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**Inclusive safe fish production, processing and marketing of Ready to Cook (RTC) fish in domestic market**

**Terms of Reference (ToR) to conduct fish product development research**

**Background**

Pranti Aquaculture Ltd. is a major business company in the field of aquaculture and frozen food export business. Based in Khulna, the company is by far the largest and perhaps the only company in Bangladesh in terms of business operations that vertically integrates aquaculture with all allied industries creating both forward and backward linkages in the market. To ensure affordable and safe fish through a simplified supply chain, Pranti Aqua Ltd plans to enter in the domestic market with a sophisticated approach of supplying fish with the vision of providing properly preserved quality fish with different sized packet. There has been a strong and yet unmet consumer demand in the country’s urban domestic market for Ready to Cook (RTC) fish products, which entail multiple benefits including convenience, better nutrition and better health outcome.

To this end, the company has signed a cost sharing agreement with USAID-funded Feed the Future Bangladesh Aquaculture and Nutrition Activity Program of WorldFish to implement a business case entitled, ‘Inclusive safe fish production, processing and marketing of Ready to Cook (RTC) fish in domestic market’. Under this project Pranti will develop RTC fish products, establish the value chain, and undertake marketing and distribution of the RTC fish products in Khulna and Dhaka. The company is planning to develop a viable business model where small holder fish farmers will be linked to input service provision with trainings on good aquaculture practice and on post-harvest handling of fish to ensure safe and nutritious supply of fish for RTC product development.

The goal of this project is to promote systematic investment and innovative marketing strategy in aquaculture business for pro poor inclusive market development as well as to address the seasonal fluctuations in supply side of the domestic fish markets and its collateral price instability, which negatively impact the environment, the consumers and most importantly the small holder farmers. The project output is expected to transform a pioneering concept into a viable business model where small holder farm clusters embedded with input and extension provisions will be linked to domestic fish market so as to ensure year-round supply of ready to cook (RTC) fish products using both online and offline market outlets.

**Purpose and objective of this assignment**

The purpose of this assignment is to conduct product quality research to ensure RTC product quality in terms of nutritional quality assurance and microbial safety of finished product. The research will be mostly laboratory based experiment for assessing quality and shelf life of selected fish or their processed products (RTC fish) preserved at variable frozen conditions.

The broad objective of the research project will be to optimize the best suited freezing conditions of some selected fishes or its processed products (RTC fish) during storage at chilling and refrigerated conditions for ensuring better quality and extended shelf life of the products for consumer acceptance or health concern. To achieve the broad objective, the research will be conducted to achieve the following three major outputs:

1. Prediction of shelf life based on quality related changes of tilapia (*Oreochromis mossambicus*), Mullet (*Mugil cephalus*) and Sea bass (*Lates calcarifer*) fish products during icing and different frozen storage
2. Assessment of the influence of packaging type and materials on the quality characteristics of those frozen fish products
3. Determination of quality changes of the products subjected to multiple freeze and thaw cycles

**Methodology**

The research will be mostly laboratory based with frequent field visits to the southwest coastal districts as well as to Pranti Aquaculture Ltd frozen food processing factory in Khulna to collect samples. An extensive analysis of relevant literatures will have to be undertaken to document similar research in Bangladesh and elsewhere so as to validate the methodologies and the findings of this research. The detailed research methodology will have to be developed based on these literatures and a justification to this effect should be properly documented.

**Research team:**

The research team must include a Principal Investigator (PI), Co-Investigator(s) (CIs), Research Assistant(s) (RAs). The Principal Investigator (PI) is the team leader and is responsible for the execution of the proposed research. Unless differently specified and officially communicated by the grant recipient institution, the PI will be responsible for management and implementation, including compliance with the reporting requirements, and will be the contact person in addition to the head of the department/university for communication at all stages of the research execution. The PI must be a faculty member of any reputed university/research institute not below the rank of Professor and having PhD in related subject with at least 15 years of experience in laboratory based research and at least 10 publications in reputed national and/or international journals.

Co-Investigator(s) (CIs) are core members of the research team. CIs must be faculty mebers not below the rank of Assistant Professor with at least 5 years of experience in laboratory based research and at least 3 publications in reputed national and/or international journals. Each CI should be assigned the responsibility for a specific part of the research to be clearly identified in the proposal.

Research Assistants(s) are other full-time or part-time human resources that are needed to assist in the execution of the proposed research. The proposal should specify what kind of research assistance is needed, for which activities, and at what stage of the research.

**Task and responsibilities of the PI**

The overall responsibility of the PI will be to ensure successful implementation of entire research. He or she will form a research team consisting of laboratory technician, research assistant, contractual labour or associate researcher (a faculty member) defining the role of team members as per the research objectives and activities. He or she will be responsible for providing regular guidance to the research team and monitoring the progress of research. The Principal Investigator will also ensure the quality of research report. The followings are the specific task for the PI during the project period:

* PI will form his research team and will assist the research team for developing research design, collecting sample, implementing research in the laboratory, necessary testing in laboratory etc.
* He/she will ensure logistic support and required lab facilities including chemicals for the team.
* He/she will coordinate and guide the research team for successful implementation of the research activities.
* He/she will monitor and follow up research work of the team in the laboratory
* He/she will organize a follow-up meeting with Pranti to review progress and to address the challenges if any.
* He/she will ensure the submission of incept report, mid-term report and final report to Pranti Aquaculture Ltd.

**Deliverables**

The market demand and feedback study outputs will have to be generated in a standard market study report format. The deliverables contain:

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| Sl. | Deliverables | Due date |
| 1. | Mid-term research progress report  | 15 August 2019 |
| 2. | Draft final report | 15 September 2019 |
| 3. | Final report | 15 October 2019 |

**Duration**

This is a fixed-term research and consultancy service with effect from the date of contract signing for a period of 10 months.

**Budget and payment**

Total budget allocated for this assignment is BDT 20,00,000 (BDT twenty hundred thousand only) including all applicable VAT and IT, which is earmarked as a non-stretchable allocation. Payment is commensurate with the submission of deliverables as following

* 30% of the agreed amount immediate after signing contract
* 30% of the total amount upon receiving and accepting mid-term progress report.
* 20% of the total amount upon receiving and accepting the draft final report.
* 20% of total amount upon receiving and accepting the final report.

**Proposal Submission**

Applicants should send soft copies of technical (detail approach and methodology, work plan, team information, and other related information) and financial proposals (professional fees and estimated direct costs) including CV of the PI and Co-PI(s) and a cover letter to prantiaqua2004@yahoo.com by 16 July 2019, 4:30 PM (Bangladesh local time).