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Investing in rural people

President's Report on a Proposed Grant under the Global/Regional Grants Window to WorldFish for Advancing Climate-smart Aquaculture Technologies

Note to Executive Board representatives

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For: Approval

Recommendation for approval

The Executive Board is invited to approve the recommendation for the proposed grant as contained in paragraph 17.

President's Report on a Proposed Grant under the Global/Regional Grants Window to WorldFish for Advancing Climate-smart Aquaculture Technologies

I. Background and compliance with IFAD Policy for Grant Financing

1. This grant is presented within the agriculture for rural development priority area of the Strategic Guidance Note for IFAD Grants 2018 in order to increase sustainable production and productivity for food security, nutrition and income generation.
2. The proposed programme is in line with the goal and objectives of the IFAD Policy for Grant Financing (2015).¹ Its objectives are clearly aligned with the key areas of focus within the agriculture for rural development priority area: (a) strengthening capacities of smallholder farmers to adapt to climate change and deal with the risks associated to it; and (b) increasing water management efficiency, mainly in arid and semi-arid regions. The proposed programme is also consistent with the priorities of IFAD's Policy for Grant Financing by: (i) promoting innovative activities and developing innovative technologies and approaches in support of IFAD's target groups; (ii) strengthening the capacity of partner institutions to deliver a range of services in support of poor rural people; and (iii) increasing human capacities through sharing lessons learned, knowledge management and dissemination of information on issues related to rural poverty reduction to stakeholders across regions.
3. Globally, aquaculture provides more than 23 million direct and indirect full-time jobs, with women playing a major role in farmed fish value chains. Aquaculture is emerging as an important segment of many economies in Africa, including Egypt. According to recent value-chain studies, Egyptian aquaculture provides the equivalent of 19.3 full-time jobs per every 100 tons of farmed fish produced, which amounts to annual employment for over 580,000 individuals. From 2000 to 2015, Egyptian aquaculture production more than tripled to over 1.17 million tons per year. As a result, fish farming now provides approximately 65 per cent of the fish eaten by Egyptians, and tilapia production constitutes 79 per cent of Egypt's total aquaculture production.
4. In addition, Eritrea and Ethiopia have great untapped potential for aquaculture development. In Ethiopia, the aquaculture sector remains dominated by about 1,300 small-scale semi-subsistence tilapia farmers who own small ponds of between 100 m² and 300 m². Most of the country's smallholders combine pond aquaculture with irrigated cropping or horticulture in riverine or littoral areas. Development of this sector has been constrained by limited availability of quality fish feed and seed, lack of technical knowledge and limited investment. Recently however, Ethiopia's Government announced plans to scale up the country's smallholder integrated aquaculture-agriculture systems through its National Aquaculture Development Strategy. Following recurring droughts and sharp declines in staple crop production, the Government has highlighted the potential of aquaculture for strengthening rural food security and alleviating poverty. The main

¹ See EB 2015/114/R.2/Rev.1.

objective of this strategy is to establish a well-defined regulatory framework that facilitates pro-poor development and attracts public and private investment in input-supply markets.

5. Given the significance of water use in arid and semi-arid areas in Egypt, Eritrea and Ethiopia, and the limited development of input-supply markets, climate-smart farming systems are needed to improve the efficiency of pro-poor rural development. Such technologies include genetically improved fish seed, quality feeds and natural resources such as cage culture and improved ponds, which allow poor rural farmers to intensify production at low cost.

II. The proposed programme

6. The overall goal of this programme is to achieve economically vibrant and climate-smart sustainable increases in fish production and productivity for food security, nutrition, income generation and livelihood improvement.
7. Its objectives are to: (i) increase productivity through the development and adoption of water use-efficient and cost-effective systems such as the improved pond raceway system for arid areas and other water-deficient conditions; (ii) lower production costs of fish farming through improved fish feed formulation and feeding practices; (iii) enhance knowledge and skills related to aquaculture technologies among fish farmers, national research institutions, extension agencies and other service providers; and (iv) enhance the nutrition of targeted households through campaigns for increased fish consumption and improved post-harvest practices.
8. The target group will be composed of: communities practicing aquaculture in arid areas and water-deficient conditions (especially women's and youth groups, and other private-sector aquaculture value chain actors); national aquaculture research institutions; and extension agencies and other service providers in the target countries. The grant is expected to enable at least 500 farmers to achieve at least a 40 per cent increase in productivity by adopting the improved pond aquaculture system.
9. The programme will be implemented over three years and will have the following components: (i) optimization and piloting of climate-smart arid-land aquaculture technologies and systems; (ii) capacity-building and scaling up of enterprises and support for developing pro-poor market linkages and value chains through scientific collaboration with national partners; and (iii) project management, monitoring and evaluation, and knowledge management.
10. The programme will develop aquaculture systems that optimize water-use efficiency as a prerequisite for successful tilapia farming in arid lands. Water-efficient strategies vary depending on the country and region. They may include harvesting of rainwater, integrating production systems with crops and livestock, and the exploitation of brackish, saline non-potable water or other water not suitable for agriculture. WorldFish has undertaken research and technology improvement for several systems, including an integrated aquaculture-agriculture system and an improved pond raceway aquaculture system. These systems enable the intensification of production, natural resources and nutrients such as productive pond water and mud as a crop fertilizer. They are easy to scale up and adapt in different areas depending on resource availability. Such technologies will help to expand aquaculture to new horizons, create employment opportunities for women and youth in remote rural communities, and improve rural livelihoods. Depending on country-specific needs, a floating improved pond raceway aquaculture system may be integrated into the system of small water bodies and lakes within both Ethiopia and Eritrea as an efficient way to produce fish from natural water bodies while providing the potential of simultaneously producing crops. The preliminary results of an initial test of tilapia farming using this system in Egypt indicated that the production system can improve utilization of land and water resources while

producing at least three times as much high-quality fish. Economic feasibility models of the production system will be evaluated and optimized.

11. At the Africa Aquaculture Research and Training Centre in Egypt, WorldFish will create a critical mass of expertise within the target countries and other African countries through training and demonstration of technologies. This value-chain approach will not only result in increased fish production, but will cascade across the entire aquaculture value chain, including seed and feed production, fish processing and marketing.
12. Farm, pond and hatchery productivity will be enhanced through improved access to quality inputs. Technological support will increase efficiencies in the production and dissemination of genetically improved quality fish seed. The lack of quality tilapia bloodstock – and therefore fish seed – is a major constraint to emerging aquaculture in Eritrea and Ethiopia.

III. Expected outcomes/outputs

13. The programme is expected to have the following outputs: (i) optimization and piloting of aquaculture technologies and systems; (ii) testing of water-efficient culture systems; (iii) formulation of high-quality fish feed through the efficient use of local feed ingredients; (iv) testing and utilization of genetically improved seed; (v) capacity-building in arid areas aquaculture; (vi) capacity-building of national aquaculture researchers and technicians; and (vii) support to curriculum development for national training institutions. Programme outcomes will include: (i) 1,000 farmers adapting improved pond aquaculture system (750 in Egypt, 150 in Ethiopia and 100 in Eritrea); (ii) local aquaculture experts and extension staff trained in best management practices (10 in each country); (iii) training of 30 post-harvest practitioners on best post-harvest handling and processing practices; and (iv) water-efficient culture systems scaled up for maximized water-use efficiency.

IV. Implementation arrangements

14. The programme will be implemented over 36 months in Egypt, Eritrea and Ethiopia. Each of these countries is at a different level of aquaculture development and has different needs. To ensure that each country benefits from the programme, a community-driven development approach will be undertaken, with modifications according to local conditions. The programme will work with community organizations through a participatory approach that allows different stakeholders to participate in all aspects of planning, design and implementation of programme activities, and will prioritize the concerns of women and youth. Private-sector actors will be encouraged to participate in decision making regarding programme implementation. In order to ensure sustainability, the interventions will be demand driven and beneficiaries will be given opportunities to pinpoint specific areas of need that require support. This will include decisions on whether to use novel breeds or undertake their own breeding programmes. A range of government agencies will also be consulted to ensure that the programme considers national needs and priorities.
15. There are no deviations from the standard procedures for financial reporting and audits.

V. Indicative programme costs and financing

16. The programme will cost US\$1,255,000, of which IFAD will contribute US\$1 million and WorldFish will provide US\$255,000 in the form of cash and in-kind contributions. A breakdown of the budget by component and financier is provided in table 1. Table 2 shows the programme costs by category of expenditure for IFAD funds and cofinancing.

Table 1
Costs by component and financier
 (Thousands of United States dollars)

<i>Components</i>	<i>IFAD</i>	<i>WorldFish</i>	<i>Total</i>
1. Optimization and piloting of climate-smart arid-land and brackish water aquaculture	318	71	389
2. Capacity-building and scaling up of enterprises	203	68	271
3. Project management, monitoring and evaluation, and knowledge management	386	116	502
4. Overhead and corporate services	93	-	93
Total	1 000	255	1 255

Table 2
Costs by expenditure category and financier
 (Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>WorldFish</i>	<i>Total</i>
1. Salaries and allowances	174	13	186
2. Operating costs	252	50	302
3. Consultancies	83	44	127
4. Travel and allowances	83	11	94
5. Equipment and materials	90	37	127
6. Goods, services and inputs	72	32	105
7. Workshops	30	10	41
8. Training	123	58	180
9. Management fees	73	-	73
10. Cost-sharing 2 per cent	20	-	20
Total	1 000	255	1 255

VI. Recommendation

17. I recommend that the Executive Board approve the proposed grant in terms of the following resolution:

RESOLVED: that the Fund, in order to finance, in part, Advancing Climate-smart Aquaculture Technologies, shall provide a grant of one million United States dollars (US\$1,000,000) to WorldFish for a three-year period upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

Gilbert F. Hougbo
 President

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	The project's overall goal is an economically vibrant and climate smart sustainable aquaculture for improved livelihoods of smallholder farmers.	Value addition (40% increase) Scale of resource use efficiency (50% increase in water productivity) Job creation (3500 jobs along the chain of which at least 30% women and 50% youth)	Project impact assessment	
Objectives	(i) Increase productivity through development and adoption of water-use efficient and cost- effective systems; (ii) Lower production costs of fish farms through improved fish feed formulation and feeding practices; (iii) Enhance knowledge and skills on aquaculture technologies among fish farmers, national research institutions, extension agencies and other service providers and; (iv) Enhance nutrition impacts of targeted households through increased fish consumption campaigns and improved post-harvest practices.	30% Increase in fish consumption among target groups	Impact assessment report Production statistics Consumer study	Project objectives aligned with national policy
Outcomes/O utputs	1000 farmers adapted the improved pond aquaculture systems (750 in Egypt, 150 in Ethiopia and 100 in Eritrea). Training of 45 local aquaculture expert and extension staff on BMP (10 in each project country) Training of 30 post-harvest practitioners on best harvest handling and processing	40% increase productivity through adopting improved systems. 30% increase fish consumption due to improve access to fish 1000 farms (represent 3000 household/16978 family members benefit from aquaculture). Improved engagement of women and youth in productive aquaculture (Women 30% and Youth 25%) Capacity of 3 national aquaculture institutions strengthened 3000 farmers receive BMP training to improve their knowledge and skills in	Programme reports Policy statements by regulatory authorities Production statistics	Cooperation with regulatory authorities National organization express interest in cooperation with project Smallholder farmers interested in diversification Producers continue to be interested in BMP training

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
	practices. Scaling of water efficient culture systems for maximise water use efficiency.	aquaculture technologies. Increase income of 500 traders and processors of which 30% are women (having an average 40% increase in sales volume). Collaboration enhanced between IFAD and regional/national partners in the field of aquaculture (18 meetings with national partners) States and the private sector show increased interest to invest in aquaculture (At least 6 new projects started in project countries)		
Key Activities by component	<p>Optimization and piloting of aquaculture technologies and systems</p> <ul style="list-style-type: none"> -Testing of water efficient culture systems -Formulation of quality fish feed through efficient use of local feed ingredient -Testing and utilization of genetically improved seed <p>Capacity-building for arid areas aquaculture</p> <ul style="list-style-type: none"> -Capacity-building of national aquaculture researchers and technicians. -Support curriculum development for national training institutions <p>Knowledge sharing and scaling M&E evaluation Knowledge management and enterprise sustainability</p>	<p>1000 farmers adopted efficient water systems</p> <p>500 farmers adopted low cost cottage feed formulation for at least part of production at end of programme.</p> <p>50 of SME feed manufactory adopted local material formula</p> <p>200 hatcheries using Genetically improved seed.</p> <p>At least 3 Policy briefs per country</p> <p>At least 3 Innovation Platform meetings per country</p> <p>10 national organizations received capacity building training</p> <p>7 of training course curriculum developed</p> <p>M&E strategy developed for the programme</p> <p>Knowledge management plan developed</p>	<p>Programme reports</p> <p>National statistics</p> <p>Policy briefs</p> <p>Programme impact assessment reports</p> <p>Innovation Platform reports</p>	<p>Producers adopt new practices</p> <p>Value chain actors adopt recommended practices</p>