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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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OPTIONS FOR FOLLOW-UP TO *THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

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I. INTRODUCTION

1. FAO, through the work of the Commission on Genetic Resources for Food and Agriculture (Commission), its Ad Hoc Intergovernmental Technical Working Group on Aquatic Genetic Resources for Food and Agriculture (Working Group), the Committee on Fisheries (COFI), its Sub-Committee on Aquaculture (COFI:AQ) and its Advisory Working Group on Aquatic Genetic Resources and Technologies (AWG), plays an important role in the promotion of the responsible use, management, development and conservation of aquatic genetic resources for food and agriculture (AqGR).

2. The Commission oversees and guides the preparation of global assessments of genetic resources for food and agriculture. To date, two global assessments have been prepared for (crop) plant (1997; 2009), two for (livestock) animal (2007; 2015) and one for forest genetic resources (2013). 2018 will see the finalization and launch of two additional global assessments, *The State of the World's Biodiversity for Food and Agriculture* and *The State of the World's Aquatic Genetic Resources for Food and Agriculture* (Report)¹. All the assessments have in common that they have been prepared through participatory, country-driven processes. In all cases, these processes have facilitated the work of the Commission to translate identified gaps and challenges into national, regional and international strategic priorities.

3. The Commission's Multi-Year Programme of Work (MYPOW) foresees, as a major output/milestone for its 18th Regular Session, the "Follow-up to *The State of the World's Aquatic Genetic Resources for Food and Agriculture*". This allows the Commission to consider, at its forthcoming 17th Regular Session, the type of follow-up it envisages for its 18th Session, as well as possible intersessional activities that should be undertaken.

4. The identification of "key messages" formed an essential part of the preparation of the Report. It is now essential to seize the opportunity of the publication of the Report to consider the need for action to respond to these key messages and to agree on strategic priorities for the sustainable use, development and conservation of AqGR. The Working Group may also wish to consider mechanisms that will allow the Commission to monitor the status and trends of farmed aquatic genetic resources and their wild relatives within national jurisdiction in the future and to oversee, through the Members of the Commission and the Working Group, the implementation of agreed strategic priority actions.

5. This document recapitulates briefly the purpose of the Report and of possible follow-up actions in response to it. It identifies, based on the revised draft Report, specific areas in which further action by the Commission could enhance and strengthen the sustainable use and conservation of AqGR. The document finally proposes options to develop a strategic response to the Report.

II. RATIONALE OF THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE AND FOLLOW-UP

6. For the first time, the Report will provide a comprehensive global assessment of, *inter alia*, the status, use and exchange, drivers and trends, conservation efforts, stakeholders, policies and legislation, research, education, training and extension, and international collaboration relevant to AqGR. It is acknowledged that this report limits its coverage to AqGR that are cultured, and their wild relatives, within national jurisdictions.

7. Despite the crucial role of AqGR in contributing to global food security and sustainable livelihoods, prior information available on AqGR tended to be scattered, was generally incomplete, and the lack of standardization resulted in poorly accessible data and information. The Report is a first and important step towards analysing, in a coherent and consistent manner, gaps in reporting aquaculture and fisheries data to FAO and in the identification of knowledge gaps regarding aquatic genetic variation at levels below that of the species.

8. The Report indicates the growing recognition that genetic information will be increasingly important to support sustainable aquaculture and fisheries. It shows that there is also an increasing body of information on genetic resources for aquaculture and on genetically distinct fish stocks and strains, and an increasing need for more information to underpin sound management. At the same time, the

¹ CGRFA/WG-AqGR-2/18/Inf.2.

technical difficulty and costs associated with collecting information on genetic diversity need to be recognized. The additional burden on the capacity needs of developing countries must also be taken into account.

9. Improved knowledge of the status and trends of the use and conservation of AqGR will 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 publication of the Report provides an opportunity to define strategic priorities with the aim to enhance the contribution of AqGR to food security and rural development.

10. The revised draft Report gives evidence of the largely untapped potential of the world's aquaculture sector to increase its production and efficiency through sustainable use, management, development and conservation of AqGR. The revised draft Report documents that although several genetic technologies are being used to improve production and profitability in aquaculture, the wild-type, i.e. those plants and animals with no deliberate genetic improvement or domestication, is the most often used farmed-type. The dependence of aquaculture on wild relatives, especially for broodstock, stresses the importance of habitat conservation and the management of wild populations and non-native species.

11. Estimates have been made that if all farmed aquatic species were effectively managed through appropriate breeding programmes, e.g. selective breeding, the expected increased demand for seafood could be met by aquaculture with very little extra land, feed or other resources. The revised draft Report further documents that for most farmed aquatic species, production is expected to increase over the next ten years. Appropriate practices, e.g. selective breeding, may help and, in fact, are urgently needed to meet this expectation in a sustainable manner and therefore deserve greater attention.

12. The Report also documents that policies and information systems generally exist for fisheries and aquaculture, but are not usually focused at the genetic level. Unlike terrestrial agriculture that over the millennia has developed recognized breeds and varieties of livestock and crops, there are few distinguished strains used in aquaculture, with these generally being poorly defined and described. Thus, countries need assistance in refining policies and developing appropriate information systems that address and monitor the diversity of farmed aquatic species at the level below that of the species, i.e. farmed types².

13. With the achievement of this important milestone, the finalization of the Report, the process should not stop. Instead, the momentum should be used to address, in a strategic and sustainable manner, the opportunities, gaps and needs.

III. OVERALL STRUCTURE AND ORGANIZATION OF STRATEGIC PRIORITIES ON AQUATIC GENETIC RESOURCES

14. Strategic priorities on AqGR should propose key measures to address the conservation, development and sustainable use of AqGR with a view to make a significant contribution to international efforts to promote food security and sustainable development and alleviate poverty, in line with the Sustainable Development Goals, the FAO Code of Conduct for Responsible Fisheries (CCRF) and other international commitments, instruments or frameworks, such as the ecosystem approach to fisheries and to aquaculture.

Overall structure

15. The structure of the Strategic Priorities could follow the structure of the Report, as reflected in Table 1.

Objectives

16. Strategic priorities could pursue various objectives, including:

² "Farmed type" is defined as farmed aquatic organisms that could be a strain, hybrid, triploid, monosex group, other genetically altered form, cultivar or variety (see CGRFA/WG-AqGR-2/18/Inf.2, p.31).

- to improve the identification, characterization and description of aquatic genetic resources, and their monitoring;
- to promote access to, and sharing of, information on AqGR at regional and national levels;
- to promote the sustainable use and development of aquatic genetic resources, for food security, sustainable agriculture, and human well-being in all countries;
- to ensure the conservation of the important aquatic genetic resource diversity, for present and future generations;
- to protect critical habitats for AqGR and to reverse the decline in many wild relatives of farmed aquatic species, including through invasive species, and to promote ecosystem and eco-regional approaches as efficient means of promoting sustainable use and management of AqGR;
- to promote access to and the fair and equitable sharing of benefits arising from the use of AqGR;
- to assist countries and relevant institutions to establish, implement and regularly review national priorities, strategies and priorities for the sustainable use, development and conservation of aquatic genetic resources;
- to strengthen national programmes and enhance institutional capacity – in particular, in developing countries and countries with economies in transition – and develop relevant regional and international programmes; such programmes should include education, research and training to address the characterization, inventory, monitoring, conservation, development and sustainable use of AqGR.

Principles

17. The strategic priorities for AqGR could also formulate key principles which would probably be derived from or be aligned with existing instruments, in particular, the FAO CCRF, the SDGs and the Convention on Biological Diversity. The strategic priorities should be based on the recognition that countries are fundamentally interdependent with respect to AqGR, and that substantial international cooperation is of mutual benefit. They would assist countries, as appropriate, to integrate AqGR conservation and management needs into wider national policies and programmes and frameworks of action at national, regional and global levels.

Actions

18. The strategic priorities could also include, or provide for, the formulation at a later stage of specific actions governments agree to undertake at national, regional and/or international levels to meet the objectives set out in the strategic priorities. These actions would follow logically from the key findings, conclusions and recommendations of the Report.

19. Ideally, the following information could be given for each of the main areas of activity:

- *Rationale for the action*: statement of the problem; summary of relevant conclusions from the Report; reference to relevant Sustainable Development Goals and sections of the FAO CCRF;
- *Activity*: specific objectives; approach; statement of assumptions; sub-actions; and expected benefits;
- *Implementation of the action*: priority level and resource allocation; and list of indicative projects and costings.

Policy recommendations

20. Taking into account the scope of the Report, the strategic priorities could also provide policy recommendations required, in conjunction with the actions, to meet the objectives of the strategic priorities. Policy recommendations may be required if project and programme actions aimed at promoting the conservation and sustainable use of AqGR are considered to be successful only if the

external policy environment is favourable. Policy recommendations would be drawn up on the basis of the conclusions of the Report, inputs from the country reports and regional and sub-regional meetings, and other inputs.

IV. POSSIBLE STRATEGIC PRIORITY ACTIONS

21. The revised draft Report identifies several opportunities, gaps and needs that could be addressed by strategic priority actions on AqGR. As the revised draft Report has not yet been finalized, the list of potential strategic priority actions is not exhaustive. Further analysis and synthesis of country reports, Thematic Background Papers and comments from the review process will need to be undertaken to fully develop the strategic priority actions. In addition, it may be useful to consult governments in writing on draft strategic priority actions and/or to hold face-to-face consultations at regional or sub-regional levels, subject to available resources and if possible back-to-back with other relevant meetings, to allow the regions to review potential strategic priority actions and, as appropriate, formulate regional action plans.

Chapter of Report	Potential strategic priority actions
Chapter 2: Use and exchange	<ul style="list-style-type: none"> • Development of a database on AqGR and wild relatives based on country reports; • Development of a more complete information and monitoring system on AqGR; • Standardize terminology on AqGR and promote it widely; • Promote wider use of and capacity in (see Ch. 8 below) genetic technologies for the diversification (e.g. development of new strains), and improvement of AqGR; • Review the ASFIS list for inclusion of new species and farmed types, as appropriate; • Review the role of public/private partnerships in the development of genetic improvement programmes; • Review means for protect critical habitat of wild relatives;
Chapter 3: Drivers and trends	<ul style="list-style-type: none"> • Develop means to intensify aquaculture using appropriate AqGR; • Adapt governance schemes to address AqGR management and protection; • Adapt governance schemes to reduce introductions and impacts of invasive species; • Develop mechanisms to promote AqGR and genetic technologies to enable aquaculture adapt to the impacts of climate change;
Chapters 4 and 5: <i>In situ</i> and <i>ex situ</i> conservation	<ul style="list-style-type: none"> • Develop guidelines for the improved use of <i>in situ</i> and <i>ex situ</i> conservation, including fishery management, of AqGR and wild relatives; • Examine the role of on farm <i>in situ</i> collections for the conservation of AqGR;
Chapter 6: Stakeholders	<ul style="list-style-type: none"> • Work to further clarify the identification and roles of the many stakeholders in the conservation, management and use of AqGR; • Raise awareness about the role of AqGR for the emerging aquaculture sector and its sustainable management;
Chapter 7: National policies and legislation	<ul style="list-style-type: none"> • Review national policies on AqGR to promote policies that facilitate the appropriate management of AqGR, especially at the genetic level;

	<ul style="list-style-type: none"> • Develop more fully and promote the new FAO Framework of essential elements for the management and development of AqGR³;
Chapter 8: Research, education, training and extension	<ul style="list-style-type: none"> • Develop capacity in characterization, monitoring, genetic improvement and conservation of AqGR; • Develop communication tools to promote benefits of AqGR and its sustainable management;
Chapter 9: International collaboration	<ul style="list-style-type: none"> • Examine the CCRF and other international instruments for opportunities to incorporate modern knowledge on AqGR and technologies; • Review the role of regional and international networks with a view to establishing a network dedicated to the improved use of AqGR in aquaculture and the management of wild relatives.

V. INTERSESSIONAL CONSULTATIONS

22. The Working Group may also wish to advise the Commission as to consultations and other activities it may consider necessary to facilitate its deliberations on strategic priorities for action on AqGR at the Commission's 18th Regular Session in 2021. The Working Group could request the Commission to be given the opportunity to further develop strategic priorities on AqGR, in close collaboration with the COFI:AQ and the COFI AWG, with a view to submit to the Commission's 18th Regular Session, a set of recommended strategic priorities, for its consideration.

VI. GUIDANCE SOUGHT

23. The Working Group may wish to:

- Review and revise, as appropriate, the overall structure of the strategic priorities on AqGR as well as the potential strategic priority actions;

The Working Group may wish to recommend to the Commission to:

- hold regional consultations on strategic priorities to AqGR, subject to the availability of the necessary funds;
- consider mechanisms that will allow the Commission to monitor the status and trends of farmed aquatic genetic resources and their wild relatives within national jurisdiction in the future and to oversee through the Members of the Commission and the Working Group the implementation of agreed strategic priority actions; and
- invite the Working Group to further review and revise, as appropriate, the strategic priority actions on AqGR, in close collaboration with the COFI:AQ and the COFI AWG, and taking into account inputs received from the regional consultations, with a view to submit to the Commission a set of recommended strategic priority actions, for consideration at its 18th Regular Session.

³ FAO. In press. *Aquaculture development. 9. Development of Aquatic Genetic Resources; a framework of essential criteria*. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 9. Rome, Italy.