

BANGLADESH AGRICULTURAL UNIVERSITY, MYMENSINGH

Project Title: ECOPRAWN-Climate-friendly and climate-resilient prawn farming in Bangladesh

Call for Applications

2 PhD Scholarships Available under Work Package 1 (WP1)

The Faculty of Fisheries (FoF) of the Bangladesh Agricultural University (BAU), Bangladesh in collaboration with University of Copenhagen (KU), Denmark hereby invites interested and qualified citizens of Bangladesh (holding MS degree) to submit their applications for 2 PhD scholarships related to the DANIDA financed project “*ECOPRAWN-Climate-friendly and climate-resilient prawn farming in Bangladesh*”. Students will be enrolled at both BAU and KU, with a possibility of attaining a double degree.

The scholarships are of three and half (3½) years duration, and will commence on **1st October 2022** or soon after. The PhD scholars will be supervised by a joint team of senior academics from FoF at BAU and KU will be provided PhD level training in both university environments. The PhD study and research will be closely integrated and coordinated with all the other activities in the *ECOPRAWN* project.

The project aims at reducing the emission of GHG from prawn ponds and improving resilience to diseases in prawns in areas threatened by salt intrusion. To address these vital issues, ECOPRAWN focuses at: (i) reducing the present GHG emission by introduction of IMTA to remove of organic matter from prawn ponds and recycling of waste and nutrients, and (ii) enhancing the resistance to salt-water-induced diseases by microbial stimulation of the prawns’ immune system and usage of phage therapy, (iii) analyze the economic feasibility of mitigation and adaptation measures, and (iv) analyze incentives and best practices of value chain actors of reducing the carbon footprint of prawn and the role of co-management in climate change. The project involves farms level experimentation, detailed data collection at the fields visiting fish farmers and value chain actors in Bangladesh. Moreover, the project involves a stay at University of Copenhagen, Denmark for a total of 9 months.

The 2 PhD scholarships come with different requirements under WP1:

- The PhD scholarship #1 entitled “***Designing Integrated Multi-Trophic Aquaculture (IMTA) system combining freshwater prawn as primary species, and snails and aquatic plants as extractive species to reduce GHG emission***” focuses the study on taxonomic diversity and ecology of aquatic plants and snails based on local knowledge for designing IMTA systems in prawn farms. This will be improving our understanding of how different extractive organisms in IMTA systems effect on water quality and entire prawn farm productivity. The research design and methods will include field based taxonomic identification of snails and aquatic plants species, general water quality characteristics, production of different produces, using of snails to prepare prawn feed and using of aquatic plants to produce fertilizers for crop fields.
- The PhD scholarship #2 entitled “***Impacts of Integrated Multi-Trophic Aquaculture (IMTA) on Reduction of Greenhouse Emission in Prawn Farming***” focuses on improving our understanding of how extractive organisms like snails and aquatic plants reduce organic and inorganic wastes and greenhouse gases. This study includes assessment of reduction in CO₂ and CH₄ emissions by snails and floating vegetation, the role of photosynthesis as sink for CO₂ and microbial degradation, dynamics of CH₄-producing Archaea in sediments being quantified by qPCR targeting the mcrA gene, major elements in the emission and total net and gross GHG fluxes,

values for N₂O release based upon literature values. Finally, annually fluxes of GHG will be calculated and related to similar published values.

The aim of the research in WP1 is to use results achieved in the two PhD scholarships reducing the emission of GHG from prawn farms and improving resilience to emerging diseases of prawns in areas threatened by salt intrusion in Bangladesh. In addition, the PhDs will be organized to publish a large number of articles in the international refereed scientific journals in cooperation with the senior staff.

According to PhD admission ordinance of BAU (effective from 1 April 2021) the key eligibility criteria for an applicant are adopted here. An applicant for admission to a course of study for PhD degree must possess at least one 1st class/Grade B in either Bachelor degree or Master's degree with a Thesis from Bangladesh Agricultural University, or having an equivalent degree (to be judged by a committee) from any other public university. Candidates also require one publication in relevant field and at least one year experience in teaching/research/extension/development/industry after being employed. An applicant having a 1st class with distinction (A⁺/GPA = 4) in both or one of the Bachelor and Master's Degrees is eligible for admission into PhD course without any experience and publication.

Detailed descriptions of the aim, content, requirements, financial conditions, and application procedure for each of the 2 (two) PhD scholarships and the application procedure are posted on the BAU homepage www.bau.edu.bd (Professor Dr. Mohammad Mahfujul Haque).

Deadline for application is 25 June 2022. Short-listed candidates will be invited to prepare a full research proposal, within each of the mandatory subjects, and to present this in front of a panel of experts from home and abroad.

Bangladesh Agricultural University, Mymensingh
Department of Aquaculture
Faculty of Fisheries

Description of PhD scholarship # 1

Designing Integrated Multi-Trophic Aquaculture (IMTA) system combining freshwater prawn as primary species, and snails and aquatic plants as extractive species to reduce GHG emission

This PhD project focuses on improving our understanding of how prawn and different organic and inorganic waste extractive species including snails and aquatic plants in IMTA systems effect on water quality and entire prawn farm productivity.

The PhD study, and hence the research design and methods must be within the framework set out in work package 1 “Reduction of GHG emission by IMTA” of the ECOPRAWN project. Research activities in the project are expected to include the following areas:

1. Taxonomic identification of potential snails and aquatic plants species based on the indigenous knowledge of the local people in the southwest Bangladesh that can contribute to designing IMTA system.
2. Assessing general water quality parameters throughout the production cycle of prawn IMTA systems that include physical (temperature, duration of light, water depth, etc.), chemical (dissolved oxygen, pH, ammonia, etc.) and biological (phytoplankton, zooplankton, etc.).
3. Assessing production of snail and their application to produced snail-based pelleted feed production for fish.
4. Monitoring the growth and production of aquatic plants use of this to produce organic fertilizers for crop fields.

Applicant must have a master degree with good CGPA in any department of fisheries discipline to be eligible for application. Experience with field or experimental research work, scientific publications in indexed journals will also be considered in selecting the candidates.

If selected for the scholarship, the applicant must be flexible and collaborating with the candidate for the other seven PhD scholarships in the ECOPRAWN project and adapt research approaches for mutual benefits and project coherence. All PhD students (from other work packages) in the ECOPRAWN project must collect field data, must collaborate in data gathering and share the data. Applications for the PhD scholarship must be completed using the ECOPRAWN ‘PhD Application Form’ posted on the homepage www.bau.edu.bd (Prof. Dr. Mohamamd Mahfujul Haque).

Deadline for application is June 25, 2022 at 10.00 AM (Bangladesh Time). Applications must be submitted per mail to the address mmhaque.aq@bau.edu.bd where they can also submit any queries that must be in relation to the application process.

General conditions for the scholarships:

1. The recipients of the PhD scholarships will be enrolled at the Department of Aquaculture, Faculty of Fisheries, Bangladesh Agricultural University and at the Department of Food and Resource Economics, University of Copenhagen, with a possibility of obtaining a double degree given that all requirements are met.
2. The PhD scholarships come with an attractive salary and benefits package.
3. The PhD scholarship involves 9 months study stay at the KU, possibly over two periods.
4. The recipients of scholarships are expected to commit full time to the PhD study for the entire three year period.

Bangladesh Agricultural University, Mymensingh
Department of Aquaculture
Faculty of Fisheries

Description of PhD scholarship # 2

Impacts of Integrated Multi-Trophic Aquaculture (IMTA) on reduction of Greenhouse Emission in Prawn Farming

This PhD project focuses on improving our understanding of how extractive organisms like snails and aquatic plants reduce organic and inorganic wastes and greenhouse gases.

The PhD study, and hence the subject, research design and methods must be within the framework set out in Work Package 1 “Reduction of GHG emission by IMTA” of the ECOPRAWN project proposal that this PhD scholarship forms part of, should include:

1. Analyzing the reduction in CO₂ and CH₄ emissions by snails and floating vegetation on-site by portable detectors using floating chambers, while gasses dissolved in water and sediment are measured by a gas exchange approach.
2. Determination the role of photosynthesis as sink for CO₂ and microbial degradation of organic matter as source of CO₂. Similarly, estimation of CO₂ formed by bacterial degradation by standard BOD method by converting O₂ consumption to CO₂ quota.
3. Quantification of the dynamics of CH₄-producing *Archaea* in sediments and other anoxic sites by qPCR targeting the *mcrA* gene.
4. Fluxes of CO₂ and CH₄ will be related to seasonality, biomasses of prawns, snails and floating plants, to primary production and heterotrophic microbial activity, and to dynamics of methanogens and methanotrophs. Major elements in the emission and total net and gross GHG fluxes will be determined.

Applicant must have a master degree with good CGPA in any department of fisheries discipline to be eligible for application. Experience with field or experimental research work, scientific publications in indexed journals will also be considered when selecting the candidates.

If selected for the scholarship, the applicant must be flexible and collaborating with the candidate for the other seven PhD scholarships in the ECOPRAWN project and adapt research approaches for mutual benefits and project coherence. All PhD students (from other work packages) in the ECOPRAWN project must collect field data, must collaborate in data gathering and share the data. Applications for the PhD scholarship must be completed using the ECOPRAWN ‘PhD Application Form’ posted on the homepage www.bau.edu.bd (Prof. Dr. Mohamamd Mahfujul Haque).

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1. The recipients of the PhD scholarships will be enrolled at the Department of Aquaculture, Faculty of Fisheries, Bangladesh Agricultural University and at the Department of Food and Resource Economics, University of Copenhagen, with a possibility of obtaining a double degree given that all requirements are met.
2. The PhD scholarships come with an attractive salary and benefits package.
3. The PhD scholarship involves 9 months study stay at the KU, possibly over two periods.
4. The recipients of scholarships are expected to commit full time to the PhD study for the entire three year period.

PhD Application Form

Applications must be received no later than **25 June 2022**

Please read the instructions carefully before completing this application form. Only complete and signed application forms will be processed. The application must be sent per email to mmhaque.aq@bau.edu.bd (Prof. Dr. Mohammad Mahfujul Haque, BAU). The application email should have two pdf-format attachments; (1) the completed and signed application form in pdf-format and (2) all other supporting documents (see checklist under "Part F") compiled into one pdf-file.

Introduction

This application form is for use for applications for PhD scholarships that are part of the research project "ECOPRAWN - Climate-friendly and climate-resilient prawn farming in Bangladesh". Each scholarship is three and half years full time with start around 1st October 2022. Enrolment will be at Bangladesh Agricultural University, the Faculty of Fisheries and University of Copenhagen in Denmark on the other. Successful students can thus obtain a double degree.

Who can apply?

Only nationals of Bangladesh can apply. An MS degree in the field of fisheries science or Microbiology must have been **completed** at the time of application in Bangladesh or abroad.

This application form consists of the following nine parts

- Part A Personal Details
- Part B Doctoral Study Synopsis
- Part C Academic Qualifications & experiences
- Part D Brief Curriculum Vitae
- Part E References
- Part F Checklist
- Part G Other Information
- Part H Declaration and Signature

How to complete this application form?

- Please write in the indicated boxes. Respect all word limits
- All personal information should correspond with your certificates/passport, e.g. spelling of names
- All documents must either be originals or be certified copies
- Ensure that you complete the checklist, print out the form and sign the declaration on the last page
- All documents should be submitted in the same e-mail
- We recommend keeping photocopies of your application
- Do not include this front page when you submit your application
- Read the "Guidelines to completing the application form"
- Applications can only be submitted electronically

Please return this form and enclosures to this email address:

mmhaque.aq@bau.edu.bd (Prof. Dr. Mohammad Mahfujul Haque, BAU).

APPLICATION FORM

Part A Personal Details

Note – according to passport/official documents. Always supply two email addresses that you use.

First name(s)	
Family name	
Date of birth (dd/mm/yy)	
Nationality	
Sex (M, F)	
Residence address	
E-mail address	
Alternative E-mail address	

Part B Doctoral Study Synopsis (Max 1500 words excl. references, see Guidelines)

The number and working title below must correspond to those found in the call for applications. Attach the doctoral study synopsis as a separate document and name it "yourfirstname_yoursurname_synopsis.pdf", e.g. "Godwill_Segesela_synopsis.pdf"

Related to the announced research topic (number and title):

Part C Academic Qualifications & Experience

i. Academic Qualifications

Name of degree	University/ Broad	Field	Class/division/ position	Year
B.Sc. (Honors)				
M.S./MSc				

ii. Research/Job Experience:

Position	Type of activities	Name of Institute/Organization	Duration of experience

All applicants must include **certified copies of official transcripts**. Documents not in English should be accompanied by an official certified translation. Do NOT enclose high school or BSc/BA level transcripts. You must also **enclose an official explanation of the grading system**.

Part D Brief Curriculum Vitae (Education; study relevant employment only; list all your publications)

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Part E References

Please list the two academics you have asked to write a letter of recommendation for you. The letters are to be printed on letterhead and signed. We welcome references providing relevant information that cannot be found elsewhere in the application materials, and that contribute to understanding the applicant's abilities and suitability for doctoral studies.

Referees should directly email their recommendation in pdf version to mmhaque.aq@bau.edu.bd (Prof. Dr. Mohammad Mahfujul Haque, BAU) **indicating name of the applicant.**

First referee

Name	
Title	
Organization	
Telephone	
E-mail address	

Second referee

Name	
Title	
Organization	
Telephone	
E-mail address	

Part F Checklist

I have included the following documents in one pdf file with my application:

<input type="checkbox"/>	Certified copy of second university degree (MSc)
<input type="checkbox"/>	Certified English translation of transcripts, if necessary
<input type="checkbox"/>	Official explanation of grading system
<input type="checkbox"/>	Doctoral study synopsis
<input type="checkbox"/>	Clear copy of passport

Please explain if you did not provide the required information with this application.

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Part G Other information

Equal opportunities

The project applies a policy of equal opportunities for people with special needs. Do you have any physical disability?

Yes:	No:	If yes, please specify
<input type="checkbox"/>	<input type="checkbox"/>	

Criminal record

Are you currently under any criminal charges?

Yes:	No:	If yes, please specify
<input type="checkbox"/>	<input type="checkbox"/>	

Part H Declaration & Signature

I declare that the information provided by me is correct and complete. I understand that incomplete information will delay the application process and I accept that incorrect information will render the application invalid.

I declare that I have not previously received a PhD fellowship for doctoral education.

Date (dd/mm/yy)	
City, Country	
Name of applicant	
Signature	

NOTE: This application, inclusive of attachments, will only be used for assessment purposes. Personal data is collected and used in accordance with Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on "the protection of individuals with regard to the processing of personal data and on the free movement of such data".

Submitted material will not be returned.

Guidelines to complete the PhD Application Form

These guidelines provide directions on how to complete the PhD Application Form. They do not provide detailed comments on each part of the application form; these are seen as self-explanatory. Instead the guidelines explain how applications are assessed and thus what you should pay particular attention to when completing your application.

If you have any questions regarding the application, you can address them to mmhaque.ag@bau.edu.bd (Prof. Dr. Mohamamd Mahfujul Haque, BAU).

How are applications assessed?

First, applications are screened for eligibility. You should make sure that your application is complete – pay particular attention to the items mentioned in Part F (Checklist) of the application form.

Eligible applications are then evaluated by the Assessment Committee consisting of a number of senior scholars. The evaluation categories are:

- Academic performance as indicated by (i) Honors and Masters degree with good CGPA; and (ii) documented research achievements, e.g. publications in international journals with peer review or other indicators of intellectual potential, e.g. relevant working experience in (international) organizations with very competitive selection processes (iii) Laboratory/field research experience (40%).
- Research synopsis that closely relates to one of the research topics announced by the “ECOPRAWN - Climate-friendly and climate-resilient prawn farming in Bangladesh” project and demonstrates insight and interest in the subject (40%).
- Recommendations from the two academic references (20%).

Each of the three categories is given a score from 1 (poor) to 5 (excellent); eligible applicants must not score 3 or lower in any category. All short-listed applicants must score at least 4 (very good) for their submitted research synopsis. The three categories are weighted 40%, 40% and 20%. Overall average score is used to rank all applicants.

Full applications are due **25 June 2022**. The best applicants will be short-listed around **5 July 2022** and invited to develop full research proposals (in collaboration with their supervisors; contact to supervisors will be facilitated) by **16 August 2022**. Short-listed applicants with full research proposal will be invited for presentation on **21-24 August 2022**. We expect to offer contracts to around one-third of the short-listed applicants. The scholarships will commence on **1st October 2022** or soon after.”

What should I pay particular attention to when preparing my application?

The evaluation criteria focus on your academic potential. Here is what we are looking for:

▪ *Convincing research synopsis*

Your doctoral study synopsis should be closely aligned with one of the announced research topics, is mandatory. Even though you have limited space, only 1500 words (excluding references), your synopsis should (i) be complete, i.e. include sufficient information to allow an evaluation, (ii) show that you have a good overview and understanding of the relevant literature and the key issues in the research topic field, (iii) contain research questions that you plan to answer, (iv) convince the Assessors that your choice of methods is sound, and (v) that you will be able to undertake the study, i.e. that you have the competences and a realistic work plan. End the synopsis by providing the word count (excl. references).

- *Convincing written work*

Make sure that any published work is clearly presented in your CV, in particular any peer-reviewed international journal papers. Also make sure that you list any theses, book chapters, etc.

- *Two strong recommendation letters*

Letters of recommendation are assessed for additional evidence of your academic achievements, interests, and personal motivation. The Assessment Committee will take into account the academic experience of the referee, as a scholar and as a supervisor of successful doctoral candidates. You should therefore strive to get letters of recommendations from strong academics.

- *Brief Curriculum Vitae*

This should show your high level of academic achievement and/or relevant non-academic experiences. Include a complete list of your publications.

- *Feed-back*

Make your peers and, if at all possible, other experienced people read and comment on your research synopsis before you submit it. Use feed-back to revise and improve the synopsis.

- *Consult research proposal writing guidelines*

There are many good guides to how to write a convincing research proposal. Read some of these to get additional tips and inspiration on how to improve your proposal.

- *Format requirements*

Remember that you are only allowed to submit your application as one email with two attached PhD-documents; (1) the completed and signed application form in pdf-format and (2) all other supporting documents (see checklist under 'Part F' in the "PhD Application Form") compiled into one pdf-file.

Guidelines for short-listed candidates

Short-listed applicants must develop a full research project description. This note describes how this should be done and when. There are four key steps that may overlap in time: (i) establishment of contact between applicant and supervisors, (ii) development of the full research project description, (iii) submission of the final full project description, and (iv) discussion of the submitted description at personal interview.

Step 1: Development of the full research project description

You are responsible for the development of a draft project description, i.e. the next version of the research synopsis you submitted with your original application. The draft project description must contain information on:

1. Working title
2. Project background and justification
3. Objectives
4. Research questions
5. Methods
6. Risks and ethics of proposed research
7. Expected outcomes and time schedule (use Gantt chart)
8. List of references

You may find it useful to re-read the "Guidelines for completing the application form". Note that the final project description must contain no more than 3,000 words (exclusive of item 8). Specify the number of words used at the end of the project description. Do not exceed the word limit.

The applicant is responsible for submitting the full project description via email attachments to mmhaque.aq@bau.edu.bd (Prof. Dr. Mohammad Mahfujul Haque, BAU) must not be larger than 12MB in total.

Step 2: Discussion of draft research project description at personal interview

All short-listed applicants, whose full applications are submitted by the deadline, will present their full research project proposal before an assessment committee, consisting of senior university faculty. Each applicant must prepare an oral project presentation lasting no more than 15 minutes. It should start by giving a brief introduction to the interviewee. We expect that half of the short-listed applicants will be offered a fellowship.

Interviews will take place in skype meeting, exact time and place will be announced in due time before the interview.