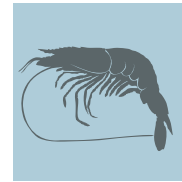
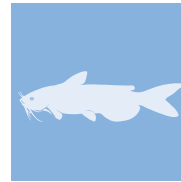
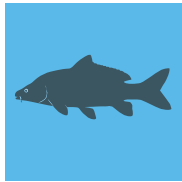
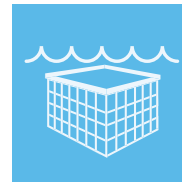
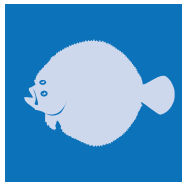




Food and Agriculture
Organization of the
United Nations

COUNTRY REPORTS

Nigeria



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	Nigeria
Prepared By	Pwaspo Istifanus Emmanuel, Federal Ministry of Agriculture and Rural Development, Fisheries Department.
Date	Jun 6, 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.

Nigeria requires about 3.2million tons of fish annually to satisfy the dietary requirements of its 170million citizens which is about 50% of the people's animal protein intake. Unfortunately, the total domestic fish supply from all sources (capture and culture fisheries) is about 1,123,011 tons per annum. Nigeria has to import about 1.9 million tons annually to augment the short which is at a considerable cost to the Government. The huge import bill spent by Nigeria annually could be used to invest in fish farming. Nigeria could substitute fish importation with domestic production to create jobs, reduce poverty in rural areas where 70% of the population lives and ease balance of payments. Nigeria has the capacity to be self -sufficient in fish production within a short time frame if the numerous potentials of about 1.7 million Ha of Land and 14million Ha of water, which abound in the nation, are adequately utilized. These potentials translates to about 2.6million tons of fish annually.

Nigeria has joined over 15 African countries to elaborate the National Aquaculture Strategy (NAS) and developed a 5-year National Aquaculture Development Plan (NADP) for its implementation nation-wide which is in line with the current policy thrust of the Government - Agricultural Transformation Agenda (ATA) whereby Agriculture is treated as a business. This project which became operational in 2009 has been implemented in 3 Pilot states and up-scaled to 5 other states of the Federation. Govern of Nigeria has also provided additional funding to expand the project to 6 more states of the Federation. The contribution of fisheries to the nation's economy is very significant in terms of employment, income generation, poverty alleviation, foreign exchange earnings and provision of raw materials for the animal feed industry. It is estimated that over 10 million Nigerians are actively engaged in primary and secondary fisheries operations as fisher folks, fish farmers, fish processors, marketers, operators on- board industrial fishing fleet, terminal/jetties operators, net fabricators and menders, engine repairers and fitters, etc. The Niger Delta is the second largest brackish habitat in the world. One of its most valued resources after crude oil is the shrimp. Nigerian shrimp is considered one of the best in the world and presently generates foreign exchange worth over US \$50.0 million annually.

Nigeria has made remarkable success in aquaculture by being the leading producer of Catfish in Africa hence; there is need for concerted efforts towards the development of other fish species as captured in the current approved road map for culture so as to widen the consumers' preference. However, one of the major constraints militating against aquaculture development in Nigeria is lack of demand driven research/Research interventions to address the challenges which include; Diversification of fish species for culture, Fish feed development, Brood stock development especially establishment of breeding programmes for tilapia using indigenous species, Mariculture development including shrimp etc.

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

Aquaculture in Nigeria has been growing at about 25 – 33 % per year since 2003. This is evident in the level of intensity of catfish farming, which currently account for approximately 80% of the 313,321 tons of farmed fish consumed in the country annually (DoF Stat 2014). Nigerian Aquaculture (Table Fish) production has therefore increased from the previous level of 221,128 metric tons to over 313,231 metric tons, currently making Nigeria the largest producer of farmed catfish in Africa. Nigeria has demonstrated the capacity to lead Africa in Fisheries and Aquaculture production. Several African countries have requested technical assistance from Nigeria especially in the area of Catfish Production Technology. However, despite this remarkable growth, many fish farms continue to stop production due to non-profitability of the operations as a result of high cost of inputs especially feeds and poor market price of products.

Fish constitutes about 41% of the total animal protein intake by average Nigerian; hence there is great demand for fish in the country. Nigeria requires about 3.2million tons of fish annually to satisfy the dietary requirements of its 170million citizens. Unfortunately, the total domestic fish supply from all sources (capture and culture fisheries) is about 1,123,011 tons per annum. Nigeria has to import about 1.9 million tons of fish valued at about \$500million annually to augment the shortfall. The huge import bill spent by Nigeria annually could be used to invest in fish farming. Nigeria could substitute fish importation with domestic production to create jobs, reduce poverty in rural areas where 70% of the population lives and ease balance of payments. Nigeria has the capacity to be self -sufficient in fish production within a short time frame if the numerous potentials of about 1.7 million Ha of Land and 14million Ha of water, which abound in the nation, are adequately utilized. These potentials translates to about 2.6million tons of fish annually.

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.

Some other species of inland Heterotis, Lates, etc. need some work. Catfish very up to date but not for tilapia. Marine species information not up to date.

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.

Information available at the research Institutes, Universities and colleges of Agriculture, Shrimp farm. However this information is not available from policy makers. The owner of the shrimp farm are the only commercial using genetic data for management.

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.

Some wild stock used as broodstock for catfish. Some hybridization of *Heterobranchus* and *c. gariepinus* producing *HeteroClarias*

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.

The public is managing the breeding programmes but the the fingerling and brood stock from these breeding programmes are not readily available to private farmers. These farmers depend on hybrids of parent stock obtained from broodstock banks of either private or public farms.

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>		
Clarias gariepinus x Heterobranchus bidorsalis	<input type="checkbox"/> Traditional selective breeding	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership		
	<input checked="" type="checkbox"/> Hybrids	Specify parental species in the box below Heterobranchus bidorsalis and Clarias gariepinus	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" type="checkbox"/> Private/Public partnership	
	<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		
	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input checked="" type="checkbox"/> Public Sector <input checked="" 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		
Oreochromis niloticus	<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 checked="" type="checkbox"/> Mono-sex production	<input checked="" type="checkbox"/> Private Sector <input checked="" type="checkbox"/> Public Sector <input checked="" 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		

	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" 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	
Heterotis niloticus	<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	
	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" 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	
Lates niloticus	<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

Add Row							
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 Clarias gariepinus	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input checked="" type="checkbox"/> Hybrids <input checked="" type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input checked="" 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 type="checkbox"/> Selective breeding <input checked="" 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 type="checkbox"/> Selective breeding <input checked="" 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)	Hybridization also with Heterobranchus. Hybridization is for improved growth rate.

X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Oreochromis niloticus	<input checked="" type="checkbox"/> Wild Type	<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 checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input checked="" type="checkbox"/> Selective bred type				<input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		
	<input checked="" type="checkbox"/> Hybrids							
	<input checked="" type="checkbox"/> Cross breeds							
	<input checked="" type="checkbox"/> Strains							
	<input type="checkbox"/> Varieties							
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Heterobranchus bidorsalis	<input type="checkbox"/> Wild Type	<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 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 type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation)		X
	<input checked="" type="checkbox"/> Hybrids				<input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Cross breeds							
	<input type="checkbox"/> Strains							
	<input type="checkbox"/> Varieties							
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Heterobranchus longifilis	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input checked="" type="checkbox"/> Hybridization	<input checked="" type="checkbox"/> Hybridization		
	<input checked="" 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)		
	<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 type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Gymnarchus niloticus	<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)		
	<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							

X

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 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 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 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)		X
<input 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 type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input 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 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 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)		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 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 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 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)		X
<input 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 type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input 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 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 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)		X

<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 type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Chrysichthys 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		
	<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 type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Megalops atlanticus	<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		
	<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								
Penaeus monodon	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type	<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 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 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)		X
	<input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Macrobrachium rosenbergii	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type	<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 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 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"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids							X

<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 type="radio"/> Yes <input checked="" 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 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="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)		
Ctenopharyngodon idellus								X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input 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 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 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)		
Lutjanus spp								X

<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 type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Epinephelus 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		
	<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 type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Pseudotolithus 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		
	<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 type="radio"/> Native <input checked="" 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		
Oreochromis niloticus	<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 checked="" type="checkbox"/> Polyploidy (chromosome set manipulation)	<input checked="" type="checkbox"/> Polyploidy (chromosome set manipulation)		
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	YY supermale	X
	<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 type="radio"/> Native <input checked="" 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 type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Oreochromis aureus x O. niloticus	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input checked="" type="checkbox"/> Hybridization	<input checked="" 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)		
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	O. mossambicus x O. aureus	X
	<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 type="radio"/> Native <input checked="" 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 type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Dicentrarchus labrax	<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		
	<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 type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Oreochromis (=Tilapia) spp	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input checked="" 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 checked="" 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								
Tilapia zillii	<input checked="" type="checkbox"/> Wild Type <input 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 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 checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Sarotherodon galilaeus	<input checked="" type="checkbox"/> Wild Type <input 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 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)		X

<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 type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Sarotherodon melanotheron	<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		
	<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 type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Lates calcarifer	<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 checked="" 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 type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Heterotis niloticus	<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="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							

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>	
Lates niloticus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Heterotis niloticus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Gymnarchus niloticus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Megalops atlanticus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Chrysichthys nigrodigitatus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Mugil cephalus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Hydrocynus spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Labeo spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Citharinus spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Distichodus spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Chrysichthys nigrodigitatus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Tilapia zillii	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Sarotherodon galilaeus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Channa spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Carassius auratus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Clarias anguillaris	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Clarias spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Crassostrea spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Lutjanus spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Epinephelus spp	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known		X
Arius spp	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known		X

Sphyraena spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Thunnus albacares	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Pomadasys spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X

Elops spp	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Penaeus kerathurus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	X
Penaeus notialis	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Good production and market value according to reports from Journals and research Institutes/ Universities.</p>	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>
Clarias gariepinus	<input type="checkbox"/> No deliberate genetic alteration <input type="checkbox"/> Traditional selective breeding <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Triploids and other polyploids <input type="checkbox"/> Mono-sex production <input type="checkbox"/> Other	<input type="checkbox"/> Import <input checked="" 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	Egypt El Salvador Equatorial Guinea Eritrea Estonia Ethiopia European Union (Member States) Faroe Islands (Association) Fiji Finland France Gabon Gambia Georgia Germany Ghana Greece	Aquaculture production, bilateral cooperation, Reports from research Institutes as source of information.
Oreochromis niloticus	<input 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 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 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 Belgium	

<p>Oreochromis niloticus</p>	<p>No deliberate genetic alteration <input type="checkbox"/> Traditional selective breeding <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Triploids and other polyploids <input type="checkbox"/> Mono-sex production <input type="checkbox"/> Other</p>	<p><input checked="" type="checkbox"/> Import <input type="checkbox"/> Export</p>	<p><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</p>	<p>Andorra Angola Antigua and Barbuda Argentina Armenia Australia Austria Azerbaijan Bahamas Bahrain Bangladesh Barbados Belarus Belgium Belize Benin Bhutan</p>	<p>GIFT</p>	<p>X</p>
<p>Pangasius spp</p>	<p>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</p>	<p><input checked="" type="checkbox"/> Import <input type="checkbox"/> Export</p>	<p><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</p>	<p>Trinidad and Tobago Tunisia Turkey Turkmenistan Tuvalu Uganda Ukraine United Arab Emirates United Kingdom United Republic of Ta United States of Amei Uruguay Uzbekistan Vanuatu Venezuela (Bolivarian Viet Nam Yemen</p>		<p>X</p>

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 (mark all that apply)	Comments	
Penaeus monodon	<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)	Commercial Marine Shrimp culture.	X
Macrobrachium rosenbergii	<input checked="" type="checkbox"/> Capture fisheries <input type="checkbox"/> Recreational fishery <input type="checkbox"/> Aquaria <input type="checkbox"/> Biological control <input checked="" type="checkbox"/> Research and development <input type="checkbox"/> Other (specify in comments)		X
Pangasius spp	<input 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 checked="" type="checkbox"/> Other (specify in comments)	The fish is being imported by some commercial farmers into the country.	X

<p>Tilapia zillii</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>Heterobranchus bidorsalis</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>	
Clarias gariepinus	<input type="checkbox"/> Import <input checked="" type="checkbox"/> Export	<input type="checkbox"/> Tissues <input type="checkbox"/> Gametes <input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Embryos <input checked="" type="checkbox"/> Living specimens <input type="checkbox"/> Other	El Salvador Equatorial Guinea Eritrea Estonia Ethiopia European Union (Member) Faroe Islands (Associate Member) Fiji Finland France Gabon Gambia Georgia Germany Ghana Greece	farmer to farmer exchange	X
Heterobranchus bidorsalis	<input type="checkbox"/> Import <input checked="" type="checkbox"/> Export	<input type="checkbox"/> Tissues <input type="checkbox"/> Gametes <input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Embryos <input checked="" 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
Heterobranchus longifilis	<input type="checkbox"/> Import <input checked="" type="checkbox"/> Export	<input type="checkbox"/> Tissues <input type="checkbox"/> Gametes <input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Embryos <input checked="" 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

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	
Tilapia zillii	<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 type="radio"/> Yes <input checked="" 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"/> Depleted <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"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input checked="" 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 type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" 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
Heterotis niloticus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input 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 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 type="checkbox"/> Intertidal <input 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 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 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	
Gymnarchus niloticus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input 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 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 type="checkbox"/> Intertidal <input 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 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 type="checkbox"/> Others <input type="checkbox"/> Not known	X
Lates niloticus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input 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 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 type="checkbox"/> Intertidal <input 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 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 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	
Macrobrachium spp	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input 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 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 type="checkbox"/> Intertidal <input 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 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 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	Increase in market demand for fish there need for increase in production from aquaculture to demand from growing population.
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	Middle income group increase with increased ability to buy more fish , Government being pressured to produce more fish domestically to reduce imports.
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	Government has provided the enabling environment for the promotion of fisheries and aquaculture in the country which has facilitated support for capacity building of fish farmers, extension workers as well as support to investors to address the major challenges affecting production.
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	There is negative impacts on water availability for fish farming in ponds and cages.
Competition for resources, especially freshwater	<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	conflicts between fishermen, farmers, cattle rearers on one hand and the fish farmers on the other hand on water use. However, conflict on water use has increased use water use efficiency by catfish farmers through adoption of water re-circulating system.

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	Consumer preference for larger size fish. This implies that farmers must adhere to best practice to reduce in-breeding.
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	farmers during the scarcity period import improved seed to supply domestic markets.
Add other drivers as necessary		
External Markets		
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	Overfishing, Illegal fishing, loss of habitat.
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	Overfishing, Illegal fishing, loss of habitat.
Governance (ability of government, industry and the public to work together in managing resources)	<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	Weak enforcement of regulation leading to overfishing and other obnoxious fishing practices which has negative impacts on the fisheries resources.
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	Breeding areas being reduced
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	non-availability of water for fisheries biodiversity.

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	Consumer preference for larger fish is an advantage to the fisheries because the juveniles are protected .
Other Add other drivers as necessary	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative	Pollution form oil spills
Pollution	<input type="radio"/> Strongly negative <input type="radio"/> No effect	
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

Risk analysis of introduction of non-native species and strains, development and enforcement of policies /regulation of farmers sites and other protected areas, enforcement of regulations and proper management plans that ensures equitable water distribution to all users, introduction of water efficient technology to aquaculture.

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 checked="" type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	Oreochromis niloticus
Hybridization	<input type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input checked="" type="radio"/> To a great extent	Clarias gariepinus, Heterobranchus bidorsalis, Heterobranchus x Clarias gariepinus; Universities and Research Institutes
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 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	Oreochromis niloticus
Marker assisted selection	<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	Clarias gariepinus, Heterobranchus bidorsalis, Oreochromis niloticus
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	Remove 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	EIA required, Establishment of protected areas .
Pollution of waters	<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	Environmental Protection Agency , Aquaculture Certification Committee from the competent authority has power to monitor chemicals, effluents and movement of people around production areas /Construction of Effluent Treatment Plants in all commercial aquaculture farms
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	Flooding and erosion in some states of the federation affecting fish farms and the biodiversity of fish species in rivers, lakes etc.
Establishment of invasive species	<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	Effects on the traditional fish species and genetic pollution.
Introductions of parasites and pathogens	<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	Quarantine and bio-security measures required for all commercial farms. This has been included in the regulation

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 checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	This applies to escapes from Aquaculture farms into the open waters there by polluting the gene pool and biodiversity. programmes for inspection of cages need to be put in place as well as zoning of aquaculture projects to avoid locating them to protection areas or biodiversity sensitive areas.
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	Enforcement of fisheries regulations, establishment / enforcement of off season activities/alternative livelihood programmes for fishermen
Other	<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	Targeting parent stock, stocking in protected areas, etc.
<i>Continue listing other driverst</i>	<input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
From purposeful stocking programmes	<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

Policy is place but weak implementation.

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

There are certain water bodies which are used for conservation of some species for specific purpose.

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

Enforcement and implementation of the inland and marine fisheries regulations

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="3"/>
To help adapt to impacts of climate change	<input type="text" value="5"/>
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

It is included in the inland fisheries Act and National Aquaculture Strategy

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>	
Argungu fishing ground	<input checked="" type="radio"/> Very effective <input type="radio"/> Somewhat effective <input type="radio"/> Not effective <input type="radio"/> Unknown	Protection of Lates niloticus for fishing festival	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>	
Penaeus monodon	<input checked="" type="checkbox"/> Direct human consumption <input type="checkbox"/> Live feed organism <input type="checkbox"/> Other	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	Being maintained in a research institute	X
Heterobranchus sp.	<input checked="" type="checkbox"/> Direct human consumption <input type="checkbox"/> Live feed organism <input type="checkbox"/> Other	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	Same as above	X
Clarias gariepinus	<input checked="" type="checkbox"/> Direct human consumption <input type="checkbox"/> Live feed organism <input type="checkbox"/> Other	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	same as above	X

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>	
Dutch Clarias	<input checked="" type="checkbox"/> Direct human consumption <input type="checkbox"/> Live feed organism <input type="checkbox"/> Other	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unknown	Same as above	<div style="border: 1px solid black; padding: 2px; text-align: center;">X</div>

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>
Artemia salina	Universities and research Institutes, and private hatcheries	<input checked="" type="checkbox"/> In vitro collection of gametes <input type="checkbox"/> In vitro collection of embryos <input type="checkbox"/> In vitro collection of tissues <input type="checkbox"/> Spores <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Aquaculture facilities <input checked="" type="checkbox"/> Research facilities <input checked="" 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	<input type="text" value="2"/>
Maintain good strains for aquaculture production	<input type="text" value="1"/>
Meet consumer and market demands	<input type="text" value="4"/>
To help adapt to impacts of climate change	<input type="text" value="5"/>
Future breed improvement in aquaculture	<input type="text" value="3"/>
Other <i>Continue adding row as necessary</i>	
	<input type="text"/>
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 checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" 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 checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Fishers	<input type="checkbox"/> Conservation <input 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 checked="" type="checkbox"/> Advocacy <input checked="" 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 checked="" 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 checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" 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 checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
People involved in marketing	<input type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" 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 checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Government resource managers	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" 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 checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" 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 checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Aquatic protected area managers	<input checked="" 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 checked="" type="checkbox"/> Advocacy <input checked="" 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 checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Policy Makers	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" 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 checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Intergovernmental Organizations	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Donors	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" 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 checked="" type="checkbox"/> Conservation</td><td><input checked="" type="checkbox"/> Marketing</td></tr><tr><td><input checked="" type="checkbox"/> Production</td><td><input checked="" type="checkbox"/> Processing</td></tr><tr><td><input checked="" type="checkbox"/> Feed manufacturing</td><td><input checked="" type="checkbox"/> Advocacy</td></tr><tr><td><input checked="" type="checkbox"/> Breeding</td><td><input checked="" type="checkbox"/> Outreach/Extension</td></tr><tr><td><input checked="" 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 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 checked="" type="checkbox"/> Outreach/Extension	<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Other (specify)	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
<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 checked="" type="checkbox"/> Outreach/Extension												
<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Other (specify)												

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

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>	
Inland Fisheries Act(Decree) No. 108 of 1992.	Jan 1, 1992	<input type="checkbox"/> Genes or molecules only <input checked="" 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 type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	The provisions of this Act has now become obsolete, not deterrent and lame.; hence it was reviewed, updated and harmonized with the Sea Fisheries Act into a single National Fisheries Act. However, this new Fisheries Act has not become effective because it has not been passed into Law by the National Assembly which requires a process involving the Federal Ministry of Justice.	X
Sea Fisheries Act (Decree) No. 71 of 1992	Jan 1, 1992	<input type="checkbox"/> Genes or molecules only <input checked="" 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 type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Same as above	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>	
Sea Fisheries (Licensing) Regulations 1992.	Jan 1, 1992	<input type="checkbox"/> Genes or molecules only <input checked="" 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 type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Same as above	X
Sea Fisheries (Fishing) Regulations 1992.	Jan 1, 1992	<input type="checkbox"/> Genes or molecules only <input checked="" 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 type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Same as above	X
Exclusive Economic Zone (EEZ) Regulation No. 38 of 1978.	Jan 1, 1978	<input type="checkbox"/> Genes or molecules only <input checked="" 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 type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Same as above	X
National Aquaculture Strategy (NAS) 2008	Jan 1, 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 checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other		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>	
Legal Framework/ Regulatory Framework on Aquaculture Certification	Jan 1, 2016	<input checked="" 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 checked="" type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other		X
Federal Environmental Protection Agency Law		<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 type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other		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.

intellectual property, Genes or Molecules, Access Right and benefit sharing, Fines /penalties for offenders are not updated in conformity with the present economic conditions, Political influence in implementing the law, Lack of sensitization of stakeholders on the existing regulations. To make the Law effective, there is need for human Capacity development and Institutional Strengthening in line with the Abuja Declaration by Heads of States and Governments on Sustainable Development of Fisheries and Aquaculture in Africa which has taken into consideration other relevant international fisheries instruments, conventions and agreements.

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 <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>
DNA	Consultations will be made with my colleagues to fill in this section
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 type="checkbox"/> Species <input type="checkbox"/> Other	
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

In the National Aquaculture Strategy Plan, provisions have been made for research as follows;
Support applied and farmer-participatory research directed at small and medium scale commercial farmers,
Support research for genetic improvements of brood stock of cultured species,
Assess and evaluate research results and inputting into research agendas. The details of current and planned research would obtained from the research institutes and updated accordingly.

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>	
Federal Universities	<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	Most of the researches are not demand driven and farmer led	X
Universities of Agriculture	<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

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Nigerian Institute for Oceanography and Marine Research (NIOMR), Lagos	<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
National Institute for Fresh Water Fisheries Research, Kainji New Bussa, Niger State	<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

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Colleges of Agriculture	<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
Atlantic Shrimpers Farm limited	<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

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Durante Fish farm Ibadan, Oyo State	<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
Aviation Fish Farm Abuja	<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

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Ajani fish farms limited , Ogbomosho, Oyo State.	<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
Private fish farmers/Producers Associations	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input 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

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Private Shrimp Producers	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources <input type="checkbox"/> Characterization and 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

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	3
Improve capacities for characterization and monitoring of aquatic genetic resources	6
Improve capacities for genetic improvement	1
Improve capacities for genetic resource management	2
Improve capacities for economic valuation of aquatic genetic resources	4
Improve capacities for conservation of aquatic genetic resources	5
Improve communication on aquatic genetic resources	10
Improve access to and distribution of aquatic genetic resources	7
Add other rows as appropriate and rank	
Add Row	Remove Row

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

Brood Stock Management, Hatchery Management,

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	
Federal Universities	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	This information is provided subject to review and update from my professional colleagues especially from Research Institutes and Universities.	
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		

Nigerian Institute for Oceanography and Marine Research, Victoria Island Lagos	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
National Institute for Fresh Water Fisheries Research, Kainji, New Bussa, Niger State	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		

Colleges of Fisheries and Agriculture	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
Federal Department of Fisheries, Nigeria	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		

Federal Universities of Technology,	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
Fish Farmers Associations of Nigeria	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		

Brood Stock Bank Managers	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input checked="" type="checkbox"/> Extension		
Hatchery Managers	Genetic resource management	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension	Same as above	
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input 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
National Aquaculture Advisory Committee	This Committee multidisciplinary and is saddled with the responsibility providing guidance to Government on issues relating to Aquaculture development. It was inaugurated under the auspices of the National Aquaculture Strategy which was elaborated by the FAO and approved by Government for implementation throughout the country. Members are stakeholders from the Aquaculture Sub-sector and Related ministries such as Federal Ministry of Environment, Export Promotion Council and other service producers etc.
Aquaculture Network for Africa (ANAF)	Nigeria is a member of this association and in particular hosted the 2010 international meeting with more than 15 African countries in attendance. This network is very vital to the aquaculture sub-sector and needs to be supported to make it functional. The coordination is through a National Focal Point Officer.
Nigerian Union of Fishermen and Sea Food Dealers	This union deals with capture fisheries and they can play a key role in the management and conservation of fish species within the inland and marine waters.
Food and Agriculture Organization of the United Nations	Assist in the Coordination and implementation of Sustainable Aquaculture Systems for Nigeria as well as align with Government priority programmes on Agriculture by developing the Country Programming Framework.

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	3
Increase technical capacities of institutions	1
Increase information sharing between institutions	2
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; height: 25px; width: 100%;"></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	
National Aquaculture Advisory Committee	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> characterization and monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for genetic improvement Improve capacities for economic <input checked="" type="checkbox"/> valuation of aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources Improve access to and <input checked="" type="checkbox"/> distribution of aquatic genetic resources		X
Aquaculture Network for Africa (ANAF)	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> characterization and monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for genetic improvement Improve capacities for economic <input checked="" type="checkbox"/> valuation of aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources Improve access to and <input checked="" type="checkbox"/> distribution of aquatic genetic resources		X

Network	Objectives of the network <i>Please mark all that apply to your country</i>	Comments	
Nigerian Union of Fishermen and Sea Food Dealers	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> characterization and monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for genetic improvement Improve capacities for economic <input checked="" type="checkbox"/> valuation of aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources Improve access to and <input checked="" type="checkbox"/> distribution of aquatic genetic resources		X
Food and Agriculture Organization of the United Nations	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> characterization and monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for genetic improvement Improve capacities for economic <input checked="" type="checkbox"/> valuation of aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources Improve access to and <input checked="" type="checkbox"/> distribution of aquatic genetic resources		X

Network	Objectives of the network <i>Please mark all that apply</i> to your country	Comments	
INFOPECHE	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> characterization and monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for genetic improvement Improve capacities for economic <input checked="" type="checkbox"/> valuation of aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources Improve access to and <input checked="" type="checkbox"/> distribution of aquatic genetic resources		X
Sarnissa	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> characterization and monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for genetic improvement Improve capacities for economic <input checked="" type="checkbox"/> valuation of aquatic genetic resources Improve capacities for <input checked="" type="checkbox"/> conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources Improve access to and <input checked="" type="checkbox"/> 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>	
INFOPECHE	<input type="checkbox"/> DNA sequence <input type="checkbox"/> Genes and genotype <input type="checkbox"/> Breeds, strains or stocks <input checked="" type="checkbox"/> Species names <input checked="" type="checkbox"/> Production figures <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Fish farmers <input checked="" type="checkbox"/> Fishers in capture fisheries <input checked="" type="checkbox"/> Fish hatchery people <input checked="" type="checkbox"/> People involved in marketing <input checked="" type="checkbox"/> Government resource managers <input checked="" type="checkbox"/> Fishing or aquaculture associations <input checked="" type="checkbox"/> Aquatic protected area managers <input checked="" type="checkbox"/> University and academic people <input type="checkbox"/> Non-Governmental Organizations <input type="checkbox"/> Intergovernmental Organizations <input checked="" type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Donors <input checked="" type="checkbox"/> Consumers <input checked="" type="checkbox"/> Politicians <p>Please list other stakeholders as necessary</p> <div style="border: 1px solid black; height: 77px; width: 240px;"></div>	X

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
<p>Research Findings from Universities and Research Institutes through Journals , Reports and circulars</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> DNA sequence <input checked="" type="checkbox"/> Genes and genotype <input checked="" type="checkbox"/> Breeds, strains or stocks <input checked="" type="checkbox"/> Species names <input checked="" type="checkbox"/> Production figures <input checked="" type="checkbox"/> Distribution <input checked="" type="checkbox"/> Level of endangerment <input type="checkbox"/> Other 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Fish farmers <input checked="" type="checkbox"/> Fishers in capture fisheries <input checked="" type="checkbox"/> Fish hatchery people <input checked="" type="checkbox"/> People involved in marketing <input checked="" type="checkbox"/> Government resource managers <input checked="" type="checkbox"/> Fishing or aquaculture associations <input checked="" type="checkbox"/> Aquatic protected area managers <input checked="" type="checkbox"/> University and academic people <input checked="" type="checkbox"/> Non-Governmental Organizations <input checked="" type="checkbox"/> Intergovernmental Organizations <input checked="" type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Donors <input checked="" type="checkbox"/> Consumers <input checked="" type="checkbox"/> Politicians <p>Please list other stakeholders as necessary</p> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	X

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
<p>Aquaculture Network for Africa (ANAF) through news letters in nets and publications forwarded through the National Focal Point Officer.</p>	<input checked="" type="checkbox"/> DNA sequence <input checked="" type="checkbox"/> Genes and genotype <input checked="" type="checkbox"/> Breeds, strains or stocks <input checked="" type="checkbox"/> Species names <input checked="" type="checkbox"/> Production figures <input checked="" type="checkbox"/> Distribution <input checked="" type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Fish farmers <input checked="" type="checkbox"/> Fishers in capture fisheries <input checked="" type="checkbox"/> Fish hatchery people <input checked="" type="checkbox"/> People involved in marketing <input checked="" type="checkbox"/> Government resource managers <input checked="" type="checkbox"/> Fishing or aquaculture associations <input checked="" type="checkbox"/> Aquatic protected area managers <input checked="" type="checkbox"/> University and academic people <input checked="" type="checkbox"/> Non-Governmental Organizations <input checked="" type="checkbox"/> Intergovernmental Organizations <input checked="" type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Donors <input checked="" type="checkbox"/> Consumers <input checked="" type="checkbox"/> Politicians <p>Please list other stakeholders as necessary</p> <div style="border: 1px solid black; height: 50px; width: 100%;"></div>	X

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
National Fisheries Development Committee (NFDC) and National Council on Agriculture and Rural Development (NCARD)	<input checked="" type="checkbox"/> DNA sequence <input checked="" type="checkbox"/> Genes and genotype <input checked="" type="checkbox"/> Breeds, strains or stocks <input checked="" type="checkbox"/> Species names <input checked="" type="checkbox"/> Production figures <input checked="" type="checkbox"/> Distribution <input checked="" type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Fish farmers <input checked="" type="checkbox"/> Fishers in capture fisheries <input checked="" type="checkbox"/> Fish hatchery people <input checked="" type="checkbox"/> People involved in marketing <input checked="" type="checkbox"/> Government resource managers <input checked="" type="checkbox"/> Fishing or aquaculture associations <input checked="" type="checkbox"/> Aquatic protected area managers <input checked="" type="checkbox"/> University and academic people <input checked="" type="checkbox"/> Non-Governmental Organizations <input checked="" type="checkbox"/> Intergovernmental Organizations <input checked="" type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Donors <input checked="" type="checkbox"/> Consumers <input checked="" type="checkbox"/> Politicians Please list other stakeholders as necessary <div style="border: 1px solid black; height: 50px; width: 100%; margin-top: 10px;"></div>	X

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
Fisheries Society of Nigeria (FISON)	<input checked="" type="checkbox"/> DNA sequence <input checked="" type="checkbox"/> Genes and genotype <input checked="" type="checkbox"/> Breeds, strains or stocks <input checked="" type="checkbox"/> Species names <input checked="" type="checkbox"/> Production figures <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Fish farmers <input checked="" type="checkbox"/> Fishers in capture fisheries <input checked="" type="checkbox"/> Fish hatchery people <input checked="" type="checkbox"/> People involved in marketing <input checked="" type="checkbox"/> Government resource managers <input checked="" type="checkbox"/> Fishing or aquaculture associations <input checked="" type="checkbox"/> Aquatic protected area managers <input checked="" type="checkbox"/> University and academic people <input checked="" type="checkbox"/> Non-Governmental Organizations <input checked="" type="checkbox"/> Intergovernmental Organizations <input checked="" type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Donors <input checked="" type="checkbox"/> Consumers <input checked="" type="checkbox"/> Politicians Please list other stakeholders as necessary <div style="border: 1px solid black; height: 50px; width: 100%; margin-top: 10px;"></div>	X

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
Federal Ministry of Agriculture and Rural Development (FMARD) Information Department and Data Bank Unit	<input type="checkbox"/> DNA sequence <input type="checkbox"/> Genes and genotype <input type="checkbox"/> Breeds, strains or stocks <input type="checkbox"/> Species names <input checked="" type="checkbox"/> Production figures <input checked="" type="checkbox"/> Distribution <input type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Fish farmers <input checked="" type="checkbox"/> Fishers in capture fisheries <input checked="" type="checkbox"/> Fish hatchery people <input checked="" type="checkbox"/> People involved in marketing <input checked="" type="checkbox"/> Government resource managers <input checked="" type="checkbox"/> Fishing or aquaculture associations <input type="checkbox"/> Aquatic protected area managers <input checked="" type="checkbox"/> University and academic people <input checked="" type="checkbox"/> Non-Governmental Organizations <input type="checkbox"/> Intergovernmental Organizations <input checked="" type="checkbox"/> Policy makers <input checked="" type="checkbox"/> Donors <input checked="" type="checkbox"/> Consumers <input checked="" type="checkbox"/> Politicians Please list other stakeholders as necessary <div style="border: 1px solid black; height: 60px; width: 100%; margin-top: 10px;"></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

Capacity training on ICT, Strengthening technical capacity in data base management and analysis of aquatic genetic resources,
Adoption and investment of new concept/technology on open data collection method (ODK)

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

Linkages to other regional and subregional data management and information system

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	
United Nations Convention on the Laws of the Sea (UNCLOS)	1982	<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	Due to lack of MCS Equipment and trained personnel, the country is still battling with the issue of IUU fishing	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	
Code of Conduct for Responsible Fisheries, (CCRF) (FAO)	1995	<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	Lack of sensitization and awareness	X
International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IUU) (FAO) (Mostly by fishing vessels flying "flags of convenience")	2001	<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	Government has purchased Vessel Monitoring System but not installed	X
UNFSA: United Nations Fish Stock Agreement		<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"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	This column will be updated	X
CITES		<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"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect		X
CBD		<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"/> Strongly positive <input 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	
ATLAFCO: Ministerial Conference on Fisheries Cooperation among African States bordering the Atlantic Ocean		<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"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect		X
FCWC: Fisheries Committee of the West Central Gulf of Guinea		<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
CFAC: African Continental Fisheries and Aquaculture Committee		<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
FAO Code of Conduct for Responsible Fisheries (CCRF)		<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"/> Strongly positive <input 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	3	<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	2	<input checked="" type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for characterization and monitoring of aquatic genetic resources	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 genetic improvement	1	<input checked="" 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	5	<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	6	<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	7	<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	8	<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?

Capacity building with Egyptian Government in the area of Fish culture training, Capacity building with Ghana on GIFT Tilapia training and the use of GIS for aquaculture programmes Capacity building/collabratiion with China, South Korea for training on aquaculture.

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

Limitation in the area of technical expertise and equipment

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.

Maintenance of Broodstock Banks for catfish

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