# Report on inception meeting, stakeholder interaction program and kickoff meeting in Bangladesh

**4th February 2024**

An **Inception meeting/stakeholder interaction program on 'Climate-resilient aquatic food systems for healthy lives of young women and girls in Bangladesh (AQUAFOOD)**' was held at Hotel Lake Castle of Gulshan in Dhaka on Sunday. The workshop was jointly organised by BAU, NSTU, and ICDDR,B. The focus of the workshop was to identify knowledge gaps and issues within and between the aquaculture production sector and health and nutrition related to aquatic foods through the stakeholder interaction. Fisheries and livestock minister Md Abdur Rahman was chief guest while Dr Shakuntala Thilstead, director for nutrition, CGIAR, chaired the sesson. Professor Emdadul Haque Chowdhury, vice-chancellor of Bangladesh Agricultural University, professor Md Didar-ul-Alam, vice-chancellor of Noakhali Science and Technology University were present as special guests in the workshop. The keynote speakers were Nanna Roos and David Little. Dave shared results from previous collaborative research on health and nutrition of adolescent girls living in aquatic food communities (IMMANA research project) and Nanna introduced and informed about the 'AQUAFOOD project. Following the key note speakers, the key focus areas of AQUAFOOD project were shortly introduced by Richard Newton (LCA), Md. Abdus Salam (GIS mapping), Baukje de Roos (Biomarkers), Mohommad Mahhujul Haque (Aquatic food system), Gulshan Ara (Why young women and girls) and Abdullah-Al Mamun (Nutrition sensetive aquaculture). Moving forward a facilitate stakeholder interaction sesson, with particular focus on identifying knowledge gaps within and between the aquaculture production sector and the health and nutrition sector, in relation to aquatic foods was conducted so that the views and insights from the group sesson could be useful for implementation of the AQUAFOOD project. Several guiding questions were formulated to identify the knowledge gaps.

1. A. What are the most important tasks within the AQUAFOOD project?
   B. What outcomes of the AQUAFOOD project are most useful?
2. What important aspects are missing in the AQUAFOOD project?
3. What are the immediate and long-term needs to improve the contribution of aquaculture to nutrition?
4. To whom and how can we communicate the data and benefits of the AQUAFOOD project?
5. Which outputs and information of the AQUAFOOD project are important for you?

The responses from each groups were presented by participants and received information was documented for the for future use.

**5th February 2024**

We travelled to Khulna

**6th February 2024**

A local stakeholder interaction workshop with public health and fisheries promoters and representatives of women with young children, adolescent girls and farmers was held in Khulna. Several questions were formulated to facilitate the discussion aiming different target group such as adolescent girls, housewives-mothers, practitioner-service provider and mothers. The group discussion were fascilitated by Salam, Mahfujul, Mamun and Samira. After the discussion, each group came forward and presented the outcome of their discussions.

Following the stakeholder interaction workshop in Khulna, on the second half of the day we reflected on both of our stakeholder meetings. Based on reflection we drafted a conceptual framework for

AQUAFOOD project. The responses, remarks and suggestion were documented for the futher use. Also based on reflection we developed a conceptual framework for AQUAFOOD project.

**7th February 2024**

We spend the whole day on developing a detailed implementation plan of the AQUAFOOD projects based on the reflections from the stakeholder interactions as well as the project proposal. We had a detail discussion on WP2, WP3 and WP4. The key discussion points from each WPs were outlined as presented Table 1.

Table 1: WP2, WP3, WP4

| |
|---|
| **WP2: Export driven aquaculture in context of climate change - an integrated survey**<br>**Design**<br>• Longitudinal household survey<br>• GIS mapping<br>• Longitudinal market survey<br>• Life-cycle assessment |
| **WP3: Health and nutrition of young females in context of climate change – cohort study**<br>**Design**<br>• Cohort follow-up<br>• identifying HH and young womens<br>• Outcomes |
| **WP4: Advancing assessment methodology for aquatic food consumption and helath**<br>**Methodology**<br>• Digital fish consumption tool<br>• Biological Markers<br>• Hair isotopes |

## IMMANA study

Before starting the discussion on WPs we revisited the study done in IMMANA. Following key points were noted from IMMANA

- 300 girls, 14-16 years
- Measured in wet + dry season in 2017
- Outcomes
  - Anthropometrics
  - Blood: Omega 3, Vit D, iron, Vit A, inflammatory markers
  - Urine: Iodine
  - Fish Consumption + dietary intake
  - Female autonomy

## Ethical Approval

As the first step for the implementation of the AQUAFOOD project would be an ethical approval, we briefly discused on the ethical approval for collection of data. Gulshan will discuss the original protocal with the ethical team based on their suggestion move ahead either with ammendment to the original protocal or develop a new protocal to contact the girls

**The key points from the discussion in the each WP are mentioned further.**

## WP2: Export driven aquaculture in context of climate change - an integrated survey

**Longitudinal household survey**

- Individual survey
- Focusing on Seasonality : how sesanality of food proiduction affect the health outcomes and anthropometric measures.
- How salinity impacts health
- Perception of climate change
- Factors assessed : Labour productivity, land value, livelihood- scocioeconomics, aquaculture species-harvest data.
- Tension between salination/freshwater
- Physical measures:
  - Monitoring salinity and temperature + farmers perception of salinity
  - Observed adaptive behavior (management practices)

**GIS mapping**

- Test run of Immana data
- Satelite image of AI training
- Landuse, wateruse, salinity.
- Adding layer-
  - Own data: Indicators- consumption, productivity,nutritional status, Mn, Omega 3, climate change, climate change adaptation behaviour.
  - Others date: abortion, diseases (diabetes, CVD etc), Arsenic.

**LCA**

- Mapping nutritional, environmental impact of Aquaculture production.
- Defining Farms: Priority to get full description of all farm activities, number of farms
- Functional units: nutritional outcomes (protein, micronutrients etc) (alternative risk of insufficiency, Protein, Ca, Omega3)
- Input data
  - Nutritional composition of aquatic animals in different farming systems
  - Production data for different farming systems
  - Feed use, land area
  - Full data from 5-10 farms from different categories
  - Categories: 8-10

## Longitudinal market survey

- Possible to integrete the 10 years data from Mamun
- Data: Farmers closeness to market, wholeshale markets data to be obtained and consumers prices
- Survey design: HH sampling?

## WP3

**Cohort follow-up**

| 2017 | 2025 | | |
|---|---|---|---|
| | A | | B |
| 300 (60) | 60 young women (children) | + | New adolescent girls cohort |

- Repeat outcomes from 2017
- Repeat in the same community + add data collection on community changes over 6-8yers
- Leave out PP plant
- Not stratification for religion

**Outcomes:**

60 young women

- Empowerment or autonomy?
- Anthopometry + Waist-hip ratio, measures for cardiometabolic diseases
- Diet – fish consumption
- Biomarkers: Omega 3, Mn, Hb (anemia), iron, Vit A, Vit D, arsenic, inflammatory markers (ADI, CRP), B12, Folate, selenium, NCD indicator

Child

- Numbers + birthdates of children
- Biological data on which child (6 mo – 5 years)
- Anthopometry on 6 mo – 5 years children
- Omega 3, Vit D: dryspot
- Milestones and development Q&A: Standard IYCF guidelines/questionaire

New adolescent girls cohort

- Same as young womens
- Followup on the IMMANA cohort
- Pre-screen: take contact, are the girls to be reached. Challenge is to contact the same girls as they might have married and moved out of Khulna. Therefore atleast match our working area and number of girls with the IMMANA project.
- Inorder to track the girls, initially track to sub sample of 60
    - 60 of the IMMANA sample
    - Nutritional status and autonomy
    - Identified for complete data in 2017
    - Ammendment to the original ethical protocal.

## WP4:

**Fish intake assesment tool**

- Focus on Species by species, Food composition (use existing database), Portion sizes, Preperation (cleaning, bones etc), Origin of the fish
- Portion estimation tools
- Pictures + food models
- Fish museum (Ranu): Photo collection.

**Biological markers**

- Biological marker predictive for fish consumption
- DHA-EPA (Omega 3)
- Vit. D (fish major dietary source) + dryspot validation of Vit. D: samples to the lab for vit. D (Jette Jakobsen)
- Hair samples: $N^{15}/C^{13}$ – fish intake

- Possibly add selenium-VoA

Once the task to be done in each WPs were discussed, the different WPs were added in the conceptual framework. The Conceptual framework is shown below (Figure 1)

**8th February 2024**

We travelled back to Dhaka and had a meeting in ICDDR,B. The main agenda of this meeting was to discuss on the PhD students in the AQUAFOOD project.

**Phd studies, outlines based on consortium agreement February 8th 2024**

| **WP attachment** | | **Responsible for description** |
|---|---|---|
| WP2 | nLCA (nutrition LCA)<br>Data drawn from the longitudinal survey/GIS and young women cohort survey | Ripon/Richard |
| WP2 | Temporal and spatial aquafood system. Longitudinal high-resolution survey, digitalized data collection. GIS | Ripon/Salam/Dave |
| WP3-4 | Young women nutrition – cohort follow up survey | Nanna, Gulshan, Baukje, Mamun |
| WP4 | Biomarkers<br>1. Advanced methods for fish consumptiom<br>2. Markers of fish consumption: Vit D – hair isotopes | Nanna, Gulshan, Baukje, Mamun |

**Tasks**

Working groups

- Fish consumption tools + FCT
- LCA-GIS license Richard, Salam

PhD formalities: NSTU, UCP

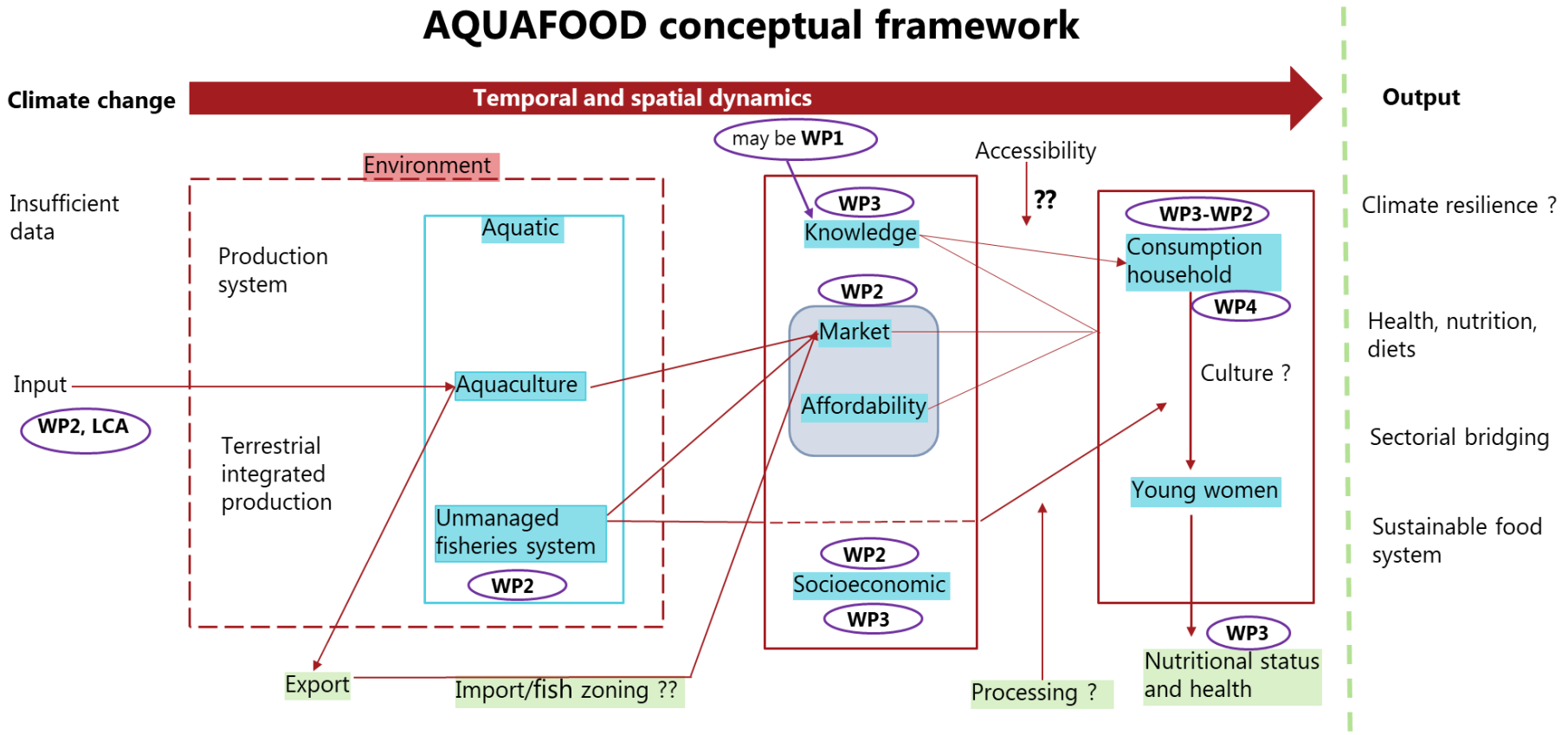


Figure 1: Conceptual framework of AQUAFOOD project

**Dhaka's stakeholders workshop news links**

1. https://www.newagebd.net/article/224620/workshop-on-climate-resilient-aquatic-food-management-held
2. https://thedailynewnation.com/mymensingh-a-stakeholder-interaction-and-inception-workshop-on-climate-resilient-aquatic-food-systems-for-healthy-lives-of-young-women-and-girls-in-bangladesh-aquafood-was-held-in-hotel-lake-c/
3. https://akkbd.com/%e0%a6%a8%e0%a6%be%e0%a6%b0%e0%a7%80%e0%a6%a6%e0%a7%87%e0%a6%b0-%e0%a6%9c%e0%a6%b2%e0%a6%ac%e0%a6%be%e0%a6%af%e0%a6%bc%e0%a7%81-%e0%a6%b8%e0%a6%b9%e0%a6%a8%e0%a6%b6%e0%a7%80%e0%a6%b2-%e0%a6%9c/?fbclid=IwAR3xB5Oeng2N_EvGhGOWqeX8n2uqls-bjtNolvnwvL-Sl2EvT1fYNsb1eOU
4. https://akkbd.com/%e0%a6%a8%e0%a6%be%e0%a6%b0%e0%a7%80%e0%a6%a6%e0%a7%87%e0%a6%b0-%e0%a6%9c%e0%a6%b2%e0%a6%ac%e0%a6%be%e0%a6%af%e0%a6%bc%e0%a7%81-%e0%a6%b8%e0%a6%b9%e0%a6%a8%e0%a6%b6%e0%a7%80%e0%a6%b2-%e0%a6%9c/?fbclid=IwAR3zTga-SeuohWkxggrncm_DVu1rMCVWyWEco2LfmFI84ILlvbPgPr6ULu8
5. https://agrilife24.com/2021/2018-02-24-10-59-57/10192-ar4fb.html?fbclid=IwAR03lsVqjNaGUo0TtK6j5I9SGPmlw9ErNUH_ZOXRtsHvhKyJJMirjBurZtE
6. https://agriview24.com/%e0%a6%ac%e0%a6%be%e0%a6%82%e0%a6%b2%e0%a6%be%e0%a6%a6%e0%a7%87%e0%a6%b6%e0%a7%87-%e0%a6%a8%e0%a6%be%e0%a6%b0%e0%a7%80%e0%a6%a6%e0%a7%87%e0%a6%b0-%e0%a6%9c%e0%a6%b2%e0%a6%ac%e0%a6%be%e0%a6%af%e0%a6%bc/?fbclid=IwAR01yFYJFnsOaoNS-TwMVQ4r1ewErf_Xvv6DCPSa3Zem3Vg5rVQuc5iRPhU
7. https://agrilife24.com/2021/2018-02-24-10-59-57/10192-ar4fb.html?fbclid=IwAR2kNTD-Zn3j3fVAK9htQ9xAHL6bto4Y-Lyvi57IYevpnKaT2qsxMJwDEBg
8. https://sangbadlive24.com/%e0%a6%ac%e0%a6%be%e0%a6%82%e0%a6%b2%e0%a6%be%e0%a6%a6%e0%a7%87%e0%a6%b6%e0%a7%87-%e0%a6%a8%e0%a6%be%e0%a6%b0%e0%a7%80%e0%a6%a6%e0%a7%87%e0%a6%b0-%e0%a6%9c%e0%a6%b2%e0%a6%ac%e0%a6%be%e0%a6%af%e0%a6%bc/?fbclid=IwAR288uZjdUy_x3HQ--ytGFgJLXCCAY8ymigMuazf-E1Z_PKjzn1ypvywrRU
9. https://epaper.samakal.com/nogor-edition/2024-02-05/6/1845

**Climate-resilient aquatic food systems for healthy lives of young women and girls in Bangladesh (AQUAFOOD) Project**

**Stakeholder Interaction and Inception Workshop**

**Date: Sunday, 04 February 2024**

**Time: 9.00 AM-3:30 PM**

**Venue: Hotel Lake Castle, Plot # 1A, Road # 68/A, Gulshan-2, Dhaka 1212, Bangladesh**

**List of participants**

**Participants from government organizations and universities**

| No. | Name | Designation | Organizations |
|---|---|---|---|
| 1 | Mr. Md. Abdur Rahman, MP | Honorable Minister | Ministry of Fisheries and Livestock, Bangladesh |
| 2 | Prof. Dr. Emdadul Haque Chowdhury | Vice-Chancellor | Bangladesh Agricultural University |
| 3 | Prof. Dr. Didar-ul-Alam | Vice-Chancellor | Noakhali Science and Technology University |
| 4 | Dr. Md. Shariful Islam | Senior Scientific Officer | Bangladesh Fisheries Research Institute |
| 5 | Ms. Fahmida Akter | Researcher | BRAC James P Grant School of Public Health, BRAC University |
| 6 | Mr. Abu Ahmed Shamim | Researcher | BRAC James P Grant School of Public Health, BRAC University |
| 7 | Dr. Santhia Ireen | Technical Advisor | BRAC James P Grant School of Public Health, BRAC University |
| 8 | Dr. Maria Zaman | Head and Assistant Professor | Department of Marine Fisheries & Aquaculture, Bangabandhu Sheikh Mujibur Rahman Agricultural University |
| 9 | Dr. S. M. Rafiquzzaman | Dean and Professor | Bangabandhu Sheikh Mujibur Rahman Agricultural University |
| 10 | Dr. Md. Abdur Rouf | Principal Scientific Officer | Department of Fisheries |
| 11 | Dr. Md. Khalilur Rahman | Fisheries Specialist, recently retired scientist from BFRI | Krishi Gobeshona Foundation, Dhaka |
| 12 | Mr. Jahid | Camera Man | Ministry of Fisheries and Livestock |
| 13 | Dr. A. N. M. Abdus Sabur | Joint Secretary and PS to Minister | Ministry of Fisheries and Livestock |
| 14 | Md. Abdul Karim | Security Officer | Ministry of Fisheries and Livestock |
| 15 | Sree Shagor Kumar | Photographer | Ministry of Fisheries and Livestock |
| 16 | Dr. Atikur Rahman Bhuyian | Professor and Dean | Noakhali Science and Technology University |
| 17 | Dr. Neaz Mohammad Bahadur | Professor | Noakhali Science and Technology University |
| 18 | Dr. Feroz Ahmed | Professor (Microbiology) | Noakhali Science and Technology University |
| 19 | Dr. Mrityunjoy Kunda | Professor | Sylhet Agricultural University |

| | | | |
|---|---|---|---|
| 20 | Dr. Mohammad Shamsur Rahman | Professor | University of Dhaka |
| 21 | Dr. Sankar C Mandal | Associate Professor | University of Dhaka |
| 22 | Sami Farook | Participant | University of Manitoba |
| 23 | Md. Mahmudul Hasan | Lecturer | Bangladesh Agricultural University |
| 24 | Dr. Md. Saifullah Bin Aziz | Researcher | Bangladesh Agricultural University |
| 25 | Din Mohammad | Deputy Director | Public Relations & Publications Office, Bangladesh Agricultural University |
| 26 | Dr. Shah Alam Sarker | Professor | Bangladesh Open University |
| 27 | Dr. Monirul Islam | Director (Nutrition) | Bangladesh Agricultural Research Council |
| **Total** | | | **27** |

**Participants from non-governmental organizations**

| **No.** | **Name** | **Designation** | **Organizations** |
|---|---|---|---|
| 1 | Dr. T. S Amjath Babu | Researcher | CIMMYT |
| 2 | Dr. Abul Hasnat | Researcher | FAO Bangladesh |
| 3 | Lamia Mahzabin | Junior Project Assistant | FAO Bangladesh |
| 4 | Noushin Farah Zaman | Junior Project Assistant | FAO Bangladesh |
| 5 | Mohammad Tarique Sarker | Managing Director | FishTech BD Ltd. |
| 6 | G. M Sumon | Researcher | GAIN |
| 7 | Dr. Md. Fazlul Kabir | Clinical and Diagnostic Service | Icddr,b |
| 8 | Dr. Mustafa Mia | Scientist | Icddr,b |
| 9 | Zhahirul Islam | icddr'b | Icddr,b |
| 10 | Dr. Shamsul Haque | icddr'b | Icddr,b |
| 11 | Samira Dilruba Ali | Research Officer | Icddr,b |
| 12 | Sayma Afroz Eva | Research Assistant | Icddr,b |
| 13 | Rafid Hassan | Research Officer | Icddr,b |
| 14 | Dr. Faruk Ul Islam | Team Leader | iDE (CSISAMEA) |
| 15 | Dr. Ben Belton | Senior Research Staff | IFPRI |
| 16 | Aklima Parvin | Researcher | IFPRI |
| 17 | S M Mahbub Alam | JS | RTHD |
| 18 | Dr. Golam Mohibul Khan Sadi | Researcher | UNICEF |
| 19 | Dr. Khondker Mursher-e-Jahan | Scientist | WorldFish |
| 20 | Md. Muklesur Rahman | | Earth Agro |
| 21 | Rabiul Hasan | AV Supervisor | |
| **Total** | | | **22** |

**Participants from AQUAFOOD Project**

| No. | Name | Designation | Organizations |
|---|---|---|---|
| 1 | Dr. Nanna Roos | Associate Professor, Principal Investigator | University of Copenhagen, Denmark |
| 2 | Dr. Mohammad Mahfujul Haque | Professor | Bangladesh Agricultural University |
| 3 | Dr. M. A. Salam | Professor | Bangladesh Agricultural University |
| 4 | Dr. Abdullah-Al-Mamun | Professor | Noakhali Science and Technology University |
| 5 | Gulshan Ara | Associate scientist | Icddr,b |
| 6 | Dr. David Little | Professor | University of Stirling, UK |
| 7 | Dr. Baukje De Roos | Professor | University of Aberdeen, UK |
| 8 | Dr. Richard Newton | Researcher | University of Stirling, UK |
| 9 | Dr. Shakuntala Thilsted | Director for Nutrition, Health and Food Security Impact Area Platform | CGAIR |
| 10 | Dr. Navodita Malla | Postdoctoral researcher | University of Copenhagen, Denmark |
| **Total** | | | **10** |