



Helsingin yliopiston
ihmistieteiden eettisen
ennakkoarvioinnin toimikunta

University of Helsinki Ethical review board
in humanities and social
and behavioral sciences

Helsinki, December 4, 2019

To whom it may concern,

By request of Mohammad Mozumder from the Faculty of Biological and Environmental Sciences, University of Helsinki, I here explain the role of the Ethical Review Board in the Humanities and Social and Behavioral Sciences at the University of Helsinki.

At the University of Helsinki, researchers are requested to study the [Ethical principles of research in the humanities and social and behavioural sciences](#) issued by the Finnish Advisory Board on Research Integrity (<http://www.tenk.fi/en>). A statement of the ethics of a research design, regardless of the discipline in question, must be requested from the University of Helsinki Ethical Review Board in the Humanities and Social and Behavioral Sciences if a study meets certain requirements set out under items 1-6 below, as specified by the Finnish Advisory Board on Research Integrity:

1. The study involves an intervention in the physical integrity of subjects.
2. The study deviates from the principle of informed consent. (An ethical review is not required, however, if the research is based on public or published documents, registries or archived data.)
3. The subjects are children under the age of 15, and the data are collected without parental consent and without providing the parents or guardians with an opportunity to prevent the child from taking part in the study, and the study is not part of the normal activities of a school or an institution of early childhood education and care.
4. The study exposes research subjects to exceptionally strong stimuli and evaluating possible harm requires special expertise (for example, studies involving violence or pornography).
5. The study may cause long-term mental harm (trauma, depression, insomnia) beyond the risks encountered in normal life.
6. The study can expose subjects to a security risk (for example, studies involving domestic violence).

However, if the study does not meet any of the mentioned requirements, an ethical review is not required. Ethical reviews must be requested prior to data collection.

Sincerely,

A handwritten signature in blue ink, appearing to read 'R. Palonkorpi'.

Riikka Palonkorpi
Secretary of the Ethical Review Board in the Humanities and Social and Behavioral Sciences at the
University of Helsinki

Riikka Palonkorpi, Ph.D.
Senior Advisor in Research Administration
P.O. Box 63
FIN-00014 University of Helsinki
Finland

Phone: +358 50 4156727
riikka.palonkorpi@helsinki.fi

Semi-structured questionnaires for in-depth interviews/ Focus group discussions (FGD)

Hilsa fishers (Man and woman), and boat owners

- Background Information- Name, age, contact number, education, family members, village name, etc.
- Hilsa Fishing/ value and supply chain- What is the primary purpose of your involvement in fishing? Fishing as a profession (how long)? Do you have your own boat? Otherwise how you will manage to fish? Where do you go for hilsa fishing? Who fish there and are there any outside fishers? who sells the fish? how does the fish find their way to the market or consumer? How many people are working in a boat? who lead the boat and who distribute the responsibilities? Who control everything in a boat, such as to catch fish, sell them to market and share the profits or wage distribution? Any conflicts? What is the distribution of power in the fishing boat or power relations in a fishing boat? Do you take loan to operate your fishing activities and from whom you take loan? How you will repay the loan? Is there any agreement between you and loan giver? What are the difficulties you face during your fishing? Is hilsa overexploited? Is *jatka* overexploited? Could you tell me the reasons behind this? What is your advice to minimize the situation?
- Ban period and role of incentives - What is a ban period of hilsa? Do you notice any enforcement activity take place during the ban period? Are there any illegal fishers? Are they subject to any punishment if caught? Are you a recipient of the scheme (incentives program) by the government- not to fish during, do you think hilsa stocks have changed as a direct result of the compensation scheme? If no change, what is the reason? Do you think the distribution of compensation is fair, why and why not? Which people in the village get compensation? Do you think that powerful fishers or other gets compensations? If so, what are the reasons behind? Do you think there are any risks related to incentives schemes? If so, what? Do you receive any incentive supports (rice, cash etc) from the government? In your opinion how fair is the distribution of incentive supports? If not fair, who plays the dominant role in distribution of incentive program? In your opinion, who decide whom to be included in the beneficiary lists of incentive program? Do you think there is power relations in the incentive schemes? If yes, please explain. Who has the main power and why? And who has the least and why?
- Governance-There are lots of problem in managing hilsa fishery. What do you think, how we can assure the sustainability of the hilsa fishery? How it would be if government and fishers work together? if no, why not? if yes, why? if yes, who should be involved in the such processes? What would be the role and responsibility of each party? do you think your community could be interested in such arrangements? if no, why not? what could make them interested? What types of management activities can be conducted in your communities? What might be some limitations or challenges the of a such management system? and some benefits/ advantages? Do you think you have power to influence other stakeholders in the hilsa value chain? If yes, how do you do that? What are the barriers to implement your power? What do you think about the government policies

and legal support for governance in hilsa sanctuaries? What factors do you think will affect the results of good governance in hilsa sanctuaries? What is your advice / are your suggestions for good governance in hilsa sanctuaries? what types of power relations among the stakeholders will be the best for good governance arrangement in the hilsa fishery?

Money lenders (*aratdar*) and fish traders -who sells the fish? how does the fish find their way to the market or consumer? Who is connected to whom and which connections are most intense in terms of volume of interaction? Could you tell me the power relations among the stakeholders in the value and supply chain? Where is your position in the relations? Do you play any rule in the hilsa incentive program? If yes, please explain. There are lots of problem in managing hilsa fishery. What do you think, how we can assure the sustainability of the hilsa fishery? How it would be if government and fishers work together? if no, why not? if yes, why? if yes, who should be involved in the such processes? What would be the role and responsibility of each party? do you think your community could be interested in such arrangements? if no, why not? what could make them interested? What types of management activities can be conducted in your communities? What might be some limitations or challenges the of a such management system? and some benefits/ advantages? Do you think you have power to influence other stakeholders in the hilsa value chain? If yes, how do you do that? What are the barriers to implement your power? What do you think about the government policies and legal support for governance in hilsa sanctuaries? What factors do you think will affect the results of good governance in hilsa sanctuaries? What is your advice / are your suggestions for good governance in hilsa sanctuaries? what types of power relations among the stakeholders will be the best for good governance arrangement in the hilsa fishery?

Specific questions to other stakeholders involved in hilsa fishery

Local government representatives (Union parshad chairman and members)- Do you play any rule in the hilsa incentive program? If yes, please explain. There are lots of problem in managing hilsa fishery. What do you think, how we can assure the sustainability of the hilsa fishery? How it would be if government and fishers work together? if no, why not? if yes, why? if yes, who should be involved in the such processes? What would be the role and responsibility of each party? do you think your community could be interested in such arrangements? if no, why not? what could make them interested? What types of management activities can be conducted in your communities? What might be some limitations or challenges the of a such management system? and some benefits/ advantages? Do you think you have power to influence other stakeholders in the hilsa value chain? If yes, how do you do that? What are the barriers to implement your power? What do you think about the government policies and legal support for governance in hilsa sanctuaries? What factors do you think will affect the results of good governance in hilsa sanctuaries? What is your advice / are your suggestions for good governance in hilsa sanctuaries? what types of power relations among the stakeholders will be the best for good governance arrangement in the hilsa fishery?

Local governments administrative personnel- (Fishery officer, Police and Coast Guard): Questions are mostly same as Local government representatives. Specific questions: What is the primary purpose of your involvement in the fishery? What types of problem you face while implementing the government fisheries regulations? What are the things that government can do for the sustainability of the fishery or your opinion?

Academics- How you are involved in Hilsa fishery? In your opinion, what are the loopholes in the present hilsa fishery governance? Please suggest actions and measures that should be taken for good governance

as well as alleviate problems in the livelihoods of fishers, and the fishing communities. What do you think about the government policies and legal support for co-management arrangements in hilsa sanctuaries? What factors do you think will affect the results of co-management in hilsa sanctuaries? Do you think there are power asymmetry among the hilsa fishery stakeholders? What is your advice / are your suggestions for successful co-management in hilsa sanctuaries?

Local NGOs (officials working with fishing communities): What is the primary purpose of your involvement in the hilsa fishery? In your opinion, what are the loopholes in the present hilsa fishery governance? Please suggest actions and measures that should be taken for good governance as well as alleviate problems in the livelihoods of fishers, and the fishing communities. Do you give loans to fishers? What are the conditions that you imposed on fishers? If fishers failed to loan back what you do? What do you think about the co-management arrangements? How do you think you can co-operate in the co-management arrangement?

Environmental Specialists- How you are involved in Hilsa fishery? In your opinion, what are the loopholes in the present hilsa fishery governance? Please suggest actions and measures that should be taken for good governance as well as alleviate problems in the livelihoods of fishers, and the fishing communities. What do you think about the government policies and legal support for co-management arrangements in hilsa sanctuaries? What factors do you think will affect the results of co-management in hilsa sanctuaries? Do you think there are power asymmetry among the hilsa fishery stakeholders? What is your advice / are your suggestions for successful co-management in hilsa sanctuaries?

Bengali Questionnaires-

জরিপের প্রশ্নপত্র : ক্ষমতা এবং দাদন

Demographic and Socio-economic condition of the respondent fishers (N)

1. Demography-

Code	Instructions	Format
	আপনার নাম কি?	
	আপনার ডাকনাম কি?	
	আপনার বয়স কত?	
	আপনি এই গ্রামে কত বছর যাবৎ বসবাস করছেন?Years
	আপনি কি কখনো স্কুলে গিয়েছেন?	Yes /No
	আপনি কতদূর পর্যন্ত পড়াশুনা করেছেন?	No education (illiterate and can sign only)/Five years of schooling/Eight years of schooling/Ten years of schooling
	আপনার পরিবারে কতজন সদস্য আছে?	

2.Socio-Economic status-

Code	Instructions	Format
	বাড়ির অবস্থা	Cane/palm/trunks/Corrugated iron/Cement & brick/Wood planks & shingles/.....
	অধিনস্থ সম্পদ	Television/Radio/Mobile Phone/.....
	বিদ্যুৎ ব্যবস্থা	
	নিরাপদ খাবার পানির ব্যবস্থা	
	সাস্থ্যসম্মত পায়খানার ব্যবস্থা	
	মাছ ধরার ব্যবস্থা	Own boat and net/ Hired boat and net /Labour/.....
	মাছ ধরার সামগ্রী	Gill net/.....
	অন্যান্য মাছ ধরার যন্ত্রপাতি (কি এবং কতটি)	
	মাসিক উপার্জন (টাকা)	≤5000, 5000–10000, 10000–20000,
	আয়ের উৎস কি?	Fishing/fish business/boat or net rental/others
	প্রতি মাসে কতদিন কাজ করেন?	<15, 16–20, 21–30 or more
	সম্পূরক পেশা অথবা অন্য কোন আয়ের উৎস আছে কি?	Agriculture, Firewood collection, Day labor, Boat making, others
Household income	পরিবারের কতজন সদস্য কাজ করছে?	
	বাচ্চা এবং মহিলারা কি কাজ করেন?	
	দয়া করে আপনার পরিবারের মোট আয় কত বলবেন কি?	
	আপনি যে আয়ের কথা আমাকে বলেছেন এটি ছাড়া গত বছর আপনি অথবা আপনার পরিবারের কেউ কি অন্য কেন উপার্জন করেছে বা কিছু পেয়েছে?	
	গত বছরের আপনার পারিবারিক আয় কি শিক্ষাগত চাহিদা পূরণে সমর্থ হয়েছিল?	
	দয়া করে আপনার মাসিক ব্যয় কত বলবেন কি? (টাকায়)	2000-3000,4000-5000 or above
	কি উদ্দেশ্যে আপনি টাকা খরচ করেন?	Food, fuel, education, medical, house repair, clothing, social or festivals, net buying, boat buying, net repair, expenditure related to law enforcement, piracy.

	গত দুই সপ্তাহে আপনি কি বিক্রি করেছেন, বিনিময় অথবা ব্যবসা করেছেন?	
	মাছ ধরতে না পারার কারণে নিষেধাজ্ঞা সময় আপনি যে কাজগুলি করেছেন তা থেকে পরিবারের আয় কত?	
	আপনি যদি বর্তমান নিষেধাজ্ঞা দ্বারা ক্ষতিগ্রস্ত হন (অথবা ভবিষ্যতে আপনি ক্ষতিগ্রস্ত হন) তবে আপনি সর্বনিম্ন কত টাকা ক্ষতিপূরণ চান?	

Power (ক্ষমতা)

Hilsa fishers (Man and woman)-

Hilsa value and supply chain- মূল্য এবং সরবরাহ চেইন একসাথে ইলিশ সম্পর্কিত ক্ষমতা উৎপন্ন করে। ক্ষমতা উৎপন্নের জন্য অন্য সবকিছু এই দুইটি ব্যাপারে যথাযথ থাকতে হয়। প্রশ্নগুলো এইভাবে করা যেতে পারে-

- মূল্য এবং সরবরাহ চেইনে কে কোন কাজে আছে?
- আপনি কি আমাকে বলবেন, যখন আপনি ল্যান্ডিং সেন্টারে [ঘাটে] মাছ নিয়ে আসেন তখন কী ঘটে?
- কে এখানে মূল ভূমিকা পালন করে অথবা কার মাছ বিক্রি করার ক্ষমতা আছে?
- মাছ কিভাবে বাজারে অথবা ক্রেতাদের কাছে যায়?
- কে কার সাথে যোগাযোগ করে এবং পরিমাণের প্রেক্ষিতে কোন যোগাযোগ সবচেয়ে কার্যকর হয়?
- আপনি কি আমাকে মূল্য ও সরবরাহ চেইনে স্টেকহোল্ডারদের মধ্যে সম্পর্ক বলতে পারেন- জেলে, মাঝি, দিনমজুর, আরাতদার, বেপারী, মহাজন, পাইকার, ফরিয়া, নিকারি, নিলামকারী, নৌকা মালিক, জালের মালিক)?
- পরিবর্তনের চালিকাশক্তিগুলো কী, বিভিন্ন আন্তঃসংযোগগুলির মধ্যে নিয়ন্ত্রক কারা (বিক্রেতাদের মূল্য বনাম ক্রেতাদের মূল্য)?
- বিনিয়োগের ক্ষেত্রে সবচেয়ে বেশি সম্পদ কাদের এবং সবচেয়ে কম সম্পদ কাদের?

Ban period and role of incentives-

- ইলিশের নিষেধাজ্ঞার সময় কী?
- এটি কখন শুরু হয় এবং শেষ?
- ইলিশের নিষেধাজ্ঞার সময় কেন রাখা হয় আপনি কি জানেন?
- আপনি কি এর সাথে একমত? কেন অথবা কেন নয়?
- ইলিশের নিষেধাজ্ঞার সময়ের নিয়মকানুন গুলো কি?
- আপনি কি মনে করেন যে এটা উপযুক্ত? কেন অথবা কেন নয়?
- মানুষ কি এটা মেনে চলবে?
- নিষেধাজ্ঞার সময় কোন আইন প্রয়োগকারীদের কার্যক্রম কি আপনি দেখেছেন?
- যায়া অস্মত তাদের জন্য কি কোন অনুমোদন আছে? যদি তাই হয় তাহলে তা কি?
- কোন চোরা শিকারী আছে কি?
- তারা ধরা পড়লে কি কোন শাস্তি হয়?
- নিষেধাজ্ঞার সময় আপনি কি করেন?
- নিষেধাজ্ঞার সময় আপনি কিভাবে আপনার অর্থনৈতিক কর্মকান্ড পরিচালনা করেন?

- আপনি কি সরকারের কাছ থেকে কোন ভর্তুকি পাচ্ছেন?
- এটা আপনার এবং আপনার পরিবারের জন্য যথেষ্ট?
- নিষেধাজ্ঞার সময়ের পরিস্থিতি উন্নত করার করার সম্পর্কে আপনার কি কোন নতুন ধারণা আছে?
- নিষেধাজ্ঞার সময় নির্দিষ্ট জায়গাগুলোতে মাছ ধরা নিষিদ্ধ থাকায় আপনার মাছ ধরা আচরণে কি কোন পরিবর্তন হচ্ছে? যদি তাই হয়, তাহলে এটি আপনার পরিবারের আয়কে কি প্রভাবিত করছে এবং কতটা?
- আপনার মতে, নিষেধাজ্ঞা মেনে চলার ব্যাপারে সম্মতি কতটুকু এবং যদি না হয়ে থাকে, তাহলে প্রত্যেকে একটি নির্দিষ্ট গোষ্ঠী মেনে চলে, অতঃপর (আপনার মতামত) এই গোষ্ঠীর মধ্যে সম্মতি বাড়ানোর জন্য কী করা দরকার?
- আপনি কি মনে করেন মাছ ধরার নিষেধাজ্ঞা সময় ইলিশের প্রজনন ঋতুর সাথে সামঞ্জস্যপূর্ণ?

Incentives – আমি জেলেদের প্রশ্ন জিজ্ঞাস করার আগে তাদের ক্ষতিপূরণ প্রকল্পটি ব্যাখ্যা করলে ভাল হবে, তারপর আমি জিজ্ঞাসা করতে পারি-

- নিষিদ্ধ সময়ে মাছ না ধরার জন্য সরকারের যে ক্ষতিপূরণ প্রকল্প আছে, আপনি কি এই প্রকল্পের একজন সুবিধাভোগী?
- আপনি কতদিনধরে এই প্রকল্পের অংশগ্রহণ করছেন?
- আপনি কি মনে করেন যে ক্ষতিপূরণ প্রকল্পটি ইলিশের মজুদ বৃদ্ধিও, ইলিশের ধরা পড়ার হার এবং জেলেদের জীবিকার উন্নতিতে ইতিবাচক প্রভাব ফেলেছে?
- আপনি কি মনে করেন যে ক্ষতিপূরণ প্রকল্পের সরাসরি ফলাফল হিসাবে গত বছর ইলিশের মজুদ পরিবর্তিত হয়েছে? যদি কোন পরিবর্তন হয়ে থাকে তাহলে কি কারণ?
- আপনি কি মনে করেন যে ক্ষতিপূরণ বিতরণ সচ্ছ? কেন এবং কেন নয়?
- গ্রামে কোন লোক ক্ষতিপূরণ পাচ্ছে?
- কাদের ক্ষতিপূরণ পাওয়া উচিত বলে আপনি মনে করেন?
- আপনার মতে, নিষেধাজ্ঞা মেনে চলার ব্যাপারে সম্মতি কতটুকু এবং যদি না হয়ে থাকে, তাহলে প্রত্যেকে একটি নির্দিষ্ট গোষ্ঠী মেনে চলে, অতঃপর (আপনার মতামত) এই গোষ্ঠীর মধ্যে সম্মতি বাড়ানোর জন্য কী করা দরকার?
- ঋণ পরিশোধের চাপ নিষেধাজ্ঞা মেনে চলতে বাধা কেন? আপনি কি মনে করেন?

Power related questions in incentives schemes-

- আপনি কি মনে করেন যে প্রনোদনা ক্ষিমে কোন ঝুঁকি আছে? যদি তাই হয় তবে তা কি?
- আপনি কি সরকারের কাছ থেকে কোনও প্রনোদনা সহায়তা (চাল, নগদ টাকা ইত্যাদি) পেয়েছেন?
- আপনার মতে প্রনোদনা সহায়তা বন্টন কতটা সচ্ছ? যদি না হয় তবে, প্রনোদনা সহায়তা বিতরণে কে প্রভাবশালী ভূমিকা পালন করে?
- আপনার মতে, প্রনোদনা সহায়তার তালিকায় কার নাম থাকবে বা থাকবে না এটা কে ঠিক করে?
- আপনি ক্ষমতা সম্পর্কে বোঝেন?
- আপনি কি আমাকে ক্ষমতা সম্পর্কে কিছু বলবেন বা আমাকে ক্ষমতা দেখানোর একটি উদাহরণ দেবেন।
- আপনি কি মনে করেন যে প্রনোদনা সহায়তাকে ক্ষমতার সম্পর্ক আছে? যদি হ্যাঁ হয়, তবে দয়া করে ব্যাখ্যা করুন।
- প্রধান ক্ষমতা কার এবং কার ক্ষমতা নাই?
- আপনি কি আমাকে ক্ষমতার শ্রেণিবিভাগ সম্পর্কে বলতে পারেন অথবা ক্ষমতার শ্রেণিবিভাগের একটি চিত্র আঁকতে পারবেন?

Questions regarding Co-management-

- আপনি কি মনে করেন কো-ম্যানেজমেন্ট থাকা উচিত? যদি না হয় তবে, কেন না? যদি হয় তবে, কেন? যদি হয় তবে, সহ-ব্যবস্থাপনা পদ্ধতিতে কার জড়িত হওয়া উচিত?
- প্রতিটি দলের ভূমিকা ও দায়িত্ব কী হওয়া উচিত?
- আপনি কি মনে করেন আপনার সম্প্রদায়টি সহ-ব্যবস্থাপনায় আগ্রহী হতে পারে? যদি না হয় তবে, কেন না? কিসে তারা আগ্রহী হতে পারে?
- ফিশারিজ অ্যাসোসিয়েশন (এফএ) তে যোগদান এবং সহ-ব্যবস্থাপনা কার্যক্রম পরিচালনা করার জন্য জেলেদের সবচেয়ে বেশি প্রভাবিত করে কে?
- আপনার ফিশারিজ অ্যাসোসিয়েশন (এফএ) কি ধরনের সহ-ব্যবস্থাপনা কার্যক্রম পরিচালিত করে?
- মাছ ধরার অধিকার সম্পর্কে আপনি কি মনে করেন?
- আপনি কি মনে করেন যে সহ-ব্যবস্থাপনায় আপনার ফিশারিজ অ্যাসোসিয়েশন (এফএ) উপকৃত হবে? যদি হয় তবে, কিভাবে?
- আপনার ফিশারিজ অ্যাসোসিয়েশন (এফএ) এ সহ-ব্যবস্থাপনার ফলাফলগুলির উপর কিসের কিসের প্রভাব আছে?
- একটি সহ-ব্যবস্থাপনা পদ্ধতির কিছু সীমাবদ্ধতা বা চ্যালেঞ্জ কি হতে পারে? এবং এর কিছু লাভ / সুবিধা বলুন?
- আপনি কি মনে করেন ইলিশের মূল্যের শৃঙ্খলে অন্যান্য স্টেকহোল্ডারদের প্রভাবিত করার ক্ষমতা আপনার আছে? যদি হয় তবে, আপনি কিভাবে সেটা করেন?
- আপনার ক্ষমতা প্রয়োগে বাধা কি কি?
- ইলিশের অভয়ারণ্যগুলিতে সহ-ব্যবস্থাপনায় সরকারী নীতিমালা ও আইনগত সহায়তা সম্পর্কে আপনি কী মনে করেন?
- ইলিশের অভয়ারণ্যগুলিতে সহ-ব্যবস্থাপনার ফলাফলের উপর কী প্রভাব ফেলবে বলে আপনি মনে করেন?
- ইলিশের অভয়ারণ্যগুলির সহ-ব্যবস্থাপনায় ব্যাপারে আপনার পরামর্শ ?

Table S1: The scientific literature related to the power dynamics, governance and co-management

No	Article
1	Njaya, F., Donda, S., & Béné, C. (2012). Analysis of power in fisheries co-management: experiences from Malawi. <i>Society & Natural Resources</i> , 25(7), 652-666.
2	Njaya, F. J. (2006, June). Governance challenges on the implementation of fisheries co-management arrangements in Malawi. In <i>eleventh biennial conference of the International Association for the Study of Common Property (IASCP), Bali, Indonesia</i> (pp. 19-23).
3	Raik, D. B., Wilson, A. L., & Decker, D. J. (2008). Power in natural resources management: an application of theory. <i>Society and natural resources</i> , 21(8), 729-739.
4	Ho, N. T. T., Ross, H., & Coutts, J. (2015). Power sharing in fisheries co-management in Tam Giang Lagoon, Vietnam. <i>Marine Policy</i> , 53, 171-179.
5	Green, K. E. (2016). A political ecology of scaling: Struggles over power, land and authority. <i>Geoforum</i> , 74, 88-97.
6	Ho, N. T. T., Ross, H., & Coutts, J. (2016). Evaluation of social and ecological outcomes of fisheries co-management in Tam Giang Lagoon, Vietnam. <i>Fisheries Research</i> , 174, 151-159.
7	Lewins, R., Béné, C., Baba, M. O., Belal, E., Donda, S., Lamine, A. M., ... & Ovie, S. (2014). African inland fisheries: Experiences with co-management and policies of decentralization. <i>Society & Natural Resources</i> , 27(4), 405-420.
8	Cullen, B., Tucker, J., Snyder, K., Lema, Z., & Duncan, A. (2014). An analysis of power dynamics within innovation platforms for natural resource management. <i>Innovation and Development</i> , 4(2), 259-275.
9	Russell, A. J., & Dobson, T. (2011). Chiefs as critical partners for decentralized governance of fisheries: an analysis of co-management case studies in Malawi. <i>Society & Natural Resources</i> , 24(7), 734-750.
10	Njifonjou, O., Satia, B., & Angaman, K. (2006). Fisheries co-management and poverty alleviation in the context of the sustainable livelihoods approach: a case study in the fishing communities of Aby Lagoon in Cote d'Ivoire. <i>International Journal of Sustainable Development & World Ecology</i> , 13(6), 448-458.
11	Nuijten, M. C. M. (2005). Power in practice: a force field approach to power in natural resource management. <i>Journal of Transdisciplinary Environmental Studies</i> , 4(2), 3-14.
12	Ho, N. T. T., Ross, H., & Coutts, J. (2016). The Influence of Leadership in Fisheries Co-Management: The Case of Tam Giang Lagoon, Vietnam. <i>Society & natural resources</i> , 29(12), 1405-1420.
13	Pomeroy, R. S., Katon, B. M., & Harkes, I. (2001). Conditions affecting the success of fisheries co-management: lessons from Asia. <i>Marine policy</i> , 25(3), 197-208.
14	Nielsen, J. R., Degnbol, P., Viswanathan, K. K., Ahmed, M., Hara, M., & Abdullah, N. M. R. (2004). Fisheries co-management—an institutional innovation? Lessons from South East Asia and Southern Africa. <i>Marine Policy</i> , 28(2), 151-160.
15	Islam, M. M., Shamsuzzaman, M. M., Sunny, A. R., & Islam, N. (2016). Understanding fishery conflicts in hilsa sanctuaries of Bangladesh. <i>Inter-Sectoral Governance of Inland Fisheries; Song, AM, Bower, SD, Onyango, P., Cooke, SJ, Chuenpagdee, R., Eds.</i>
16	Béné, C., Belal, E., Baba, M. O., Ovie, S., Raji, A., Malasha, I., ... & Neiland, A. (2009). Power struggle, dispute and alliance over local resources: analyzing 'democratic' decentralization of natural resources through the lenses of Africa inland fisheries. <i>World Development</i> , 37(12), 1935-1950.
17	Nunan, F., Hara, M., & Onyango, P. (2015). Institutions and co-management in East African inland and Malawi fisheries: a critical perspective. <i>World Development</i> , 70, 203-214.
18	Donda, S. (2017). Who benefits from fisheries co-management? A case study in Lake Chiuta, Malawi. <i>Marine Policy</i> , 80, 147-153.
19	Cinner, J. E., Daw, T. M., McClanahan, T. R., Muthiga, N., Abunge, C., Hamed, S., ... & Jiddawi, N. (2012). Transitions toward co-management: the process of marine resource management devolution in three east African countries. <i>Global Environmental Change</i> , 22(3), 651-658.
20	Hartter, J., & Ryan, S. J. (2010). Top-down or bottom-up? Decentralization, natural resource management, and usufruct rights in the forests and wetlands of western Uganda. <i>Land Use Policy</i> , 27(3), 815-826.
21	Alcala, A. C., & Russ, G. R. (2006). No-take marine reserves and reef fisheries management in the Philippines: a new people power revolution. <i>AMBIO: A Journal of the Human Environment</i> , 35(5), 245-254.
22	Oviedo, A. F., & Bursztyn, M. (2017). Decentralization and Fisheries Management in The Brazilian Amazon: Resource Rights and Accountability. <i>Ambiente & Sociedade</i> , 20(4), 169-190.
23	Quimby, B., & Levine, A. (2018). Participation, Power, and Equity: Examining Three Key Social Dimensions of Fisheries Comanagement. <i>Sustainability</i> , 10(9), 3324.
24	Burns, T., & Stöhr, C. (2011). Power, knowledge, and conflict in the shaping of commons governance. The case of EU Baltic fisheries. <i>International Journal of the Commons</i> , 5(2).

25	Pomeroy, R. S., Katon, B. M., & Harkes, I. (2001). Conditions affecting the success of fisheries co-management: lessons from Asia. <i>Marine policy</i> , 25(3), 197-208.
26	Ayers, A. L., Kittinger, J. N., & Vaughan, M. B. (2018). Whose right to manage. Distribution of property rights affects equity and power dynamics in comanagement. <i>Ecology and Society</i> , 23(2).
27	Khan, A. S., Mikkola, H., & Brummett, R. (2004). Feasibility of fisheries co-management in Africa.
28	Nielsen, J., & Vedsmand, T. (1995, May). Fisheries co-management: an alternative strategy in fisheries—cases from Denmark. Reinventing the Commons. In <i>the Fifth Annual Conference of the International Association for the Study of Common Property, Bodø, Norway</i> (pp. 24-28).
29	Haller, T., & Merten, S. (2008). “We are Zambians—don’t tell us how to fish!” institutional change, power relations and conflicts in the Kafue flats fisheries in Zambia. <i>Human Ecology</i> , 36(5), 699-715.
30	Jentoft, S. (2007). In the power of power: the understated aspect of fisheries and coastal management. <i>Human Organization</i> , 426-437.
31	Wynberg, R., & Hauck, M. (2014). People, power, and the coast: a conceptual framework for understanding and implementing benefit sharing. <i>Ecology and Society</i> , 19(1).
32	Ayers, A., Kittinger, J., Imperial, M., & Vaughan, M. (2017). Making the transition to co-management governance arrangements in Hawai ‘i: a framework for understanding transaction and transformation costs. <i>International Journal of the Commons</i> , 11(1).
33	Moncrieffe, J. M. (2004). Power relations, inequality and poverty. <i>Documento conceptual preparado para el Equipo de Empoderamiento, Grupo sobre la reducción de la pobreza, Banco Mundial, Washington, DC.</i>
34	Finkbeiner, E. M., & Basurto, X. (2015). Re-defining co-management to facilitate small-scale fisheries reform: An illustration from northwest Mexico. <i>Marine Policy</i> , 51, 433-441.
35	Njaya, F., Donda, S., & Hara, M. (2018). A review of potential sources of revenue for sustaining fisheries co-management activities in the southern Lake Malawi, Mangochi district. <i>Aquatic Ecosystem Health & Management</i> , 21(2), 168-175.
36	Agrawal, A., & Ribot, J. (1999). Making decentralization accountable: a framework for analysis and empirical studies from South Asia and West Africa. <i>J Dev Ar</i> , 33(4), 473-490.
37	Béné, C., Emma, B., Baba, M. O., Ovie, S., Raji, A., Malasha, I., ... & Russell, A. (2008). Governance, Decentralization and Co-Management: Lessons From Africa.
38	Taabazing, J., Armah, F., Dixon, J., & Luginaah, I. (2012). The relationship between traditional authorities and decentralized structures in Ghana: conflicting roles or a struggle for power and legitimacy. <i>International Journal of Development and Conflict</i> , 2(03), 1250017.
39	Oviedo, A. F., & Bursztyn, M. (2017). Decentralization and Fisheries Management in The Brazilian Amazon: Resource Rights and Accountability. <i>Ambiente & Sociedade</i> , 20(4), 169-190.
40	Guzzini, S. (2005). The concept of power: a constructivist analysis. <i>Millennium</i> , 33(3), 495-521.
41	d’Armengol, L., Castillo, M. P., Ruiz-Mallén, I., & Corbera, E. (2018). A systematic review of co-managed small-scale fisheries: social diversity and adaptive management improve outcomes. <i>Global environmental change</i> , 52, 212-225.
42	Agrawal, A., & Ribot, J. C. (2000). <i>Analyzing decentralization: A framework with South Asian and West African environmental cases</i> . Washington, DC: World Resources Institute.
43	Noy, D. (2008). Power mapping: enhancing sociological knowledge by developing generalizable analytical public tools. <i>The American Sociologist</i> , 39(1), 3-18.
44	Gaventa, J. (2006). Finding the spaces for change: a power analysis. <i>IDS bulletin</i> , 37(6), 23-33.
45	Hiemstra, W., Brouwer, J. H., & van Vugt, S. M. (2012). <i>Power dynamics in multistakeholder processes: A balancing act</i> . Wageningen UR Centre for Development Innovation with partners.
46	Brouwer, H., Kormelinck, A. G., & van Vugt, S. (2012). Tools for analysing power in multi-stakeholder processes—a menu. <i>Toolbox developed for the Thematic Learning Programme ‘Strategically dealing with power dynamics in multi-stakeholder processes’</i> . Wageningen UR/Centre for Development Innovation.
47	Pantazidou, M. (2012). What next for power analysis? A review of recent experience with the powercube and related frameworks. <i>IDS Working Papers</i> , 2012(400), 1-46.
48	Brouwer, H., Hiemstra, W., van Vugt, S., & Walters, H. (2013). Analysing stakeholder power dynamics in multi-stakeholder processes: insights of practice from Africa and Asia. <i>Knowledge Management for Development Journal</i> , 9(3), 11-31.
49	Charles, A. (2013). Governance of tenure in small-scale fisheries: key considerations. <i>Land Tenure Journal</i> , (1).
50	Jacobi, J., & Llanque, A. (2018). “When We Stand up, They Have to Negotiate with Us”: Power Relations in and between an Agroindustrial and an Indigenous Food System in Bolivia. <i>Sustainability</i> , 10(11), 4001.
51	Mayers, J. (2005). <i>Stakeholder power analysis</i> . International institute for environment and development.
52	Dahl, R. A. (1957). The concept of power. <i>Behavioral science</i> , 2(3), 201-215.
53	Schiffer, E. (2007). <i>The power mapping tool: a method for the empirical research of power relations</i> (No. 589-2016-39854).

54	Plummer, R., & Fitzgibbon, J. (2004). Co-management of natural resources: a proposed framework. <i>Environmental management</i> , 33(6), 876-885.
55	Lukes, S. (2004). <i>Power: A radical view</i> . Macmillan International Higher Education.
56	Monnikhof, R., Edelenbos, J., & Krouwel, A. (2003). Power to the people? Rule configurations and power games in interactive governance. In <i>The rise of interactive governance and quasi-markets</i> (pp. 43-67). Springer, Dordrecht.
57	O'Mahoney, J., & Sturdy, A. (2016). Power and the diffusion of management ideas: The case of McKinsey & Co. <i>Management Learning</i> , 47(3), 247-265.
58	Nunan, F. (2010). Governance and fisheries co-management on Lake Victoria: Challenges to the adaptive governance approach. <i>Maritime Studies</i> , 9(1), 103-125.
59	Kalikoski, D. C., & Allison, E. H. (2010). Learning and Adaptation: The Role of Fisheries Comanagement in Building Resilient Social-Ecological Systems. In <i>Adaptive capacity and environmental governance</i> (pp. 69-88). Springer, Berlin, Heidelberg.
60	Van Assche, K., Beunen, R., Duineveld, M., & Gruezmacher, M. (2017). Power/knowledge and natural resource management: Foucaultian foundations in the analysis of adaptive governance. <i>Journal of environmental policy & planning</i> , 19(3), 308-322.
61	Tew, J. (2006). Understanding power and powerlessness: Towards a framework for emancipatory practice in social work. <i>Journal of social work</i> , 6(1), 33-51.
62	VeneKlasen, L. & V. Miller 2006: Dynamics of Power, Inclusion and Exclusion. In Nonprofit Online News Journal pp. 38-56
63	Wynberg, R., & Hauck, M. (2014). People, power, and the coast: a conceptual framework for understanding and implementing benefit sharing. <i>Ecology and Society</i> , 19(1).
64	Brisbois, M. C. (2015). Natural resource industries and the state in collaborative approaches to water governance: a power-based analysis. PhD thesis. University of Waterloo, Canada
65	Sithole, M. (2016). <i>Managing common pool resources: local environmental knowledge and power dynamics in mopane worms and mopane woodlands management: the case of Bulilima District, South-Western Matabeleland, Zimbabwe</i> (Doctoral dissertation).
66	Whaley, L. and Weatherhead, E.K. 2014. Power-Sharing in the English lowlands? The political economy of farmer participation and cooperation in water governance. <i>Water Alternatives</i> 8(1): 820-843
67	Bennett, A. (2015). <i>The good fight: Power and the indigenous struggle for the Manawatū River</i> (Doctoral dissertation, PhD thesis, Massey University, Palmerston North).
68	Nayak, P. K., Armitage, D., & Andrachuk, M. (2016). Power and politics of social-ecological regime shifts in the Chilika lagoon, India, and Tam Giang lagoon, Vietnam. <i>Regional Environmental Change</i> , 16(2), 325-339.
69	Luttrell, C., Bird, K., Byrne, S., Carter, J., & Chakravarti, D. (2007). The power cube explained. <i>The Poverty-Wellbeing Platform</i> , 3, 1-5.
70	Akbulut, B., & Soylyu, C. (2012). An inquiry into power and participatory natural resource management. <i>Cambridge Journal of Economics</i> , 36(5), 1143-1162.
71	Griffin, L. (2014). <i>Good governance, scale and power: a case study of North Sea fisheries</i> . Routledge.
72	Griffin, L. (2010). The limits to good governance and the state of exception: a case study of North Sea fisheries. <i>Geoforum</i> , 41(2), 282-292.
73	Kofinas, G. P. (2009). Adaptive co-management in social-ecological governance. In <i>Principles of ecosystem stewardship</i> (pp. 77-101). Springer, New York, NY.
74	Berkes, F. (2009). Evolution of co-management: role of knowledge generation, bridging organizations and social learning. <i>Journal of environmental management</i> , 90(5), 1692-1702.
75	Islam, M. M., Nahiduzzaman, M., & Wahab, M. A. (2020). Fisheries co-management in hilsa shad sanctuaries of Bangladesh: Early experiences and implementation challenges. <i>Marine Policy</i> , 117, 103955.
76	Cavaliere, I. C., & Almeida, H. N. (2018). Power, empowerment and social participation-the building of a conceptual model. <i>European Journal of Social Science Education and Research</i> , 5(1), 174-185.

Table S2: The scientific literature related to the hilsa fishery management in Bangladesh from 2001-2020

No	Article
1	Mredul, M. M. H., Uddin, M. E., Pervez, A. K., Yesmin, F., & Akkas, A. B. (2020). Food aid programme during restricted hilsa fishing period: effectiveness and management perspective. <i>Journal of Fisheries</i> .
2	Rahman, M. J., Amin, S. N., Nahiduzzaman, M., Wahab, M. A., & Romano, N. (2020). Primary Data for the published paper entitled "Influence of seasons, habitat sanctuaries, gears and environmental variables on the catches of hilsa shad (<i>Tenualosa ilisha</i>) in Bangladesh waters".
3	Islam, M. M., Nahiduzzaman, M., & Wahab, M. A. (2020). Fisheries co-management in hilsa shad sanctuaries of Bangladesh: Early experiences and implementation challenges. <i>Marine Policy</i> , 117, 103955.
4	Rahman, M. J., Wahab, M. A., Nahiduzzaman, M., Haque, A. B. M. M., & Cohen, P. (2020, January). Hilsa fishery management in Bangladesh. In IOP Conference Series: Earth and Environmental Science (Vol. 414, No. 1, p. 012018). IOP Publishing.
5	Hossain, M. S., Sarker, S., Sharifuzzaman, S. M., & Chowdhury, S. R. (2020). primary productivity connects hilsa fishery in the Bay of Bengal. <i>Scientific Reports</i> , 10(1), 1-16.
6	Kundu, G. K., Islam, M. M., Hasan, M. F., Saha, S., Mondal, G., Paul, B., & Mustafa, M. G. (2020). Patterns of fish community composition and biodiversity in riverine fish sanctuaries in Bangladesh: Implications for hilsa shad conservation. <i>Ecology of Freshwater Fish</i> , 29(2), 364-376.
7	Hossain, M. A., Das, I., Genevier, L., Hazra, S., Rahman, M., Barange, M., & Fernandes, J. A. (2019). Biology and fisheries of Hilsa shad in Bay of Bengal. <i>Science of the Total Environment</i> , 651, 1720-1734.
8	Hossain, M. S., Sharifuzzaman, S. M., Rouf, M. A., Pomeroy, R. S., Hossain, M. D., Chowdhury, S. R., & AftabUddin, S. (2019). Tropical hilsa shad (<i>Tenualosa ilisha</i>): Biology, fishery and management. <i>Fish and Fisheries</i> , 20(1), 44-65.
9	Sahoo, A. K., Wahab, M. A., Phillips, M., Rahman, A., Padiyar, A., Puvanendran, V., ... & Behera, B. K. (2018). Breeding and culture status of Hilsa (<i>Tenualosa ilisha</i> , Ham. 1822) in South Asia: a review. <i>Reviews in Aquaculture</i> , 10(1), 96-110.
10	Islam, M., Aktar, R., Nahiduzzaman, M., Barman, B., & Wahab, M. (2018). Social considerations of large river sanctuaries: a case study from the Hilsa shad fishery in Bangladesh. <i>Sustainability</i> , 10(4), 1254.
11	van Brakel, M. L., M. Nahiduzzaman, A. Mahfuzul Haque, M. Golam Mustafa, M. Jalilur Rahman, and M. Abdul Wahab. 2018. Reimagining large-scale open-water fisheries governance through adaptive comanagement in hilsa shad sanctuaries. <i>Ecology and Society</i> 23(1):26
12	Mozumder, M., Wahab, M., Sarkki, S., Schneider, P., & Islam, M. (2018). Enhancing social resilience of the coastal fishing communities: A case study of hilsa (<i>Tenualosa ilisha</i> H.) fishery in Bangladesh. <i>Sustainability</i> , 10(10), 3501.
13	Hossain, A. A., Bisshas, S., Pramanik, M. M. H., Hasan, M. M., Haidar, M. I., Bosu, A., ... & Rahman, M. A. (2018). Supply Chain Analysis of Hilsa (<i>Tenualosa ilisha</i>) Egg in Bangladesh. <i>Journal of FisheriesSciences. com</i> , 12(4), 9-12.
14	Islam, M. M., & Chuenpagdee, R. (2018). Nomadic Fishers in the Hilsa Sanctuary of Bangladesh: The Importance of Social and Cultural Values for Wellbeing and Sustainability. In <i>Social Wellbeing and the Values of Small-scale Fisheries</i> (pp. 195-216). Springer, Cham.
15	Debnath, S., Latifa, G. A., Bhowmik, S., Islam, S., & Begum, M. (2018). Comparative analysis of nutritional values of riverine and marine hilsa (<i>Tenualosa ilisha</i> ; Hamilton, 1882). <i>Korean Journal of Agricultural Science</i> , 45(2), 258-264.
16	Porras, I., Mohammed, E. Y., Ali, L., Ali, M. S., & Hossain, M. B. (2017). Power, profits and payments for ecosystem services in Hilsa fisheries in Bangladesh: a value chain analysis. <i>Marine Policy</i> , 84, 60-68.
17	Jahan, I., Ahsan, D., & Farque, M. H. (2017). Fishers' local knowledge on impact of climate change and anthropogenic interferences on Hilsa fishery in South Asia: evidence from Bangladesh. <i>Environment, development and sustainability</i> , 19(2), 461-478.
18	Rahman, M. A., Ahmed, T., Pramanik, M. M. H., & Flura, H. M. (2017). On-board Breeding Trial of Hilsa (<i>Tenualosa ilisha</i> , Ham. 1822) and Testing of Larval Rearing in Bangladesh. <i>J Aquac Res Development</i> , 8(471), 2.
19	Pramanik, M. M. H., Rahman, M. A., Ahmed, T., & Flura, H. M. (2017). Gill net selectivity of hilsa (<i>Tenualosa ilisha</i>) in the Meghna River Estuary of Bangladesh. <i>J Aquac Res Development</i> , 8(483), 2.
20	Hossain, M. S. (2017). The shifting habitat of Hilsa: River to sea. Secretariat, Southeast Asian Fisheries Development Center.
21	Bala, B. K., Arshad, F. M., & Noh, K. M. (2017). Modelling of Hilsa Fish (<i>Tenualosa ilisha</i>) Population in Bangladesh. In <i>System Dynamics</i> (pp. 179-198). Springer, Singapore.
22	Rahman, M. A., Ahmed, T., Pramanik, M. M. H., & Flura, H. M. (2017). On-board Breeding Trial of Hilsa (<i>Tenualosa ilisha</i> , Ham. 1822) and Testing of Larval Rearing in Bangladesh. <i>J Aquac Res Development</i> , 8(471), 2.
23	Rahman, M. A., Pramanik, M. M. H., Flura, A. T., & Hasan, M. M. (2017). Impact Assessment of Twenty-Two Days Fishing Ban in the Major Spawning Grounds of <i>Tenualosa ilisha</i> (Hamilton, 1822) on its Spawning Success in Bangladesh. <i>J Aquac Res Develop</i> , 8, 489.

24	Islam et al., 2016. Economic incentives for sustainable hilsa fishing in Bangladesh: An analysis of the legal and institutional framework. <i>Marine policy</i> , 68, 8-22.
25	Bladon, A. J., Short, K. M., Mohammed, E. Y., & Milner-Gulland, E. J. (2016). Payments for ecosystem services in developing world fisheries. <i>Fish and fisheries</i> , 17(3), 839-859.
26	Islam, M. M., Islam, N., Sunny, A. R., Jentoft, S., Ullah, M. H., & Sharifuzzaman, S. M. (2016). Fishers' perceptions of the performance of hilsa shad (<i>Tenualosa ilisha</i>) sanctuaries in Bangladesh. <i>Ocean & coastal management</i> , 130, 309-316.
27	Hasan, K. M. M., Ahmed, Z. F., Wahab, M. A., & Mohammed, E. Y. (2016). <i>Food and feeding ecology of hilsa (Tenualosa ilisha) in Bangladesh's Meghna River basin</i> (p. 20). IIED Working Paper. IIED, London.
28	Hossain, M. S., Sharifuzzaman, S. M., Chowdhury, S. R., & Sarker, S. (2016). Habitats across the life cycle of hilsa shad (<i>Tenualosa ilisha</i>) in aquatic ecosystem of Bangladesh. <i>Fisheries Management and Ecology</i> , 23(6), 450-462.
29	Islam, M. M., Shamsuzzaman, M. M., Sunny, A. R., & Islam, N. (2016). Understanding fishery conflicts in hilsa sanctuaries of Bangladesh. <i>Inter-Sectoral Governance of Inland Fisheries; Song, AM, Bower, SD, Onyango, P., Cooke, SJ, Chunepagdee, R., Eds.</i>
30	Faruque, H., Ahsan, D. A., Sarker, M. H., & Gladun, E. F. (2016). Effect of Ganges river morphological dynamics and Farakka barrage on upward migration and catch of Indian shad (<i>Tenualosa ilisha</i>) in Bangladesh. Tyumen State University Herald. <i>Natural Resource Use and Ecology</i> , 2(3), 34-58.
31	Bhaumik, U. (2016). Stock profile of Hilsa Shad population in Bay of Bengal region-a review. <i>Int. J. Curr. Res. Aca. Rev</i> , 4(6), 22-38.
32	Md, S. J., Uddin, A. M. M. B., Md, P. S., Tanmay, M. H., & Rahman, F. (2016). Livelihood status of Hilsa (<i>Tenualosa ilisha</i>) fishermen of greater Noakhali regions of Bangladesh. <i>Fish Aquac J</i> , 7(168), 2.
33	Mohammed, E. Y., Ali, L., Ali, S., Hussein, B., Wahab, M. A., & Sage, N. (2016). Hilsa's non-consumptive value in Bangladesh: estimating the non-consumptive value of the hilsa fishery in Bangladesh using the contingent valuation method. <i>International Institute for Environment and Development (IIED) Working Paper. IIED, London, UK. [online] URL: http://pubs.iied.org/16626IIED.</i>
34	Bladon, A., Hassan, S. A., Uddin, A. T., Ali, N., Ali, L., Hussein, S. B., ... & Steele, P. (2016). Finding evidence for the impact of incentive-based Hilsa fishery management in Bangladesh: combining theory testing and remote sensing methods. <i>International Institute for Environment and Development, Working Paper, London.</i>
35	Begum, M., Bhowmik, S., Juliana, F. M., & Hossain, M. S. (2016). Nutritional Profile of Hilsa Fish [<i>Tenualosa ilisha</i> (Hamilton, 1822)] in Six Selected Regions of Bangladesh. <i>J. Nutr. Food Sci</i> , 6(2).
36	Miah, M. S. (2015). Climatic and anthropogenic factors changing spawning pattern and production zone of Hilsa fishery in the Bay of Bengal. <i>Weather and Climate Extremes</i> , 7, 109-115.
37	Flura, M. Z., Rahman, B. S., Rahman, M. A., Ashraful, M., Alam, M., & Pramanik, M. H. (2015). Length-weight relationship and GSI of hilsa, <i>Tenualosa ilisha</i> (hamilton, 1822) fishes in Meghna river, Bangladesh. <i>International Journal of Natural and Social Sci</i> , 2(3), 82-88.
38	Dewan, B. K., Mia, M. S., Yeasmin, F., Sarker, S. C., Siddiky, M. N., & Kamal, M. (2015). Studies on the proximate composition of Hilsa of different size groups at Chandpur region. <i>Int J Nat Soc Sci</i> , 2(5), 52-55.
39	Rahman, M. A., Ahmed, T., Pramanik, M. M. H., & Alam, M. A. (2015). Impact of fifteen days fishing ban in the major spawning grounds of hilsa (<i>Tenualosa ilisha</i> Hamilton 1822) on its spawning success. <i>Research in Agriculture Livestock and Fisheries</i> , 2(3), 491-497.
40	Toufique, K. A. (2015). Some Thoughts on Hilsa Exports and Management in Bangladesh. <i>Bangladesh Development Studies</i> , 38(2), 115-127.
41	Karim, R., Roy, K. C., Roy, P. R., & Ahmed, Z. F. (2015). Age and growth of hilsa shad, <i>Tenualosa ilisha</i> (Hamilton, 1822) of the river Tentulia in Bangladesh. <i>Journal of Fisheries</i> , 3(1), 227-232.
42	Roy et al., 2015. Effects of Incentive Based Hilsa Shad (<i>Tenualosa ilisha</i>) Management and Conservation Strategies in Bangladesh. <i>J. Sylhet Agril. Univ.</i> 2(1):69-77, 2015
43	Ali, M. Y., Rahmatullah, R., Asadujjaman, M., Bablu, M. G. U., & Sarwer, M. G. (2015). Impacts of banning period on the socio-economic condition of hilsa fishermen in shakhchor union of lakshmipursadarupazila, Bangladesh. <i>Middle-East J. Sci. Res</i> , 23, 2479-2483.
44	Hossain, M. S., Sarker, S., Chowdhury, S. R., & Sharifuzzaman, S. M. (2014). Discovering spawning ground of Hilsa shad (<i>Tenualosa ilisha</i>) in the coastal waters of Bangladesh. <i>Ecological Modelling</i> , 282, 59-68.
45	Bala, B. K., Arshad, F. M., Alias, E. F., Sidique, S. F., Noh, K. M., Rowshon, M. K., ... & Islam, M. M. (2014). Sustainable exploitation of hilsa fish (<i>Tenualosa ilisha</i>) population in Bangladesh: Modeling and policy implications. <i>Ecological modelling</i> , 283, 19-30.
46	Hossain, M. S., Sarker, S., Sharifuzzaman, S. M., & Chowdhury, S. R. (2014). Habitat modelling of juvenile Hilsa <i>Tenualosa ilisha</i> (Clupeiformes) in the coastal ecosystem of the northern Bay of Bengal, Bangladesh. <i>Journal of ichthyology</i> , 54(2), 203-213.
47	Naser, N. M. (2014). Conserving trans-boundary migratory hilsa (<i>Tenualosa ilisha</i>) fish: a review of Bangladesh experience. In <i>Rivers for life. Proceedings of the International Symposium on River Biodiversity: Ganges-Brahmaputra River</i>

	<i>System, Ecosystems for life, a Bangladesh India Initiative, IUCN, International Union for Conservation of Nature</i> (pp. 215-221).
48	Faruque, M. H., & Ahsan, D. A. (2014). Socio-economic status of the Hilsa (<i>Tenualosa ilisha</i>) fishermen of Padma river, Bangladesh. <i>World Appl. Sci. J</i> , 32(5), 857-864.
49	Rahman, H. Z., Choudhury, L. A., & Wahab, M. A. (2014). <i>Hilsa and hilsa fishermen: exploring conservation-livelihood win-wins</i> . Power and Participation Research Centre.
50	Hossain, M. K., & Arnason, R. (2014). Toward optimal use of Bangladesh Hilsa resource: Bioeconomic modelling. <i>United Nations University Fisheries Training Programme, Iceland [final project]</i> .
51	Moniruzzaman, S. M., Mortuza, M. G., Nur-Un-Nesa, M., Alam, M. A., & Alam, A. N. (2014). Spatial variations in the nutritional profiles of young, spent, ripe or gravid hilsa (<i>Tenualosa ilisha</i>) flesh and eggs. <i>International Journal of Natural and Social Sciences</i> , 1(2), 61-70.
52	Ahsan, D. (2014). Impact of Climate Change and Anthropogenic Effect on Hilsa Fishery Management in South-East Asia: Urgent Need for Trans-Boundary Policy. In <i>WASET Conference: ICPMSS 2014: XII International Conference on Psychology, Management and Social Science</i> . World Academy of Science, Engineering and Technology.
53	Islam, M., Mohammed, E. Y., & Ali, L. (2014). Economic incentives for sustainable hilsa fish management in Bangladesh. <i>Fisheries</i> .
54	Wahab, M. A., Phillips, M., & Mohammed, E. Y. (2013). 10 Payments for hilsa fish (<i>Tenualosa ilisha</i>) conservation in Bangladesh. <i>Economic incentives for marine and coastal conservation: Prospects, challenges and policy implications</i> , 170.
55	Mohammed, E. Y. (2013). Payments for hilsa fish (<i>Tenualosa ilisha</i>) conservation in Bangladesh. In <i>Economic Incentives for Marine and Coastal Conservation</i> (pp. 196-215). Routledge.
56	Bhuiyan, A. I. (2013). Endoparasitic helminths of <i>Tenualosa ilisha</i> in Bangladesh in relation to sex, seasons and habitat type. <i>Bangladesh Journal of Zoology</i> , 41(2), 153-163.
57	M.A. Rahman, B.M.S. Rahman, S. J. Hasan, Flura, T. Ahmed and M. I. Haidar (2013). Impact of Eleven Days Fishing Ban in the Major Spawning Grounds of Hilsa (<i>Tenualosa ilisha</i> Hamilton) on its Breeding Success. <i>Bangladesh Res. Pub. J.</i> 9(2): 116-122. Retrieve from http://www.bdresearchpublications.com/admin/journal/upload/1309117/1309117.pdf
58	Alam, A. K. M. N., Mohanty, B. P., Hoq, M. E., & Thilshed, S. (2012, September). Nutritional values, consumption and utilization of Hilsa <i>Tenualosa ilisha</i> (Hamilton 1822). In <i>Proc. Regional workshop on Hilsa: potential for aquaculture</i> (pp. 16-17).
59	Rahman, M. A., Alam, M. A., Hasan, S. J., & Jaher, M. (2012). Hilsa fishery management in Bangladesh. <i>Hilsa: Status of fishery and potential for aquaculture</i> , 40-60.
60	Rahman, M. A., Alam, M. A., Hasan, S. J., & Jaher, M. (2012, September). Hilsa fishery management in Bangladesh 'in Anon (ed.) Hilsa: Status of Fishery and Potential for Aquaculture. In <i>Proceedings of the Regional Workshop held in Dhaka</i> (pp. 16-17).
61	Hossain, M., Adhikary, R. K., Mahbub, K. R., Begum, M., & Ul Islam, M. R. (2012). Effect of 10% concentrations of salt, garlic and coriander on the quality of smoked hilsa Fish (<i>Tenualosa ilisha</i>). <i>American Journal of Food Technology</i> .
62	Bhuiyan, A. I., & Momen, M. (2012). Studies on the protozoan parasites of Hilsa Shad, <i>Tenualosa ilisha</i> in Bangladesh. <i>Bangladesh Journal of Zoology</i> , 40(1), 33-41.
63	Alam, A. K. M. N., Mohanty, B. P., Hoq, M. E., & Thilshed, S. (2012, September). Nutritional values, consumption and utilization of Hilsa <i>Tenualosa ilisha</i> (Hamilton 1822). In <i>Proc. Regional workshop on Hilsa: potential for aquaculture</i> (pp. 16-17).
64	Ahsan, D. A., Kabir, A. N., Rahman, M. M., Mahabub, S., Yesmin, R., Faruque, M. H., & Naser, M. N. (2012). Plankton composition, abundance and diversity in Hilsa (<i>Tenualosa ilisha</i>) migratory rivers of Bangladesh during spawning season. <i>Dhaka University Journal of Biological Sciences</i> , 21(2), 177-189.
65	Rahman, M. J., Rahman, M. A., & Bhaumik, U. (2012, September). Biology and ecology of hilsa shad, <i>Tenualosa ilisha</i> (Ham.). In <i>Hilsa: Status of Fishery and Potential for Aquaculture, Proceedings of the Regional Workshop held in Dhaka</i> (pp. 16-17).
66	Sharma, A. P., Roy, N. C., & Barman, B. K. (2012, September). Hilsa: Its social, cultural, and religious importance. In <i>Hilsa: status of fishery and potential for aquaculture. Proceedings of the Regional Workshop held in Dhaka</i> (pp. 16-17).
67	Haldar, G. C., Wahab, M. A., Puvanendran, V., & Phillips, M. J. (2012, September). Potential sources of fry and fingerlings of Hilsa for aquaculture. In <i>Hilsa: Status of Fishery and Potential for Aquaculture, Proceedings of the Regional Workshop held in Dhaka</i> (pp. 16-17).
68	Rahman, 2011. Environmental impact on hilsa (<i>Tenualosa ilisha</i>) fisheries in the coastal belt of Bangladesh. <i>Ecosystem Health and Management of Pollution in the Bay of Bengal</i> , 69.
69	Shamsuzzaman, M. M., Mazumder, S. K., Siddique, M. A., & Miah, M. N. U. (2011). Microbial quality of hilsa shad (<i>Tenualosa ilisha</i>) at different stages of processing. <i>Journal of the Bangladesh Agricultural University</i> , 9(2), 339-344.

70	Shamim, M. A. H., Ahmed, M. K., & Abdullah, A. T. M. (2011). Proximate composition of different portion of hilsa, <i>Tenualosa ilisha</i> from two regions of the Bay of Bengal in Bangladesh. <i>Dhaka University Journal of Biological Sciences</i> , 20(2), 109-115.
71	Milton, D. A. (2010). Status of Hilsa (<i>Tenualosa ilisha</i>) management in the Bay of Bengal: an assessment of population risk and data gaps for more effective regional management.
72	Dey, S. C., Sarker, B. S., Saha, D., & Adhikary, R. K. (2010). <i>Impacts of Banning Period on the Socio-Economic Condition of Hilsa Fishermen of Monpura Island, Bangladesh</i> (Doctoral dissertation, MS Thesis, Department of Fisheries And Marine Science, NSTU, Noakhali).
73	Mazumder, S. K., & Alam, M. (2009). High levels of genetic variability and differentiation in hilsa shad, <i>Tenualosa ilisha</i> (Clupeidae, Clupeiformes) populations revealed by PCR-RFLP analysis of the mitochondrial DNA D-loop region. <i>Genetics and molecular biology</i> , 32(1), 190-196.
74	Bhuiyan, A. I., D'SILVA, J., & Bristow, G. A. (2009). Parasites of Hilsa shad, <i>Tenualosa ilisha</i> in Bangladesh. <i>Bangladesh J. Zool</i> , 37(2), 221-230.
75	Rahman, M. A., Alam, M. A., Ahmed, T., Ahmed, K. K. U., & Haldar, G. C. (2009). Assessment of impact of ten days fishing ban in the major spawning grounds of hilsa (<i>Tenualosa ilisha</i> , Fisher and Bianchi, 1984). <i>Bangladesh Journal of Fisheries Research</i> , 13(1), 27-33.
76	Ahmed et al., 2008. Age, growth and mortality of hilsa shad, <i>Tenualosa ilisha</i> in the River Meghna, Bangladesh. <i>Asian J. Biol. Sci</i> , 1, 69-76.
77	Amin et al., 2008. Catch per unit effort, exploitation level and production of Hilsa Shad in Bangladesh waters. <i>Asian Fish. Sci</i> , 21(175), 37.
78	Mome and Arnason, 2008. The Artisanal Hilsa Fishery: economically Efficient Fisheries Policy. IIFET 2008 Vietnam Proceedings.
79	Rahman and Cowx, 2008. Population dynamics of hilsa shad (<i>Tenualosa ilisha</i> , Clupeidae) in Bangladesh waters. <i>Asian Fisheries Science</i> , 21, 85-100.
80	Mondal et al., 2008. Relationships between Fecundity and Total Length, Body Weight, Ovary Length, and Ovary Weight of Hilsa Shad, <i>Tenualosa ilisha</i> Hamilton, in Patuakhali, Bangladesh. <i>Fisheries and aquatic sciences</i> , 11(2), 98-102
81	Mome et al., 2007. The potential of the artisanal hilsa fishery in Bangladesh: an economically efficient fisheries policy. <i>Fisheries Training Programme Final Project Report, United Nations University, Iceland</i> , 57.
82	Mazid et al., 2007. Source and abundance of Jatka (juvenile hilsa, <i>Tenualosa ilisha</i>) in the Gajner beel, Sujanagar, Pabna. <i>Bangladesh Journal of Fisheries</i> , 30, 37-51.
83	Akter, M. A., Hossain, M. D., Hossain, M. K., Afza, R., & Bhuyian, A. S. (2007). The fecundity of Hilsa <i>ilisha</i> from the river Padma near Godagari of Rajshahi district. <i>University Journal of Zoology, Rajshahi University</i> , 26, 41-44.
84	Rahman, 2006. Recent advances in the biology and management of Indian shad (<i>Tenualosa ilisha</i> Ham.). <i>SAARC Journal of Agriculture</i> , 4, 67-90.
85	Rahman and Cowx 2006. Lunar periodicity in growth increment formation in otoliths of hilsa shad (<i>Tenualosa ilisha</i> , Clupeidae) in Bangladesh waters. <i>Fisheries research</i> , 81(2), 342-344.
86	Mazid, M. A., Rahman, M. J., & Mustafa, M. G. (2005). Abundance, migration and management of Jatka (juvenile hilsa, <i>Tenualosa ilisha</i>) in the Gajner Beel, Pabna, Bangladesh. <i>Bangladesh Journal of Fisheries Research</i> , 9(2), 191-202.
87	Nurul Amin, S. M., Arshad, A., Haldar, G. C., Shohaimi, S., & Ara, R. (2005). Estimation of Size Frequency Distribution, Sex Ratio and Length-Weight Relationship of Hilsa Shad (<i>Tenualosa ilisha</i>) in the Bangladesh Water. <i>Research Journal of Agriculture and Biological Sciences</i> , 1(1), 61-66.
88	Salini et al., 2004. Allozyme and morphological variation throughout the geographic range of the tropical shad, hilsa <i>Tenualosa ilisha</i> . <i>Fisheries Research</i> , 66(1), 53-69.
89	Saifullah, A. S. M., Rahman, M. S., & Khan, Y. S. A. (2004). Fecundity of Hilsa <i>ilisha</i> (Hamilton, 1822) from the Bay of Bengal. <i>Pakistan Journal of Biological Sciences</i> , 7(8), 1394-1398.
90	Amin et al., 2004. Stock assessment and management of <i>Tenualosa ilisha</i> in Bangladesh. <i>Asian Fisheries Science</i> , 17(1/2), 50-60.
91	Halder, G. C. (2004). Present status of the hilsa fishery in Bangladesh. <i>GC Halder//Completion Report of the Studies Conducted under the ARDMCS, GEF Component</i> .
92	Shifat et al., 2003. Use of RAPD fingerprinting for discriminating two populations of Hilsa shad (<i>Tenualosa ilisha</i> Ham.) from inland rivers of Bangladesh. <i>BMB Reports</i> , 36(5), 462-467.
93	Blaber et al., 2003. New insights into the life history of <i>Tenualosa ilisha</i> and fishery implications. In <i>American Fisheries Society Symposium</i> (pp. 223-240). AMERICAN FISHERIES SOCIETY.
94	Amin et al., 2002. Population dynamics and stock assessment of Hilsa shad, <i>Tenualosa ilisha</i> in Bangladesh. <i>Asian Fisheries Science</i> , 15(2), 123-128.
95	Ahmed, S., Mostafa, G., Saiful, B. R., Arafat, Y., & Ali, S. (2002). Some aspects of population dynamics of hilsa shad <i>Tenualosa ilisha</i> in the River Meghna of Bangladesh. <i>Fisheries science</i> , 68(sup1), 318-321.

96	Milton, D. A., & Chenery, S. R. (2001). Can otolith chemistry detect the population structure of the shad hilsa <i>Tenualosa ilisha</i> ? Comparison with the results of genetic and morphological studies. <i>Marine Ecology Progress Series</i> , 222, 239-251.
97	Rahman, M. A., Haldar, G. C., Milton, D. A., Mazid, M. A., & Miah, M. S. (2001). A study on the population dynamics of hilsa, <i>Tenualosa ilisha</i> (Hamilton-Buchanan) in Bangladesh. <i>Indian Journal of Animal Sciences</i> , 71(1), 71-73.

Re: Request to use map of hilsa sanctuaries

Mahmudul Islam <mahmud.cmf@sau.ac.bd>

Wed 03/06/2020 04:47

To: Mozumder, Mohammad M H <mohammad.mozumder@helsinki.fi>

Cc: A.Wahab@cgjar.org <A.Wahab@cgjar.org>; N.Md@cgjar.org <N.Md@cgjar.org>

Dear Mr. Mozumder:

Thanks for your interest in using the map. As the corresponding author, I have the privilege to grant the permission requested herein and I, on behalf of all authors, hereby grant permission to use the above referenced material in the manner you described.

If you should have any questions regarding the authenticity of this document or the terms herewith, please contact me.

Sincerely,

Mohammad Mahmudul Islam

On Tue, Jun 2, 2020 at 6:51 PM Mozumder, Mohammad M H <mohammad.mozumder@helsinki.fi> wrote:

Dear Dr.Mahmudul Islam,

Hope you are doing fine. Would you please kind enough to allow me to re-use the hilsa sanctuaries map that was used in your published article-Fisheries co-management in hilsa shad sanctuaries of Bangladesh: Early experiences and implementation challenges. We wish to use that map in one of our peer-reviewed articles with proper citation. It will be acknowledged as well. Thanks for your patience and help. Looking forward to hearing from you at your convenience.

Sincerely-

Mohammad Mozumder

PhD-student

Fisheries and Environmental management Group

Faculty of Biological and Environmental Sciences

PO Box 65 (Biocenter 3, Viikinkaari 1)

FIN-00014 University of Helsinki

Finland

Phone [+358400491395](tel:+358400491395)