

Mainstreaming Freshwater Invertebrates Biodiversity Data into Government Decision-Making

Programme: BID

Project ID: BID-AF2020-169-USE

Project lead organization: The Nelson Mandela African Institution of Science and Technology

Project implementation period: 1/4/2021 - 30/11/2022

Report approved: 14/1/2022

Narrative Early Progress report

Executive Summary

The project has successfully accomplished its planning phase and associated outputs, firstly through organizing seven days (5th-11th July 2021) inception meeting which was attended by nine project members representing seven institutions' project partners. Through this meeting all team members familiarized one-another and got a common understanding of the project goals and expected outputs. Awareness of the importance of mainstreaming Freshwater Insects Mollusks and Crustaceans (FIMC) data and enable effective decision-making from this was enhanced among team members. Through consultation of data users; user-needs had been defined whereby data on FIMC species of conservation potential, indicators of habitat and ecosystem quality, species of human-health concern, and food and farming potential were needed to be mobilized (Annex 1). By the end of the meeting, the team was able to produce a FIMC data mobilization plan (Annex 2), develop project workflow (Annex 3), identify key data providers and users, identify FIMC data gaps, and allocate tasks to all stakeholders. For project progress monitoring purpose, a timeline (Annex 4) for delivering the planned project activities and outputs was reviewed and accentuated to all project members. The project has also organized seven days (12th-18th September 2021) data mobilization training workshop (Annex 1). The workshop has enhanced the capacity for effective mobilization of biodiversity data and highlighted the importance of biodiversity data publishing. Through this workshop, a network of FIMC data holders and users has been established and awareness of the use of GBIF-mediated data to produce policy-relevant information products has increased. The project has engaged graduate volunteers who will participate in data mobilization

Planning phase - User(s) consultation outcome(s)

Defining Data User Needs

The project has managed to establish communication and consolidated a link with Freshwater Insects, Mollusk, and Crustaceans (FIMC) data users who need to get our project results and output in accessible format and these include Pangani River Basin, Internal Drainage Basin, Lake Victoria Basin (i.e., Ministry of Water), Vice President Office-Environment, Tanzania Fisheries Research Institute (TAFIRI), Tanzania Wildlife Research Institute (TAWIRI- research institution responsible for coordinating evidence-based management of biodiversity in Tanzania) and the Commission for Science and Technology (COSTECH); who despite being users, they will also facilitate data mobilization process for this project. Through consultation of (FIMC) data users and reviewing of official documents reporting on freshwater biodiversity conservation and management from respective ministries and institutions, data user-needs had been defined whereby information on FIMC species data of conservation potential, indicator species of water and ecosystems quality, indicator species of habitat and climate changes, species of human-health concern, and species of food and farming potential are needed and recommended to be mobilized. The general scientific question that needs addressing is: what are status and distribution of the FIMC species/taxa (based on mobilized data) in northeastern Tanzania and how can these mobilized FIMC species/taxa be simply put in format that can easily be accessible and used by decision-makers from different (e.g. conservation, farming/fisheries and human-health) sectors in Tanzania? FIMC data users have recommended that the mobilized FIMC data be transformed into a range of policy-specific communication tools such as maps, brochures, policy briefs, and monitoring protocols to ensure easy communication and a common understanding essential for data to be integrated within decision-making by sectorial Ministries that include those dealing with water quality management, fisheries, and natural resources management.

To ensure that user inputs are integrated during the mobilization process and that the mobilized data is addressing user needs, a network of FIMC data holders, users, and mobilizers have been established. Through this network, we have developed a Whatsapp group and proposed to have several Zoom meetings which will be used as platforms to communicate the project progress whereby data users, providers, and mobilizers will be able to share their inputs throughout the development process. Moreover, the Vice President Office-Environment with its mandate to develop National Environmental Policy, Environmental Management Act, and Regulations, recognize the importance of having standard FIMC biodiversity information which can be used to produce policy-relevant information products needed for sustainable management of freshwater biodiversity in the country. As such knowledge and awareness that will be created through mobilization and publication of FIMC species data, and production of policy-relevant information products offer insights needed to guide decisions and effective actions for sustainable management of freshwater ecosystems and their biodiversity in the country.

Defining Data Needs

The project aims to generate occurrence and checklist of FIMC species/taxa datasets in GBIF-Darwin Core standards from various sources including GBIF database, TAFIRI, TAWIRI, WATER BASINS IN NORTHERN TANZANIA, UNIVERSITIES and other data holders that are suitable to address the user needs and the scientific question above that is being asked by the project : “what are status and distribution of the FIMC species/taxa (based on mobilized data) in northeastern Tanzania and how can these mobilized FIMC species/taxa be simply put in format that can easily be accessible and used by decision-makers from different (e.g. conservation, farming/fisheries and human-health) sectors in Tanzania?” From the mobilized FIMC data, the process of responding to this scientific question will be done in steps; firstly the mobilized data will be sorted and compiled based on GBIF standards to generate occurrence and checklist (GBIF mediated) data; Then, based on the scientific knowledge and expertise, occurrence and checklist data will be sorted and prioritized by sectorial ministries’ needs, which will mainly be those that are responsible for water quality management, biodiversity and environmental conservation and fisheries production. The mobilized data will be grouped into these three priority sectors and the occurrence and distribution maps for priority FIMC species (as defined by this project) will be generated to help in guiding (evidence-based) decision-making process (e.g. prioritization of research and data gaps that can inform future direction of research, safeguarding conservation and environmental quality) that are relevant by each of the (three) target sectors for this project. Apart from occurrence data, the project is also planning to mobilize and produce checklist data set to provide additional information on the taxon composition and data collection and monitoring protocol of FIMC species in northeastern Tanzania. Such information and data will be co-produced with the data holders and users from the respective sectors and the output from this among others will be shared to the respective sectors to help policy-and decision-makers to design appropriate management and adaptation strategies. In addition, the FIMC occurrence data can be used to inform on the health of the freshwater ecosystems thus helping policy and decision-makers and key stakeholders to assess the quality of the ecosystems and to design appropriate assessment and monitoring approaches. The project team has made a comprehensive review of FIMC data (from northeastern Tanzania) that are published through the GBIF database and found that only a few data exist with some missing the geographical coordinates. To meet the desired user needs, the mobilized FIMC species data from all target sources will be processed to produce FIMC species occurrence maps, policy briefs, brochures, and monitoring protocols. Project team members Hillary Mrosso and Grite Nelson have extensive experience in working with GIS and remote sensing data, and Issakwisa Ngondya and Linus Munishi have experience in developing national strategies and action plans and policy briefs for the management of the environment and biodiversity in Tanzania. In addition, other project members, Hulda Gideon, Khamis Kalegele and Vincent have extensive experience in handling data and databases including the GBIF database, which give a solid foundation to the project in terms of standardizing mobilized data in the format required to achieve the goals of the project within the defined time-frame. Therefore, the team has the needed capacity to produce the desired products by users. To ensure long-term updates of FIMC species data by stakeholders, the mobilized data sets will be published through and hosted by TanBIF. The policy briefs, maps, monitoring protocols, and brochures will be generated and produced as media for dissemination of the project results to the Ministry of Water, Vice President Office-Environment, and the Ministry of Natural resources and Tourism.

Planning Phase Outcomes

The project remains almost solid to its original plans in terms of executing its activities and delivering the intended targets and outputs. Based on the meetings and activities implemented during the planning phase (June-September 2021), we were able to consolidate information and streamline the data holders and users for the project outputs. Also, through the gaps and limitations anticipated in the data mobilization processes, we have now prioritized on the key taxa to be mobilized, however, we foresee that the quantity FIMC species occurrence records to be mobilized and published may be less than the original target of 30,000 records. This is because most of the available FIMC data are

identified up to family level and not to species level. In addition, slight changes are expected in the database component, but this will not affect the overall plan of the project. For this, instead of developing a new FIMC database, the project aims to direct more efforts towards linking existing FIMC databases from different institutions with TanBIF/GBIF databases based on the GBIF standards.

Report on Activities

Activity progress summary

The project has successfully accomplished its planning phase and associated activities and outputs, firstly through organized seven days (5th -11th July 2021) inception meeting which was attended by nine project members representing seven institutions' project partners. Through this meeting all team members familiarized one another and got a common understanding of the project goals and expected outputs. Awareness of the importance of mainstreaming Freshwater Insects Mollusk and Crustaceans (FIMC) data and enable effective decision-making from this was enhanced among team members, and a network and collaborations among team members was strengthened. By the end of the meeting, the team was able to (i) produce a FIMC data mobilization plan (Annex 2), (ii) develop project workflow (Annex 3), (iii) identify key stakeholders (data providers and users), (iv) identify FIMC data gaps, (v) develop a plan for data mobilization training workshop, and (vi) allocate tasks to all project members and key stakeholders. Most important, the project has managed to establish communication and consolidated a link with FIMC data users who need to get our project results and output in accessible format and these include Pangani River Basin, Internal Drainage Basin, Lake Victoria Basin (i.e., Ministry of Water), Vice President Office-Environment, Tanzania Fisheries Research Institute (TAFIRI), Tanzania Wildlife Research Institute (TAWIRI- research institution responsible for coordinating evidence-based management of biodiversity in Tanzania) and the Commission for Science and Technology (COSTECH); who despite being users, they will also facilitate data mobilization process for this project. In addition, the project has formulated the FIMC data mobilization team and stimulate the signing of Memorandum of Understanding (MoUs) between TanBIF/COSTECH and data holders for material/ data transfer agreement. Through consultation of data holders and users; user-needs had been defined whereby data on FIMC species of conservation potential, indicators of water and ecosystem quality, indicators of habitat changes, species of human-health concern, and food and farming potential were needed to be mobilized (*Annex 1-Meeting report*). Secondly, the project has also organized seven days (12-18 September 2021) data mobilization training workshop (Annex 1). The workshop has enhanced the capacity for effective mobilization of biodiversity data for team members and key stakeholders, as well as highlighted the importance of biodiversity data publishing. Through this workshop, a network of FIMC data holders and users has been established, a team of FIMC data mobilizers has been established and awareness of the use of GBIF-mediated data to produce policy-relevant information products has increased. Moreover, the project has engaged six graduate volunteers who will participate in FIMC data mobilization and form a network of ambassadors of GBIF/TanBIF as biodiversity data mobilizers.

Progress on activities

Activity: Brainstorming

Description: Team familiarization for project members, Identification of key stakeholders: (data providers and users) , Tasks allocations to team members and key stakeholders, Formulation of data mobilization plan, Identifying FIMC data gaps and defining FIMC data user needs

Start Date - End Date: 5/7/2021 - 11/7/2021

Verification Sources: Annex 1. Meetings report

Annex 2. Data mobilization plan

Annex 3: Project work flow

Activity: Capacity Bulding

Description: Capacity enhancement workshop (Train-the trainers) : Data mobilization training workshop for project team members and key stakeholders

Start Date - End Date: 12/9/2021 - 18/9/2021

Verification Sources: Annex 1. Meetings report

Report on Deliverables

Deliverables progress summary

The project has successfully achieved its planning phase deliverables. This includes

- (i) Potential users and providers of FIMC biodiversity data have been identified and mapped (Names and affiliations provided in Annex 1)
- (ii) A network of FIMC data users and provider has been established and enhanced (i.e., formulation of inter-basin teams of northeastern Tanzania's freshwater invertebrate's data holders and users from across different institutions in Tanzania).
- (iii) Data mobilization plan and project workflow have been developed.
- (iv) The project has stirred up the signing of Memorandum of Understanding (MoUs) between TanBIF/COSTECH and data holders for material/ data transfer agreement
- (v) FIMC data mobilization team has been formulated

Progress towards deliverables

Deliverables - Project planning phase

Potential users and suppliers of freshwater invertebrates biodiversity data identified and mapped

Description: Potential users and providers of FIMC biodiversity data identified and mapped

% complete: 100%

Status update: All potential users and providers of FIMC biodiversity data have been identified and mapped

Sources of verification: Annex 1. Meetings report

Data mobilization plan and project workflow

Description: Data mobilization plan and project workflow developed

% complete: 100%

Status update: Data mobilization plan and project workflow have been developed

Sources of verification: Annexes 2 and 3

FIMC data mobilization team

Description: FIMC data mobilization team formulated

% complete: 100%

Status update: FIMC data mobilization team has been formulated

Sources of verification: Annexes 1 and 2

Deliverables - Project data mobilization phase

FIMC occurrence data sets

Dataset type: Occurrences

Dataset scope: (i) FIMC species occurrence of northeastern Tanzania.

Number of records: 20,000

Data holder: TanBIF, PBWO, TAFIRI, TAWIRI, LVB, UDMS, NM-AIST

Data host institution: TanBIF

% complete: 0%

Status update: NA

DOI:

Expected date of publication: 2022-03-01

Deliverables - Project evaluation phase

FIMC species occurrence and distribution maps

Description: FIMC species occurrence and distribution maps of northeastern Tanzania

% complete: 0%

Status update: NA

Sources of verification: Generated FIMC species distribution maps that help in guiding (evidence-based) decision-making process

Policy briefs

Description: A policy brief that will aid in policy formulation and implementation, and in decision making processes for sustainable management of FIMC biodiversity in the northeastern Tanzania

% complete: 0%

Status update: N/A

Sources of verification: N/A

Brochures of FIMC biodiversity of northeastern Tanzania

Description: Brochure detailing on distribution of FIMC species in northeastern Tanzania, FIMC

conservation status, FIMC species indicators of habitat and ecosystem quality, FIMC of farming/fisheries potential, and FIMC species of conservation importance from northeastern Tanzania that help in generating awareness on the importance of FIMC species and guiding policy formulation and evidence-based decision-making process

% complete: 0%

Status update: N/A

Sources of verification: N/A

FIMC monitoring protocol

Description: A monitoring protocol detailing on what should be done to monitor FIMC biodiversity in both permanent and temporary freshwater to aid in policy implementation and in decision making processes for sustainable management of FIMC biodiversity in the northeastern Tanzania

% complete: 0%

Status update: N/A

Sources of verification: N/A

Linking FIMC databases with TanBIF database

Description: Linking existing FIMC databases from different institutions with TanBIF/GBIF databases

% complete: 0%

Status update: N/A

Sources of verification: N/A

Events

Project inception meeting/workshop (Brainstorming)

Dates: 2021-07-05 - 2021-07-11

Organizing institution: The Nelson Mandela African Institution of Science and Technology

Country: Tanzania

Number of participants: 9

Comments: Through this meeting all team members familiarized one-another and got a common understanding of the project goals and expected outputs. Awareness of the importance of mainstreaming Freshwater Insects Mollusks and Crustaceans (FIMC) data and enable effective decision-making from this was enhanced among team members. Through consultation of data users; user-needs had been defined. By the end of the meeting, the team was able to produce a FIMC data mobilization plan (Annex 2), develop project workflow (Annex 3), identify key data providers and users, identify FIMC data gaps, and allocate tasks to all stakeholders. For project progress monitoring purpose, a timeline (Annex 4) for delivering the planned project activities and outputs was reviewed and accentuated to all project members.

Website or sources of verification: Annex 1. Meeting reports

Events

Capacity enhancement data mobilization training workshop

Dates: 2021-09-12 - 2021-09-18

Organizing institution: The Nelson Mandela African Institution of Science and Technology

Country: Tanzania

Number of participants: 21

Comments: The workshop has enhanced the capacity for effective mobilization of biodiversity data and highlighted the importance of biodiversity data publishing. Through this workshop, a network of FIMC data holders and users has been established, a FIMC data mobilization team established, and awareness of the use of GBIF-mediated data to produce policy-relevant information products has increased. The workshop has also given capacity to graduate volunteers who will participate in data mobilization

Website or sources of verification: Annex 1. Meeting reports

GBIF leads the Biodiversity Information for Development (BID), a programme funded by the European Union. The programme provides supplementary support for activities addressing the needs of regional researchers and policymakers through mobilization and use of biodiversity data.

