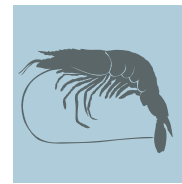
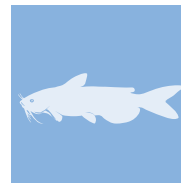
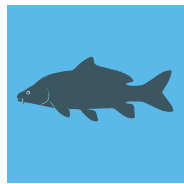
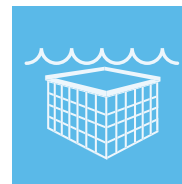
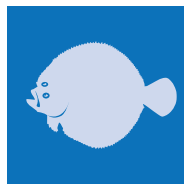




Food and Agriculture
Organization of the
United Nations

COUNTRY REPORTS

Tonga



Country Report Supporting the Preparation of the
First Report on *The State of the World's Aquatic
Genetic Resources for Food and Agriculture*

This Country Report has been submitted by the national authorities as a contribution to the Food and Agriculture Organization of the United Nations (FAO) publication, *The State of the World's Aquatic Genetic Resources for Food and Agriculture*. The information in this Country Report has not been verified by FAO, and its content is entirely the responsibility of the entity preparing the Country Report, and does not necessarily represent the views of FAO, or its Members. The designations employed and the presentation of material do not imply the expression of any opinion whatsoever on the part of FAO concerning legal or development status of any country, territory, city or area or of its authorities or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.



Food and Agriculture
Organization of the
United Nations

COMMISSION ON
GENETIC RESOURCES
FOR FOOD AND
AGRICULTURE

**Questionnaire for the Preparation of
Country Reports for *the First State of
the World's Aquatic Genetic Resources
for Food and Agriculture***

COMMISSION ON
GENETIC RESOURCES
FOR FOOD AND
AGRICULTURE



INSTRUCTIONS FOR COMPLETING THE DYNAMIC GUIDELINES

How do I complete the dynamic guidelines?

1. You will require Adobe Reader to open the dynamic guidelines. Adobe Reader can be downloaded free of charge from: <http://get.adobe.com/uk/reader/otherversions/>. Use Adobe Reader Version 10 or higher.
2. Open the dynamic guidelines and save it (save as a pdf) on your hard drive.
3. Please rename it <name of your country>.pdf.
4. You may forward the dynamic guidelines to stakeholders you would like to involve or inform by e-mail. You may also print and/or save the dynamic guidelines.
5. It is advisable to prepare textual responses (including any formatting such as bullet points) first in a separate document and then to copy and paste them into the form. Please use font Arial 10. Acronyms and abbreviations should be avoided if possible. If included, they must be introduced (i.e. written out in full) the first time they are used. Note that the text boxes are expandable. Once text has been entered, the box will automatically enlarge to make its content fully visible when you click outside its border. To delete a row you have added, click on the "X" on the far right of the table
6. When you have finished completing the dynamic guidelines, click the "Submit form" button at the end of the form and send the completed dynamic guidelines to Devin.Bartely@fao.org; Matthias.Halwart@fao.org; and ruth.garciagomez@fao.org.
7. This should automatically attach the document to an email that you can then send. Otherwise, please attach the completed dynamic guidelines manually to an e-mail and send it to Devin.Bartely@fao.org; Matthias.Halwart@fao.org; and ruth.garciagomez@fao.org.
8. A letter confirming official endorsement by relevant authorities should also be attached to the email.
9. You will receive a confirmation that the submission was successful.

Where can I get further assistance?

If you have any questions regarding the dynamic guidelines, please contact Devin.Bartely@fao.org; Matthias.Halwart@fao.org; ruth.garciagomez@fao.org

Several websites provide useful information on aquatic species that can be consulted for proper species names and for information on aquatic genetic resources: [AlgaeBase](http://www.algaebase.org), [Aquamaps](http://www.aquamaps.org), [Barcode of Life](http://www.barcodeoflife.org), [Census of Marine Life](http://www.censusofmarinelife.org), [FishBase](http://www.fishbase.org), [Frozen Ark](http://www.frozenark.org), [GenBank](http://www.genbank.org), [Global Biodiversity Information Facility](http://www.gbif.org), [International Union for Conservation of Nature](http://www.iucn.org), [National Institutes of Health Database on Genomes and Bioinformatics](http://www.nih.gov), [Ornamental Fish International](http://www.sealifebase.org), [SealifeBase](http://www.sealifebase.org), [Sea Around Us](http://www.searoundsus.org), and [World Register of Marine Species](http://www.marinespecies.org).

How, by whom and by when must the completed dynamic guidelines be submitted?

Once officially endorsed by the relevant authorities, the completed dynamic guidelines should be submitted (click the "Submit form" button on the header banner) by the National Focal Point. **Completed dynamic guidelines should be sent by December 31st 2015.**

www.algaebase.org
www.aquamaps.org
www.barcodeoflife.org
www.coml.org
www.fishbase.org
www.frozenark.org
www.genbank.org
www.gbif.org
www.iucn.org
<http://discover.nci.nih.gov/>
www.ornamental-fish-int.org
www.sealifebase.org
www.searoundsus.org
www.marinespecies.org

I. INTRODUCTION

At its Thirteenth Regular Session, the Commission noted that the preparation of a country-driven *State of the World's Aquatic Genetic Resources for Food and Agriculture* would provide countries with opportunities for assessing the status of their aquatic genetic resources for food and agriculture and enhancing the contributions of aquatic genetic resources to food security and rural development. Additionally the process of producing Country Reports will assist countries in determining their needs and priorities for the conservation and sustainable use of aquatic genetic resources for food and agriculture, and will help raise awareness among policy-makers.

II. COUNTRY REPORTS

As with the other sectors, *The State of the World's Aquatic Genetic Resources for Food and Agriculture (SoWAqGR)* will be compiled from Country Reports. It is recognized that guidance is necessary in order to assist countries in completing those reports under a common framework. The Country Reports will become official government documents submitted to FAO.

The following questionnaire is the suggested format for the preparation and submission of Country Reports. The questionnaire has been prepared by FAO to assist in the preparation of Country Reports contributing to the SoWAqGR Report. It has been designed to assist countries to undertake a strategic assessment of their aquatic genetic resources for food and agriculture.

The scope of the first State of the World's Aquatic Genetic Resources for Food and Agriculture, and therefore the emphasis in the Country Reports, is farmed aquatic species and their wild relatives within national jurisdiction.

Country Reports should:

- become powerful tools for improving the conservation, sustainable use and development of aquatic genetic resources for food and agriculture, at national and regional levels;
- identify threats to aquatic genetic resources, gaps in information about aquatic genetic resources and needs for the strengthening of national capacity to manage aquatic genetic resources effectively;
- inform the development of national policies, legislation, research and development, education, training and extension concerning the conservation, sustainable use and development of aquatic genetic resources for food and agriculture;
- contribute to raising public awareness about the importance of aquatic genetic resources for food and agriculture;
- complement other national reporting activities on the conservation, sustainable use and development of aquatic genetic resources.

Timeline and process

In line with the overall process, as established by the Commission, the Director-General of FAO sent a Circular State Letter on 19 April 2012 to countries requesting them to identify National Focal Points for the preparation of Country Reports by 31 December, 2015.

The following steps are recommended in preparing the Country Report, using a participatory approach:

- Each participating country should appoint a National Focal Point for the coordination of the preparation of the Country Report who will also act as focal point to FAO. National Focal Points should be communicated to the Secretary, Commission on Genetic Resources for Food and Agriculture (cgrfa@fao.org) immediately.
- Countries are encouraged to establish a national committee to oversee the preparation of the Country Report. The national committee should consist of as many representative stakeholders as practical (representing government, industry, research and civil society).
- The national committee should meet frequently to review progress and consult widely with key stakeholders.

- The National Focal Point should coordinate the preparation of the first draft of the Country Report, which should be reviewed by the national committee. The National Focal Point should facilitate a consultative process for broader stakeholder review.
- Following the stakeholder review, the National Focal Point should coordinate the finalization of the Country Report, submit it to the government for official endorsement and transmit it to FAO in one of the Organization's official languages (Arabic, Chinese, English, French, Russian and Spanish) by 31 December 2015.
- The Country Report will be an official government report.
- If countries are unable to submit final Country Reports by the set deadline, preliminary reports of findings should be provided to FAO to contribute to the identification of global priorities for inclusion in the SoWAqGR Report.

**QUESTIONNAIRE FOR PREPARATION OF COUNTRY REPORTS FOR
THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD
AND AGRICULTURE**

Country report supporting the preparation of
The State of the World's Aquatic Genetic Resources for Food and Agriculture

Country	Tonga
Prepared By	Poasi Fale Ngaluafe
Date	Feb 2, 2016

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I. EXECUTIVE SUMMARY

The Country Report should contain an executive summary of 2-3 pages highlighting the main findings of the analysis and providing an overview of key issues, constraints and existing capacity to address the issues and challenges. The executive summary should indicate trends and driving forces and present an overview of the proposed strategic directions for future actions aimed at the national, regional and global levels.

Please include the Executive Summary here.

In 1971 a demonstration pond was established by the US Peace Corps at Sopus on Tongatapu island. In 1978 a mariculture centre was established with assistance from Japan.

An experimental turtle hatchery was established at Sopus in 1971 in an effort to restore the hawksbill turtle population to its former status. Six month old turtles were released into the wild.

In the late 1960s, milkfish that spawned naturally in Lake Ano Ava was polycultured with tilapia and mullet. However, results were inconclusive.

With the onset of the pole-and-line fishery for skipjack tuna, mollies (*Poecilia vittata*) were introduced in 1974 at Sopus to meet the demand for tuna bait. Growth results were good but the mollies as bait alone were poor and were more effective when mixed with other baitfish. When the project was terminated in 1978 its results were not considered insignificant.

Mullet had high priority in the country's development plans. Culture started with capture of fry from Fanga'uta lagoon. Fry, mostly *Liza macrolepis* and some *Valamugil seheli* were collected and stocked into pens for grow-out. The fisheries department and the Japanese International Cooperation Agency (JICA) were responsible for these trials. Experiments investigating feed and growth were carried out to determine whether importation of *Mugil cephalis* fry would be a feasible undertaking.

A project to cultivate local and introduced mussel was started in 1974 but ended inconclusively by 1979. In 1983 assistance from New Zealand's bilateral aid programme was provided to support mussel culture. Only one site, Fanga'uta lagoon, proved encouraging but the project could not be sustained due to distance from spat source (Philippines, Singapore), cultivation method utilised and the fact that the mussels were not adapted to the subtropical environment of Tonga.

Edible oyster culture was initiated in 1973. Several species were introduced from Japan, New Zealand and USA, namely, *Ostrea edulis*, *Saccostrea commercialis*, *S. glomerata*, *Crassostrea gigas* and *C. belcheri*. Results from the trials were not convincing. The sites were not suitable and high mortalities occurred from predatory snails and during transshipment.

Commercial culture of oysters was deemed unfeasible in 1979. In 1981 a project to investigate culture of the local species of oysters was terminated due to poor growth rates and low market prices.

Pearl oyster culture began in the early 1960s. In 1975 an experimental venture was set up by the Tongan government.

Broodstock of the winged pearl oyster (*Pteria penguin*) was imported from Japan for initial culture trials. Japanese assistance in farming was later engaged. Culture trials were conducted in Vava'u with imported species *Pinctada margaritifera* and *P. maxima*. The FAO South Pacific Aquaculture Development Project (SPADP) provided assistance in 1989 in carrying out stock assessment, spat collection surveys and grafting techniques. A project, Commercial Feasibility of Pearl Farming in Tonga, was initiated in 1993.

Experimental trials of seaweed farming for *Eucheuma spinosum* and *Kappaphycus alvarezii* were initiated in 1982. Seed stock was imported from Fiji by a private company from New Zealand and planted at a farm in Vava'u. The fisheries department set up experimental farms at Tongatapu with seed from the Vava'u farms. By 1987, 14 farms were operational each with 50 lines. Highest production was recorded in 1984 at 7 tonnes but disease, low prices, predator grazing and cold weather and storms eventually closed down the industry.

In the mid-1950s tilapia was introduced in an unsuccessful attempt to control mosquito. Later it was trialled for fish culture in the Sopus fish ponds, as part of an integrated farming system project with a piggery. The project was not completed. Tilapia spread to neighbouring areas and was introduced to several islands in Tonga.

A concerted effort by government ministries and the Marine Research Foundation was made for stock enhancement of giant clams. "Clam circles" were created on reefs in Tongatapu and Vava'u and managed by the local communities. However, the project ceased after high rates of poaching occurred.

The Australian Centre for International Agricultural Research (ACIAR) funded construction of a giant clam hatchery and ocean nursery and provided technical training for government fisheries staff in collaboration with James Cook University, Australia, and the fisheries department. The new facility enabled the reintroduction of the previously extinct species *Hippopus hippopus*, and establishment of the newly described species *Tridacna tevoroa*. This project was then continued by JICA.

National Aspirations:

- Provide food security
- Provide employment
- Increase foreign exchange
- Reduce pressure on inshore fisheries and create alternatives
- Promote stock enhancement of overharvested fisheries

Constraints and Impediments :

- Lack of aquaculture regulation
- Lack of technical expertise
- Poaching
- Natural disasters
- High water temperatures

Many types of aquaculture have been tested in Tonga, mostly through government programmes provided with aid support. However, there has been little commercialisation of the research results.

The government mariculture centre at Sopus, operated with the technical assistance from Japan, has been one of the pioneering institutions for green snail and trochus aquaculture in the Pacific. Regional training courses have been held at the centre and green snail broodstock distributed to various countries in the Pacific.

Marine ornamental species such as hatchery reared giant clam, live rock and coral are exported for the aquarium trade, which is becoming an important economic sector. There are five main companies which specialise in exporting marine ornamental species such as giant clam, fish, coral, and live rock.

Wild stocks of the seaweed mozuku (*Cladosiphon* sp) are exported to Japan by a private company. The facility is a small-scale operation with a processing plant for export to Japan. Development of effective aquaculture techniques may help to maintain a stable supply of mozuku.

Tonga is one of the few countries in the Pacific with an act of legislation dedicated to aquaculture.

II. INTRODUCTION

The main objective of the Introduction is to present an overview that will allow a person who is unfamiliar with the country to appreciate the context for the Country Report. The Introduction should present a broad overview and present background information from your country on farmed aquatic species, their wild relatives and culture based fisheries. Detailed information should be provided in the main body of the Country Report. Countries may wish to consider developing their Introductions after completing the main body of their Country Reports.

Please write the overview here

III. MAIN BODY OF THE COUNTRY REPORT

Aquaculture, culture-based fisheries and capture fisheries, have differing importance among countries. The structure of chapters in each Country Report will reflect those differences. Countries which do not have a well-developed aquaculture sector but where wild relatives of farmed aquatic species are located, should report on these resources. Countries should decide how to prioritize the coverage of their Country Reports depending on their aquatic genetic resources.

Chapter 1: The Use and Exchange of Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction

The main objective of Chapter 1 is to provide annotated inventories of aquatic genetic resources (AqGR) of farmed aquatic species and their wild relatives.

Farmed aquatic species

1. Over the last 10 years, has production been: *Please mark appropriate box.*

- Increasing
- Stable
- Decreasing
- Stopped
- Still in Research and Development
- Fluctuating
- Not known

2. What is the expected trend over the next 10 years? *Please mark appropriate box.*

- Increasing
- Stable
- Decreasing
- Stopped
- Still in Research and Development
- Fluctuating
- Not known

3. Is the identification and naming of farmed species, subspecies, hybrids, crossbreeds, strains, triploids, other distinct types accurate and up- to-date? *Please mark appropriate box.*

- Yes
- No
- Mostly Yes
- Mostly No

Please include any explanation or additional information here.

At the species level only, not below the level of species

4. To what extent are genetic data for farmed aquatic organisms

a) Available? *Please mark appropriate box.*

- Not at all
- To a minor extent
- To some extent
- To a great extent

b) Used in management? *Please mark appropriate box.*

- Not at all
- To a minor extent
- To some extent
- To a great extent

Please add any explanation here.

Genetic data at the level of species is available for all farmed species, but there is no information below the species level

5. To what extent are the aquatic organisms farmed in your country sourced as wild seed or from wild brood stock?

Please mark appropriate box.

- Not at all
- To a minor extent
- To some extent
- To a great extent

Please add any explanation here.

In the case of Pteria penguin and Pinctada margaritifera the spats are collected from the wild

6. What proportions (%) of breeding programmes and efforts for the genetic improvement of farmed aquatic species in your country are being managed by the public sector (government research, universities etc.), the private sector, and public-private partnerships?

• Percent managed by public sector. **Please Enter Percentage Here**

• Percent managed by private sector. **Please Enter Percentage Here**

• Percent managed by private /public partnership. **Please Enter Percentage Here**

Total

Please add any explanation here.

Most of the aquaculture activities are led by the public sector

7. To what extent do genetically improved aquatic organisms, including hybrids, crossbreeds, strains, triploids and other distinct types contribute to national aquaculture production in terms of volume ?

Please mark appropriate box.

- Not at all
- To a minor extent
- To some extent
- To a great extent

8. Please list most significant examples where genetic improvement contributed to increased production and indicate whether they were developed by public, private or public/private partnerships.

Add Row

Species	Type of genetic improvement <i>mark all that apply</i>	Developed By <i>mark all that apply</i>	
	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Hybrids	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
Tridacna spp	<input type="checkbox"/> Triploids and other polyploids	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	X
	<input type="checkbox"/> Mono-sex production	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Other	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	

9. Please fill in table 1.1

Table 1.1 Aquatic genetic resources (AqGR) of farmed aquatic species in your country

<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Add Row</div>							
Farmed species	Genetic type	Availability of genetic data	Trends in production	Future trends in production	Genetic improvement	Future genetic improvement	Comments
List species (scientific names), strains and varieties as scientific names (put in brackets the most widely used national common name or names) and indicate whether native or introduced	<i>Indicate all genetic types that apply to the species</i>	Are genetic data available for farmed populations? If yes, give summary details in comments	Over the last 10 years, production has been (mark one)	Expected trend over the next 10 years is that production will (mark one)	Which genetic technologies are currently being used on the species (mark all that apply)	mark all that apply	For example important traits improved, how data are used in management or name of breed, source of information, etc.
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	
Tridacna derasa							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Hippopus hippopus	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
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<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Trochus spp	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
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	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		
Kappaphycus alvarezii								X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		
Pteria penguin								X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Pinctada margaritifera	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input checked="" type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Holothuria fuscogiva	X
<input type="checkbox"/> Cross breeds	<input type="checkbox"/> Stopped		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
<input type="checkbox"/> Strains	<input type="checkbox"/> Not known		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
<input type="checkbox"/> Varieties	<input type="checkbox"/> Other (specify in comment)		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
<input type="checkbox"/> Polyploids								
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Chaetoceros muelleri	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input checked="" type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		
<input type="checkbox"/> Cross breeds	<input type="checkbox"/> Decreasing		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
<input type="checkbox"/> Strains	<input type="checkbox"/> Stopped		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
<input type="checkbox"/> Varieties	<input type="checkbox"/> Not known		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
<input type="checkbox"/> Polyploids								

<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Isochrysis galbana	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Tridacna crocea	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Tridacna maxima	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Tridacna squamosa	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Tridacna gigas	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Selective bred type				<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		
	<input type="checkbox"/> Hybrids				<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Cross breeds				<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Strains				<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Varieties							
	<input type="checkbox"/> Polyploids							

X

10. Which aquatic species in your country are thought to have potential for domestication and future use in aquaculture?

Add Row

Species <i>Type and select a species</i>	Is the species native to your country?	Comments <i>For example main sources of information</i>	
Holothuroidea	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known		X
Chanos chanos	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known		X
Mugil cephalus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known		X

11. Please list the aquatic genetic resources of farmed aquatic species your country has transferred or exchanged with other countries over the past 10 years.

Add Row					
Species	Genetic alteration of exchanged material Mark all that apply	Details of transfer or exchange	Type of genetic material exchanged Mark all that apply	Country or countries involved with exchange Hold CTRL button to select more than one country	Comments <i>Please add main purpose or objective of the exchange and main sources of information</i>
Kappaphycus alvarezii	<input type="checkbox"/> No deliberate genetic alteration <input checked="" type="checkbox"/> Traditional selective breeding <input type="checkbox"/> Hybrids <input type="checkbox"/> Triploids and other polyploids <input type="checkbox"/> Mono-sex production <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Import <input type="checkbox"/> Export	<input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Gametes <input type="checkbox"/> Tissues <input type="checkbox"/> Embryos <input checked="" type="checkbox"/> Living specimens <input type="checkbox"/> Other	Gabon Gambia Georgia Germany Ghana Greece Grenada Guatemala Guinea Guinea-Bissau Guyana Haiti Hungary Iceland India Indonesia Iran (Islamic Republic)	
Tridacna spp	<input checked="" type="checkbox"/> No deliberate genetic alteration <input type="checkbox"/> Traditional selective breeding <input type="checkbox"/> Hybrids <input type="checkbox"/> Triploids and other polyploids <input type="checkbox"/> Mono-sex production <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Import <input type="checkbox"/> Export	<input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Gametes <input type="checkbox"/> Tissues <input type="checkbox"/> Embryos <input checked="" type="checkbox"/> Living specimens <input type="checkbox"/> Other	Papua New Guinea Paraguay Peru Philippines Poland Portugal Qatar Republic of Korea Republic of Moldova Romania Russian Federation Rwanda Saint Kitts and Nevis Saint Lucia Saint Vincent and the Samoa San Marino	

Wild relatives of farmed aquatic species

12. Please list any wild relatives of aquatic species present in your country that are farmed in another country (but not in your country) and indicate their uses.

This question refers to aquatic genetic resources that are present in the wild in your country and that are being farmed elsewhere (but not farmed in your country), indicating any uses these resources may have in your country.

Add Row

Species	Use (<i>mark all that apply</i>)	Comments	
Epinephelus fuscoguttatus	<input checked="" type="checkbox"/> Capture fisheries <input type="checkbox"/> Recreational fishery <input type="checkbox"/> Aquaria <input type="checkbox"/> Biological control <input type="checkbox"/> Research and development <input type="checkbox"/> Other (specify in comments)		X
Cromileptes altivelis	<input checked="" type="checkbox"/> Capture fisheries <input type="checkbox"/> Recreational fishery <input type="checkbox"/> Aquaria <input type="checkbox"/> Biological control <input type="checkbox"/> Research and development <input type="checkbox"/> Other (specify in comments)		X
Epinephelus lanceolatus	<input checked="" type="checkbox"/> Capture fisheries <input type="checkbox"/> Recreational fishery <input type="checkbox"/> Aquaria <input type="checkbox"/> Biological control <input type="checkbox"/> Research and development <input type="checkbox"/> Other (specify in comments)		X

<p>Epinephelus malabaricus</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Capture fisheries <input type="checkbox"/> Recreational fishery <input type="checkbox"/> Aquaria <input type="checkbox"/> Biological control <input type="checkbox"/> Research and development <input type="checkbox"/> Other (specify in comments) 		<p>X</p>
<p>Panulirus spp</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Capture fisheries <input type="checkbox"/> Recreational fishery <input type="checkbox"/> Aquaria <input type="checkbox"/> Biological control <input type="checkbox"/> Research and development <input type="checkbox"/> Other (specify in comments) 		<p>X</p>

13. Please list the aquatic genetic resources of wild relatives of farmed aquatic species your country has transferred or exchanged with other countries over the past 10 years.

Add Row

This question refers to wild aquatic genetic resources collected from the wild, not from farming facilities as in question 11.

Species	Details of transfer or exchange <i>mark all that apply</i>	Type of genetic material exchanged	Country Hold CTRL button to select more than one country	Comments <i>main sources of information, if the transfer was legal or not</i>
	<input type="checkbox"/> Import <input type="checkbox"/> Export	<input type="checkbox"/> Tissues <input type="checkbox"/> Gametes <input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Embryos <input type="checkbox"/> Living specimens <input type="checkbox"/> Other	Afghanistan Albania Algeria Andorra Angola Antigua and Barbuda Argentina Armenia Australia Austria Azerbaijan Bahamas Bahrain Bangladesh Barbados Belarus	

X

14. Please fill in table 1.2

Table 1.2 Aquatic genetic resources of wild relatives of farmed aquatic species in your country.

Add Row											
Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
For each row, list the species as scientific names (put in brackets the most widely used national common For each species, include the named stocks and name of other management units if known)	Is the species (mark as appropriate) :	Is this species targeted by capture fisheries?	Are there any management measures in place?	Are genetic data available for the fishery?	Are genetic data used in management?	Over the last 10 years, catches have been:	Expected trend over the next 10 years.	Indicate the ecosystem where the fishery is located (mark all that apply)	The habitat or range is	What are likely reasons for changes? (mark all that apply)	
Tridacna spp	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input checked="" type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Hippopus hippopus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input checked="" type="checkbox"/> Others <input type="checkbox"/> Not known	X
Chanos chanos	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input checked="" type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Holothuroidea	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input checked="" type="checkbox"/> Others <input type="checkbox"/> Not known	X

Chapter 2: Drivers and Trends in Aquaculture: Consequences for Aquatic Genetic Resources within National Jurisdiction

The main objective of Chapter 2 is to review the main drivers and trends that are shaping aquaculture and their consequences for aquatic genetic resources.

15. Please indicate the ways the aquatic genetic resources (AqGR) of **farmed aquatic species** have been impacted by the following drivers. Please give examples of positive and negative impacts for specific drivers.

This question refers to drivers impacting farmed aquatic genetic resources, not about impacts on the entire aquaculture sector. Drivers should be seen from a national perspective.

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Human population increase	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Increased wealth and demand for fish	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Governance (ability of government, industry and the public to work together in managing resources)	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Climate change	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Competition for resources, especially freshwater	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Changes in values and ethics of consumers	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Other	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Add other drivers as necessary		
Add Row	Remove Row	

16. Please indicate the ways the aquatic genetic resources of **wild relatives of farmed aquatic species** in nature have been impacted by the following drivers. Please give examples of positive and negative impacts for specific drivers.

This question refers to drivers impacting wild aquatic genetic resources of farmed species, not about impacts on the entire aquaculture sector. Drivers should be seen from a national perspective.

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Human population increase	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Increased wealth and demand for fish	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Governance (ability of government, industry and the public to work together in managing resources)	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Climate change	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Competition for resources, especially freshwater	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Changes in values and ethics of consumers	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Other Add other drivers as necessary	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Add Row	Remove Row	

17. What countermeasures might be taken to reduce adverse impacts on the aquatic genetic resources that sustain current aquaculture and/or provide for its future development?

Describe countermeasures

Better governance
Design, implementation and monitoring of fisheries management plans
Better enforcement of existing legal frameworks
Establishment of marine protected areas
Formulation of project proposals to address specific gaps

Biotechnologies

18. To what extent have the following biotechnologies been used in your country for the genetic improvement of farmed aquatic organisms.

Biotechnology	Extent of use	Comments <i>main sources of information, important species for which the biotechnology is applied</i>
Selective breeding	<input type="radio"/> Not at all <input type="radio"/> To a minor extent <input checked="" type="radio"/> To some extent <input type="radio"/> To a great extent	
Hybridization	<input checked="" type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Polyploidy (chromosome set manipulation)	<input checked="" type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Monosex production	<input checked="" type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Marker assisted selection	<input checked="" type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Gynogenesis/androgenesis	<input checked="" type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Other	<input type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Continue adding row as necessary		
Add Row		

19. Please indicate the ways aquatic genetic resources of the wild relatives of farmed aquatic species have been impacted by drivers that are changing aquatic ecosystems. Please give countermeasures that might be taken to reduce adverse consequences for the aquatic genetic resources that sustain capture fisheries on wild relatives of farmed species.

Drivers that are changing aquatic ecosystems	Effect on AqGR <i>mark appropriate box</i>	Countermeasures and effects
Habitat loss and degradation	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Pollution of waters	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input checked="" type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Increased frequency of extreme climatic events and long-term climate change	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Establishment of invasive species	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input checked="" type="radio"/> Unknown	
Introductions of parasites and pathogens	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input checked="" type="radio"/> Unknown	

Drivers that are changing aquatic ecosystems	Effect on AqGR <i>mark appropriate box</i>	Countermeasures and effects
Impacts of purposeful stocking and escapes from aquaculture	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input checked="" type="radio"/> Unknown	
Capture fisheries	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Other	<input type="radio"/> Strongly positive	
<i>Continue listing other driverst</i>	<input type="radio"/> Positive	
	<input type="radio"/> Negative <input type="radio"/> Strongly negative	
	<input type="radio"/> No effect <input type="radio"/> Unknown	
Add Row	Remove Row	

Chapter 3: *In Situ* Conservation of Aquatic Genetic Resources of Farmed Aquatic Species and their wild Relatives within National Jurisdiction

The main objective of Chapter 3 is to review the current status and future prospects for the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives within national jurisdiction for food and agriculture.

The specific objectives are as follows:

- To review the current and likely future contributions to *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives by those who use them in responsible and well managed capture fisheries, aquaculture, and culture-based fisheries.
- To identify and describe any existing and planned aquatic protected areas that are contributing, or will contribute, to *in situ* conservation of aquatic genetic resources of wild relatives of farmed aquatic species.
- To identify and describe any major existing and planned efforts for the *in situ* conservation of threatened or endangered aquatic genetic resources (farmed and wild).
- To review needs and priorities for the future development of *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives.

Overview of the current status and future prospects for the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives

20. To what extent are responsible and well managed aquaculture and culture-based fisheries contributing to *in situ* conservation of the aquatic genetic resources of farmed aquatic species and their wild relatives.

Please mark appropriate box.

- To a great extent
 To a limited extent
 Not at all
 Not applicable

Please include any additional information

--

21. To what extent are existing facilities contributing to *in situ* conservation of aquatic genetic resources of wild relatives of farmed aquatic species?

Please mark appropriate box.

- To a great extent
 To a limited extent
 Not at all
 Not applicable

Please include any additional information

Current aquaculture facilities in Kiribati are contributing to the conservation of key aquaculture genetic resources such as giant clams, trochus, pteria penguin, etc

22. Please provide *examples* of current or planned activities for the *in situ* conservation of endangered or threatened farmed species and their wild relatives with demonstrated or potential importance for aquaculture, culture-based fisheries, and capture fisheries.

Please describe examples

Establishment and management of marine protected areas
Restocking
Stock enhancement
Fisheries management plans

23. Please rank (from 1 to 10) the importance of the following objectives for *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives in your country.

Objectives of <i>in situ</i> conservation	Rank 1=Very Important 10=No importance
Preservation of aquatic genetic diversity	<input type="text" value="1"/>
Maintain good strains for aquaculture production	<input type="text" value="2"/>
Meet consumer and market demands	<input type="text" value="6"/>
To help adapt to impacts of climate change	<input type="text" value="8"/>
Future breed improvement in aquaculture	<input type="text" value="4"/>
<i>Please continue listing any other objectives as needed</i>	<input type="text"/>
Add Row	

Review of the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives through their use in responsible and well managed aquaculture and culture-based fisheries

24. Is the *in situ* conservation of aquatic genetic resources included in the policy as an objective in the management of aquaculture and/or culture-based fisheries in your country?

Please mark appropriate box

- Yes
 Not yet, but planned to be included
 No
 Unknown

If yes, please give examples

25. To what extent are collectors of wild seed and brood stock for aquaculture and culture-based fisheries contributing to the conservation of aquatic genetic resources by maintaining habitats and/or limiting the quantities collected?

Please mark appropriate box

- To a great extent
 To a limited extent
 Not at all
 Not applicable

Please include any additional details

Review of the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives through their use in responsible and well managed capture fisheries

26. Is the conservation of aquatic genetic resources of wild relatives of farmed aquatic species included as an objective in the management of any capture fisheries in your country?

Please mark appropriate box

If yes, please give examples

- Yes
 Not yet, but under development
 No
 Unknown

Review of the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives through the establishment and management of aquatic protected areas

27. Please list any aquatic protected areas in your country that are contributing to the *in situ* conservation of aquatic genetic resources of wild relatives of farmed aquatic species and an assessment of effectiveness

Add Row

Aquatic protected area	Effectiveness of conserving Aquatic Genetic Resources	Comments <i>provide any additional information</i>	
Special Management Areas (SMAs) - 'Atata Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown	Special Management Areas similar to Marine Protected Areas but the communities responsible to look after their marine resources empower by Responsible Minister for Fisheries under Fisheries Management Acts 2002. Within SMAs, there is one area dedicated as no 'take out zones' at individual Islands communities SMAs and the same time, these areas used by Fisheries as a nursery for culture species such as giant clams, trochus and corals.	X
Marine Protected Areas - Mounuafu Reef	<input type="radio"/> Very effective <input type="radio"/> Somewhat effective <input checked="" type="radio"/> Not effective <input type="radio"/> Unknown	Lack of enforcement cause ineffective of protection these MPAs in Tonga.	X
Special Management Areas (SMAs) - 'Eueiki Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X

Aquatic protected area	Effectiveness of conserving Aquatic Genetic Resources	Comments <i>provide any additional information</i>	
Special Management Areas (SMAs) - Nomuka Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Special Management Areas (SMAs) - 'Oua Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Special Management Areas (SMAs) - Ha'afeva Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Special Management Areas (SMAs) - Felemea Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Special Management Areas (SMAs) - 'Ovaka Island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Special Management Areas (SMAs) - Taunga island Community	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X

Aquatic protected area	Effectiveness of conserving Aquatic Genetic Resources	Comments <i>provide any additional information</i>	
Marine Protected Areas - Hakaumamao Reef	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Marine Reserve - Pangaimotu Reef	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Marine Reserve - Ha'atafu Reef	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Marine Reserve - Fanga'uta Lagoon	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X
Marine Reserve - Minerva Reef	<input type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown		X

Chapter 4: *Ex Situ* Conservation of Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction

The main objective of Chapter 4 is to review the current status and future prospects for the *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives.

The specific objectives are:

- To review existing *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives in aquaculture facilities, culture collections and gene banks, research facilities, zoos and aquaria;
- To review the contributions that various stakeholders are making to the *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives;
- To review needs and priorities for the future development of *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives, including any that are threatened or endangered.

Review of existing and planned collections of live breeding individuals of aquatic genetic resources of farmed aquatic species and their wild relatives

28. Please list your country's existing collections of live breeding aquatic organisms that can be considered as contributing to the *ex situ* conservation of aquatic genetic resources. This includes not only collections of species farmed directly for human use, but also collections of live feed organisms (e.g., bacterial flocs, yeasts, microalgae, rotifers and brine shrimp (*Artemia*)).

Add Row				
Species (include information on subspecies or strain in comments if available)	Type of use <i>Please mark all that apply</i>	Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists? <i>Please mark appropriate box</i>	Comments <i>Please list any additional information</i>	
	<input type="checkbox"/> Direct human consumption <input type="checkbox"/> Live feed organism <input type="checkbox"/> Other	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown		X

Review of existing *ex situ* conservation activities of aquatic genetic resources of farmed aquatic species and their wild relatives *in vitro*.

29. Please list your country's *in vitro* collections and gene banks of the gametes, embryos, tissues, spores and other quiescent forms of farmed aquatic species and their wild relatives, using cryopreservation or other methods of long-term storage. Describe the major examples, identifying the facilities in which the collections are held. Include examples of any such genetic material from your country that is being kept in *in vitro* collections outside your country on behalf of beneficiaries in your country.

Add Row					
Species (include information on subspecies or strain if available in comments)	Users and managers <i>List all that apply</i>	Type of <i>ex-situ</i> conservation collection <i>in vitro</i> <i>mark all that apply</i>	Facilities where collection is located <i>mark all that apply</i>	Comments <i>list all breeds, subspecies of the species and any additional information</i>	
Chaetoceros muelleri	Hatchery managers	<input type="checkbox"/> In vitro collection of gametes <input type="checkbox"/> In vitro collection of embryos <input type="checkbox"/> In vitro collection of tissues <input checked="" type="checkbox"/> Spores <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Aquaculture facilities <input type="checkbox"/> Research facilities <input type="checkbox"/> Universities <input type="checkbox"/> Zoos and aquaria <input type="checkbox"/> Other		X
Isochrysis galbana	Hatchery managers	<input type="checkbox"/> In vitro collection of gametes <input type="checkbox"/> In vitro collection of embryos <input type="checkbox"/> In vitro collection of tissues <input checked="" type="checkbox"/> Spores <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Aquaculture facilities <input type="checkbox"/> Research facilities <input type="checkbox"/> Universities <input type="checkbox"/> Zoos and aquaria <input type="checkbox"/> Other		X

30. Please rank (from 1 – 10) the importance of the following objectives for ex situ conservation of aquatic genetic resources of farmed aquatic species and their wild relatives in your country

Objectives of <i>ex situ</i> conservation	Rank 1=Very Important 10=No importance
Preservation of aquatic genetic diversity	2
Maintain good strains for aquaculture production	4
Meet consumer and market demands	6
To help adapt to impacts of climate change	9
Future breed improvement in aquaculture	3
Other <i>Continue adding row as necessary</i>	
Add Row	Remove Row

Chapter 5: Stakeholders with Interests in Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction

The main objective of Chapter 5 is to provide an overview of the perspectives and needs of the principal stakeholders who have interests in aquatic genetic resources of farmed aquatic species and their wild relatives for food and agriculture. Stakeholder groups can be identified from existing institutional knowledge, from sectoral and sub-sectoral consultations conducted during the country reporting process and where necessary from expert opinions. Gender issues pertaining to the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives should be considered, as well as the perspectives and needs of indigenous peoples and local communities.

The specific objectives are:

- To describe the different principal stakeholder groups with interests in aquatic genetic resources of farmed aquatic species and their wild relatives To identify the type(s) of aquatic genetic resources of farmed aquatic species and their wild relatives in which each stakeholder group has interests and why.
- To describe the roles of stakeholder groups and the actions they are taking for the conservation, sustainable use and development of the aquatic genetic resources in which they have interests.
- To describe the further actions that stakeholder groups would like to see taken for the conservation, sustainable use and development of aquatic genetic resources in which they have interests, and the constraints that are hindering those actions, including lack of capacity and perceived threats.

Overview of the principal stakeholder groups who have interests in aquatic genetic resources of farmed aquatic species and their wild relatives

31. Please indicate the principal stakeholder groups who have interests in aquatic genetic resources of farmed aquatic species and their wild relatives including, *inter alia*: fish farmers; fishers in capture fisheries; persons involved in stocking and harvesting in culture-based fisheries; persons employed in postharvest chains; government officials; staff and members of aquaculture associations; managers of aquatic protected areas and others working for the conservation of aquatic ecosystems; researchers; and civil society.

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Fish Farmers	<input type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Fishers	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Fish hatchery people	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Marketing <input checked="" type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Breeding <input type="checkbox"/> Outreach/Extension <input checked="" type="checkbox"/> Research <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
People involved in marketing	<input type="checkbox"/> Conservation <input checked="" type="checkbox"/> Marketing <input type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Advocacy <input type="checkbox"/> Breeding <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Research <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Government resource managers	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Marketing <input type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Advocacy <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Research <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Fishing or aquaculture associations	<input type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input type="checkbox"/> Research <input type="checkbox"/> Marketing <input type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <input type="text"/>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Aquatic protected area managers	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input type="checkbox"/> Research <input type="checkbox"/> Marketing <input type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <input type="text"/>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Policy Makers	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input type="checkbox"/> Research <input type="checkbox"/> Marketing <input type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <input type="text"/>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Non-Governmental Organizations	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Marketing <input checked="" type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Outreach/Extension <input checked="" type="checkbox"/> Research <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Intergovernmental Organizations	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Outreach/Extension <input checked="" type="checkbox"/> Research <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Donors	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Breeding <input type="checkbox"/> Outreach/Extension <input checked="" type="checkbox"/> Research <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>										
Consumers	<table border="0"><tr><td><input type="checkbox"/> Conservation</td><td><input type="checkbox"/> Marketing</td></tr><tr><td><input type="checkbox"/> Production</td><td><input type="checkbox"/> Processing</td></tr><tr><td><input type="checkbox"/> Feed manufacturing</td><td><input checked="" type="checkbox"/> Advocacy</td></tr><tr><td><input type="checkbox"/> Breeding</td><td><input type="checkbox"/> Outreach/Extension</td></tr><tr><td><input type="checkbox"/> Research</td><td><input type="checkbox"/> Other (specify)</td></tr></table> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<input type="checkbox"/> Conservation	<input type="checkbox"/> Marketing	<input type="checkbox"/> Production	<input type="checkbox"/> Processing	<input type="checkbox"/> Feed manufacturing	<input checked="" type="checkbox"/> Advocacy	<input type="checkbox"/> Breeding	<input type="checkbox"/> Outreach/Extension	<input type="checkbox"/> Research	<input type="checkbox"/> Other (specify)	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
<input type="checkbox"/> Conservation	<input type="checkbox"/> Marketing												
<input type="checkbox"/> Production	<input type="checkbox"/> Processing												
<input type="checkbox"/> Feed manufacturing	<input checked="" type="checkbox"/> Advocacy												
<input type="checkbox"/> Breeding	<input type="checkbox"/> Outreach/Extension												
<input type="checkbox"/> Research	<input type="checkbox"/> Other (specify)												

a) Please indicate the most important role of women in regards to AqGR

Women are fully integrated in the Tongan ociety and they play important roles from policy making roles up to farming responsibilities

b) Please indicate the most important role of indigenous and local communities in regards to AqGR

Chapter 6: National Policies and Legislation for Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction

The main objective of Chapter 6 is to review the status and adequacy of national policies and legislation concerning aquatic genetic resources of farmed aquatic species and their wild relatives including access and benefit sharing.

The specific objectives are as follows:

- To describe the existing national policy and legal framework for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.
- To review current national policies and instruments for access to aquatic genetic resources of farmed aquatic species and their wild relatives and the fair and equitable sharing of benefits arising from their utilization.
- To identify any significant gaps in policies and legislation concerning aquatic genetic resources of farmed aquatic species and their wild relatives..

Review of national policies and legislation for Aquatic Genetic Resources of farmed aquatic species and their wild relatives within national jurisdiction

32. Please list national legislation, policies and/or mechanisms that address aquatic genetic resources of farmed species and their wild relatives (see question 47 regarding international agreements).

Add Row

National legislation, policy and/or mechanism	Date established	Scope <i>Select all that apply</i>	Comments <i>Please provide any additional information for example whether it has been effective or not; and main sources of information</i>	
Aquaculture Management Act 2003	Sep 9, 2003	<input checked="" type="checkbox"/> Genes or molecules only <input checked="" type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Indicated Genetic Modify (GM) Organisms should be restricted	X
Fisheries Management Act 2002	October 19,2002	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input checked="" type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Very effective with focus on capture Fisheries with trades	X

National legislation, policy and/or mechanism	Date established	Scope <i>Select all that apply</i>	Comments <i>Please provide any additional information for example whether it has been effective or not; and main sources of information</i>	
Aquaculture Regulations 2008	Sept 24, 2008	<input type="checkbox"/> Genes or molecules only <input checked="" type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Very effective but Aquaculture activities still in small scales level but only focus on pearl longline farming. No commercial licenses had been issued but more than 10 applicants still in-processing which majority focus on sea cucumbers farming with few interest on fish farming i.e. pond culture and net cage system.	X
Fisheries Regulations 2008	June 6, 2008	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input checked="" type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Very effective in term of enforcing fish sizes limit, fishing licenses, etc.	X
Maritime Zone Act 2009	April 23, 2010	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input type="checkbox"/> Importation <input type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Effective	X
Environment Management Act 2010 and Regulations 2010	Oct 10, 2010	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input checked="" type="checkbox"/> Other	Very effective with indicated Biosafety issues (i.e. LMO products, etc.) included Agricultures and Fisheries in term of supporting Food Safety.	X

Review of the current status and gaps in national policies and legislation for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives

33. Please list any gaps in the coverage or constraints in implementing national legislation, policies and/or mechanisms in regard to aquatic genetic resources.

--

34. Please indicate any national aquatic genetic resources of farmed aquatic species and their wild relatives for which your country restricts access.

Type of genetic resource (can be species name, DNA, gametes or other descriptor)	Comments
DNA	<p><i>Please, provide verifiable main sources of information, effectiveness of the restriction, description of type of restriction and for whom does the restriction apply</i></p>
Stock, breed or variety	
Species	
Other	
Continue adding row as necessary	
Add Row	Remove Row

35. Over the past 10 years, indicate the actions your country has taken to maintain or enhance access to aquatic genetic resources of farmed aquatic species and their wild relatives located outside your country; for example, by establishing germplasm acquisition agreements or material transfer agreements.

Add Row

Action taken to enhance access to aquatic genetic resources outside your country	Type of genetic resource <i>Mark all that apply</i>	Comment <i>for example other types of genetic resources</i>	
	<input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Gametes <input type="checkbox"/> Tissues <input type="checkbox"/> Embryos <input type="checkbox"/> Living specimens		X

36. Please indicate any obstacles your country has encountered when trying to access aquatic genetic resources of farmed aquatic species and their wild relatives outside of your country (including access for research purposes).

Obstacles to accessing aquatic genetic resources	Please describe type of genetic resource <i>mark all that apply</i>	Comments <i>please include additional information as needed</i>
Intellectual property protection	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
National laws of your country	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	The introduction of improved strains of seaweeds was blocked during a certain period of time due to the necessary compliance with the national legislation
National laws of donor country	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
International laws or protocols	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Too expensive	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Material transfer agreements required	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Knowledge gaps	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Public perception	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	

Obstacles to accessing aquatic genetic resources	Please describe type of genetic resource <i>mark all that apply</i>	Comments <i>please include additional information as needed</i>
Other	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Continue adding row as necessary		
Add Row		

Chapter 7: Research, Education, Training and Extension on Aquatic Genetic Resources within National Jurisdiction: Coordination, Networking and Information

The main objective of Chapter 7 is to review the status and adequacy of national research, education, training and extension, coordination and networking arrangements and information systems that support the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives for food and agriculture.

The specific objectives are:

- To describe the current status, future plans, gaps, needs and priorities for research, training, extension and education on the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives
- To describe existing or planned national networks for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.
- To describe existing or planned information systems for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.

Research

37. Does your national research programme support the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives? If yes, give details of current and/or planned research; if no, explain the main reasons why not in box below.

Please mark appropriate box

- Yes
 No
 Unknown

Please provide details

--

38. Please list main institutions, organizations, corporations and other entities in your country that are engaged in field and/or laboratory research related to the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.

Add Row

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
University of the South Pacific	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Genetic improvement <input checked="" type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input checked="" type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other		X
Secretariat of the Pacific Community	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input type="checkbox"/> Genetic improvement <input checked="" type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input checked="" type="checkbox"/> Communication on aquatic genetic resources <input type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other		X

39. What capacity strengthening is needed to improve national research in support of the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives?

Please rank the following in regard to capacity strengthening.

Capacities	Rank 1=Very Important 10=No importance
Improve basic knowledge on aquatic genetic resources	2
Improve capacities for characterization and monitoring of aquatic genetic resources	1
Improve capacities for genetic improvement	1
Improve capacities for genetic resource management	2
Improve capacities for economic valuation of aquatic genetic resources	6
Improve capacities for conservation of aquatic genetic resources	4
Improve communication on aquatic genetic resources	2
Improve access to and distribution of aquatic genetic resources	3
Add other rows as appropriate and rank <div style="border: 1px solid black; height: 75px; width: 100%;"></div>	<div style="border: 1px solid black; height: 25px; width: 100%;"></div>
Add Row	Remove Row

Please describe any other capacity building needs in regards to aquatic genetic resources

Education, training and extension

40. Please indicate the extent that education, training and extension in your country covers the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives? List the main institutions involved and the types of courses offered.

Add Row

Institution	Thematic Area	Type of courses mark all that apply	Comments	
University of the South Pacific	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		

Coordination and networking

41. Please list any mechanisms within your country responsible for coordinating the aquaculture, culture-based fisheries and capture fisheries subsectors with the other sectors that use watersheds and coastal ecosystems and have impacts on aquatic genetic resources of wild relatives of farmed aquatic species (e.g., agriculture, forestry, mining, tourism, waste management and water resources).

If no mechanism exists check here:

Add Row	Name of mechanism	Description of how mechanism operates	
		X	

42. Please indicate how capacity strengthening can be improved in intersectoral coordination in support of the conservation, sustainable use and development of aquatic genetic resources.

Please rank the following in regards to capacity strengthening.

Capacities	Rank 1=Very Important 10=No importance
Increase awareness in institutions	2
Increase technical capacities of institutions	1
Increase information sharing between institutions	3
Add other rows as appropriate and rank <div style="border: 1px solid black; height: 75px; width: 100%;"></div> <div style="display: flex; justify-content: space-between; border: 1px solid black; padding: 2px;"> Add Row Remove Row </div>	<div style="border: 1px solid black; width: 150px; height: 25px; margin: 0 auto;"></div>

Please specify in box below

43. Please list any national networks in your country or any international networks your country belongs to that support the conservation, sustainable use and development of aquatic genetic resources.

Add Row

Network	Objectives of the network <i>Please mark all that apply</i> to your country	Comments	
	<input type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources		X

Information systems

44. Please list any information systems existing in your country for receiving, managing and communicating information about the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.

Add Row

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
	<input type="checkbox"/> DNA sequence <input type="checkbox"/> Genes and genotype <input type="checkbox"/> Breeds, strains or stocks <input type="checkbox"/> Species names <input type="checkbox"/> Production figures <input type="checkbox"/> Distribution <input type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input type="checkbox"/> Fish farmers <input type="checkbox"/> Fishers in capture fisheries <input type="checkbox"/> Fish hatchery people <input type="checkbox"/> People involved in marketing <input type="checkbox"/> Government resource managers <input type="checkbox"/> Fishing or aquaculture associations <input type="checkbox"/> Aquatic protected area managers <input type="checkbox"/> University and academic people <input type="checkbox"/> Non-Governmental Organizations <input type="checkbox"/> Intergovernmental Organizations <input type="checkbox"/> Policy makers <input type="checkbox"/> Donors <input type="checkbox"/> Consumers <input type="checkbox"/> Politicians <p>Please list other stakeholders as necessary</p> <div style="border: 1px solid black; height: 76px; width: 240px;"></div>	X

45. What capacity strengthening is needed to improve national information systems to support the conservation, sustainable use and development of aquatic genetic resources?

Please describe what capacities need to be strengthened

It is necessary to improve general knowledge on species and below the species genetic characterization, in order to have a better understanding of what we are farming. Furthermore, the country's experts on fisheries and aquaculture need to be better trained on risk analysis, quarantine operations for introductions and better access to improved strains and varieties.

Please describe any other capacity building needs in regards to information systems for aquatic genetic resources

Chapter 8: International Collaboration on Aquatic Genetic Resources of Farmed Aquatic Species and Their Wild Relatives

The main objective of Chapter 8 is to review the mechanisms and instruments through which your country participates in international collaborations on aquatic genetic resources of farmed aquatic species and their wild relatives.

The specific objectives are:

- To identify your country's current participation in bilateral, sub-regional, regional, other international and global forms of collaboration on aquatic genetic resources. List national memberships, status as a Party and other forms of affiliation in agreements, conventions, treaties, international organizations, international networks and international programmes.
- To identify any other forms of international collaboration on aquatic genetic resources.
- To review the benefits from existing forms of international collaboration on aquatic genetic resources.
- To identify needs and priorities for future international collaboration on aquatic genetic resources

International collaboration includes bilateral arrangements and the sharing of particular waters and stocks of wild relatives of farmed aquatic species.

International, regional or sub-regional agreements, conventions and treaties concerning aquatic genetic resources of farmed aquatic species and their wild relatives

46. Please list the international, regional or sub-regional agreements your country subscribes to that cover aquatic genetic resources of farmed species and their wild relatives, such as the Nagoya Protocol² the Convention on Biological Diversity and the Cartagena Protocol and how they have impacted aquatic genetic resources and stakeholders in your country. Examples could include:

² <http://www.cbd.int/abs/nagoya-protocol/signatories/>

- Establishment and management of shared or networked aquatic protected areas as far as wild relatives of farmed aquatic species are concerned
- Aquaculture and culture-based fisheries in transboundary or shared water bodies
- Sharing aquatic genetic material and related information
- Fishing rights, seasons and quotas as far as wild relatives of farmed aquatic species are concerned
- Conservation and sustainable use of shared water bodies and watercourses as far as wild relatives of farmed aquatic species are concerned
- Quarantine procedures for aquatic organisms and for control and notification of aquatic diseases

Add Row

International, Regional, bilateral or Sub-Regional agreement	Year your country ratified or subscribed to the agreement	Impact on aquatic genetic resources	Impact on stakeholders	Comments
CITES		<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	

X

International, Regional, bilateral or Sub-Regional agreement	Year your country ratified or subscribed to the agreement	Impact on aquatic genetic resources	Impact on stakeholders	Comments	
CBD		<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect		X

47. Please list the priority needs regarding collaboration on conservation and sustainable use of aquatic genetic resources of farmed aquatic species and their wild relatives. Are they being addressed, i.e. are there any critical gaps?

Collaboration is needed in order to ...	Rank 1=Very Important 10=No importance	To what extent are the needs being met	Comments <i>For example any critical gaps</i>
Improve information technology and database management	<input type="text" value="2"/>	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve basic knowledge on aquatic genetic resources	<input type="text" value="1"/>	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for characterization and monitoring of aquatic genetic resources	<input type="text" value="1"/>	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for genetic improvement	<input type="text" value="2"/>	<input type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for economic valuation of aquatic genetic resources	<input type="text" value="4"/>	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for conservation of aquatic genetic resources	<input type="text" value="4"/>	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve communication on aquatic genetic resources	<input type="text" value="5"/>	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	

Collaboration is needed in order to ...	Rank 1=Very Important 10=No importance	To what extent are the needs being met	Comments <i>For example any critical gaps</i>
To improve access to and distribution of aquatic genetic resources	2	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Other		<input type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Continue adding row as necessary			
		<input type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Add Row	Remove Row		

48. Please describe the types of collaboration that have been most beneficial for your country, and why?

In the specific case of aquaculture, South-south collaboration with countries within the region, such as Fiji, Tonga, Australia, etc. and South-South Cooperation with Asian countries, such as Indonesia.

49. Is there a need for your country to expand its collaboration concerning the conservation, sustainable use and development of aquatic genetic resources? If yes, give details, including any requirements for capacity strengthening in box below

Yes

No

If yes, please give details

Yes, it would be convenient to expand the collaboration with other countries within the region working on the same species, as well as with countries outside the region (farming giant clams, holothurids, milkfish, etc).

50. Describe important roles that your country performs within its region (and/or sub-region) and globally in terms of being a keeper, user and sharer of aquatic genetic resources.

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