GBIF

MID-TERM NARRATIVE REPORT

Guidelines on how to complete this report are included in italics.

Use the information included in your BIFA Full Proposal (reproduced in Annex 1 of your BIFA contract) as a baseline from which to complete this report.

Remember that this report will be made available on your project page on the GBIF website and therefore should not include any contact information, unless you have permission from all mentioned in the report that their contact information can be published.

Contents

Project information

Main contact person and role:	Joe Chun-Chia Huang
Institution/network/agency affiliation:	Universiti Kebangsaan Malaysia
BIFA Project ID:	BIFA4-024
Project title:	**Implementation of acoustics to fill the gaps of bat biodiversity information for Southeast Asia**
Start date and end date of the reporting period:	**1 May 2019-October 2019**
Country in which the activities take place:	**Southeast Asia**

Executive summary

Provide a brief explanation of the project and its implementation, the context and the approach taken for the mid-term evaluation, and a summary of progress of your project's original objectives. Also include any additional objectives that have been defined since the implementation of the project and explain why they've been added to the project's initial objectives. In the event of unexpected challenges which have prevented you to reach a planned project objective, please provide explanations and indicate how you plan to reach these objectives within the project implementation period and if you would like to receive the help of a specific project mentor. (Max. 350 words.)

Bats make up nearly 40% of Southeast Asia's mammal species but have received limited attention in biodiversity studies. To redress this, Southeast Asian Bat Conservation Research Unit (SEBACRU) developed a database for collecting bat locality data across SE Asia and pushing new data to GBIF. Our prior research shows that SE Asian bat data in open-source resources are strongly biased with consequences for models that underpin conservation policy. Fortunately, occurrence data for many bat species can be generated through acoustic sampling. In our review, call descriptions from over 40% of echolocating species have been reported in literature, but none of the recordings are accessible and many of the species occurrence attached are not published. The Hungarian Natural History Museum (HNHM) is establishing the Asian Bat Call Database, which is the first open bat call library in Asia. With a support from GBIF, SEABCRU and HNHM are cooperating to assemble existing reference calls from SE Asia and nearby regions, and to capture species location data represented by recordings. By to date, we have introduced the funded project to SEABCRU members in our 2019 annual meeting, to global bat researchers at the 18th International Bat Research Conference, and participants in a follow-up workshop. We have developed a standard sheet following the Darwin Core and GUANO standards for allocating species location and recording metadata, a data sharing policy, and *guanoctl* (https://github.com/dsquire/guanoctl), a Python-scripted tool which allow us to edit the metadata attached with acoustic recordings. SEABCRU also assigned a team for developing a bioacoustics handbook for SE Asian bats. Currently, our project partners are preparing the species data and associated recording metadata and will adopt their datasets to the standard from. We will collect and clean the data during a 2-day workshop at the Universiti Kebangsaan Malaysia on this November 30th and December 1st.

Although we cannot submit any dataset to GBIF by the mid-term report, we will begin data publishing after the main workshop in Malaysia as we stated in the proposal. In general, all the proposed activities/events are on the track, and we are confident we can achieve all the objectives.

Progress against expected milestones

Please indicate the status of the expected milestones as outlined in Annex 3 of the contract, at the time of mid-term reporting. Please provide links in the sources of verification.

In the event of unexpected delay(s), please provide detailed explanatory notes.

Expected milestones	Completed? Yes/No	Explanatory notes	Sources of verification
Gain certification at BIFA Capacity Enhancement Workshop **(Mid-term report milestone)**	Yes		Annex 1
At least one dataset has been published to GBIF.org **(Mid-term report milestone)**	No	The original schedule in the proposal primarily is to collect cleaned and standaridzed data from the project partners during and after the main workshop, which will be helded on this Nov 30th -Dec 1st. Since our project aims to collect data from 18 institutes across 8 coutries via an intergration of databases, a longer prepration time for designing data collection protocol, sharing policy, and traing materialss is necessary. The late data publishing timelime is expected and has been previously addressed in the full proposal.	Annex 2

Activities

Please indicate the status of the activities as outlined in the BIFA Full Proposal (section 4.4), at the time of mid-term reporting.

The table below should be completed in the same way as in the BIFA Full Proposal, but should include information and updates on the status of each activity. Please indicate relevant source(s) of verification and provide links, or a copy of the source of verification mentioned if no links are available. Attachments should be provided in the Annex.

In the event of unexpected delay(s), please provide detailed explanatory notes and indicate new planned completion date(s) within the project implementation period.

In the event of any additional activities having being completed, please add rows as required.

Activity name	Expected deliverable	Contribution to goals listed in table 4.3 of the BIFA Full Proposal	Status of activity as of mid-term reporting Provide % complete and state either on-track or delayed	Explanatory notes, inc. new planned completion date if necessary	Source(s) of verification
Monthly programmer online meeting	To develop user-friendly and effective tools to mobilize species location data attached to media from HNHM call database to SEABCRU database and then redirect them to GBIF.org	Goals 1, 2, 3	50 %, on track	The SEABCRU database programmer has been building a generic API that HNHM can use to send species location data from ABCD to the SEABCRU species database. However, the two parties haven't yet checked the progress with each other.	N/A
Bimonthly online meeting between programmers and lead scientists	To track the progress of tool development, the designs of the tools fulfil the needs of the expected users and feasible for extended applications in the future, and the format of the data published to GBIF	Goals 1, 2, 3	100 %, on track		Spread in emails and instant messages via various social media apps. The diversity of the communication tools is mostly due to the difficulty in access emails when some partners are in the field trip with very limit internet or

	following the GBIF's requirements				no internet sometimes.
Bimonthly lead scientist online meeting	To ensure the project following the proposed timeline, and to discuss contingency plans for risk mitigation; to organize and prepare necessary materials for all proposed activities and events; to generate project reports	Goals 1, 2, 3	100 %, on track		Spread in emails and instant messages via various social media apps. The diversity of the communication tools is mostly due to the difficulty in access emails when some partners are in the field trip with very limit internet or no internet sometimes.
Face-to-face meeting	To promote the project to the steering committee members of SEABCRU and to update the progress of the project to those already participate in this project	Goal 2	100 %, on track		Annex 03.1-03.3
Data quality control workshop	To work with SE Asia's researchers to collect and format existing data for the proposed databases, primarily focus on data hold by the project partners and SEABCRU researchers	Goals 2, 3	100 %, on track		Annex 04 & 05
Development of an acoustic survey manual	To provide guidelines to the community to develop effective and feasible survey protocols to acquire species location and ecological information for SE Asian bats	Goal 2	33%, on track	After mid-term activity	To be updated by the final report
Presenting in scientific meetings	To disseminate the project to broad audiences in Asia	Goal 2	100 %, on track		https://ibrc2019.com/overview-of-the-program/ Annex03.3, 06.1-06.6
Main workshop	To populate the project with global researchers in Asia and to	Goal 2	100 %, on track		https://qrgo.page.link/YLiWn

	assemblage and format new data collected by SEABCRU members and new participants				
Webinar training	To supervise the existing partners and new participants, especially those do not attend any previous workshop to edit the species location data and the metadata of the associated media following stand formats	Goals 2, 3	10 %, on track	After mid-term activity	To be updated by the final report
Data paper drafting	To promote the datasets generated and the tools developed from the project, including the two databases	Goal 2	10 %, on track	After mid-term activity	To be updated by the final report
Publishing developed tools	To have broader and longer-term impacts of this project by sharing on the tools developed open science platforms	Goals 2, 3 (indirect)	100%, on track		*https://github.com/dsquire/guanoctl*
Data publishing to GBIF database	To fill taxa and geographic gaps of bat biodiversity in the database and allow global users to access the new datasets though GBIF platform	Goal 3	25 %, on track	After mid-term activity	To be updated by the final report

Deliverables

This section should summarize the project deliverables as outlined in the BIFA Full Proposal (section 4,5), at the time of mid-term reporting. Please highlight any changes from the original plans.

If no result has been achieved on a specific point, please clearly indicate this and provide expected date of completion.

In the event of unexpected delay(s), please provide detailed explanatory notes and indicate new planned completion date(s) within the project implementation period.

In the event of any additional deliverables having being completed, please add rows as required.

a. Data

Details of datasets published and/or pending publication as an outcome of the project. The table below should be completed in the same way as in the BIFA Full Proposal but should include information and updates on the status of each dataset. Please provide links in sources of verification.

If the dataset is not yet published, please provide a detailed explanation, % of digitization and expected date of publication. Add rows as required.

Title of dataset	Data type (checklist/occurrences/sampling event) [1]	Estimated number of records (specimens)	Status of dataset: Published or % of digitization/pending publication and expected date of publication	Data holding institution agreed to publish its data via GBIF.org (Yes/No)	Explanatory notes	Source(s) of verification: DOI or URL
Bat diversity in SW Sumatra, Indonesia	Occurrences & sampling event	125	*50% digitized, expected date of publication in December 2019*	Yes	Fully digitalized but not in the standard format for publication.	N/A
SEABCRU bat call collection	Occurrences & sampling	200	*10% digitized, expected date of*	Yes	Part of the data	N/A

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[1] Dataset classes: http://www.gbif.org/publishing-data/summary#datasetclasses

Title of dataset	Data type (checklist/occurrences/sampling event) [1]	Estimated number of records (specimens)	Status of dataset: Published or % of digitization/pending publication and expected date of publication	Data holding institution agreed to publish its data via GBIF.org (Yes/No)	Explanatory notes	Source(s) of verification: DOI or URL
	event		*publication in March 2020*		digitalized but in separated files and not in the standard format	
Asian Bat Call Database	Occurrences & sampling event	500	*25% digitized, expected date of publication in March 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
Malaysia bat call library	Occurrences	200	*25% digitized, expected date of publication in March 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
Bat diversity in protected areas of Borneo Malaysia	Occurrences & sampling event	300	*25% digitized, expected date of publication in February 2020*	Yes	Part of the data digitalized but in separated files and not in the standard format	N/A
Bat Diversity in Gunung Mulu National Park, Sarawak, Malaysia	Occurrences & sampling event	200	*50% digitized, expected date of publication in December 2019*	Yes	Fully digitalized but not in the standard format	N/A
Bat Diversity in Penang, Malaysia	Occurrences & sampling event	100	*10% digitized, expected date of publication in January 2020*	Yes	Data collection process. The existing data digitalized but in	N/A

Title of dataset	Data type (checklist/occurrences/sampling event) [1]	Estimated number of records (specimens)	Status of dataset: Published or % of digitization/pending publication and expected date of publication	Data holding institution agreed to publish its data via GBIF.org (Yes/No)	Explanatory notes	Source(s) of verification: DOI or URL
					separated files and not in the standard format	
MZB Indonesian bat call library	Sampling event	150	*25% digitized, expected date of publication in February 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
PMCSNHM bat call library	Occurrences	100	*10% digitized, expected date of publication in February 2020*	Yes	Part of the data is digitalized but in separated files and not in the standard format	N/A
NZM bat call library	Occurrences	200	*25% digitized, expected date of publication in January 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
IEBR bat call library	Occurrences	200	*25% digitized, expected date of publication in February 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
Bat diversity in a karst landscape in Northern Vietnam	Occurrences	200	*25% digitized, expected date of publication in January 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A

Title of dataset	Data type (checklist/occurrences/sampling event) [1]	Estimated number of records (specimens)	Status of dataset: Published or % of digitization/pending publication and expected date of publication	Data holding institution agreed to publish its data via GBIF.org (Yes/No)	Explanatory notes	Source(s) of verification: DOI or URL
Bat diversity in Cambodia	Sampling event	100	*25% digitized, expected date of publication in January 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
Bat diversity in Singapore	Occurrences	100	*10% digitized, expected date of publication in February 2020*	Yes	Part of the data is digitalized but in separated files and not in the standard format	N/A
Bat diversity in Taiwan	Occurrences	50	*25% digitized, expected date of publication in January 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
Reference calls (zero-crossing) for Taiwanese bats	Occurrences	100	*25% digitized, expected date of publication in March 2020*	Yes	Data digitalized but in separated files and not in the standard format	N/A
Reference calls (full spectrum) for Taiwanese bats	Occurrences	100	*10% digitized, expected date of publication in February 2020*	Yes	Only part of the existing data digitalized but in separated files and not in the standard format	N/A
Bat diversity in the northern and	Occurrences & sampling	100	*50% digitized, expected date of*	Yes	Fully digitalized but not in	N/A

Title of dataset	Data type (checklist/occurrences/sampling event) [1]	Estimated number of records (specimens)	Status of dataset: Published or % of digitization/pending publication and expected date of publication	Data holding institution agreed to publish its data via GBIF.org (Yes/No)	Explanatory notes	Source(s) of verification: DOI or URL
Southern Vietnam	event		*publication in March 2019*		the standard format for publication.	
Central Taiwanese bats	Occurrences & sampling event	100	*50% digitized, expected date of publication in March 2019*	Yes	Fully digitalized but not in the standard format for publication.	N/A

b. Other deliverables

Describe other deliverables (e.g. publication of data papers, analysis, reports etc.) produced and/or planned to be produced/completed as part of the project. Please provide percentage complete and status of deliverable, together with an indicative dates/estimated time for completion.

Please provide links in the sources of verification. Attachments should be provided in the Annex.

Name and type of deliverable	Status of deliverable Provide % complete and on-track/ delayed	Explanatory notes	Source(s) of verification

Name and type of deliverable	Status of deliverable Provide % complete and on-track/ delayed	Explanatory notes	Source(s) of verification
Drafting Acoustic survey handbook	*33%, on-track*	*Expected to be completed by 2020 (the 1st draft)*	
Drafting data papers	*10%, on-track*	*Expected to be completed by April 2020*	
Presenting the project at scientific meetings	*100%, complete*	*Introduced the project to participants at the 18th International Bat Research Conference in Phuket, Thailand, on July 28th, 2019 and the IBRC post-conference workshop in Hat Yai, Thailand, on August 2nd-6th, 2019.*	*https://ibrc2019.com/overview-of-the-program/* Annex03.3, 06.1-06.6
Publishing new tools	*100%, complete*	*V 1.0 is released and expected to be updated*	*https://github.com/dsquire/guanoctl*

Events organized as part of the project

Please indicate the status of the events as outlined in the BIFA Full Proposal (section 4.6), at the time of mid-term reporting.

The table below should be completed in the same way as in the BIFA Full Proposal, but should include information and updates on the status of each event. Please provide links to any documents or web pages documenting the event(s) in the sources of verificaiton. Attachments should be provided in the Annex

In the event of unexpected delay(s), please provide detailed explanatory notes and indicate new planned completion date(s) within the project implementation period.

In the event of any additional events having being completed, please add rows as required.

Event title	Organizing institution	Date held / expected dates	Number of participants	Explanatory notes	Source(s) of verification
Data quality control workshop	Southeast Asian Bat Conservation and Research Unit	28 July 2019	17	Completed	Annex03.1-03.3
Main workshop for populating	Southeast Asian Bat Conservation and Research Unit, Hungarian Natural History Museum, and University Kebangsaan Malaysia	November 30th - December 1st, 2019 (2 days)	Up to 40	The workshop was originally planned for 3 days. However, we changed the duration to 2 days due to a difficulty to find a 3-day slot for the majoirity of the project partners in the proposed timeframe. To mitigate the loss of time, we had made a standard datasheet with instruction (Annex04) and sent it to the project partners. We expected the partners to finish the data entry prior to the workshop and then check the data with facilitators during the workshop. They will also serve as trainers to help other participants to work on their data.	https://www.facebook.com/photo.php?fbid=2945810752100490&set=gm.3113461525362149&type=3&theater&ifg=1 Annex04, 07.1-07.2
Webinar training	Southeast Asian Bat Conservation and Research Unit and Hungarian Natural History Museum	January 2020	Up to 100	A tentaive date and agenda will be discussed and planned in a meeting after the main workshop	Annex07.2

Calendar of activities

The calendar should be completed in the same way as in the BIFA Full Proposal (section 4.7) but should also clearly indicate and include any changes (e.g. use of colour-coding to indicate expected changes and/or delays). Please provide explanations for any changes in the "Notes" column and/or the explanatory notes section.

Activity		2019	2020	Notes

	M	J	J	A	S	O	N	D	J	F	M	A	
Activity: Monthly programmer online meeting	X	*	*	*	*	*	X	X	X	X	X	X	Miscommunication. However, it did not affect the progress of the development of web portal between two databases.
Activity: Developing web portal for bridging SEBACRU database and ABCD	X	X	X	X	X	X	X	X	X	X	X		
Activity: Bimonthly scientist online meeting	X		X		X		X		X		X		
Activity: Bimonthly online meeting between scientists and programmers		X		X		X		X		X		X	
Mandatory attendance of a project team member to the BIFA Capacity Enhancement Workshop (expenses for attending the workshop are covered by the BIFA programme)			X										
Activity: Face-to-face follow-up meeting for leading researchers and partners			X										
Event: Data quality control workshop			X										
Activity: Species data missing area coverage fieldwork					X								
Data preparation for publishing to GBIF database				X	X	X	X	X	X	X	X	X	
Activity: Development of the acoustic survey manual				X	X	X	X	X	X	X	X	X	
Activity: Presenting the project at an Asia-based international conference for biodiversity science			*										Due to a schedule conflict, the PI represented the project in different events instead of the proposed 2019 ATBC-AP Annual meeting
Activity: Writing mid-term report						X							

Activity	2019								2020				Notes
	M	J	J	A	S	O	N	D	J	F	M	A	
Deadline for mid-term report – 31 October 2019 Mandatory milestones attached to the mid-term report: - Gain certification at BIFA Capacity Enhancement Workshop - At least one dataset has been published to GBIF.org*						X		*					In the full proposal, we scheduled to collect cleaned and standaridzed data from the project partners during the main workshop, which will be helded on this Nov 30th-Dec 1st. The delay of data publishing is expected and relevant for our project
Event: Main workshop							X						
Activity: Data paper drafting and submission						X	X	X	X	X	X		
Activity: Publishing new tools to open tool platforms						*	X	X	X	X	X		We finished and uploaded the beta version of the developed tool, guanoctl, to Github earlier than the schedule. New versions will be updated after we have the feedbacks from users in after main workshop
Event: Webinar training									X				
Activity: Publishing new species data to GBIF.org									*	*	X		We decided to start data publishing earlier due to the high number of the dataset. The multiple data sources could also complicate the data cleaning process
Activity: Writing final report												X	
Deadline for final reporting – 30 April 2020 Mandatory milestones attached to the final report: - All deliverables have been produced - Sustainability and next steps have been documented												X	

a. Explanatory notes

All changes of the timelines are marked with asterisks and the explanations are noted in the above table.

Project communications and visibility

Describe the plans and how the results of your project have been and will be communicated and shared with the project stakeholders and broader GBIF community.

Please also review the page describing your project available from http://www.gbif.org/programme/bifa and highlight any additional documents, events, news items or links that you would like to add to your page and provide links/attachments in the Annex.

We have advertise the project via SEBACRU's Facebook group, which currently has over 1,400 fans (www.facebook.com/groups/125833910791607), Twitter (https://twitter.com/EcojoeHuang), and ResearchGate (https://www.researchgate.net/project/BIFA-Ecological-monitoring-data-mobilization-Implementation-of-acoustics-to-fill-the-gaps-of-bat-biodiversity-information-for-Southeast-Asia). The leading researcher has presented this project at the 2019 annual SEABCRU meeting, the 18th International Bat Research Conference (https://ibrc2019.com/) and 2019 IBRC post-conference workshop (https://goo.gl/QwAc1t). We recently release gaunoctl, a new open tool that designed for metadata editing of acoustic recordings assembled though this project (https://github.com/dsquire/guanoctl). Further results and outputs of the project, e.g. a standard form of the recording metadata and data sharing policy, and publications, will be also shared and advertised later. The principle investigator has constantly communicated and shared the project progress and materials with project stakeholders via emails and various social media platforms. Moreover, many of the project partners, SEABCRU steering committee members, and our associates are serving in institutes and organizations that have been involving in establishing biodiversity information carrying capacity in Asia and over the world. For example, many of the project's partners are the leading institutes of national/regional collections of mammals or/and several other taxa (birds, reptiles, amphibians, fish and insects) in Indonesia, Thailand, Malaysia, and Vietnam. Hungarian Natural History Museum, the leading institute of the associated call library, has been working on biodiversity research across Asia. Several steering committee members and SEABCRU associates are serving in local and international NGOs, e.g. IUCN SSC Bat Specialist Group (https://www.iucnbsg.org/) and Ecohealth Alliance (https://www.ecohealthalliance.org/). Therefore, our project not only can enhance biodiversity data mobilization for Southeast Asian bats but could also expand its influences on broad spatial extent and more diverse taxa and audiences via our network. At last, we will invite the GBIF staff and global members to join the proposed training webinar and seek opportunities to present the project in GBIF's annual meeting. The team is confident that our multi-dimensional strategy in populating the project is solid and will be effective.

Highlights for update:

1. Annex03.01-03.03: 2019 SEABCRU annual meeting

2. Annex04: ABCD standard datasheet

3. Annex05: SEABCRU data sharing authorization form

4. Annex06.02: 2019 IBRC pre-conference workshop pictures

5. Annex06.03-06.06: 2019 IBRC post-conference workshop

6. Annex07.01-07.02: 2019 SE ABCD & BI workshop

Mid-term evaluation findings and recommendations for the remaining project implementation period

This section should cover for example:

- *An evaluation of the project activities by mid-term and their outputs/deliverables*
- *Comments on the project implementation, and its efficiency and effectiveness, strength and weaknesses etc.*
- *Any feedback on the project's relevance from the partners and stakeholders*
- *Indications and reasons for any changes which have been made to the project's original plans, and actions to follow-up*
- *The management arrangements for the project, including support from the GBIF Secretariat*
- *Areas of success to build on during the remaining project implementation period*
- *Any request for guidance and/or assistance in the form of a specific project mentor*

(Max. 300 words)

We achived most scheduled tasks by mid-term. We shared this project with stakeholders from 8 Southeast Asian countires, another 10 Asian countires, Australia, New Zealand, Africa, USA and Europe via social media, meetings, and workshops. The high number of application of our main workshop (50 by 6 days) indicate our advertisement strategy is effective. The fact that many of our stakeholders were based on other Asian and tropical regions suggests the potential implication of our model in mobilizing biodiversity informtion to broad georgaphic regions. We have received feedbacks from the partners and staekholders, mostly on data formatting and sharing. Their comments have been considered when we designed the standard form, sharing policty, and tool. All the materials will be used in the upcoming workshops and opened online afterwards. We are not able to submit any dataset by mid-term as requested by GBIF. We expected the delay since our plan is to assemble data by the main workshop, which is scheduled after this report. We think the extra time is relevant for developing all necessary materials as the project involving data collection from at least 15 agencies in 10 countries. The biggest challenge of the project is the communication among partners from such diverse and large groups. Although the miscoomunication did not affect the progress of the project by the mid-term, to avoid any the possible influence to the project, the team will disucss this issues and seek for solutions in the upcoming workshop. We would like to request GBIF to review our standard form and data sharing policy before publishing if the designed materials fulfill the requirements for GBIF. We would also like to ask GBIF to consider SEABCRU as another node for data publishing, which is the portal of the species database and where the data manager is based.

Sustainability plans

Please provide a description of how the partners involved will build on the results of this project in their future work. This could include future collaborative activities, such as plans to complete any unfinished project activities and how the future impact of the project could be monitored and/or measured. (Max. 200 words).

After the project, the team will continuously collect existing data via our network and new data with the support from Hungary until December 2020. SEABCRU and HNHM will also seek opportunities to obtain funding and resources to further promote the data mobilization, to manage the systems sustainably and to publish the acoustic handbook. Several project partners and project workshop participants are developing proposals on acoustic monitoring, call classifier development, species inventory surveys, and taxonomy research for bats in Asia. The species location data and audio recordings from this project could provide them baseline to design evidence-based action plans and reciprocally contribute new biodiversity information to our databases and GBIF. The SEBACRU-HNHM alliance can serve as a hub further delivering the concept of data

mobilization to a larger geographic extent than Southeast Asia. Many of the former trainees of our previous workshops and projects have expand their research to other Asian regions, i.e. South Asia, Taiwan, China and Western Asia, and continuously contribute to the network, including this project. Their participation is expected to benefit the development of biodiversity data mobilization and transparency in Asia, of which many countries has been identified by GBIF as a geographic gap of biodiversity knowledge.

Annex – Additional sources of verification

Sources of verification are for example links to relevant digital documents, news/newsletters, brochures, workshop related documents, pictures, etc.

1. Annex01: Open Badge awarded to the PI from GBIF

2. Annex02: BIFA04_24 full proposal

3. Annex03.01-03.03: 2019 SEABCRU annual meeting

4. Annex04: ABCD standard datasheet

5. Annex05: SEABCRU data sharing authorization form

6. Annex06.01-06: 2019 IBRC pre- and post-conference workshops

7. Annex07.01-07.02: 2019 SE ABCD & BI workshop