



**REQUEST FOR CONSULTANT PROPOSAL**

**RFP #: MAT 2024 – CONSULTANT 06**

**International Aquaculture Genetics Expert**

**ISSUANCE DATE: Feb 12, 2024**

**LAST APPLICATION RECEIPT DATE: March 1, 2024, 5:00 PM EST USA**

**Components of this solicitation are as follows:**

**Appendix A:** Terms of Reference and Requirements

**Appendix B:** Instructions for Application and Review Process

**APPENDIX A:**

**Terms of Reference / Consultancy**

**Timeline and Reporting:**

Title or proposed position/work: **International Aquaculture Genetics Expert**

Location: Simara, Bara District, Nepal (remote and field work to be decided at contracting stage)

Reporting to: DCoP

Anticipated Start Date: March 2024

Anticipated End Date: July 2024

Consultancy Type: Individual or Firm

Contract type – initial contract of 40 days LOE with the possibility to extend.

**Background**

Nepal is a landlocked country ripe for investment in its growing aquaculture sector, with 5% of its total area occupied by different freshwater aquatic habitats, including rivers, lakes, reservoirs, swamps, ponds and irrigated paddy fields.<sup>1</sup> Only 2% of the available water resources are utilized for aquaculture production, but the environment is suitable for producing warm, temperate, and cold-water fish species across the country, offering many opportunities to increase both aquaculture production across the value chain and economic benefits for Nepalis.<sup>2</sup> Aquaculture appeared in Nepal in the 1950s, while capture fishing has existed for much longer. Nepal has 236 indigenous fish species and 16 exotic fish species, but aquaculture activities focus on seven types of carp, tilapia, pangasius catfish (pangas), and rainbow trout.<sup>3</sup> Aquaculture and fisheries production continues to grow at a rate of 17.1% and contributes to 2.47% of the

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<sup>1</sup> Jha, D.K. 2022. "Status of Fisheries and Aquaculture in Nepal." In: T. S. Pathan; A.R. Chourpagar; S.V. Rankhamb; R.S. Shaikh (eds.), *Fisheries, Ecology and Environment*, pp. 45- 68.

<sup>2</sup> Alok Dhakal et al. 2022. Hindawi, *Advances in Agriculture*, Volume 2022. Article ID 4206401

<sup>3</sup> Jha, D.K. 2022. "Status of Fisheries and Aquaculture in Nepal."

<sup>4</sup> Alok Dhakal et al. 2022. Hindawi, *Advances in Agriculture*.

<sup>5</sup> OECD-FAO Agricultural Outlook 2020-2029 & FAO. 2022. *The State of World Fisheries and Aquaculture 2022*.

nation's agricultural gross domestic product.<sup>4</sup> Average fish consumption per person in Nepal is approximately 2 kg per person (2020), much lower than the global average of 20.2 kg per person<sup>5</sup>. While fish consumption provides a nutritious protein source, the low average purchasing power of low contributing to low fish sales and production. Many farmers participate in the aquaculture sector, offering employment and business opportunities across genders, age segments, and social groups.

The anticipated United States Department of Agriculture (USDA) Food for Progress (FFPr) project in Nepal will leverage local, regional, and international technical expertise in aquaculture and extensive stakeholder engagement to make lasting change in Nepal aquaculture productivity, food safety, aquaculture marketability, nutritional awareness, enabling environment, and ultimately, trade.

Under Lutheran World Relief (LWR)'s leadership, the project will support direct and indirect individuals by working with aquaculture farmers, farmer groups, cooperatives, associations, hatcheries, nurseries, transporters, buyers/traders, institutions, equipment providers, and government bodies across sixteen districts in five provinces of Koshi, Madhesh, Bagmati, Gandaki, and Lumbini.

The project focuses on two USDA FFPr's strategic objectives:

- To increase agricultural productivity of fish farmers through improving producer access to improved inputs, services, financing, and end-market linkages.
- To expand trade of aquaculture products locally including aquaculture inputs, services, live fingerlings, and processed fish through improving access to finance, quality inputs, and end markets.

The project will carry out five activities, in capacity building, training, inputs, financial services and market access.

### **Consultant Opportunity:**

Nepal's aquaculture industry features genetic diversity among carp, pangas, tilapia, and rainbow trout. Carp dominates production, followed by trout, pangas, and tilapia. These genetic stocks were initially introduced to Nepal in the mid-1940s. However, certain genetic strains exhibit slow growth rates and other biological characteristics, leading to suboptimal aquaculture productivity. The quality of seed in hatcheries has been deteriorating due to various factors, including inbreeding, inter-specific hybridization, negative selection, and improper broodstock management resulting in a low growth rate, high mortality, disease susceptibility and deformities. Since the management of broodstock has critical impacts on the health status and subsequent performance of seed, husbandry of broodstock is also considered to be very important to produce quality seed. To understand the level of such inbreeding, inter-specific hybridization, negative selection, and improper broodstock management.

LWR seeks to hire an aquaculture genetics expert in the concentration of fish genetics. To enhance the productivity of farming these and other potential species, it is desirable to introduce genetics that adapt to the Nepal climate and are suitable for inland aquaculture research and production activities. The Aquaculture Genetics Expert will work on enhancing and enriching the aquaculture species diversity by replenishing some of carp such as rohu, pangas seed from Bangladesh, genetically improved Tilapia already available in Nepal but also available regionally, trout germplasm from abroad.

LWR is seeking a qualified and experienced Aquaculture Genetics Expert. This consultancy will evaluate the performance of existing fish stocks and advancing the genetic improvement and breeding strategies of key aquaculture species. The expert will contribute to enhancing the productivity, disease resistance, and

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overall sustainability of aquaculture operation. He/she will also provide recommendations on the suitability of the existing aquaculture germplasm stock, replenish stock with genetically improved stock from reliable and certified sources. The expert will work closely with Fisheries Research stations of Nepal, and Government of Nepal for quarantine procedures and obtaining the permission of germplasm import for research activities and Deputy Chief of Party.

### **Expected Tasks**

Aquaculture Genetics Expert will be responsible for the following tasks:

- a) Conduct genetic assessments of aquaculture species including e.g. Rohu (*Labeo rohita*), Mrigal/Naini (*Cirrhinus mrigala*) and Catla/Bhakur (*Catla catla*) to identify areas for improvement.
- b) Collaborate with subject matter experts and stakeholders to ensure accuracy and reliability of fish genetical resources with detailed background information on the pedigree Fish, pangas from Vietnam, trout from USA, and rohupangas from Bangladesh.
- c) Develop breeding programs aimed at enhancing the genetic quality of target species.
- d) Contribute to the development of data management systems, and genetic evaluation tools.
- e) Offer expert advice on the management of genetic diversity, strategies to prevent inbreeding, and enhancing disease resistance in aquaculture stocks. Support with necessary actions and play an active role in importation of potential fish species such as Genetically Improved Farmed Tilapia (GIFT) from World.
- f) Ensure successful delivery of newly introduced aquaculture species.
- g) Mentor and build capacity of hatchery operators (public and private) in advanced aquaculture genetics techniques ensuring compliance with international standards and best practices in aquaculture genetics.

### **Deliverables**

The following deliverables are expected from Aquaculture Genetics Expert:

- a) Report on genetic quality of existing major carp (rohu, catla, mrigel), tilapia, pangas and trout.
- b) Managing the importation of genetically improved tilapia, pangas from reliable certified sources from abroad with well documented pedigree details.
- c) Report detailing the breeding protocols, data management systems and genetic evaluation tools for further use on the project.
- d) A technical guidance document (User Manual) covering genetic diversity management, strategies to avoid inbreeding, and recommendations on disease resistance in aquaculture stocks.
- e) Present key points from the consultancy to Project staff, CFPCC, NARC and private sector firms.

### **Level of Effort and Timeline**

The ToR is expected to be completed by both remote and field work. Field visits will be required to Simara and the implementation regions through the course of the consultancy. The perspective timeline for the selected consultant to start March 2024 and submit the deliverables by mid-July 2024 for a total of 40 days level of effort. All terms will be agreed upon in the consultant contract.

### **Qualification and Experience**

The Expert should possess the following qualifications:

- a) Advanced degree of fish genetics, or in related field.
- b) Proven experience and well acquainted with research and production of carp, Tilapia, Pangas, trout germplasm.
- c) Cross-cultural awareness and ability to work amongst a diverse group of staff, partners, and external stakeholders.
- d) Strong verbal and written communication and writing and technical skills.

- e) English language, fluency in Nepali/Hindi/local languages is a plus.
- f) Ability to communicate technical matters effectively to a wide audience.
- g) Microsoft package: Word, Excel; PowerPoint, required.
- h) Willing to travel to Nepal, including to remote districts.

## **APPENDIX B: APPLICATION INSTRUCTIONS AND REVIEW PROCESS**

**LANGUAGE REQUIREMENTS** – All documents submitted in response to this solicitation, as well as all correspondence in connection with the solicitation, shall be in the English language.

**EVALUATION** – Evaluation of responsive and technically acceptable applications submitted pursuant to this solicitation will be carried out by LWR in accordance with the evaluation factors in, “Instructions for Application and Review Process.”

**QUESTIONS** – Questions should be addressed to the below email address 5 business days prior to the submission deadline.

**APPLICATIONS** – Applications are to be submitted electronically via email no later than the Last Application Receipt Date, which is defined as **March 1, 2024, 5:00 PM EST USA**. Electronic applications must be addressed and delivered to:

Attention: MATSYA Procurement – **International Aquaculture Genetics Expert**  
Email: [Matsyaprocurement@lwr.org](mailto:Matsyaprocurement@lwr.org) CC: [rbhandari@lwr.org](mailto:rbhandari@lwr.org)  
Last Proposal Receipt Date: **March 1, 2024, 5:00 PM EST USA**

### **EVALUATION CRITERIA**

The selection process will be based on the following criteria:

- a) Understanding of genetic principles relevant to fish breeding, including population genetics, quantitative genetics, and genomics.
- b) Familiarity with the genetic basis of traits relevant to fish breeding programs (e.g., growth rate, disease resistance, reproduction).
- c) Prior experience working in fish breeding programs or aquaculture operations.
- d) Familiarity with breeding strategies and techniques for improving desired traits in fish populations
- e) Ability to design and execute experiments related to fish genetics.
- f) Proficiency in genetic data analysis and interpretation.
- g) Experience in using relevant molecular biology techniques (e.g., PCR, sequencing) for genetic analysis.
- h) Daily rate

**Note:** LWR will not accept responsibility for delays with transmission or receipt of applications/ proposals. Applicants are solely responsible for ensuring the timely receipt of their applications/ proposals. Applications/ proposals received after the date and time required will generally not be considered unless no other proposals are received.

Submissions shall be in accordance with the instructions provided in this solicitation, at the place and time specified. If submitting a proposal as a firm, please share the CVs of the proposed consultants and include a breakdown of tasks outlined in the ToR in the cover letter. Interested applicants are requested to submit:

1. **A recent CV or resume.** The CV/resume must include sufficient relevant information to evaluate the application in accordance with the stated evaluation criteria and must contain the following information:
  - Personal Information: Full name, mailing address, email address, phone number.
  - Education: School/ university name, type of any degrees received.
  - Work and Consultancy Experience: Job/consultancy title, duties, and accomplishments, starting and ending dates (month and year).
  - Other Qualifications: Other pertinent information related to the qualifications required for the position, as noted above, including job-related training courses (title and year), job-related skills, and notable accomplishments.
2. **A Cover Letter.** The cover letter must outline how you expect to use previous experience and expertise to complete the ToR. Include a proposed daily rate for services in the cover letter. Only include daily rate for services and not any other expenses.

Applicants that best fit the criteria may be invited for interview.