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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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STATUS OF IMPLEMENTATION OF THE GLOBAL PLAN OF ACTION FOR THE CONSERVATION, SUSTAINABLE USE AND DEVELOPMENT OF AQUATIC GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. The Global Plan of Action for the Conservation, Sustainable Use and Development of Aquatic Genetic Resources for Food and Agriculture¹ (Global Plan of Action) was adopted by the 168th Session of the FAO Council in December 2021.² The Commission, at its last session, recommended that FAO report on its activities in support of the implementation of the Global Plan of Action to every session of the Working Group and the Commission.³ The FAO Council endorsed the Commission's recommendations.⁴

2. In response to the Commission's request, this document summarizes the activities FAO has undertaken since July 2023, in collaboration with its partners, in support of the implementation of the Global Plan of Action and seeks the Commission's guidance as to future activities.

II. FAO ACTIVITIES FACILITATING THE IMPLEMENTATION OF THE GLOBAL PLAN OF ACTION

3. The Commission, at its last session, welcomed the adoption and publication of the Global Plan of Action and expressed its appreciation for the activities undertaken by FAO in support of its implementation. It recommended that FAO continue supporting the implementation of the Global Plan of Action.⁵

4. The Committee on Fisheries (COFI) at its Thirty-sixth Session, highlighted FAO's contribution to information sharing on aquatic biodiversity in order to support Members' implementation of environmental instruments, including the Global Plan of Action.⁶

5. During the reporting period, FAO continued to distribute the Global Plan of Action and promote its implementation. It promoted the Global Plan of Action at various aquaculture-related events, including:

- Aquaculture Africa 2023, held in November 2023 in Lusaka, Zambia;
- the inception workshop on the "Technical Cooperation Programme on development of a national strategy for the conservation, sustainable use and development of Indonesia's aquatic genetic resources for aquaculture", held in October 2023 in Jakarta, Indonesia;
- the regional workshop on "The application of AquaGRIS: the FAO global information system to build national registries of aquatic genetic resources", held in June 2024 in Bangkok, Thailand;
- the launch of AquaGRIS, Rome, Italy, September 2024;
- Aquaculture Africa 2024, held in November 2024 in Hammamet, Tunisia; and
- the Third International Symposium of Tropical Aquaculture, held in December 2024, in Santa Cruz, Bolivia.

Guidelines for Sustainable Aquaculture

6. FAO also contributed to the dissemination and implementation of the Global Plan of Action through the Guidelines for Sustainable Aquaculture (GSA) approved and endorsed by the Twelfth Session of the COFI Sub-Committee on Aquaculture⁷ and adopted by COFI at its Thirty-sixth Session.⁶ The GSA aim to promote sustainable aquaculture, including by providing guidance on the conservation of aquatic biodiversity, genetic resources management and sustainable seed supply. They

¹ FAO. 2022. *Global Plan of Action for the Conservation, Sustainable Use and Development of Aquatic Genetic Resources for Food and Agriculture*. Commission on Genetic Resources for Food and Agriculture. Rome. <https://doi.org/10.4060/cb9905en>

² CL 168/REP, paragraph 38(a).

³ CGRFA-19/23/Report, paragraph 121.

⁴ CL 174/REP, paragraph 33.

⁵ CGRFA-19/23/Report, paragraph 112.

⁶ CGRFA-20/25/6.2/Inf.6.

⁷ CGRFA-20/25/6.2/Inf.7

reference the Sustainable Development Goals (SDGs), the Kunming-Montreal Global Biodiversity Framework⁸ of the Convention on Biological Diversity and the Global Plan of Action as key international instruments in this context.⁹

7. The GSA recommend that “states and relevant stakeholders should mainstream conservation and effective management of AqGR and biodiversity in aquaculture and in the wild by implementing the initiatives established in international instruments including the Global Plan of Action”. Moreover, the GSA incorporate key priorities and actions derived from the Global Plan of Action, including that “states and relevant stakeholders develop national registries of AqGR using tools such as AquaGRIS, raise awareness of the importance of monitoring and managing the genetic status of farmed types, including through the provision of genetic monitoring tools, and promote long-term selective breeding programmes”.

Glossary of terms for the description of aquatic genetic resources for food and agriculture

8. The Commission, at its last session, recommended that FAO finalize the AqGR glossary and standardize AqGR-related definitions across FAO term directories and thesauri. It noted that further training and awareness raising will be needed before the new terminology is accepted and used.¹⁰ In response to this request and in support of Strategic Priority 1.1 (promote the globally standardized use of terminology) of the Global Plan of Action, FAO has coordinated the development, validation and finalization of a standardized list of AqGR-related terminology.

9. The finalized list of terms is contained in the document *Glossary of terms for the description of aquatic genetic resources for food and agriculture*,¹¹ for information of the Commission. The glossary includes 80 terms that are essential for the description of AqGR, including terms that are used for the description of farmed types and genetic stocks in the FAO Aquatic Genetic Resources Information System (AquaGRIS). In the development of the glossary, due regard has been paid to existing definitions, including those already developed and used by FAO and contained in the FAO Term Portal, and to definitions commonly used in the scientific literature. To the extent possible, terms used in FAO Term Portal will be harmonized with those used in the glossary. The glossary will be published via an AGROVOC thesaurus. AGROVOC is a multilingual and controlled vocabulary designed to cover concepts and terminology under FAO’s areas of interest and is thus an appropriate vehicle for publication. The glossary will also be made available as a stand-alone document on FAO’s website and terminology used in AquaGRIS will be linked to the glossary allowing users to rapidly access the definitions of key terms.

AquaGRIS

10. The Commission, at its last session, welcomed the development of AquaGRIS and recommended that FAO finalize the development of the full version, taking into account the importance of the interoperability of AquaGRIS with other operational information systems related to AqGR, in order to avoid duplication of efforts and to facilitate the smooth exchange of information.¹²

11. AquaGRIS provides information on the status of conservation, sustainable use and development of aquatic biodiversity used in aquaculture, particularly farmed types and wild stocks of cultured species. Users of the publicly accessible data-dissemination user interface can review and analyse the status of management of these key components of biodiversity at national, regional and global levels and by species or taxonomic grouping. The information in AquaGRIS is based on data collected at national level by experts, coordinated and validated through National Focal Points. More in-depth information can be accessed through Country Fact Sheets, Species Fact Sheets and specific user defined searches, linking through to specific national records for each species and their farmed types and genetic stocks of wild relatives. More detailed information on AquaGRIS is given in the

⁸ CBD/COP/DEC/15/4.

⁹ CGRFA-20/25/6.2/Inf.6.

¹⁰ CGRFA-19/23/Report, paragraph 115.

¹¹ CGRFA-20/25/6.2/Inf.1.

¹² CGRFA-19/23/Report, paragraph 113.

document *The global information system for aquatic genetic resources for food and agriculture (AquaGRIS)*.¹³

12. Providing information to AquaGRIS is an important and valuable first step Members should take in the implementation of the Global Plan of Action. AquaGRIS allows Members to create national registries of AqGR; such registries are fundamental for the development of national strategies for the management of AqGR and, thus, the implementation of the Global Plan of Action. Following the release of a prototype of AquaGRIS in 2022, the full version of the information system was made available to Members in June 2024 prior to its formal launch in September 2024.¹⁴

13. The Intergovernmental Technical Working Group on Aquatic Genetic Resources for Food and Agriculture (Working Group), at its Fifth Session, noted that AquaGRIS provides a critical source of information on the status of conservation, sustainable use and development of AqGR, and recommended that Members use AquaGRIS to create national AqGR registries. It further recommended that the Commission invite donors to support countries in the creation of national registries and that FAO continue to host, maintain and oversee the further development of AquaGRIS, stressing the need for stable, reliable and regular funding for this activity.¹⁵

14. The Working Group further emphasized the importance of strengthening the capacity of National Focal Points to make use of AquaGRIS and recommended that FAO continue supporting countries in the use of AquaGRIS, through training, technical support and guidance.¹⁶ The Working Group also recommended that the Commission seek its advice as to the feasibility of using AquaGRIS for the collection of data related to SDG indicator 2.5.1.b.¹⁷

15. Following the finalization of the indicators for monitoring the implementation of the Global Plan of Action,¹⁸ the data-dissemination user interface of AquaGRIS will be upgraded to allow for the generation of resource indicator reports that will be instrumental in monitoring progress in the implementation of the Global Plan of Action.

Draft guidelines on genetic management in stocking programmes for aquatic species and draft practical guide on Ex situ in vitro gene banking of aquatic genetic resources

16. The Commission, at its last session, welcomed the development of the *Draft guidelines on genetic management in stocking programmes for aquatic species* and the draft practical guide on *Ex situ in vitro gene banking of aquatic genetic resources*, noting that they should be complementary to and avoid duplication of other FAO documents or databases. It requested the Working Group to review the final drafts.¹⁹

17. In support of Strategic Priorities 2.1 (identify wild relatives most at risk), 2.3 (incorporate *in situ* conservation into management plans), 2.4 (promote *ex situ* conservation) and 2.5 (improve sustainable use of domesticated farmed types) of the Global Plan of Action, FAO has finalized the *Draft guidelines on genetic management in stocking programmes for aquatic species*,²⁰ incorporating feedback from the Working Group. The guidelines identify best practices and provide practical genetics-related advice to hatchery, fishery and resource managers on how to responsibly and sustainably use AqGR in stocking programmes for recreation, ecosystem rehabilitation and conservation.

18. In further support of Strategic Priority 2.4 of the Global Plan of Action, FAO has also finalized the draft practical guide on *Ex situ in vitro gene banking of aquatic genetic resources*.²¹ The practical guide has been prepared with input from experts and represents the current state of the art and the best practices for the application of *ex situ in vitro* gene banking in cultured aquatic species,

¹³ CGRFA-20/25/6.2/Inf.2

¹⁴ <https://www.fao.org/fishery/aquagris/en>

¹⁵ CGRFA-20/25/6.1, paragraphs 20 and 24.

¹⁶ CGRFA-20/25/6.1, paragraph 21.

¹⁷ CGRFA-20/25/6.1, paragraph 23.

¹⁸ CGRFA-20/25/6.2/Inf.5.

¹⁹ CGRFA-19/23/Report, paragraph 116.

²⁰ CGRFA-20/25/6.2/Inf.3

²¹ CGRFA-20/25/6.2/Inf.4

with a focus on freshwater and marine finfish, crustaceans, molluscs, and micro- and macroalgae. The practical guide captures multiple aspects of the gene-banking process and targets stakeholders engaging in the different steps of the process. The target stakeholders are policymakers, resource managers, producers and researchers.

Capacity development and knowledge sharing

19. The Commission, at its last session, welcomed the development of online training courses in support of the implementation of the Global Plan of Action.²²

20. In support of Strategic Priority 3.2 (promote greater adoption of long term selective breeding programmes) of the Global Plan of Action, FAO, in partnership with the Norwegian Institute of Food, Fisheries and Aquaculture Research (Nofima), has developed and finalized an online training course entitled “Aquaculture breeding and genetics”.²³ The online course is designed to support the responsible implementation of breeding programmes for the sustainable improvement of farmed types in aquaculture. The course is freely accessible and is addressed to hatchery and resource managers. Upon completion of the 18 training modules, users can take a final exam and acquire a certificate confirming the successful completion of the training programme.

21. In further support of Strategic Priority 3.2, and as part of its awareness-raising efforts, FAO also finalized and published the full version of three case studies illustrating critical issues of AqGR management. The case studies cover:

- a. *Genetic management of Indian major carps* illustrating the issues that can arise when genetic management is not actively considered in the development of seed supply systems.²⁴
- b. *Lessons from two decades of tilapia genetic improvement in Africa* illustrating the challenges of developing breeding programmes in a developing country context.²⁵
- c. *Proactive approach proved key to survival for the Australasian Pacific oyster industry* illustrating the benefits of a proactive industry-driven breeding programme.²⁶

22. FAO, in cooperation with the Hungarian University of Agriculture and Life Sciences (MATE), held an expert workshop on “Improvement of seed supply for small-scale inland aquaculture”, Szarvas, Hungary, in March 2024. In support of Strategic Priorities 3.1 (improve understanding of genetic improvement programmes), 3.2 (promote greater adoption of long-term selective breeding programmes), 3.3 (establish national and/or regional genetic improvement strategies) and 3.4 (raise capacity of stakeholders to develop improved farmed types) of the Global Plan of Action, the expert workshop recommended the development of guidelines for the application and uptake of breeding programmes for key aquaculture species and of a policy brief addressing capacity building in support of selective breeding programmes for lower-value species critical to food security in developing countries.

23. In response to the recommendations from the expert workshop, the Working Group recommended that the Commission invite FAO to prepare guidelines for policymakers to promote the development of breeding programmes for lower-value species in developing countries, applicable to key species in all regions and incorporating guidance on governance of and business models for breeding programmes, and that FAO develop a policy brief to support the development of capacity to design and implement selective breeding programmes in aquaculture.

²² CGRFA-19/23/Report, paragraph 116.

²³ <https://360.articulate.com/review/content/01918f45-1a1b-427a-b180-154a9454c411/review>

²⁴ Lal, K.K., Kumar, A., Kumar, S., Charan, R., Mohindra, V., Lucente, D., Singh, R.K., *et al.* 2023. *Genetic management of Indian major carps – Genetics in aquaculture: a case study*. Rome, FAO. <https://doi.org/10.4060/cc5193en>

²⁵ FAO. 2023. *Lessons from two decades of tilapia genetic improvement in Africa – Genetics in aquaculture. A case study*. Rome. <https://doi.org/10.4060/cc4618en>

²⁶ FAO. 2023. *Proactive approach proved key to survival for the Australian Pacific oyster industry – Genetics in aquaculture. A case study*. Rome. <https://doi.org/10.4060/cc4389en>

III. FAO SUPPORT TO COUNTRIES

24. During the reporting period, FAO initiated technical support activities in two countries with the aim of implementing specific elements of the Global Plan of Action.
25. Through the Technical Cooperation Project (TCP) *Technical assistance in developing a national strategy for sustainable management of aquatic genetic resources*, FAO provides support to the Ministry of Marine Affairs and Fisheries of Indonesia. Following an inception workshop held in October 2023, a workshop on the implementation of the Global Plan of Action and an AquaGRIS training workshop for stakeholders were held in October 2024 in Jakarta, Indonesia. The project is expected to conclude with the completion of a national strategy by the end of 2025.
26. FAO has continued to support a Chilean project *Development of a Strategy to implement the Global Plan of Action for the Conservation, Sustainable Use and Development of Aquatic Genetic Resources for Food and Agriculture*, funded by the Government of Chile.
27. FAO continues to support the use of AquaGRIS to create national registries of AqGR that will then also serve as a global database and facilitate the preparation of periodical state of the world reports.²⁷

IV. MONITORING THE IMPLEMENTATION OF THE GLOBAL PLAN OF ACTION

28. At its Eighteenth Regular Session, the Commission highlighted the need for the development of quantifiable indicators for monitoring the Global Plan of Action and requested that these be incorporated into AquaGRIS, as appropriate.²⁸ In response to this request FAO developed draft indicators, which were reviewed by the Fourth Session of the Working Group.
29. At its Nineteenth Regular Session, the Commission took note of the draft indicators, and the timeline proposed for monitoring the implementation of the Global Plan of Action. It recommended that FAO hold further consultations on them, including with the COFI Advisory Working Group on Aquatic Genetic Resources and Technologies, and with National Focal Points, and proposed testing by National Focal Points to address difficulties, inconsistencies and ambiguities, with a view to providing the revised indicators and timeline to the next sessions of the Working Group and the Commission, for their consideration.²⁹
30. Effective monitoring of the implementation of the Global Plan of Action requires two sets of indicators: resource indicators and process indicators.
- Resource indicators are generally quantitative and identify the status of the conservation, sustainable use and development of AqGR at national, regional and global levels. Countries will report on the status of genetic resources (i.e. farmed types and wild stocks of AqGR) through AquaGRIS.
 - Process indicators are more subjective and relate to national, regional and global processes concerning the management of AqGR. Countries will be invited to report on them by completing a separate process indicator questionnaire.
31. The Working Group, at its Fifth Session, welcomed the dual monitoring framework and recommended its finalization. It further recommended the addition or adaptation of questions in AquaGRIS to: (i) enable creation of indicators to quantify germplasm stored in *ex situ* gene banks for species, farmed types and genetic stocks; and (ii) develop a resource indicator to quantify the extent of characterization of genetic resources.³⁰
32. The finalized dual monitoring framework is described in detail in the document *Monitoring the implementation of the Global Plan of Action for the Conservation, Sustainable Use and*

²⁷ CGRFA-20/25/6.3.

²⁸ CGRFA-18/21/Report, paragraph 59.

²⁹ CGRFA-19/23/Report, paragraph 119.

³⁰ CGRFA-20/25/6.1, paragraph 26 and 27.

*Development of Aquatic Genetic Resources for Food and Agriculture*³¹ for information of the Commission. The Working Group recommended that National Focal Points use the framework for monitoring and reporting on the status of AqGR and the implementation of the Global Plan of Action.³²

33. The Working Group deferred the decision on the frequency of updating AquaGRIS, and thus the generation of resource indicator reports, until 2027 when Members will have more experience with the workload involved with entering and updating data in AquaGRIS. The Working Group recommended that the process indicator questionnaire should be distributed for completion to National Focal Points every five years.³³

V. GUIDANCE SOUGHT

34. The Commission may wish to:

- (i) take note of the actions taken by FAO to facilitate and support the implementation of the Global Plan of Action;
- (ii) recommend that countries take further action to implement the Global Plan of Action and to create national registries of AqGR, and recommend that FAO continue supporting countries in the use of AquaGRIS;
- (iii) welcome the GSA and note the key role of the Global Plan of Action in the conservation of aquatic biodiversity, genetic resources management and sustainable seed supply in aquaculture;
- (iv) welcome the finalization of the glossary of terms for the description of AqGR and recommend its publication and dissemination;
- (v) welcome the finalization and recommend the publication of the *Guidelines on genetic management in stocking programmes for aquatic species* and the practical guide on *Ex situ in vitro gene banking of aquatic genetic resources*;
- (vi) take note of the preparation of: (i) guidelines for policymakers to promote the development of breeding programmes for lower-value species in developing countries; and (ii) a policy brief to support the development of capacity to design and implement selective breeding programmes in aquaculture; and
- (vii) invite international organizations, partners and donors to support the implementation of the Global Plan of Action.

³¹ CGRFA-20/25/6.2/Inf.5.

³² CGRFA-20/25/6.1, paragraph 29.

³³ CGRFA-20/25/6.1, paragraphs 27 and 28.