge and resources amongst the agencies
		Consider establishing a regional coordination post, possibly based in FAO

APPENDIX 1

Figure 1. Recommended scope of *The State of the World’s Biodiversity for Food and Agriculture*.

	Ecosystem services	
	Mainly provisioning	Mainly supporting and regulating
Biological resources	<p>Food and non-food products provided by cultivated and wild species and genetic resources of plants, animals (vertebrate and invertebrate), aquatic resources and micro-organisms.</p> <p>Examples include trees (timber, fuelwood), crops (food, feed, fodder and dye), livestock (meat, eggs, hides, fur skins and fibre), fish, wild plants (food, medicine), wild relatives, edible fungi, edible insects, bush meat, crustaceans and mollusks (pearls).</p>	<p>Associated biodiversity: species and genetic resources directly involved in supporting and regulating production systems.</p> <p>Examples include soil and planktonic microbes, pollinators, symbionts and kelp forests.</p>
Relevant CGRFA assessments	<p>Plant genetic resources: First and Second Reports on the <i>State of the World’s Plant Genetic Resources for Food and Agriculture</i></p> <p>Animal genetic resources: First and Second Reports on the <i>State of the World’s Animal Genetic Resources for Food and Agriculture</i></p> <p>Forest genetic resources: <i>The State of the World’s Forest Genetic Resources</i></p> <p>Aquatic genetic resources: <i>The State of the World’s Aquatic Genetic Resources for Food and Agriculture</i> (expected 2017)</p>	<p><i>The State of the World’s Biodiversity for Food and Agriculture</i> (expected 2017)</p>

Note: The scope of *The State of the World’s Biodiversity for Food and Agriculture* includes interactions between plant, animal, forest and/or aquatic genetic resources, ecosystem services (mainly supporting and regulating), associated biodiversity and wild foods.