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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 5.1 of the Provisional Agenda

Fourteenth Regular Session

Rome, 15 – 19 April 2013

STATUS OF PREPARATION OF THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. The Commission on Genetic Resources for Food and Agriculture (the Commission), at its last session, considered the document regarding the preparation of the first report on *The State of the World's Aquatic Genetic Resources for Food and Agriculture* (SoW AqGR).[1] It took note of the information document *Improving collection and sharing of information on aquatic genetic resources (AqGR) for food and agriculture*.[2]

2. The Commission requested FAO to continue its work towards the preparation of a first report on the SoW AqGR, initially by focusing on cultured aquatic species. The Commission would come back to the issue of aquatic genetic resources at its next session to provide guidance on further work.[3]

3. The Sub-Committee on Aquaculture, at its sixth session, affirmed that emphasis needs to be placed on the assessment and responsible use of aquatic genetic resources for aquaculture and proposed to establish an Advisory Working Group on Genetic Resources and Technologies, to be coordinated by FAO.[4] The Committee on Fisheries, in July 2012, endorsed and supported the establishment of an FAO Advisory Working Group on Genetic Resources and Technologies, that would advise FAO on matters concerning aquatic genetic resources and technologies, to enhance international cooperation on aquatic genetic resource management […]."[5]

4. With regard to aquatic genetic resources, the Commission's current Multi-Year Programme of Work (MYPOW) foresees to have the Sow AqGR presented at the Commission's sixteenth Session in 2017, to have related elements of the *Code of Conduct of Responsible Fisheries* and associated tools for assessing their implementation developed for the Commission's seventeenth Session in 2019, and to have a review of implementation of relevant elements of the *Code of Conduct of Responsible Fisheries* prepared for the Commission's eighteenth Session in 2021.

5. This document provides an update on the status of preparation of the SoW AqGR.

II. THE RATIONALE FOR AND SCOPE OF *THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

6. Despite the crucial role of AqGR in contributing to global food security and sustainable livelihoods, information available on AqGR tends to be scattered, is generally incomplete, and the lack of standardization results in poorly accessible data and information. As reported to the last session of the Commission, there are still major gaps in reporting aquaculture and fisheries data to FAO and in the characterization of aquatic genetic variation at levels below that of the species.[6]

7. Lack of data and information and inadequate standardization result in poor understanding of the status and trends of AqGR and, ultimately, in unsustainable

[1] CGRFA-13/11/11.
[2] CGRFA-13/11/Inf.14.
[3] CGRFA-13/11/Report, paragraph 112.
[4] FAO Committee on Fisheries 2012. Report of the sixth session of the Sub-Committee on Aquaculture. Cape Town, South Africa, 26-30 March 2012. FAO Fisheries and Aquaculture Report. No. 1006. Rome, FAO. 59p.
[5] FAO 2012. *Report of the thirtieth session of the Committee on Fisheries. Rome, 9–13 July 2012*. FAO Fisheries and Aquaculture Report. No. 1012. Rome, FAO. 59 pp.
[6] CGRFA-13/11/Inf.14.

practices in some instances. There is, however, growing recognition that genetic information will be increasingly important to support sustainable aquaculture and fisheries. There is also an increasing body of information on genetic resources for aquaculture and on genetically distinct fish stocks and cryptic species, and an increasing need for more information to underpin sound management. At the same time, the technical difficulty and costs associated with collecting information on genetic diversity need to be recognized. The additional burden on the often over-loaded capacity in developing countries must also be taken into account; and clear procedures for sustainable development set and implemented.

8. Improvements in knowledge of the status and trends of the use and conservation of AqGR would enable stronger and more comprehensive policy and planning and overall management of these essential resources. In light of the loss and degradation of aquatic habitats and populations resulting in genetic impoverishment, changing environmental and economic conditions and advancement of biotechnology, the country-driven SoW AqGR will provide the opportunity to assess the status and trends of AqGR. Opportunities to enhance the contribution of AqGR to food security and rural development are likely to emerge with greater understanding of their current and potential uses. Moreover, the preparation of the SoW AqGR will assist national policy makers in determining conservation and sustainable use needs and priorities and contribute to raising awareness among policy-makers.

9. While the SoW AqGR will be of primary relevance to aquatic genetic resources used for aquaculture, it aims to document all knowledge as well as the knowledge gaps regarding aquatic genetic resources for food and agriculture.

III. PREPARATORY ACTIVITIES TOWARDS *THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

10 A number of regular programme activities undertaken by FAO recently contribute to the preparation of the SoW AqGR, including the preparation of the *State of World's Fisheries and Aquaculture*[7], the preparation of the *Review of the State of World Marine Fishery Resources* [8], collection and the analysis of country level data and information on fisheries and aquaculture production and value; establishment and updating of information systems and databases on the fisheries and aquaculture sectors (Aquatic Species Fact Sheets, Cultured Aquatic Species Fact Sheets; The National Fisheries Sector Overview; The National Aquaculture Sector Overview; The National Aquaculture Legislation Overview; The Fisheries Resources Monitoring System; and the Database on Introduced Aquatic Species).

11. Since the Commission's last session, FAO has undertaken the following initiatives directly contributing to the preparation of the SoW AqGR:

- Distribution of Circular State Letter C/FI-38 of 19 April 2012 inviting countries to nominate National Focal Points responsible for the preparation of national reports on aquatic genetic resources for food and agriculture, as contained in *Appendix 1*; as of February 2013, 35 nominations have been received.

[7]FAO 2012. The State of World Fisheries and Aquaculture. Rome, FAO. 209p.
[8] FAO 2011. Review of the State of World Marine Fishery Resources. FAO Fisheries and Aquaculture Technical Paper No. 569. Rome, FAO. 334p.

- Preparation of a scoping policy analysis for aquatic genetic resources for food and agriculture;[9]
- Preparation of *Guidelines for Country Reports* as well as the launch of an expert meeting in January 2013 which reviewed a first draft of the guidelines;[10]

12. There is tremendous opportunity to have the first SoWAqGR be comprehensive and include all aquatic genetic resources for food and agriculture from capture fisheries as well as aquaculture and the expert group[11] that developed the Guidelines for Country Reports recommended a comprehensive coverage in the SoW AqGR.

IV. THE PROPOSED STRUCTURE, TIMELINE AND FINANCIAL NEEDS FOR PREPARING THE *STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

13. The Commission may wish to consider the revised structure for the SoW AqGR, timeline and budget given in *Appendices 2* to *5* as well as the establishment of an Intergovernmental Technical Working Group on Aquatic Genetic Resources for Food and Agriculture.[12]

V. GUIDANCE SOUGHT

14. The Commission may wish to:

(i) Request FAO to continue its preparation towards a first report on the SoW AqGR, subject to the availability of the required funds;

(ii) Encourage countries to participate in the process by preparing national reports on aquatic genetic resources for food and agriculture and strengthening their information systems on AqGR;

(iii) Invite donors to provide the required financial resources; and

(iv) Invite relevant stakeholders to participate in the process for preparing the SoW AqGR, including through providing reports to FAO.

[9] CGRFA-14/13/18; CGRFA-14/13/Inf.24.
[10] CGRFA-14/13/Inf.25.
[11] FAO (in prep.) Finalization of guidelines for preparation of country reports for the first *State of the World's Aquatic Genetic Resources for Food and Agriculture*. 28-30 January 2013. Bangkok, FAO.
[12] CGRFA-14/13/17.

APPENDIX 1

CIRCULAR STATE LETTER C/FI-38 OF 19 APRIL 2012

The State of the World's Aquatic Genetic Resources

Preparation of Country Reports and nomination of National Focal Points

The Director-General of the Food and Agriculture Organization of the United Nations has the honour to refer to the request of the Commission on Genetic Resources for Food and Agriculture (CGRFA), endorsed by the Committee on Fisheries, to prepare a report on *The State of the World's Aquatic Genetic Resources*, and to draw attention to the CGRFA's request to nominate a National Focal Point for the preparation of a *Country Report on the State of Aquatic Genetic Resources*.

These activities are a vital aspect of Article XI of the FAO Constitution on communication of information by Members, and complement the ongoing work on the *Strategy for Improving Information on Status and Trends of Capture Fisheries* that was endorsed by the Hundred and Twenty-fourth Session of the FAO Council in June 2003, the *Strategy and Outline Plan for Improving Information on Status and Trends of Aquaculture* endorsed by the Hundred and Thirty-second session of the FAO Council in 2007 and the biennial reporting on *The State of the World Fisheries and Aquaculture (SOFIA)* of the FAO Fisheries and Aquaculture Department.

Furthermore, the CGRFA, at its Thirteenth Regular Session, requested that work towards the preparation of *The State of the World's Aquatic Genetic Resources* be continued, initially by focusing on cultured aquatic species, and agreed that *The State of the World's Aquatic Genetic Resources* be launched in 2017, as foreseen in the CGRFA's Multi-Year Programme of Work.

The National Focal Points will be invited to contribute to *The State of the World's Aquatic Genetic Resources* by preparing a *Country Report on the State of Aquatic Genetic Resources*. Guidelines for the preparation of Country Reports will be prepared and provided to the National Focal Points. They will also be made available on the CGRFA website (www.fao.org/nr/cgrfa). The Organization wishes to emphasize the importance of the Country Report preparation as a national strategic tool for aquatic genetic resources conservation and management, and the need to establish national coordinating mechanisms to ensure opportunities for the participation of national stakeholders in the preparation of the Country Report.

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Countries are kindly requested to nominate their National Focal Point by 3 September 2012. This information and any queries should be sent to:

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APPENDIX 2

PROPOSED STRUCTURE OF THE STATE OF THE WORLD ON AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Chapter 1: The Use of Aquatic Genetic Resources in Capture Fisheries, Aquaculture and Culture-Based Fisheries

Chapter 2: Drivers and Trends in Capture Fisheries, Aquaculture and Culture-Based Fisheries: Consequences for Aquatic Genetic Resources

Chapter 3: In Situ Conservation of Aquatic Genetic Resources

Chapter 4: Ex Situ Conservation of Aquatic Genetic Resources

Chapter 5: Stakeholders with Interests in Aquatic Genetic Resources

Chapter 6: Policies and Legislation for Aquatic Genetic Resources, Including Access and Benefit Sharing

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

Chapter 8: International Collaboration on Aquatic Genetic Resources

APPENDIX 3

PRELIMINARY INDICATIVE LIST OF PROPOSED THEMATIC BACKGROUND STUDIES [

	Subject	*Rationale*
1	**Incorporating Genetic Diversity and indicators into Aquaculture and Capture Fisheries Statistics and monitoring.**	Production and value statistics for aquaculture and capture fisheries are highly aggregated to species or commodity group levels, with many not even identifying the species used. Management of fish stocks, traceability of fish and fish products, and oversight and development of responsible aquaculture requires management of genetic diversity, linked to production. Increasingly, resource managers and the development communities are asked to identify indicators of the status of AqGR. Once better production data are available, indicators can be developed for monitoring and assessment.
2	**Biotechnology and genomics in Aquaculture, Capture Fisheries and Conservation of AqGR**	Aquaculture, capture fisheries and conservation of AqGR are making increasing use of biotechnology and application of genomic research for domestication, increased production, improved management and better traceability of fish and fish products in the supply chain. With advances often outpacing the development of policy and regulatory frameworks and consumer awareness the key is to harness biotechnology for beneficial ends, with biosecurity ensured through precaution and sound management of risks, and through understanding consumers' attitudes.
3	**Threats to AqGR for Aquaculture and Capture**	AqGR face a wide range of threats including: overfishing, and

	Subject	*Rationale*
	Fisheries: Options for Countermeasures	especially illegal, unreported and unregulated fishing; degradation of ecosystems; water pollution; water abstraction; diseases and parasites; climate change; interactions between wild and famed populations; alien and invasive species; irresponsible aquaculture and destructive fishing practices etc. Countermeasures exist but need wider application and improvement.
4	**Genetic Resources for Farmed and Wild-harvested Seaweeds and Freshwater Macrophytes**	The farming of seaweeds and freshwater macrophyes to produce chemicals for the food and other industries, as well as products for direct consumption as human food, is the world's largest aquaculture operation.. The genetic resources of these important aquatic plants require coverage in a State of the World Report as they have often been omitted from other reports.
5	**Genetic Resources for Micro-organisms of Current and Potential Use in Aquaculture**	Bacteria, cyanobacteria, microalgae and fungi are cultured extensively as feed sources in aquaculture. Some bacteria are used as probiotics to enhance fish growth and health. Many species and strains of microalgae are kept as *ex situ* culture collections. The genetic resources of these important micro-organisms for food and agriculture require coverage in a State of the World Report.
6	**Economic Valuation of AqGR for Aquaculture, Capture Fisheries, supporting ecosystesm and Related Research**	Few attempts have yet been made to estimate the value of AqGR for aquaculture, capture fisheries, supporting ecosystems and related research. This gap is serious. *In situ* AqGR, including those in aquatic protected areas, and *ex situ* collections, and in natural and agro-

	Subject	*Rationale*
		ecosystems are undervalued. Their conservation is therefore under-resourced and their use is under-valued.
7	**Stakeholders Whose Food Security and Livelihoods Depend on AqGR**	The importance of AqGR for farmers, fishers, food processors, marketers and consumers has not been adequately assessed. As genetic diversity in fish production statistics, eco-labelling of fish products, traceability of fish and fish products, conservation, and ethical concerns become increasingly important, the wishes and concerns of stakeholders must be adequately canvassed and addressed, including consumer attitudes on genetic technologies.
8	**Aquatic Protected Areas for Long-term Conservation and Sustainable Use of AqGR**	The world's aquatic protected areas, including Ramsar sites, nature reserves, national parks, sacred groves and ecotourism sites, have immense importance for the conservation and sustainable use of AqGR, but most have yet to be inventoried and managed from this perspective.

APPENDIX 4

TIMELINE FOR PREPARING *THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

2011	• The Commission requests FAO to continue its work towards the preparation of a first report on the SoW AqGR for presentation at its Sixteenth Regular Session in 2017
2012	• FAO dispatches Circular State Letter C/FI-38 drawing attention to the CGRFA's request to nominate a National Focal Point for the preparation of a *Country Report on the State of Aquatic Genetic Resources* (NFP-AqGR) • FAO prepares a *Scoping policy analysis for aquatic genetic resources for food and agriculture*
2013	• FAO undertakes consultation to review the draft Guidelines for Country Reports • The Commission requests countries to prepare national reports on AqGR based on the Guidelines and to strengthen their information systems on AqGR; • The Commission appeals to donors to provide the required financial resources for preparation of the Country Reports and the SoW AqGR; • The Commission invites relevant stakeholders to participate in the process of preparing the SoW AqGR, including through reports to FAO;
2014	• Countries begin preparation of national reports, through NFP-AqGR, with FAO assistance and through regional networks and workshops as required • FAO oversees preparation of Thematic Background Studies, including ensuring peer reviews
2015	• Deadline for submission of Country Reports and reports by relevant stakeholders • Presentation of a Progress report to CGRFA-15 • Deadline for submission of thematic background studies
2016-17	• FAO prepares a first draft report on the SoW AqGR • Review of first draft SoW AqGR by Intergovernmental Technical Working Group on Aquatic Genetic Resources for Food And Agriculture
2017	• First report of the SoW AqGR available to the Commission at its Sixteenth Regular Session • Commission initiates the development of elements related to the *Code of Conduct of Responsible Fisheries* aimed to maintain a broad genetic basis and to ensure sustainable use and conservation of aquatic genetic resources

2019	• Consideration of elements related to the *Code of Conduct of Responsible Fisheries* aimed to maintain a broad genetic basis and to ensure sustainable use and conservation of aquatic genetic resources

APPENDIX 5

COST ESTIMATE FOR THE PREPARATION OF THE STATE OF THE WORLD ON AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item	Cost (US$)	Calculation	Purpose and notes
Staff costs	600,000	One P3/P4 staff appointment for 30 months (600,000); assisted by two APOs	As a hub for coordination of the preparatory process
Regional and sub-regional consultants	700,000	20 consultants @ 35, 000/consultant; each 2 – 3 months honorarium, plus travel	To provide advice and assistance to countries in the preparation of Country reports, including involvement of stakeholders
Support to preparation of Country Reports, including stakeholder consultations	2,000,000	c. 100 countries @ 20, 000/country	To provide support to the preparation of Country Reports, including national workshops and consultations
Expert meetings and workshops	400,000	8 meetings / consultancies @ 50, 000/meeting	To support development of Thematic Background Studies and other background material for the Report
Regional meetings	1,250,000	10 meetings @125,000/meeting	To review Country Reports, discuss regional issues related to the SoW-AqGR and identify common needs and priorities for action.
Editorial and layout	60,000	An Editor and a Layout Expert for 6 months each	To edit and layout the draft consolidated report and the final volume
Sub total	5,010,000		
Project Servicing Costs	651,300	@ 13%	
Grand Total	5,661,300		