Food and Agriculture Organization of the United Nations

COUNTRY REPORTS

Sri Lanka

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

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, Aquamaps, Barcode of Life, Census of Marine Life, FishBase, Frozen Ark, GenBank, Global Biodiversity Information Facility, International Union for Conservation of Nature, National Institutes of Health Database on Genomes and Bioinformatics, Ornamental Fish International, SealifeBase, Sea Around Us, and World Register of Marine Species.

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.seaaroundus.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) immediatly.
- 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	Sri Lanka
Prepared By	National Aquaculture Development Authority Of Sri Lanka
Date	Aug 10, 2016

TABLE OF CONTENTS

		Page
I.EXECUTIVE SUMMARY		1
II.INTRODUCTION		1
III.MAIN BODY OF THE COUNTRY REPORT		1
Chapter 1.	The Use and Exchange of Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction	1
Chapter 2.	Drivers and Trends in Aquaculture: Consequences for Aquatic Genetic Resources within National Jurisdiction	10
Chapter 3.	*In Situ* Conservation of Aquatic Genetic Resources of Farmed Aquatic Species and their wild Relatives within National Jurisdiction	16
Chapter 4.	*Ex Situ* Conservation of Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction	19
Chapter 5.	Stakeholders with Interests in Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction	22
Chapter 6.	National Policies and Legislation for Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction	27
Chapter 7.	Research, Education, Training and Extension on Aquatic Genetic Resources within National Jurisdiction: Coordination, Networking and Information	30
Chapter 8.	International Collaboration on Aquatic Genetic Resources of Farmed Aquatic Species and Their Wild Relatives	35

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.

Sri Lanka its large fresh and brackish water resources Sri Lanka does not have a tradition of aquaculture and only marine shrimp aquaculture and ornamental fish culture have been developed to some extent. Sri Lanka has 41 indigenous freshwater, 50 endemic fish plus another 23 exotic species, among the introduced species Tilapia(Oreochromis niloticus) three major Chinese carps, namely grass carp (Ctenopharyngodon idellus), silver carp (Hypophthalmichthys molitrix) and bighead carp (Aristichthys nobilis) and three major Indian carps, catla (Catla catla), rohu (Labeo rohita) and mrigal (Cirrhinus mrigala) Miner common carp (Cyprinus carpio) are of particular importance to freshwater aquaculture. Potential for cultivating brackish-water species such as Shrimp (Penaeus monodon) seabass (Latus caicarfer), milkfish (Chanos chanos), moonies (Monodactylus spp.), , grouper (Epinephelus spp.), crab (Scylla serrata), mussel (Perna spp.) and oyster (Cassostrea spp.) Major productive sector of marine fishery consist about 610 species of coastal fish ery have been reported from Sri Lankan waters.

Freshwater aquaculture mainly through Culture based fisheries in perennial reservoirs and seasonal reservoirs using tilapia and carp species. Shrimp is Aquaculture activity in coastal area and emerging aquaculture activities are establish sea bass, crabs, sea cucumber and mussel farming under development phase. By virtue of this, fish production in the country has been in the increase during last two decades and is expected to increase further in the coming years. Sri Lanka exports marine, freshwater, brackish water fish species and marine invertebrates with healthy growth.

On account of the country's scientific personnel, the identification and naming of the species up to sub-species, hybrids, cross-breeds, strains and other distinct types are accurate and update. Genetic data in respect of species farmed in the country are available in the country to some extent. Breeding programms and efforts for genetic improvement of farmed aquatic species in are being managed majority by the public sector. However, contribution of genetically improved aquatic organisms including hybrids, cross-breeds, strains and other distinct types contribute to the volume of production only to a minor extent. The country's aquatic genetic resources that contribute to farming comprise 40 (food fish & ornamental)species of finfishes and shellfishes, which include 09 native finfishes, 02 native shellfishes 01seaweeds, 25 exotic and Ministry of fisheries & aquaculture development 11 species have also been identified as the potential species which can be brought under farming.

Freshwater exotic fish species imported from China, Malaysia, Thailand, Myanmar & Bangladesh to maintain the genetic background over the past 10 years. Some wild relatives of aquatic species present in Sri lanka are farmed in another countries Ompok bimaculatus (Butter catfish) Channa ara ,Tor kudree, Macrobrachium malcolmsonii, Anabas testudineus, Chanos chanos Mugil cephalus,. The aquatic genetic resources (AqGR) of farmed aquatic species in for the country have been impacted by several drivers. For human population increase, increase in wealth of consumers, competition for resources & climatic change especially freshwater are the negative drivers that impacted the farmed species and their wild relatives. Governance and changing values and ethics of consumers are the positive drivers. Selective breeding, has been used to some extent and monosex have been used to a minor extent as biotechnological tools for the genetic improvement of the aquatic organisms,

Aquatic genetic resources and the wild relatives of farmed aquatic species have been impacted by various drivers. Of these, 'habitat loss and degradation' plays a negative role, while 'pollution of water' 'increased frequency of extreme climatic events and long-term climate change', establishment of invasive species', 'introduction of pathogen and parasites', impacts of purposeful stocking and escapes from aquaculture' and 'capture fisheries' have negative influence. Counter-measures that have been taken for these are 'awareness creation', 'prevention of escape from aquaculture systems to the wild', and 'promotion of responsible capture fisheries.

Sri Lankan women at present play significant role in production, post-harvest processing and value addition, retail marketing. Also they are actively participating role in ornamental fish breeding, rearing, grading, packing and other associated activities. They also play an active role in ornamental fish breeding and other associated activities. In freshwater aquaculture, culture-based fisheries and small-scale marine fisheries the local communities play a key role in following conservation, declaration of close fishing area & mesh size regulation. Sri Lanka has several national policies and legislation for Aquatic Genetic Resources of farmed aquatic species their wild relatives both at national and state levels. In order to overcome from the threat of ever increasing anthropogenic and other natural pressure on rich diversity, several initiatives have been taken by the country to conserve and manage the resources on sustainable basis. In order to overcome from the threat of ever increasing anthropogenic and other natural pressure on rich diversity, several initiatives have been taken by the country to conserve and manage the resources on sustainable basis. The Sri Lanka Fisheries and Aquatic Resources Act No. 2 of 1996 & National Aquaculture Development Authority Act No. 23 of 2006 (Amended) The main objectives of the Fisheries and Aquatic Resources Act are development, management, conservation &regulation of the fisheries and aquatic resources of Sri Lanka.

Those acts provisions to conservation, control and monitor the industry to manage fishing gears, mesh size and of fishing or closed seasons, the Act also prohibits the use of explosives or poisons to indiscriminately kill fish in any water. Ministry of fisheries aquatic resources Government of Sri Lanka periodically has modified the Sri Lankan Fisheries Act to incorporate all the relevant legal measures to conserve fish germplasm resources.

National Aquaculture development Authority of Sri Lanka under the Ministry of Fisheries and aquatic resources Efforts are taken to develop Fish Live Gene Banks at different places of the country for management of endangered species. Captive breeding and larval rearing of several other commercially important non-conventional food fish species walago attu , Ompoc bimaculatus , Channa striata , Labeo dussumieri, Anabas testudineus, and several ornamental species having export potential Puntius nigrofasciatus, Belontia signata , Puntius titaya, Puntius cumingii etc. are perfected for conservation of these endemic fishes.

Sri Lanka imported aquatic genetic resources of farmed aquatic species and their wild relatives located outside the country in the form living organisms. Country national research programmes support the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives. The country has a National Research institute NARA (National Resources Research & Development Agency) ,exclusively to deal with conservation and sustainable use of aquatic genetic resources .Besides, the country has many national (Universities) and regional level institutions (Department of Wildlife conservation, Central Environmental Authority) that address the sustainable use, development and conservation of aquatic genetic resources.

Ministry of fisheries & Aquatic Resources Development & National Universities and related government departments engaged in genetic resource management, improvement conservation & related other activities.. These Institutions, among themselves, have education, training and extension facilities that cover genetic resource management, characterization and monitoring of aquatic genetic resources, genetic improvement, economic valuation of aquatic genetic resources and conservation of aquatic genetic resources at undergraduate, post-graduate, and training & extension levels.

The country needs capacity strengthening 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. The priority areas are 'improve basic knowledge on aquatic genetic resources, 'improving capacities for characterization and monitoring of aquatic genetic resources' and 'improving capacities for genetic improvement' followed by 'improving capacities for genetic resource manage' and 'improving communication on aquatic genetic resources'. Capacity strengthening in the country can be improved in inter-sectoral coordination in support of the conservation, sustainable use and development of aquatic genetic resources by increasing awareness among institutions, increasing technical capacities of institutions, and increasing information sharing between institutions. The country link with the international networks to improve aquatic genetic resources in country such as NACA and FAO .

Sri Lanka information systems for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives through National Aquaculture Development Authority of Sri Lanka (NAQDA), National Resources Research & Development Agency(NARA), Wild life Conservation Department , Central Environmental Authority and National Universities.

As developing country further capacity strengthening is needed to improve national information systems to support the conservation, sustainable use and development of aquatic genetic resources in the form of strengthening capacity on fish taxonomy for information generation on biodiversity (conventional and molecular), strengthening in development and maintenance of spatial and time series database on different resources and modeling and forecasting in context of climate change.

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

Sri Lanka is bestowed with vast and diverse aquatic resources including 161941ha perennial reservoirs, 100000ha seasonal tanks 103 rivers ,and brackish water area include 116 lagoons with the area of 160000ha out of that potential area for brackishwater aquaculture is around 8500ha. Sri Lankan freshwater fish fauna, there are 91 species occurs in inland water bodies of the country. 50 of those species are endemic to the Sri Lanka and 23 estuarine and at least another 24 of exotic species introduced accidentally or deliberately.Marine fisheries are of considerable social and economic importance around the entire 1 770 km of Sri Lanka's coastline. The Exclusive Economic Zone (EEZ) covers 517 000 km2, of which some 27 800 km2 form a continental shelf. The marine area from the shore to the edge of the continental shelf (the average width of which is 22 km) is referred to as the coastal subsector. The balance beyond the continental shelf and out to the 200 nm EEZ boundary is considered the offshore and deep-sea subsector.

About 610 species of coastal fish have been reported from Sri Lankan waters, of which the more common species caught are Sardinella spp., Amyblygaster spp., Rastrelliger spp., Auxis thazard, Anchova commersoni and Hirundichthys coromandelensis. Most of these species live near the surface or high in the water column (pelagic species). These small pelagics account for about 40 percent of the coastal fish catch. Species such as Lethrinus spp., Trichurus spp., Caranx spp., species of skates and rays, Cynoglossus spp., Jojnius spp. and Tolithus spp. are bottom dwellers (demersal species). In addition, there are various mid-water species.

Though there no comprehensive resource studies available for offshore and deep-sea areas, about 90 species of oceanic pelagic species of fish have been reported from Sri Lankan offshore and deep-sea waters. Katsuwonus pelamis and Thunnus

albacares dominate the large pelagic catches. These are migratory fish species and therefore fall under stocks shared with other countries. Other important species are Scombcromorus commerson, Platypterus spp., Telrapturus angustirosstis, T. audax, Makaira nigricaous, M. indica, Xiphius gladius and Caryphaens hippurus. Moreover, it has been reported that about 60 species of sharks live in the oceanic waters off Sri Lanka. Some of the more common shark species are Carchanius falciformis, C. longimanus, C. malanopterus, Alopices pelagicus, Sphyrnee zygaena and S. leveni.

Aquaculture in Sri lanka has evolved as a viable farming practice over last three decades with an annual growth rate of 4.5% and sector contributed 1.8 percent of GDP at the current market prices . The total fish production of the country during 2014 was 535050mt, of which 459300mt was contributed by the marine sector and 75750mt was by the inland sector. The export value of fish and fish products of the country during 2014 was as much as US$ 267 million. In 2014 Inland sector capture fish production contributed 68820 mt , culture fish production contributed 1780 mt and culture shrimp production contributed 5150mt . Shrimp farming is the main farm aquatic species commenced in mid 80's dominating the as an export oriented activity in the north western and eastern provinces of Sri Lanka. Non traditional aquaculture is one of the newly emerging aquaculture systems that have the potential to contribute significantly to the economic development of the country. Currently Asian sea bass (Latescal-carifer),Sea weed Culture (Kappaphycus sp.)Mud crab (Scylla serata) and Mollusc Culturing successfully .

While exotic Oreochromis niloticus and carp species play major role in freshwater reservoirs. India major carps, Catla catla, Labeo rohita and Cirrhinus mrigala accompanied by Chinese carp species , Hypopthalmichthys molitrix, Ctenophayrngodon idella, Hypopthalmichthys nobilis and Cyprinus carpio. those species has been contributing to the bulk of the freshwater aquaculture production over the year.

Sri Lanka exports marine, freshwater, brackish water fish species and marine invertebrates.Aquarium fish. Freshwater aquarium fish comprise the more colorful and striking species of guppies, swordtails, platys, barbs, tetras, angels, gouramies, and catfish. Out of these freshwater species exported from Sri Lanka, about 60-70% consists of famous fancy guppies - highly recognised in international markets due to the strength and diversity of the particular fish species when compared to other exporting nations.A conducive climate and the availability of coral reefs, sand bars, lagoons around the country as well as inland water bodies such as streams, rivers and reservoirs provide the ideal ground for breeding of marine, brackish water and freshwater species in Sri Lanka. This is the very reason why Sri Lankan ornamental fish are in high demand and are exported all over the world.

The growth rate of Sri Lanka's aquarium fish industry is a healthy 4.7% with our share around of 4% export earnings US$ 16.6 millioin in 2015. In time to come, the aquarium fish industry in Sri Lanka will look to expand their foothold by breeding high value marine ornamental fish including exciting new varieties and rare species endemic to the tropical island.

In order to overcome from the threat of ever increasing anthropogenic and other natural pressure on rich diversity, several initiatives have been taken by the country to conserve and manage the resources on sustainable basis.
The Sri Lanka Fisheries and Aquatic Resources Act No. 2 of 1996 & National Aquaculture Development Authority Act No. 23 of 2006 (Amended)
The main objectives of the Act are the management, conservation, regulation and development of the fisheries and aquatic resources of Sri Lanka.
Aquaculture Management Licenses 1996
Disease Control Regulations 2000
Residual Monitoring Regulations 2002
Aquaculture Brackish water and Marine Prawn Culture Regulations 2007 (Preventing unfavorable in shrimp aquaculture zones)
Declaration of closed and open seasons for fishing 2004
Declaration of fishing reserves 2004
Prohibition of destructive fishing practices and dynamiting of fish 2004
Shrimp Aquaculture Management (Operation of Crop Cycle) Regulations, 2008
Registration of Aquaculture Societies Regulations, 2009
The Brackish water Shrimp Hatcheries (Issue of Post Larvae) Regulations, 2010
Live Rock Culture for Export Regulations, No. 1 of 2011
Aquaculture Management Regulations, 2011(Amended)
Shrimp Hatchery Grading 2012
Live fish exporters premises Regulation 2014
Collecting and Supply of brood shrimps in order to breed brackish water shrimps (Penaeus species) 2016
Culture of Coral Species on artificial substrates for export regulation 2016
Fauna and Flora Protection (Amendment) Act, 2009 (Act No. 22 of 2009).

The main objectives of the Fisheries and Aquatic Resources Act are development, management, conservation &regulation of the fisheries and aquatic resources of Sri Lanka.
Those acts provisions to conservation,control and monitor the industry to manage fishing gears, mesh size and of fishing or deceleration of closed seasons, the Act also prohibits the use of explosives or poisons to indiscriminately kill fish in any water. Ministry of fisheries aquatic resources Government of Sri Lanka periodically has modified the Sri Lankan Fisheries Act

to incorporate all the relevant legal measures to conserve fish germplasm resources.
Natonal Aquaculture develoment Authority of Sri Lanka under the Ministry of Fisheries and aquatic resources Efforts are taken to develop Fish Live Gene Banks at different places of the country for management of endangered species. Captive breeding and larval rearing of several other commercially important non-conventional food fish species walago attu , Ompoc bimaculatus , Channa striata , Labeo dussumieri, Anabas testudineus, . and several ornamental species having export potential Puntius nigrofasciatus, Belontia signata , Puntius titaya, Puntius cumingii etc. are perfected for conservation of these endemic fishes.
Exotic fishes and shrimps play a major role in the aquaculture system in the country. . A strong fish disease surveillance programme is underway in the country to provide a support system for fish health management in aquaculture in the country.

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.

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.

Freshwater aquaculture begun in 1970's with introduction of Chinese & Indian major carps . Sri Lanka did the culture based capture fisheries rather than aquaculture and resent past inbreeding impact taken place. Controlling measures implemented to manage the genetic diversity. Importation of exotic fish species to maintain the genetic variability and taging and record keeping of broodstock implemented.

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.

Freshwater aquaculture in Sri lanka is dominated with Tilapia Indian major carps , rohu, catla and mrigal, and three Chinese carps ,silver carp, grass carp and Bighead , carp common carp with almost total seed sourced from farm reared stocks. Similarly, in case of shrimp (Penaeus monodon) and freshwater prawn (Macrobrachium rosenbergii) almost total seed sourced from hatchery. However, in case of the species like P. monodon brood stocks, in general, are sourced from wild. In case of cultivable brackishwater and marine finfishes the seed broodstocks, in general, are sourced from wild except those of Lates calcarifer . In case of most of the other diversified freshwater finfish species, the seed are produced from the hatcheries.

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** 59
- Percent managed by private sector**.** **Please Enter Percentage Here** 40
- Percent managed by private /public partnership. **Please Enter Percentage Here** 1

Total 100

Please add any explanation here.

Genetics improvement and breeding of fresh water farm aquatic species manage under the public sector and fresh water ornamental manage major proportion by private sector. when consider brackish water and marine sector involvement of privet sector , public sector and private- public partnerships management can be identified in coastal sector.

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

Please mark appropriate box.

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

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

Add Row

Species	Type of genetic improvement *mark all that apply*	Developed By *mark all that apply*	
Oreochromis niloticus	☒ Traditional selective breeding	☐ Private Sector ☒ Public Sector ☐ Private/Public partnership	X
	☐ Hybrids	☐ Private Sector ☐ Public Sector ☐ Private/Public partnership	
	☐ Triploids and other polyploids	☐ Private Sector ☐ Public Sector ☐ Private/Public partnership	
	☒ Mono-sex production	☐ Private Sector ☒ Public Sector ☐ Private/Public partnership	
	☐ Other	☐ Private Sector ☐ Public Sector ☐ 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	*Indicate all genetic types that apply to the species*	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.	
○ Native ◉ Introduced Oreochromis niloticus	☐ Wild Type ☒ Selective bred type ☒ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☒ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☒ Hybridization ☐ Polyploidy (chromosome set manipulation) ☒ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

○ Native ◉ Introduced Labeo rohita	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☒ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
○ Native ◉ Introduced Catla catla	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

◯ Native ◉ Introduced Cirrhinus mrigala	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
◯ Native ◉ Introduced Ctenopharyngodon idellus	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

◯ Native ◉ Introduced Hypophthalmichthys nobilis	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
◯ Native ◉ Introduced Hypophthalmichthys molitrix	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

◯ Native ◉ Introduced Cyprinus carpio	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☒ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
◉ Native ◯ Introduced Labeo dussumieri	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

◉ Native ○ Introduced Penaeus monodon	☒ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
◉ Native ○ Introduced Macrobrachium rosenbergii	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☒ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

◉ Native ○ Introduced Lates calcarifer	☒ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	○ Yes ◉ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☐ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
◉ Native ○ Introduced Holothuria scabra	☒ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	○ Yes ◉ No ○ Not Known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

◉ Native ○ Introduced Scylla serrata	☒ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	○ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☐ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☐ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
○ Native ◉ Introduced Xiphophorus hellerii	☒ Wild Type ☒ Selective bred type ☒ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

◯ Native ◉ Introduced xiphophorus maculatus	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
◯ Native ◉ Introduced Danio rerio	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

○ Native ◉ Introduced Poecilia reticulata	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
○ Native ◉ Introduced Poecilia sphenops	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

○ Native ◉ Introduced Carassius auratus	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
○ Native ◉ Introduced Betta splendens	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

○ Native ◉ Introduced Puntius tetrazona	☐ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
○ Native ◉ Introduced Puntius conchonius	☐ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☐ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☐ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

○ Native ◉ Introduced Pterophyllum scalare	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
○ Native ◉ Introduced Paracheirodon innesi	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

○ Native ◉ Introduced Hyphessobrycon eques	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☒ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
○ Native ◉ Introduced Symphysodon discus	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

○ Native ◉ Introduced Astronotus ocellatus	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☒ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
○ Native ◉ Introduced Trichogaster trichopterus	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

◯ Native ◉ Introduced Macropodus opercularis	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
◯ Native ◉ Introduced Trichopodus leerii	☐ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ◯ No ◯ Not Known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	◉ Increasing ◯ Stable ◯ Fluctuating ◯ Decreasing ◯ Stopped ◯ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

◉ Native ○ Introduced Wallago attu	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	○ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X
◉ Native ○ Introduced Pethia cumingii	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

◉ Native ○ Introduced Puntius titteya	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
◉ Native ○ Introduced Rasboroides vaterifloris	☒ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

◉ Native ○ Introduced Belontia signata	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
◉ Native ○ Introduced Pethia nigrofasciata	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X

◉ Native ○ Introduced Devario pathirana	☒ Wild Type ☒ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Stopped ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	Ornamental fishes	X
◉ Native ○ Introduced Channa striata	☒ Wild Type ☐ Selective bred type ☐ Hybrids ☐ Cross breeds ☐ Strains ☐ Varieties ☐ Polyploids	○ Yes ○ No ○ Not Known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Stopped ○ Not known	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)	☒ Selective breeding ☐ Hybridization ☐ Polyploidy (chromosome set manipulation) ☐ Monosex ☐ Marker assisted selection ☐ Other (specify in comment)		X

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

Add Row

Species ***Type and select a species***	Is the species native to your country?	Comments ***For example main sources of information***	
Ompok bimaculatus	○ Yes ◉ No ○ Not Known		X
Osphronemus goramy	○ Yes ◉ No ○ Not Known		X
Channa ara	○ Yes ◉ No ○ Not Known		X

Tor khudree	○ Yes ◉ No ○ Not Known		X
Macrobrachium malcolmsonii	○ Yes ◉ No ○ Not Known		X
Anabas testudineus	○ Yes ◉ No ○ Not Known		X

Chanos chanos	(•) Yes ( ) No ( ) Not Known		X
Rachycentron canadum	( ) Yes (•) No ( ) Not Known		X
Trachinotus carolinus	( ) Yes (•) No ( ) Not Known		X

Mugil cephalus	(•) Yes ( ) No ( ) Not Known		X
Penaeus vannamei	( ) Yes (•) No ( ) Not Known		X

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

Add Row

Species	Genetic alteration of exchanged material **Mark all that apply**	Details of transfer or exchange	Type of genetic material exchanged **Mark all that apply**	Country or countries involved with exchange **Hold CTRL button to select more than one country**	Comments ***Please add main purpose or objective of the exchange and main sources of information***	
Labeo rohita	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☒ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	Malawi Malaysia Maldives Mali Malta Marshall Islands Mauritania Mauritius Mexico Micronesia (Federatec Monaco Mongolia Montenegro Morocco Mozambique Myanmar Namibia	Broodstock development National aquaculture Development authority of Sri lanka	X
Catla catla	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☒ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	France Gabon Gambia Georgia Germany Ghana Greece Grenada Guatemala Guinea Guinea-Bissau Guyana Haiti Hungary Iceland India Indonesia	Broodstock development National aquaculture Development authority of Sri lanka	X

Cirrhinus mrigala	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☐ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	France Gabon Gambia Georgia Germany Ghana Greece Grenada Guatemala Guinea Guinea-Bissau Guyana Haiti Hungary Iceland India Indonesia	Broodstock development National aquaculture Development authority of Sri lanka	X
Ctenopharyngodon idellus	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☐ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	Bhutan Bolivia (Plurinational S Bosnia and Herzegovi Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Repub Chad Chile China Colombia	Broodstock development National aquaculture Development authority of Sri lanka	X
Hypophthalmichthys molitrix	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☐ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	Bhutan Bolivia (Plurinational S Bosnia and Herzegovi Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Repub Chad Chile China Colombia	Broodstock development National aquaculture Development authority of Sri lanka	X

Hypophthalmichthys nobilis	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☐ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	Bhutan Bolivia (Plurinational S Bosnia and Herzegovi Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Repub Chad Chile China Colombia	Broodstock development National aquaculture Development authority of Sri lanka	X
Cyprinus carpio	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☐ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	Bhutan Bolivia (Plurinational S Bosnia and Herzegovi Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Repub Chad Chile China Colombia	Broodstock development National aquaculture Development authority of Sri lanka	X
Oreochromis niloticus	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☒ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens ☐ Other	Kazakhstan Kenya Kiribati Kuwait Kyrgyzstan Lao People's Democra Latvia Lebanon Lesotho Liberia Libya Lithuania Luxembourg Madagascar Malawi Malaysia Maldives	Broodstock development National aquaculture Development authority of Sri lanka	X

Mylopharyngodon piceus	☐ No deliberate genetic alteration ☒ Traditional selective breeding ☐ Hybrids ☐ Triploids and other polyploids ☐ Mono-sex production ☐ Other	☒ Import ☐ Export	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☐ Living specimens ☐ Other	Bhutan Bolivia (Plurinational S Bosnia and Herzegovi Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Repub Chad Chile China Colombia	Broodstock development National aquaculture Development authority of Sri lanka	X

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.

Add Row

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.

Species	Use *(mark all that apply)*	Comments	
Channa ara	☒ Capture fisheries ☐ Recreational fishery ☐ Aquaria ☐ Biological control ☐ Research and develpment ☐ Other (specify in comments)		X
Macrobrachium malcolmsonii	☒ Capture fisheries ☐ Recreational fishery ☐ Aquaria ☐ Biological control ☐ Research and develpment ☐ Other (specify in comments)		X
Anabas testudineus	☒ Capture fisheries ☐ Recreational fishery ☐ Aquaria ☐ Biological control ☐ Research and develpment ☐ Other (specify in comments)	widely distributed	X

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 ***mark all that apply***	Type of genetic material exchanged	Country **Hold CTRL button to select more than one country**	Comments ***main sources of information, if the transfer was legal or not***	
Labeo rohita	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Gabon Gambia Georgia Germany Ghana Greece Grenada Guatemala Guinea Guinea-Bissau Guyana Haiti Hungary Iceland India Indonesia	Ministry of fisheries Sri lanka Legal transfer	X
Catla catla	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Afghanistan Albania Algeria Andorra Angola Antigua and Barbuda Argentina Armenia Australia Austria Azerbaijan Bahamas Bahrain Bangladesh Barbados Belarus	Ministry of fisheries Sri lanka Legal transfer	X
Cirrhinus mrigala	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Gabon Gambia Georgia Germany Ghana Greece Grenada Guatemala Guinea Guinea-Bissau Guyana Haiti Hungary Iceland India Indonesia	Ministry of fisheries Sri lanka Legal transfer	X

Ctenopharyngodon idellus	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Bolivia (Plurinational State Bosnia and Herzegovina Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Republic Chad Chile China Colombia	Ministry of fisheries Sri lanka Legal transfer	X
Hypophthalmichthys molitrix	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Bolivia (Plurinational State Bosnia and Herzegovina Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Republic Chad Chile China Colombia	Ministry of fisheries Sri lanka Legal transfer	X
Hypophthalmichthys nobilis	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Bolivia (Plurinational State Bosnia and Herzegovina Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Republic Chad Chile China Colombia	Ministry of fisheries Sri lanka Legal transfer	X
Oreochromis niloticus	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Kenya Kiribati Kuwait Kyrgyzstan Lao People's Democratic F Latvia Lebanon Lesotho Liberia Libya Lithuania Luxembourg Madagascar Malawi Malaysia Maldives	Ministry of fisheries Sri lanka Legal transfer	X

Cyprinus carpio	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Bolivia (Plurinational State Bosnia and Herzegovina Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Republic Chad Chile China Colombia	Ministry of fisheries Sri lanka Legal transfer GIFT	X
Mylopharyngodon piceus	☒ Import ☐ Export	☐ Tissues ☐ Gametes ☐ DNA ☐ Genes ☐ Embryos ☒ Living specimens ☐ Other	Bolivia (Plurinational State Bosnia and Herzegovina Brazil Brunei Darussalam Bulgaria Burkina Faso Burundi Cabo Verde Cambodia Cameroon Canada Central African Republic Chad Chile China Colombia	Ministry of fisheries Sri lanka Legal transfer	X

14. Please fill in table 1.2

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

Add Row

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
For each row, list the species as scientific names (put in brackets the most widely used national common For each species, include the named stocks and name of other management units if known)	Is the species ***(mark as appropriate):***	Is this species targeted by capture fisheries?	Are there any management measures in place?	Are genetic data available for the fishery?	Are genetic data used in management?	Over the last 10 years, catches have been:	Expected trend over the next 10 years.	Indicate the ecosystem where the fishery is located (***mark all that apply)***	The habitat or range is	What are likely reasons for changes? (***mark all that apply)***	
Labeo dussumieri	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	○ Yes ◉ No ○ Not Known	○ Yes ◉ No ○ Not Known	◉ Yes ○ No ○ Not Known	○ Yes ◉ No ○ Not Known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☒ Reservoir ☒ River ☐ Swamp ☐ Other **(specify)**	○ Increasing ○ Stable ◉ Decreasing ○ Not known	☒ Habitat ☒ Climate ☒ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ 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	
Scylla serrata	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◉ Yes ○ No ○ Not Known	○ Yes ○ No ◉ Not Known	○ Yes ◉ No ○ Not Known	○ Yes ◉ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☒ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)**	○ Increasing ◉ Stable ○ Decreasing ○ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ Not known	X
Penaeus monodon	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☒ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)**	○ Increasing ◉ Stable ○ Decreasing ○ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ 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	
Penaeus monodon	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◉ Yes ○ No ○ Not Known	○ Yes ○ No ◉ Not Known	○ Yes ◉ No ○ Not Known	○ Yes ◉ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☒ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)**	○ Increasing ◉ Stable ○ Decreasing ○ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ Not known	X
Penaeus monodon	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	○ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☒ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)**	○ Increasing ◉ Stable ○ Decreasing ○ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ 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	
Wallago attu	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◉ Yes ○ No ○ Not Known	○ Yes ◉ No ○ Not Known	○ Yes ◉ No ○ Not Known	○ Yes ◉ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Depleted ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☒ River ☐ Swamp ☐ Other **(specify)**	○ Increasing ○ Stable ◉ Decreasing ○ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ Not known	X
Macrobrachium rosenbergii	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◉ Yes ○ No ○ Not Known	○ Yes ◉ No ○ Not Known	◉ Yes ○ No ○ Not Known	○ Yes ◉ No ○ Not Known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☒ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☒ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)**	◉ Increasing ○ Stable ○ Decreasing ○ Not known	☐ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ 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	
Channa striata	☐ Straddling ☐ Transboundary ☐ Introduced ☐ Native	◉ Yes ○ No ○ Not Known	○ Yes ◉ No ○ Not Known	◉ Yes ○ No ○ Not Known	○ Yes ◉ No ○ Not Known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	◉ Increasing ○ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☒ Reservoir ☒ River ☒ Swamp ☐ Other **(specify)**	○ Increasing ○ Stable ◉ Decreasing ○ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ Not known	X
Belontia signata	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	○ Yes ◉ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Depleted ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)** streams ornamental endemic fish	○ Increasing ○ Stable ◉ Decreasing ○ Not known	☒ Habitat ☒ Climate ☒ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ 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	
Pethia cumingii	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◯ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◯ Increasing ◯ Stable ◯ Fluctuating ◉ Decreasing ◯ Depleted ◯ Not known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Depleted ◯ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)** streams ornamental endemic fish	◯ Increasing ◯ Stable ◉ Decreasing ◯ Not known	☒ Habitat ☒ Climate ☒ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ Not known	X
Pethia nigrofasciata	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◯ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◯ Increasing ◯ Stable ◯ Fluctuating ◉ Decreasing ◯ Depleted ◯ Not known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Depleted ◯ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)** streams ornamental endemic fish	◯ Increasing ◯ Stable ◉ Decreasing ◯ Not known	☒ Habitat ☒ Climate ☒ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ 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	
Puntius titteya	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	○ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Depleted ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)** streams ornamental endemic fish	○ Increasing ○ Stable ◉ Decreasing ○ Not known	☒ Habitat ☐ Climate ☒ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ Not known	X
Devario pathirana	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	○ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	◉ Yes ○ No ○ Not Known	○ Increasing ○ Stable ○ Fluctuating ◉ Decreasing ○ Depleted ○ Not known	○ Increasing ◉ Stable ○ Fluctuating ○ Decreasing ○ Depleted ○ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)** streams ornamental endemic fish	○ Increasing ○ Stable ◉ Decreasing ○ Not known	☒ Habitat ☒ Climate ☒ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ 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	
Rasboroides vaterifloris	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◯ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◯ Increasing ◯ Stable ◯ Fluctuating ◉ Decreasing ◯ Depleted ◯ Not known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Depleted ◯ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)** streams ornamental endemic fish	◯ Increasing ◯ Stable ◉ Decreasing ◯ Not known	☒ Habitat ☒ Climate ☒ Invasive species ☒ Pollution ☒ Rehabilitation of habitat ☐ Others ☐ Not known	X
Holothuria scabra	☐ Straddling ☐ Transboundary ☐ Introduced ☒ Native	◯ Yes ◯ No ◯ Not Known	◉ Yes ◯ No ◯ Not Known	◯ Yes ◯ No ◉ Not Known	◯ Yes ◉ No ◯ Not Known	◯ Increasing ◯ Stable ◉ Fluctuating ◯ Decreasing ◯ Depleted ◯ Not known	◯ Increasing ◉ Stable ◯ Fluctuating ◯ Decreasing ◯ Depleted ◯ Not known	☐ Intertital ☐ Coastal in EEZ ☐ High seas ☐ Lake ☐ Reservoir ☐ River ☐ Swamp ☐ Other **(specify)**	◯ Increasing ◯ Stable ◉ Decreasing ◯ Not known	☒ Habitat ☒ Climate ☐ Invasive species ☒ Pollution ☐ Rehabilitation of habitat ☐ Others ☐ 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 ***Mark appropriate box***	Comments ***List examples or other relevant information***
Human population increase	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	habitat loss, over fishing, inbreeding depression, loss of genetic diversity and cross breeding
Increased wealth and demand for fish	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	Habitat loss, over fishing, inbreeding depression, loss of genetic diversity and cross breeding
Governance (ability of government, industry and the public to work together in managing resources)	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	
Climate change	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	flooding and dry period
Competition for resources, especially freshwater	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	

Driver impacting aquaculture	Effect on AqGR ***Mark appropriate box***	Comments ***List examples or other relevant information***
Changes in values and ethics of consumers	○ Strongly positive ◉ Positive ○ Negative ○ Strongly negative ○ No effect ○ Unknown	
Other ***Add other drivers as necessary*** Add Row / Remove Row	○ Strongly positive ○ Positive ○ Negative ○ Strongly negative ○ No effect ○ Unknown	

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 ***Mark appropriate box***	Comments ***List examples or other relevant information***
Human population increase	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	depleting resources
Increased wealth and demand for fish	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	
Governance (ability of government, industry and the public to work together in managing resources)	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	conservation
Climate change	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	dry seasons & flooding
Competition for resources, especially freshwater	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	depleting resources

Driver impacting aquaculture	Effect on AqGR ***Mark appropriate box***	Comments ***List examples or other relevant information***
Changes in values and ethics of consumers	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	conservation
Other ***Add other drivers as necessary*** Add Row / Remove Row	◯ Strongly positive ◯ Positive ◯ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	

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

The aquatic environments are experiencing wide ranging man-made and natural threats, including over-fishing, pollution, habitat alterations, construction of dams, mini-hydro power projects ,reclamation of river beds, introduction of exotics, climate change ,salinity changes in fresh water, sand mining etc, which often are adversely affecting ichthyo-faunal diversity in different open-water systems. Further, inbreeding and genetic drift are some common problems in a small population that reduce genetic variability. Very important effective management & development with long term sustainability also preserving existing biodiversity

Documentation of fish diversity: Knowledge on species and communities can reveal crucial facts necessary to the management of ecosystems. Identification, cataloguing and prioritisation of species are important tasks in conservation. Availability of database on distribution and abundance pattern of important species in temporal and spatial scale in major rivers and other open water systems will help in effective management of the resources.

In situ conservation has been done through protected areas: such as marine protected areas ,National park, wet lands.

Stock enhancement through farming: One of the many ways in which to replenish declining natural stocks is through captive breeding or hatchery programs. In such case juvenile fish are removed form their natural habitat and are then allowed reach to sexual maturity and breed within the safe confines of an aquaculture or lab environment and the young ones reared in captivity are released back (ranching) to the natural environment. Captive breeding programmes have become the major tool used to compensate the declining fish populations and simultaneously to supplement as well as enhance yields of wild fisheries. For a successful stocking programme, the genetic structure of the original wild population should be determined before any new fish are released into the waters.

Live Gene banks : A live gene bank contributes to delisting of threatened species by captive breeding and restocking in species-specific recovery programmes. Such gene banks can contribute to recovery and utilization of genetic diversity and can be uses in conservation programmes and genetic enhancement.

Cryopreservation of fish gametes and embryos: Storage of fish spermatozoa, eggs and embryos without loss of viability is of considerable value in aquaculture and conservation. In Sri lanka, NAQDA is the primary organization carrying out fish sperm cryopreservation for long term gene banking. In artificial propagation, sperm cryopreservation protocol can be an asset where such milt related problems exist.

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 ***main sources of information, important species for which the biotechnology is applied***
Selective breeding	○ Not at all ○ To a minor extent ○ To some extent ◉ To a great extent	Labeo rohita, Catla catla. Cirrhinus mrigala, Ctenophhyngond idella, Cyprinus carpio, Hypophthamicthis molitrix. Labeo dussumieri Hypophthalmichthys nobilis, Penaeus monodon, Macrobrachium rosenbergii, Oreochromis niloticus
Hybridization	○ Not at all ◉ To a minor extent ○ To some extent ○ To a great extent	to some extent in ornamental fish farming to experimental scale food fish farming
Polyploidy (chromosome set manipulation)	◉ Not at all ○ To a minor extent ○ To some extent ○ To a great extent	
Monosex production	○ Not at all ◉ To a minor extent ○ To some extent ○ To a great extent	Oreochromis niloticus
Marker assisted selection	◉ Not at all ○ To a minor extent ○ To some extent ○ To a great extent	
Gynogenesis/androgenesis	◉ Not at all ○ To a minor extent ○ To some extent ○ To a great extent	
Other **Continue adding row as necessary**	○ Not at all ○ To a minor extent ○ To some extent ○ To a great extent	
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 ***mark appropriate box***	Countermeasures and effects
Habitat loss and degradation	◯ Strongly positive ◯ Positive ◯ Negative ◉ Strongly negative ◯ No effect ◯ Unknown	mangrove protection, sanctuaries, protected areas, desilting
Pollution of waters	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	Effluent management
Increased frequency of extreme climatic events and long-term climate change	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	
Establishment of invasive species	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	Awareness creation, targeted fishing of invasive species
Introductions of parasites and pathogens	◯ Strongly positive ◯ Positive ◉ Negative ◯ Strongly negative ◯ No effect ◯ Unknown	quarantine

Drivers that are changing aquatic ecosystems	Effect on AqGR ***mark appropriate box***	Countermeasures and effects
Impacts of purposeful stocking and escapes from aquaculture	○ Strongly positive ○ Positive ◉ Negative ○ Strongly negative ○ No effect ○ Unknown	Awareness creation, prevent escape from aquaculture systems to the wild
Capture fisheries	○ Strongly positive ○ Positive ◉ Negative ○ Strongly negative ○ No effect ○ Unknown	Responsible capture fisheries
Other ***Continue listing other driverst*** Add Row Remove Row	○ Strongly positive ○ Positive ○ Negative ○ Strongly negative ○ No effect ○ Unknown	

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 sit*u 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 fisher*ies* 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

Labeo dussumeiri bred successfully inreservoirs.

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

Marine protected areas, sanctuaries and hatcheries

22. Please provide ex*amples* 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

Wild life sanctuaries, deceleration of closed fishing area, fixing minimum legal size gill nets,

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 *in situ* conservation	Rank 1=Very Important 10=No importance
Preservation of aquatic genetic diversity	1
Maintain good strains for aquaculture production	1
Meet consumer and market demands	5
To help adapt to impacts of climate change	3
Future breed improvement in aquaculture	1
Please continue listing any other objectives as needed	
Add Row / Remove 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

Wild life sanctuaries, declaration of closed fishing area, mesh size regulation, by catch reduction devices. The fisheries policy of the country includes necessary in-built component for in situ conservation of farmed aquatic genetic resources.

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

collect wild fish grow upto maturity and breed for the purpose of conservation.

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

The fisheries policy of the country includes necessary in-built component for in situ conservation of farmed aquatic genetic resources
Wild life sanctuaries, Declaration of closed fishing area, mesh size regulation, by catch reduction devices. The fisheries policy of the country includes necessary in-built component for in situ conservation of farmed aquatic genetic resources.

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 ***provide any additional information***	
Honduwa Island Rocky island Telwatte Nun's Island Medin Duwa Godawaya Kalametiya Lagoon Rekawa Kudumbigala Marine Associated sanctuaries. Little Sober Island Great Sober Island Kokilai Lagoon Paravitivu Island Vankai Bar Reef Muturajawela Marine national park Hikkaduwa Ussagoda Bundala yala Kumana Pigeon Island Chundikkulam Adam's Bridge Island Wilpattu	(•) Very effective ( ) Somewhat effective ( ) Not effective ( ) Unknown	Most of Sri Lanka's National Parks, Strict Natural Reserves and Marine Sanctuaries are set aside for the conservation of wildlife with a focus on mainly conserving terrestrial habitats. The recent few decades have seen a shift to protecting marine life with a focus on coral ecosystems and marine turtles. We hope that this shift will continue to move much further and swiftly to include protection of endangered marine species, fragile marine ecosystems and critical marine habitats.	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 ***Please mark all that apply***	Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists? ***Please mark appropriate box***	Comments ***Please list any additional information***	
Labeo dussumieri	☒ Direct human consumption ☐ Live feed organism ☐ Other	○ Yes ◉ No ○ Unknown		X
Macrobrachium rosenbergii	☒ Direct human consumption ☐ Live feed organism ☐ Other	○ Yes ◉ No ○ Unknown		X
Penaeus monodon	☒ Direct human consumption ☐ Live feed organism ☐ Other	○ Yes ◉ No ○ Unknown		X

Species (*include information on subspecies or strain in comments if available*)	Type of use ***Please mark all that apply***	Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists? ***Please mark appropriate box***	Comments ***Please list any additional information***	
Lates calcarifer	☒ Direct human consumption ☐ Live feed organism ☐ Other	○ Yes ◉ No ○ Unknown		X
Scylla serrata	☒ Direct human consumption ☐ Live feed organism ☐ Other	○ Yes ◉ No ○ Unknown		X
Belontia signata	☐ Direct human consumption ☐ Live feed organism ☒ Other	○ Yes ◉ No ○ Unknown	ornamental fish	X
Channa striata	☒ Direct human consumption ☐ Live feed organism ☐ Other	○ Yes ◉ No ○ Unknown		X
Puntius cumingii	☐ Direct human consumption ☐ Live feed organism ☒ Other	○ Yes ◉ No ○ Unknown	ornamental fish	X
Puntius tittaya	☐ Direct human consumption ☐ Live feed organism ☒ Other	○ Yes ◉ No ○ Unknown	ornamental fish	X

Species (*include information on subspecies or strain in comments if available*)	Type of use ***Please mark all that apply***	Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists? ***Please mark appropriate box***	Comments ***Please list any additional information***	
Pethia nigrofasciata	☐ Direct human consumption ☐ Live feed organism ☒ Other	○ Yes ◉ No ○ Unknown	ornamental fish	X
Devario pathirana	☐ Direct human consumption ☐ Live feed organism ☒ Other	◉ Yes ○ No ○ Unknown	ornamental fish	X
Rasbora vaterifloris	☐ Direct human consumption ☐ Live feed organism ☒ Other	○ Yes ◉ No ○ Unknown	ornamental fish	X
Wallago attu	☒ Direct human consumption ☐ Live feed organism ☐ Other	◉ Yes ○ No ○ Unknown	Near threaten	X
Holothuria scabra	☒ Direct human consumption ☐ Live feed organism ☐ Other	◉ Yes ○ No ○ Unknown		X

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

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

Add Row

Species (include information on subspecies or strain if available in comments)	Users and managers ***List all that apply***	Type of *ex-situ* conservation collection *in vitro* ***mark all that apply***	Facilities where collection is located ***mark all that apply***	Comments ***list all breeds, subspecies of the species and any additional information***	
Catla catla	NAQDA	☒ In vitro collection of gametes ☐ In vitro collextion of embryos ☐ In vitro collection of tissues ☐ Spores ☐ Other	☐ Aquaculture facilities ☒ Research facilities ☐ Universities ☐ Zoos and aquaria ☐ Other		X
Labeo rohita	NAQDA	☒ In vitro collection of gametes ☐ In vitro collextion of embryos ☐ In vitro collection of tissues ☐ Spores ☐ Other	☐ Aquaculture facilities ☒ Research facilities ☐ Universities ☐ Zoos and aquaria ☐ Other		X
Cirrhinus mrigala	NAQDA	☒ In vitro collection of gametes ☐ In vitro collextion of embryos ☐ In vitro collection of tissues ☐ Spores ☐ Other	☐ Aquaculture facilities ☒ Research facilities ☐ Universities ☐ Zoos and aquaria ☐ Other		X
Ctenopharyngodon idellus	NAQDA	☒ In vitro collection of gametes ☐ In vitro collextion of embryos ☐ In vitro collection of tissues ☐ Spores ☐ Other	☐ Aquaculture facilities ☒ Research facilities ☐ Universities ☐ Zoos and aquaria ☐ Other		X

Species (include information on subspecies or strain if available in comments)	Users and managers ***List all that apply***	Type of *ex-situ* conservation collection *in vitro* ***mark all that apply***	Facilities where collection is located ***mark all that apply***	Comments ***list all breeds, subspecies of the species and any additional information***	
Hypophthalmichthys molitrix	NAQDA	☒ In vitro collection of gametes ☐ In vitro collextion of embryos ☐ In vitro collection of tissues ☐ Spores ☐ Other	☐ Aquaculture facilities ☒ Research facilities ☐ Universities ☐ Zoos and aquaria ☐ Other		X
Hypophthalmichthys nobilis	NAQDA	☒ In vitro collection of gametes ☐ In vitro collextion of embryos ☐ In vitro collection of tissues ☐ Spores ☐ Other	☐ Aquaculture facilities ☒ Research facilities ☐ Universities ☐ Zoos and aquaria ☐ 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 *ex situ* conservation	Rank 1=Very Important 10=No importance
Preservation of aquatic genetic diversity	1
Maintain good strains for aquaculture production	1
Meet consumer and market demands	3
To help adapt to impacts of climate change	4
Future breed improvement in aquaculture	1
Other ***Continue adding row as necessary***	
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 ***mark all that apply***	Genetic resource of main interest ***mark all that apply***	Comments ***Please provide any information or explanation of stakeholders' role***
Fish Farmers	☐ Conservation ☒ Production ☐ Feed manufactoring ☒ Breeding ☐ Research ☒ Marketing ☐ Processing ☐ Advocacy ☐ Outreach/Extension ☐ Other (**specify**)	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	
Fishers	☐ Conservation ☒ Production ☐ Feed manufactoring ☐ Breeding ☐ Research ☒ Marketing ☐ Processing ☐ Advocacy ☐ Outreach/Extension ☐ Other (**specify**)	☐ DNA ☐ Stock, breed or variety ☒ Species ☐ Other	

Stakeholders	Role of stakeholder in regards og AqGR ***mark all that apply***	Genetic resource of main interest ***mark all that apply***	Comments ***Please provide any information or explanation of stakeholders' role***
Fish hatchery people	☐ Conservation ☒ Production ☐ Feed manufactoring ☒ Breeding ☐ Research ☒ Marketing ☐ Processing ☐ Advocacy ☐ Outreach/Extension ☐ Other (**specify**)	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	
People involved in marketing	☐ Conservation ☒ Production ☒ Feed manufactoring ☒ Breeding ☐ Research ☒ Marketing ☒ Processing ☐ Advocacy ☐ Outreach/Extension ☐ Other (**specify**)	☐ DNA ☒ Stock, breed or variety ☒ Species ☒ Other	Others' include feed and pharma products
Government resource managers	☒ Conservation ☒ Production ☐ Feed manufactoring ☒ Breeding ☒ Research ☐ Marketing ☐ Processing ☒ Advocacy ☒ Outreach/Extension ☐ Other (**specify**)	☒ DNA ☒ Stock, breed or variety ☒ Species ☒ Other	

Stakeholders	Role of stakeholder in regards og AqGR ***mark all that apply***	Genetic resource of main interest ***mark all that apply***	Comments ***Please provide any information or explanation of stakeholders' role***
Fishing or aquaculture associations	☐ Conservation ☒ Production ☒ Feed manufactoring ☒ Breeding ☐ Research ☒ Marketing ☒ Processing ☐ Advocacy ☐ Outreach/Extension ☐ Other (**specify**)	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	
Aquatic protected area managers	☒ Conservation ☐ Production ☐ Feed manufactoring ☐ Breeding ☒ Research ☐ Marketing ☐ Processing ☒ Advocacy ☒ Outreach/Extension ☒ Other (**specify**) Conservation	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	
Policy Makers	☒ Conservation ☐ Production ☐ Feed manufactoring ☐ Breeding ☐ Research ☐ Marketing ☐ Processing ☒ Advocacy ☒ Outreach/Extension ☐ Other (**specify**)	☒ DNA ☒ Stock, breed or variety ☒ Species ☒ Other	

Stakeholders	Role of stakeholder in regards og AqGR ***mark all that apply***	Genetic resource of main interest ***mark all that apply***	Comments ***Please provide any information or explanation of stakeholders' role***
Non-Governmental Organizations	☒ Conservation ☒ Production ☐ Feed manufactoring ☒ Breeding ☒ Research ☒ Marketing ☐ Processing ☒ Advocacy ☒ Outreach/Extension ☒ Other (**specify**) quality & price	☐ DNA ☐ Stock, breed or variety ☒ Species ☐ Other	
Intergovernmental Organizations	☒ Conservation ☐ Production ☐ Feed manufactoring ☐ Breeding ☐ Research ☐ Marketing ☐ Processing ☒ Advocacy ☒ Outreach/Extension ☒ Other (**specify**) quality	☒ DNA ☒ Stock, breed or variety ☒ Species ☒ Other	
Donors	☐ Conservation ☐ Production ☐ Feed manufactoring ☐ Breeding ☐ Research ☐ Marketing ☐ Processing ☐ Advocacy ☐ Outreach/Extension ☒ Other (**specify**) funding for research conservation improve the quality of the production & product diversification	☐ DNA ☐ Stock, breed or variety ☐ Species ☐ Other	

Stakeholders	Role of stakeholder in regards og AqGR ***mark all that apply***	Genetic resource of main interest ***mark all that apply***	Comments ***Please provide any information or explanation of stakeholders' role***
Consumers	☐ Conservation ☐ Production ☐ Feed manufactoring ☐ Breeding ☐ Research ☐ Marketing ☐ Processing ☐ Advocacy ☐ Outreach/Extension ☒ Other (**specify**) influence quality and price	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	

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

Women at present play significant role in production, post harvest processing and value addition, retail marketing. Also they are actively participating role in ornamental fish breeding ,rearing , grading, packing and other associated activities.

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

In freshwater aquaculture, culture based fisheries and small-scale marine fisheries the local communities play a key role in following conservation activities like closed fishing area & mesh size regulation. They also prevent destructive fishing practices.

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 *Select all that apply*	Comments *Please provide any additional information for example whether it has been effective or not; and main sources of information*	
Fisheries and Aquatic Resources Act No. 2 of 1996 & National Aquaculture Development Authority Act No. 23 of 2006 (Amended)	1996 amended 2006	☐ Genes or molecules only ☒ Aquaculture ☒ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Aquaculture Management Licenses	Jan 1, 1996	☐ Genes or molecules only ☒ Aquaculture ☒ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X

National legislation, policy and/or mechanism	Date established	Scope ***Select all that apply***	Comments ***Please provide any additional information for example whether it has been effective or not; and main sources of information***	
Residual Monitoring Regulations	Jan 1, 2002	☐ Genes or molecules only ☒ Aquaculture ☒ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Aquaculture Brackish water and Marine Prawn Culture Regulations (Preventing unfavorable in shrimp aquaculture zones)	Jan 1, 2007	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Shrimp Aquaculture Management (Operation of Crop Cycle) Regulations,	Jan 1, 2008	☐ Genes or molecules only ☐ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Registration of Aquaculture Societies Regulations,	Jan 1, 2009	☐ Genes or molecules only ☒ Aquaculture ☒ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X

National legislation, policy and/or mechanism	Date established	Scope ***Select all that apply***	Comments ***Please provide any additional information for example whether it has been effective or not; and main sources of information***	
The Brackish water Shrimp Hatcheries (Issue of Post Larvae) Regulations,	Jan 1, 2010	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Live Rock Culture for Export Regulations, No. 1	Jan 1, 2011	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Aquaculture Management Regulations,(Amended)	Jan 1, 2011	☐ Genes or molecules only ☐ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Shrimp Hatchery Grading	Jan 1, 2012	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X

National legislation, policy and/or mechanism	Date established	Scope ***Select all that apply***	Comments ***Please provide any additional information for example whether it has been effective or not; and main sources of information***	
Live fish exporters premises Regulation	Oct 21, 2014	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☒ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Collecting and Supply of brood shrimps in order to breed brackish water shrimps (Penaeus species)	Jan 1, 2016	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☐ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Culture of Coral Species on artificial substrates for export regulation	Jan 1, 2016	☐ Genes or molecules only ☒ Aquaculture ☐ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☒ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Declaration of closed and open seasons for fishing	Jan 1, 2004	☐ Genes or molecules only ☐ Aquaculture ☒ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X

National legislation, policy and/or mechanism	Date established	Scope ***Select all that apply***	Comments ***Please provide any additional information for example whether it has been effective or not; and main sources of information***	
Declaration of fishing reserves	Jan 1, 2004	☐ Genes or molecules only ☐ Aquaculture ☐ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Prohibition of destructive fishing practices and dynamiting of fish	Jan 1, 2004	☐ Genes or molecules only ☒ Aquaculture ☒ Capture fisheries ☒ Conservation ☐ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☐ Other		X
Fauna and Flora Protection (Amendment) Act, 2009 (Act No. 22 of 2009).	Jan 1, 2009	☐ Genes or molecules only ☐ Aquaculture ☐ Capture fisheries ☒ Conservation ☒ Intellectual property protection ☐ Importation ☐ Trade and commerce ☐ Access and benefit sharing ☒ Other	related to national reserves and sanctuaries lists of protected and non-protected flora and fauna containing provisions on the protection of flora and fauna and related offence licenses offence and penalties and permits;	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.

All most all the areas mentioned in the country report have been covered state legislations

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 ***Please, provide verifiable main sources of information, effectiveness of the restriction, description of type of restriction and for whom does the restriction apply***
DNA	
Stock, breed or variety	Fisheries and Aquatic Resource Act No. 2 of 1996.
Species	Fisheries and Aquatic Resource Act No. 2 of 1996.
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 ***Mark all that apply***	Comment ***for example other types of genetic resources***	
Allowed Import fish species to enhance aquaculture production	☐ DNA ☐ Genes ☐ Gametes ☐ Tissues ☐ Embryos ☒ Living specimens	GIFT Tilapia common Carp Hybrid Rohu hybrid	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 ***mark all that apply***	Comments ***please include additional information as needed***
Intellectual property protection	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	no obstacles encountered
National laws of your country	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	consider feeding habits and effect other farm and wild fish
National laws of donor country	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	no obstacles encountered
Internationl laws or protocols	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	no obstacles encountered
Too expensive	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	no obstacles encountered
Material transfer agreements required	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	no obstacles encountered
Knowledge gaps	☐ DNA ☒ Stock, breed or variety ☒ Species ☐ Other	no obstacles encountered
Public perception	☐ DNA ☐ Stock, breed or variety ☐ Species ☐ Other	no obstacles encountered

Obstacles to accessing aquatic genetic resources	Please describe type of genetic resource ***mark all that apply***	Comments ***please include additional information as needed***
Other **Continue adding row as necessary** Add Row | Remove Row	☐ DNA ☐ Stock, breed or variety ☐ Species ☐ Other	

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

One of research organization under the umbrella of ministry of fisheries & Aquatic resources Development is National Aquatic Resources Research and Development Agency (NARA) deal with conservation and and National Aquaculture Development Authority deal with sustainable use of fresh water and brackish water aquatic genetic resources in the country .
Wildlife conservation department, Central Environmental Authority play valuable role in aquatic resources conservation.

Apart from these, the country regional level institutions that address the sustainable use and development of aquatic genetic resources. (,Universities , N.G.Os)

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 ***Mark all that apply***	Comments ***Please provide any additional information***	
National Aquaculture Development Authority(NAQDA)	☒ Genetic resource management ☒ Basic knowledge on aquatic genetic resources ☒ Characterization and monitoring of aquatic genetic resources ☒ Genetic improvement ☐ Economic valuation of aquatic genetic resources ☒ Conservation of aquatic genetic resources ☒ Communication on aquatic genetic resources ☒ Access and distribution of aquatic genetic resources ☐ Other		X
National Aquatic Resources Research and Development Agency (NARA)	☒ Genetic resource management ☒ Basic knowledge on aquatic genetic resources ☒ Characterization and monitoring of aquatic genetic resources ☒ Genetic improvement ☐ Economic valuation of aquatic genetic resources ☒ Conservation of aquatic genetic resources ☒ Communication on aquatic genetic resources ☒ Access and distribution of aquatic genetic resources ☐ Other		X

Main institutions, organizations, corporations and other entities	Area of research ***Mark all that apply***	Comments ***Please provide any additional information***	
Wildlife conservation Department	☒ Genetic resource management ☐ Basic knowledge on aquatic genetic resources ☒ Characterization and monitoring of aquatic genetic resources ☐ Genetic improvement ☐ Economic valuation of aquatic genetic resources ☒ Conservation of aquatic genetic resources ☒ Communication on aquatic genetic resources ☒ Access and distribution of aquatic genetic resources ☐ Other		X
Central environment authority	☒ Genetic resource management ☐ Basic knowledge on aquatic genetic resources ☐ Characterization and monitoring of aquatic genetic resources ☐ Genetic improvement ☐ Economic valuation of aquatic genetic resources ☒ Conservation of aquatic genetic resources ☒ Communication on aquatic genetic resources ☒ Access and distribution of aquatic genetic resources ☐ Other		X

Main institutions, organizations, corporations and other entities	Area of research ***Mark all that apply***	Comments ***Please provide any additional information***	
Universities	☐ Genetic resource management ☒ Basic knowledge on aquatic genetic resources ☒ Characterization and monitoring of aquatic genetic resources ☐ Genetic improvement ☒ Economic valuation of aquatic genetic resources ☐ Conservation of aquatic genetic resources ☒ Communication on aquatic genetic resources ☒ Access and distribution of aquatic genetic resources ☐ Other		X
NGO	☒ Genetic resource management ☒ Basic knowledge on aquatic genetic resources ☐ Characterization and monitoring of aquatic genetic resources ☐ Genetic improvement ☐ Economic valuation of aquatic genetic resources ☐ Conservation of aquatic genetic resources ☒ Communication on aquatic genetic resources ☒ Access and distribution of aquatic genetic resources ☐ 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	1
Improve capacities for characterization and monitoring of aquatic genetic resources	1
Improve capacities for genetic improvement	2
Improve capacities for genetic resource management	3
Improve capacities for economic valuation of aquatic genetic resources	3
Improve capacities for conservation of aquatic genetic resources	2
Improve communication on aquatic genetic resources	3
Improve access to and distribution of aquatic genetic resources	3
Add other rows as appropriate and rank Add Row Remove Row	

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

Education, training and extension

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

Add Row

Institution	Thematic Area	Type of courses **mark all that apply**	Comments	
National Aquaculture Development Authority(NAQDA)	Genetic resource management	☐ Undergraduate ☐ Post-graduate ☒ Training ☒ Extension		
	Characterization and monitoring of aquatic genetic resources	☐ Undergraduate ☐ Post-graduate ☒ Training ☒ Extension		
	Genetic improvement	☐ Undergraduate ☐ Post-graduate ☒ Training ☐ Extension		X
	Economic valuation of aquatic genetic resources	☐ Undergraduate ☐ Post-graduate ☐ Training ☐ Extension		
	Conservation of aquatic genetic resources	☐ Undergraduate ☐ Post-graduate ☒ Training ☐ Extension		

National Aquatic Resources Research and Development Agency (NARA)	Genetic resource management	☐ Undergraduate ☐ Post-graduate ☒ Training ☐ Extension		
	Characterization and monitoring of aquatic genetic resources	☐ Undergraduate ☐ Post-graduate ☒ Training ☐ Extension		
	Genetic improvement	☐ Undergraduate ☐ Post-graduate ☒ Training ☐ Extension		X
	Economic valuation of aquatic genetic resources	☐ Undergraduate ☐ Post-graduate ☐ Training ☐ Extension		
	Conservation of aquatic genetic resources	☐ Undergraduate ☐ Post-graduate ☒ Training ☐ Extension		
National Universities	Genetic resource management	☒ Undergraduate ☒ Post-graduate ☒ Training ☒ Extension		
	Characterization and monitoring of aquatic genetic resources	☒ Undergraduate ☒ Post-graduate ☐ Training ☐ Extension		
	Genetic improvement	☒ Undergraduate ☒ Post-graduate ☐ Training ☐ Extension		X
	Economic valuation of aquatic genetic resources	☒ Undergraduate ☒ Post-graduate ☐ Training ☐ Extension		
	Conservation of aquatic genetic resources	☒ Undergraduate ☒ Post-graduate ☐ Training ☐ 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	
Coat conservation depatment	Functioning under the Ministry of Environment, coordinate development activities in the multi-sectoral environment of coastal zones.	X
Wild life conservation department	regulatory and advisory function for the Government of Sri lanka on issues of conservation, sustainable use of biological resources	X
Sri lanka custom	regulatory function for the Government of Sri lanka on issues of conservation, sustainable use of biological resources	X
Central environmental authority	regulatory and advisory function for the Government of Sri lanka on issues of conservation, sustainable use of biological resources	X
Ministry of fisheries and aquatics resources development	regulatory and advisory function for prior approval of import activities	X

Name of mechanism	Description of how mechanism operates	
Animal production and health department pf Sri Lanka	Regulatory activities on import export activities	X

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

Please rank the following in regards to capacity strengthening.

Capacities	Rank 1=Very Important 10=No importance
Increase awareness in institutions	1
Increase technical capacities of institutions	1
Increase information sharing between institutions	1
Add other rows as appropriate and rank Add Row Remove Row	

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 ***Please mark all that apply*** to your country	Comments	
NACA	☒ Improve basic knowledge on aquatic genetic resources ☒ Improve capacities for characterization and monitoring of aquatic genetic resources ☒ Improve capacities for genetic improvement ☒ Improve capacities for economic valuation of aquatic genetic resources ☒ Improve capacities for conservation of aquatic genetic resources ☒ Improve communication on aquatic genetic resources ☒ Improve access to and distribution of aquatic genetic resources		X
FAO	☒ Improve basic knowledge on aquatic genetic resources ☒ Improve capacities for characterization and monitoring of aquatic genetic resources ☒ Improve capacities for genetic improvement ☒ Improve capacities for economic valuation of aquatic genetic resources ☒ Improve capacities for conservation of aquatic genetic resources ☒ Improve communication on aquatic genetic resources ☒ Improve access to and distribution of aquatic genetic resources		X

Information systems

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

Add Row

Name of information system	Type of information stored ***mark all that apply***	Main stakeholders ***mark all that apply***	
Ministry of fisheries & aquatic resources	☐ DNA sequence ☐ Genes and genotype ☒ Breeds, strains or stocks ☒ Species names ☒ Production figures ☒ Distribution ☒ Level of endangerment ☐ Other	☒ Fish farmers ☒ Fishers in capture fisheries ☒ Fish hatchery people ☒ People involved in marketing ☒ Government resource managers ☒ Fishing or aquaculture associations ☒ Aquatic protected area managers ☒ University and academic people ☒ Non-Governmental Organizations ☒ Intergovernmental Organizations ☒ Policy makers ☒ Donors ☒ Consumers ☒ Politicians **Please list other stakeholders as necessary**	X

Name of information system	Type of information stored ***mark all that apply***	Main stakeholders ***mark all that apply***	
Wild life conservation department	☐ DNA sequence ☐ Genes and genotype ☒ Breeds, strains or stocks ☒ Species names ☒ Production figures ☒ Distribution ☒ Level of endangerment ☐ Other	☒ Fish farmers ☒ Fishers in capture fisheries ☒ Fish hatchery people ☒ People involved in marketing ☒ Government resource managers ☒ Fishing or aquaculture associations ☒ Aquatic protected area managers ☒ University and academic people ☒ Non-Governmental Organizations ☒ Intergovernmental Organizations ☒ Policy makers ☒ Donors ☒ Consumers ☒ Politicians **Please list other stakeholders as necessary**	X

Name of information system	Type of information stored ***mark all that apply***	Main stakeholders ***mark all that apply***	
Central Environmental Authority	☐ DNA sequence ☐ Genes and genotype ☒ Breeds, strains or stocks ☒ Species names ☒ Production figures ☒ Distribution ☒ Level of endangerment ☒ Other	☒ Fish farmers ☒ Fishers in capture fisheries ☒ Fish hatchery people ☒ People involved in marketing ☒ Government resource managers ☒ Fishing or aquaculture associations ☒ Aquatic protected area managers ☒ University and academic people ☒ Non-Governmental Organizations ☒ Intergovernmental Organizations ☒ Policy makers ☒ Donors ☒ Consumers ☒ Politicians **Please list other stakeholders as necessary**	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

Strengthening in development and maintenance of spatial and time series database on different resources
Modelling and forecasting in context of climate change

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

Strengthening capacity on fish taxonomy for information generation on biodiversity (conventional and molecular).

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 Protocol[2] 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	

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	
Agreement for the implementation of the provisions of the United nations Convention on the Law of Seas relating to the conservation and management of straddling fish stocks and migratory fish stocks (1995)	1995	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect		X
Convention on International Trade in Endangered Species OfWild Fauna and Flora	1973	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect		X
Agreement on the network of Aquaculture Centers in Asia and the Pacific	1988	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect		X
The Ramsar Convention onWetlands	1971	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ No effect	◯ Strongly positive ◉ Positive ◯ Negative ◯ Strongly negative ◯ 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 ***For example any critical gaps***
Improve information technology and database management	1	(•) To a great extent ( ) To some extent ( ) None ( ) Unknown	
Improve basic knowledge on aquatic genetic resources	3	( ) To a great extent (•) To some extent ( ) None ( ) Unknown	
Improve capacities for characterization and monitoring of aquatic genetic resources	2	(•) To a great extent ( ) To some extent ( ) None ( ) Unknown	
Improve capacities for genetic improvement	2	(•) To a great extent ( ) To some extent ( ) None ( ) Unknown	
Improve capacities for economic valuation of aquatic genetic resources	2	(•) To a great extent ( ) To some extent ( ) None ( ) Unknown	
Improve capacities for conservation of aquatic genetic resources	1	(•) To a great extent ( ) To some extent ( ) None ( ) Unknown	
Improve communication on aquatic genetic resources	2	(•) To a great extent ( ) To some extent ( ) None ( ) Unknown	

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

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

Bilateral and multilateral collaboration in the fields of research, capacity building and sharing of biological resources. This has helped in human resource development , capacity building, improved production, conservation, widening the species spectrum etc.

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

Accessing more species for diversification of aquaculture utilize and increase productivity.
Improved capacity building for genetic improvement and resource management effectively.
Sharing country's available expertise on genetic resource management with other nations.

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.

fish taxonomy for information generation on biodiversity (conventional and molecular), strengthening in development and maintenance of special and time series database on different resources and modeling and forecasting in context of climate change.

Submit Form