



LICCI

Local Indicators of
Climate Change Impacts

Frequently Asked Questions



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Climate Change Impacts

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INTRODUCTION

LICCI online training

Q: In some cases, the local communities/knowledge of fishermen/farmers etc. are meshed with urban communities/knowledge (especially in European fisheries). Is this ok for a LICCI project case study?

A: The main criteria for selecting a sample for the LICCI project is that you target people with a long history of interactions with the environment. In this context, the idea should be then to target a group of practice with shared knowledge, even if they are embedded in other bigger groups (urban settlers).

Q: What is the scale of a community LICCI usually operates? Large communities may have people with distinct interest, technologies, socio-economic position and perceptions of climate change. Have you ever had contrasting views?

A: Many indigenous communities are small in size (<500 households) and scattered, and this was our original idea when designing the project. Although, local communities can be much larger, communities of practice (i.e., a group of fishermen) are probably smaller, and they should be considered as the targeted unit. The scale of the community is a group of practice even they are embedded in a larger context. They share a social memory, share knowledge and communicate among themselves.

Contrasting views should be resolved in Focus Group Discussions (FGD). We expect people to have different perceptions driven from their own realities. Such views should be discussed in FGD to get a consensus view.

Q: How climate change is identified as the driver rather than other drivers? Especially when the community might not use the term climate change (or it is a common term to use for wide range of changes).

A: Climate change operates in synergy with other changes, and it is not always possible to differentiate. The following are the criteria to consider that an observation can be considered as a LICCI (p. 54 of LICCI manual):

- All observations of change in the climatic system (i.e., temperature, precipitation, air masses and seasonal events) should be considered a LICCI.
- Drivers: Changes can be driven by different factors (not only climate change). Since we are collecting perceptions, changes in physical, biological, and socio-economic systems will be considered LICCI if informants attribute them to changes in the climatic system.
- Time scale: consider changes within a certain temporal width (not from last year).

Q: To distinguish observations that can be attributable versus. non-attributable to climate change - what are the key factors to consider? (e.g. thinking about coal extraction areas in northern China like Inner Mongolia where there have been changes to the local environment)

A: Attribution is complicated, many times it is all interlinked. By following our methods observation-why-why-why sometimes you get to weather, population, god etc.

You should follow the causal link of an observation. Keep asking and identify if one of the reasons of change is attributed to climate, although we understand the complexity.

Q: Could you clarify the difference between long-term versus short/near-term impacts/changes? What's the timeline interviewer/interviewee should look at? Which is the temporal frame? Because in the social memory there could be embedded information on past events also

A: One of the methods is a timeline, this goes back 100 years, but of course they can reference further back. The important is that we do not consider LICCI if it just happened last year. We use "when you were young"

Try to know when changes started, there is not a specific date.

Q: Is climate change always related to negative impacts? This is quite complex, because it might have positive impacts for people, but not for ecosystems...

A: The LICCI project is collecting perceptions of changes driven by climate change. People might consider that a biological impact has positive economic effects. This information has then to be contrasted with other sources of knowledge. What is important is to remember that we are collecting local perceptions.

Q: Do you consider the ecological knowledge you collect as stratified? I mean, made of different layers of different knowledges through time?

A: Local ecological knowledge is certainly dynamic, but also shared by the community. There might be different layers of knowledge (including different views from different generations), but we are aiming to get a consensus view in the FGD.

Q: Do you have any theoretical framework for analyzing data, e.g. Ostrom?

A: The LICCI project adopts the recently proposed *Multiple Evidence Based* approach, a theoretical approach that "*emphasizes the complementarity of knowledge systems and the values of letting each knowledge system speak for itself, within its own context, without assigning one dominant knowledge system with the role of external validator.*" (Tengo et al. 2014). In other words, rather than attempting to validate or integrate local knowledge and perceptions of climate change impacts into climate science, we propose to bring the insights gained from studying local knowledge as a complementary, equally valid source of evidence for understanding local climate change impacts.

Q: By when you need the data uploaded to the app? Any specific date?

A: August 2021.

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References:

Tengö, M., Brondizio, E. S., Elmqvist, T., Malmer, P. & Spierenburg, M. Connecting Diverse Knowledge Systems for Enhanced Ecosystem Governance: The Multiple Evidence Base Approach. *Ambio* 43, 579-591, doi:10.1007/s13280-014-0501-3 (2014).

GENERAL QUESTIONS

Q: Concepts like “livelihoods” are biased, this type of communities and local knowledge may not exist in Europe.

A: There are still pockets of traditional or local ecological knowledge in Europe. Rural communities which main profession or “livelihood activity” depends directly on natural resources (socio-ecological systems) like shepherds and ranchers, farmers, beekeepers or small scale fishermen preserving traditional techniques can keep Local Ecological Knowledge (LEK), Traditional Ecological Knowledge (TEK) or Indigenous and Local Knowledge (ILK). Apply the idea of “community of knowledge”, they have access to internet and mass media, but still will preserve specific knowledge regarding climatic, physical and biological systems, and its repercussions in human systems. One of the premises of LICCI is that contact with nature give you an understanding of change that is different, but this knowledge is also based on knowledge transmission.

A: Even in urban systems you might have people that have a continuous contact with nature, sailors, miners, or others, that do jobs very related to nature. We are not including them because this misrepresentation of Indigenous People and Local Communities was the issue and we are only addressing this. But we are going to have also a citizen science platform OpenTEK for this other type of knowledge.

Q: Boundaries for what is a village and what is a site: how did you decide? it’s a bit top-down no? For example, here the lowest administrative (formal) unit are the Municipalities (Municipalidad; e.g. Pucón). And in each Municipality, there are different localities (Localidades). I think that in my case the Study Site will be a Municipality and the villages will be localities.

A: The idea is to use a bottom-up approach. Researchers based on their own experience and knowledge of the idiosyncrasy of their site will define and select the villages. There are no fixed boundaries or limitations, researchers will define the villages based on local knowledge and what their members consider as a village. Normally a village is a group of households following the same rules and with the same leader/ tribal chief or mayor. The site will represent the land where the interactions between social and natural systems happen, i.e. the area used by the community to conduct their livelihood activities.

Q: Which is the average **territorial extension of your field work sites** so far? I’m asking just to understand better how big the area could / should be...

A: It really depends on the case. For example, it can be just a valley in the Pyrenees or a big area for a pastoralist community in the Sahara. It depends on the main livelihood of the community and the extension of land they use for their livelihood activities.

DATA COLLECTION TOOLS

Q: Is it feasible to collect LICCI data without electronic support (tablet/smartphone)?

A: You can start collecting your data in any manner you prefer (printable tables, notebook, recorder). Only the submission has to be done electronically (through the app (licci.eu/app) or through project send repository (licci.eu/files). So you can collect the data on paper and afterwards back in your office clean it in and submit it. However it might be useful to look at the app in advance of data collection. That will help you to understand in which format the data is required. Also, if doing surveys, using the app in a portable device (tablet/smartphone) will aid considerably.

So yes, especially for first part of data collection (interviews and focus groups), you can collect data on paper and then use your computer from home.

Q: Can I send my data to you by email, Google Drive, Dropbox or WeTransfer?

A: No, for data security issues (and the core team's mental health!) we would like to ask you to send all documents to the centralized repositories.

Data to be sent **through Project Send** (licci.eu/files):

- The GPS data (excel with waypoints and .gpx shape files for areas)
- The narratives (word documents on Livelihoods, Timeline, FGD and SSI - how they went, how many interviews, which populations etc.)
- The FPIC forms signed by participants and by village representatives

Data to be sent **through the app** (licci.eu/app):

- The Site Card, Calendar, Timeline, Assets, Livestock, LICCI and LACCI.
- The Village Card, household surveys and individual surveys

Q: Will there will be some sort of review/peer-review on the data we submit? Or is the data considered definite the first time we submit it? What happens if I submit some data by mistake or submit wrong data and later want to correct it?

A: Your data is reviewed by some LICCI core team member, your buddy. Your buddy is your first contact of the LICCI team to support you in your data collection. You can also submit your data many times. In general, your last submission will be considered as the final one.

LICCI APP FAQ

Q: Do we need to download and install the app?

A: There is no need to install it. The partner data collection app runs in the browser (in firefox, chrome... just type <https://licci.eu/app/>). The installation (possible on mobile devices and on

computers with google chrome) allows you to use the app offline. So if you dont need to do that there is no need to install it.

Q: Is the data automatically saved in the app?

A: It is saved but only locally in your browser, if you change device or browser (use chrome instead of explorer) you will not find you data. It's important that you always do backups of the app data by downloading (offline) it or uploading it to the repo (online). For that, and for us to see your advances, you need to:

a) Go to the menu-settings

b) Enter your **User key** (provided by us) and press "test and save".

c) Click on "**upload to the repo**" button at the bottom of the site page or on the site card on the main page (probably the first card)

BACKGROUND DATA

BACKGROUND DATA – Q & A

Q: Besides meteorological data, are secondary oceanographic data (e.g., water temperature) for fishery communities mandatory?

A: It's not mandatory to collect oceanographic data but it is highly welcomed, especially if they refer to frequently reported environmental changes observed by the local communities. Additional data on the marine sea water and wind characteristics (e.g., water temperature, wind speed on the sea, data on currents) help to better understand the changing livelihood conditions of marine fishery communities. However, they should be considered as additional data to weather data from (terrestrial) meteorological station since the terrestrial climate also affects coastal ecosystems.

Q: In my study site, the fishing grounds of local fishers spread over a distance of up to 1000 km. Should I collect all available weather data for the entire coast of Peru?

A: In this case it will be useful to get the weather data from at least 3 weather stations: from the northern, the central and the southern area to assess the spatial climate variability.

Q: Large scale satellite data could be useful instead of local weather station data? The large-scale/regional data might be useful if some change in the system occurs far from the community (e.g. precipitation on mountains/catchment area km away) but affects them locally (e.g. in the river delta).

A: From our partners and collaborators we only expect climate data from local meteorological stations because we assume that researchers working in the field site have better access to local weather data. Since we are assessing local perception of climate change impacts, we are especially interested in local small-scale secondary data. However, following the multiple evidence approach ([Tengö et al., 2014](#)), the LICCI core team will also assess other secondary climate data, e.g., data from climate modelling.

Q: What do you define as representative area?

A: The size of the representative area is up to the partners and comprise of the area that is representative for your data collection and normally includes all the areas that are frequently used for living and livelihood activities by the community members. The representative area should be homogenous with respect to prevailing climate and socio-economic and environmental conditions.

Q: Where should I send the background data and in which format?

A: Background data should be uploaded to Project Send. For the weather data, please use and fill in the Excel template for weather data provided by the LICCI Core team. For GPS data we accept the following formats: .gpx data (the typical format from GPS devices or the Offline Maps App), GIS features, e.g., shape files (.shp), and for the waypoints we additionally accept the use of the Excel template for GPS data provided by the LICCI Core team.

SAMPLING

Q: *Regarding quota and site/livelihood sampling, what is the frontier between fisher/marine life gatherer? How do we define the hunter-gatherers of the sea?*

A: We have not differentiated between fisher/marine life gatherer. We do have a general classification of livelihood activities (please check manual page 11), but we acknowledge that this is insufficient to cover all livelihood activities practiced by local communities. You may classify the different livelihood activities in a way that you think fits better to the context of your fieldsite, and you may also create new categories. The point here is that we use these categories to make sure that our sample includes people who engage in different activities because they might perceive different LICCI and LACCI. So if you think that a given group of people who practice a certain livelihood activity might have different perceptions, keep them in a separate group for sampling.

Q: *Regarding quota sampling, what if we have just one main livelihood activity? For instance, Pucón is a mountainous ecosystem where Mapuche and local peasants are mainly farmers.*

A: Even in sites where there is a single major livelihood activity, you may have groups of people who are more engaged into some specific complementary activities (e.g., harvest of wild edibles, hunting, etc.). In this case, you may use these complementary activities as the basis for your classification. The main idea here is that the sample should represent the whole diversity of actors of your fieldsite, including variation in gender, age and livelihood activity.

Q: *Concepts like “livelihoods”, ‘indigenous communities’ and ‘local/traditional ecological knowledge’ may not be suited to places like Europe or peri-urban areas.*

A: The LICCI project focuses on communities that are in close contact with nature because one of the premises of LICCI is that contact with nature gives you a different understanding of nature and its changes. Through this intimate and long-term interaction with nature, these communities have developed a detail understanding of their environment, both empirically and also through knowledge transmission, which is what we term ‘local ecological knowledge’. Local communities like these – which we call ‘indigenous peoples and local communities’ (IPLC) - exist all over the world, ranging from semi-isolated tribes with little contact with the outside world to rural communities in Europe with plenty access to markets, internet, etc. As long as they are in close contact with nature and their livelihoods are strictly dependent on the use and management of natural resources, these communities have some level of LEK and thus are within the scope of the LICCI project. In urban areas there are also people who work closely related with nature, but we are focusing on IPLC who live in rural areas because their knowledge is still underrepresented in our understanding of climate change. However, the online platform OpenTEK, which is also part of the LICCI project, is open to citizens in general to document their observation of climate change.

Q: *How to define what a ‘village’ is? This might not be suited to every field site.*

A: In the LICCI manual (page 14), a village is defined as ‘the lowest administrative unit of an area’. In some cases these are relatively easy to define, because they have clear geographical boundaries and

function as a well-defined entity, usually under a certain organization scheme (e.g., a local leader, chief, etc), but this is not always the case. Even when these boundaries are unclear, what is important here is to define 'sub-units' that are representative of the social and environmental characteristics of your fieldsite (i.e., avoid exceptions), within which you will sample the households. To define this, you should use your own knowledge of the area, preferably combined with the local knowledge as well (i.e., considering what local residents understand as a 'village') and discuss this with your buddies from the LICCI core team.

Q: *Which is the average territorial extension of a given field work site?*

A: It varies a lot: it might be just a valley in the Pyrenees or a large area used by pastoralists in the Sahara. What needs to be taken into consideration is that your field site should be more or less homogenous in terms of social and environmental characteristics, and you need to consider carefully which people/geographical region you want to represent in your sample. For example, one of the field sites is located along the Juruá River, in western Amazonia. It is a very long river, stretching for thousands of kilometers and inhabited by different indigenous groups and local communities. In this case, we decided focus only on the middle part of the river, where the villages are more homogenous regarding their cultural background (they are all 'ribeirinhos') and the types of environment that they use and manage. We names this fieldsite 'Ribeirinhos of the middle Juruá River', to clarify the people and the geographical region represented in our sample.

SEMI-STRUCTURED INTERVIEWS & ADAPTATION

FORMS

Q: Do group interview generates group form or still individuals' forms? What about the basic's demographic information from the group?

A: To provide the collective narrative from your study site (e.g., demographic description, history) you will run some semi-structured and informal interviews in which we are not expecting basic demographic information unlike the interviews and the focus group discussion to collect LICCI and LACCI later. For more details on groups and individual forms, you can peruse your "master manual" section "Focus group discussion".

TIMELINE AND SEASONAL CALENDAR

Question 1

Q: Should we make the timeline and calendar during the previous test (with 3-5 interviewees)? Because we may need to establish some trust relation before we ask them for important events?

A: Of course, it is always better to keep the first interviews to establish a trust relationship with the interviews even more if it is a new field site for the researcher. But the timeline and the seasonal calendar will be constructed throughout the semi-structured interviews and then validated during the focus group discussion so you can collect data even while running the first interviews. But we will always preconize starting by doing informal interviews before addressing these topics.

Question 2

Q: When asking about the "memorable" socio-cultural and climatic events to fill the timeline, are we asking "their" perceptions of what is memorable? And there must be the group consent on that?

A: Here, we are not questioning "their perception of what is memorable" but what they remember. We are expecting for events that everyone remembers in the community. These data that you collect should help you to frame the LICCI and LACCI. However, you will find some variability while processing the semi-structured interviews, but it will be clarifying during the focus group discussion to reach a consensus. During the SSI, the question could be formulated as follows: "Is there extremes climatic or socio-cultural event that everyone here in the community remembers?"

Question 3

Q: Regarding calendar and timeline: it may happen that within the same study site differences between villages appear. In this case, should we merge all in the same calendar/timeline or elaborate different outputs?

A: We are expecting a seasonal calendar and a timeline at the study site level. So, you should select event et/or activities representative to your study site (e.g., main crops calendar, hunting time). These two outputs will be used as a guideline for your fieldwork. It will be useful to frame the semi-structured interviews, so it is better to avoid this variability the much as possible.

ADAPTATION

Question 1

Q: Sometimes local people adapt without knowing that they are putting in place adaptation measures. In this specific case, how can we catch the information?

A: Besides from collecting information on local adaptation from semi-structured interviews, data on local adaptation can also be collected through informal conversation and field observation. Each field observation should best be confirmed by community members by going back and asking if they have changed this because of changes in the local weather. We do not expect people to know the concept of adaptation to climate change. Hence, we encourage our partners and collaborators to differently phrase the question and replace 'adaptation' through other wordings, such as 'changes in behavior', 'changes in practices related to the livelihood and living' (i.e., 'doing things differently today compared to the past') related to observed changes in rainfall, temperature, Each researcher has to find the adequate wording for the local context.

Question 2

Q: What is the framework and the definition of adaptation applied in the LICCI project?

A: For our approach, we refer to local responses to climate change impacts and define adaptation according to the generic but inclusive definition provided by [Moser and Ekstrom \(2010\)](#): 'Adaptation involves changes in social-ecological systems in response to actual and expected impacts of climate change in the context of interacting non-climatic changes. Adaptation strategies and actions can range from short-term coping to longer-term, deeper transformations, aim to meet more than climate change goals alone, and may or may not succeed in moderating harm or exploiting beneficial opportunities.' We furthermore include both, actions with direct benefits regarding the reduction of local climate change impacts, and those with indirect benefits by increasing the adaptive capacity.

Question 3

Q: Would 'adaptation' or 'coping' also include responses such as the abandonment of practices (e.g, agriculture) or migration?

A: It is important to have a complete list that covers all local responses to climate change, given that the community members have an agency on the implementation. This should also include changes in human behavior such as migration and the abandoning of certain activities. However, whenever someone reports the abandoning of an activity, always ask what people do instead (**important!**), since most of the time the adaptation is not only or mainly about stopping to do something but to START something new or to practice another activity more frequently. Always ask for as many details as possible to understand the reasoning and the rationality behind a behavioral change.

Question 4

Q: How to distinguish between coping and adaptation?

A: We know that it is not always easy or possible to tell if a change in behavior is a short-term coping strategy or a long-term adaptation and changes can start as coping but transform to adaptation. Therefore, we include both coping and adaptation in our list of local responses. When asking our partners to evaluate the local responses as adaptation or coping we aim at understanding the local context based on the experience of the partners and collaborators. This question is of a qualitative nature and is understood as a mere estimation of the local context. The idea is to understand if the

reported local response in the specific case study refer to short-term process of temporary adjustment during and immediately after unusual, abnormal, and adverse conditions of a hazardous event or process ([Agrawall, 2008](#)) or rather to a long-term process of enduring adjustment. We ask our partners and collaborators to justify their decision, especially in critical cases and based on the context specificity.

Question 5

Q: Is the scale of local adaptation within the LICCI project limited to the household level?

A: We include adaptation on which at least one household member has an agency. Adaptation of individuals are included if a) they are also representative for other (not necessarily all) household members (e.g., boiling water for disinfection), and b) if it affects the household as a unit (e.g., only the household head practice fishing but this provides the whole family with food and income and thus any changes in the fishing practices concerns the entire household). We also include adaptation that is based on collective actions, thus the cooperation of various households. Important is that the community members have an agency on the implementation and realisation of the adaptation measure. Hence, we exclude all adaptation measures that are entirely implemented by external agents, e.g., the construction of a dike that was planned, constructed and paid by the government.

Question 6

Q: What if households act based on a political guideline? Should this be considered as adaptation according to the approach selected by the LICCI project?

A: This depends on the context and if there is at least a certain degree of agency from the community members. For instance, if the political guideline contains recommendations or subsidies and community members can decide to either opt in or opt out, then we can include them as local adaptation but have to note all potential external non-climatic drivers, e.g., external financial support or incentives. If the freedom of decision is not given, e.g., due to a top-down imposition, the adaptation should not be considered as local response from the community members.

Question 7

Q: Do you consider historical data as helpful to understand if something is a local response to climate change?

A: Our primary approach is to ask people first about changes in their environment related to climate change (but keep in mind to rephrase the question according to the local context and without using the expression 'climate change') and subsequently ask how community members respond to the observed changes. However, historical data (if available) can be a useful additional data source following the multiple evidence approach ([Tengö et al., 2014](#)). However, it is important to keep in mind that we are interested in responses to the anthropogenic climate change, thus focusing on adaptation approximately for the last 40 - 50 years, with a higher importance of the last 20 - 30 years.

Question 8

Q: Are we also interested in biological adaptation (e.g., plants)?

A: In the section of adaptation we only focus on human responses to climate change. However, biological adaptation probably relates in most cases as local indicators of climate change (LICCI) and will be coded as such.

FOCUS GROUP DISCUSSIONS

Focus Group Discussions

Q: Can you explain again the observations needed to and NOT needed to bring to the FGDs?

A: Since FGDs are serving as the key method to validate the observed changes collected in the SSIs, the observed changes DO NOT need to bring into FGDs include:

- Observed changes have reached a high consensus during the SSI, e.g., if you interviewed 25 participants, and out of which, 22-24 of them have said ‘the crops are not growing well because of the drought’.
- Observed changes are in the climatic systems, such as temperature, rain, and snow etc., unless they are inconsistent.

Observed changes DO need to bring into FGDs include:

- Inconsistent observed changes regardless if they are in climatic system. For example, some of your interviewees mentioned that it is hotter in winter, while some mentioned it is colder in winter. In this case, the observed change should be brought to the FGD for a collective discussion.
- Observed changes with different drivers, e.g., some interviewees mentioned that the crops yield less now because of lack of rain, while some said the crops yield less now because it is too hot, therefore in such cases, the observed changes need to be included in the FGDs discussions.
- Different opinions between the local people and the researcher. This project is aiming to collect local perceptions of climate change impacts, so as researchers, you should always avoid influencing interviewees with your perspectives. However, when there are observed changes mentioned by local participants are not attributed to climate related drivers at all, while the researcher thinks (based on expertise and knowledge of the field) they are linked to climate change, such changes should be brought to FGDs as well for a discussion.

FISHERIES GROUP

LICCI Fisheries online training

Background data

Q: For the fisheries do we have to gather oceanographic data? You seem to have selected the (standardized) climatic variables for land. Do you want to have data for the ocean as well? It's complicated and maybe not so relevant to use the land weather variables.

A: It's not mandatory to collect oceanographic data but would really help if you can obtain them. Particularly, we would be interested in the variables of water temperature, wind speed and currents. In any case, we still want the local weather station data in land as they are relevant for coastal ecosystems. You can collect these secondary data, especially if local people are talking a lot about that (e.g. salinity, temperature of the sea, etc.).

Q: Large scale satellite data could be useful instead of local weather station data? The large-scale/regional data might be useful if some change in the system occurs far from the community (e.g., precipitation on mountains/catchment area km away) but affects them locally (e.g., in the river delta).

A: This satellite data might be relevant for coastal areas (e.g. chlorophyll & temperature maps, etc.) and give a lot of information of changes in the ocean surrounding local areas. However, we are focusing on local perceptions, not on the actual processes that generate the change (which will be explained by this secondary data). We are asking partners to collect local weather station data because they might know better these local weather stations and because we are looking for data close to the community. In any case, if a researcher is interested in analyzing these relations s/he will be able to retrieve this secondary data later on.

Q: I work in a bay in the north and in a bay in the south of Peru, separated by more than 1000 km. But some fishers fishing grounds are across almost all coastal Peru; they fish depending on fishing seasons. When talking to them they will be reporting me changes not from where they live but "the sea" they know about, which is very broad. Should I collect the data available for all coastal Peru? They fish in all the sea and perceive changes accordingly, so it doesn't make sense to have background data only for where they live inland.

A: This is a common situation with marine fisheries, where fishers can travel long distances to reach their various fishing grounds (fishers from some sites may even do long seasonal migrations to reach productive fishing grounds). The first part of the fisheries protocol requires filling a list of all the fishing grounds used by the community, with their specific characteristics, so that changes can be pinpointed to a specific area/habitat.

SSI/FDG:

Q: How many words/pages should the narratives have?

A: As much as you need, a lot of contextual info goes there. In this part, you can explain in detail the relationship of the community with their aquatic ecosystems, the role of fishing on their livelihoods, or any historical events that have shaped/changed the customs of your study site with the aquatic

environment (for instance, introduction of new gears or technology). You can add details about seasonality in target species, or about which groups in the community engage in different kinds of fishing and why, and how many fishers of each kind exist. You should also add here any such details for their food choices and any changes local people recall. If there is published material, please add the references.

Q: Can we include aquaculture and shellfisheries? It's a mixed fisheries system for my region but a shellfish is a lucrative economy for Indigenous and non-Indigenous ...it includes both farmed and wild harvesting...so if there are rules on differentiation for the output manual that would be good to know....

A: Yes, you should include both wild catches and fish/invertebrates coming from aquaculture. But there is no difference in the way you code the data.

Q: Don't we have to collect a timeline?

A: If you collect data for LICCI at the same time as fisheries (most likely), you will collect a timeline and calendar. But for the fisheries part it's not needed, you can include that information in the narrative.

Q: When you talk about the list of "species they know" – do you want any species in the region?

A: The idea of the species section is to know the ecosystem and be able to account for species interaction. If we only talk about fish species they catch we miss part of the information, this is why you should ask them to list all the aquatic species they know.

Q: When you say "estimated income"...is this a cumulative estimate?

A: It's monthly income as estimated by participants. If they are not comfortable giving a specific number, you can ask them to give you a range and then take the mean.

Q: Do you have a suggestion on how to get the approx. percentage of people who target a specific species? Do you refer to all the people living in the village (e.g., if not everybody goes fishing) or the percentage of the fishers? I mean, does the percentage refer to the whole community or among the fishers?

A: The question refers to the percentage of fishers. From the narrative, you know the approximate number of fishers in a village and then you ask which of those target the species approximately.

Q: Can you elaborate on the % catch for own consumption and sale? How are we estimating the % catch?

A: We will use the 'pebble distribution method' (Colfer et al. 1999; Lynam et al. 2007), in which study participants are asked to distribute a given number of points ('pebbles') across different items based on their relevance for a given purpose. In this case, we use the pebble game to get an approximation of how relevant are some fish species are to their catch and to their diet. We ask them about relative importance, not the percentage *per se*.

Q: When do we do the pebble game? Is it compulsory and how many should we do?

A: In the fisheries protocol we use the pebble game during SSI. The ideal is to run 25 pebble games but not necessarily with the same people answering SSI (if they become long). More clarification about the pebble game can be found in the Fisheries and Master Manuals, and on the materials section of the website.

Q: What is the scale of fisheries management? Do you also consider individual fishing management such as how people share their catches between participants or just overall management of the system?

A: Management at the fishing ground scale. It refers to whether this is managed as open access or if there are rules and regulations regarding access, allowed gears, or amount of catches.

Q: Is there room for assessing the existence and the causes of conflicts? For example, due to resources decline exacerbated by climate change and/or industrial fisheries, changes in sea tenure, etc. Or conflict and other topics will be inferred from their answers?

A: Increasing conflicts are one of the identified LICCI. These topics can be discussed during the FGDs, as they also should cover the adaptations (LACCI) regarding the aquatic environment. Of course, any researcher is welcome to pursue any topic of relevance in her/his particular site.

Q: Is there a place to document Indigenous names for species or is that needed for your data set?

A: Yes, in the species list we ask for both for the local name and scientific name.

Q: Are El Niño phenomena changes in LICCI tree?

A: Right now we have only “Changes in storms” or “Changes in winds” or “Changes in currents”, but new LICCI can be created as we were not exhaustive with the aquatic environment LICCI when developing the LICCI classification tree. Remember, however, that LICCI should come from what respondent’s say based on their local knowledge, in this sense “El Niño” might be a scientific term and not a local perception.

Ethics/Publications:

Q: I'll need the questions for my ethics addendum. Should we circulate it with you to confirm alignment?

A: You normally can submit the data collection protocols we provide to your ethics board, with the list of topics to be covered and data collected, and not necessarily the questions (which might change a bit as they are translated and locally adapted). We do not need to see your ethics submission, but feel free to ask us any question you might have.

Q: If I want to become a LICCI Fisheries collaborator, do I need to have an IRB/ethical clearance?

A: We recommend that you obtain your own ethical clearance and authorizations for conducting fieldwork at all relevant levels. From our side, what we need is that you sign the LICCI collaborator agreement where you commit to conduct research ethically, acquire all necessary permits, and protect the data and identity of participants.

Data collection tools:

Q: I was wondering if there is a form for the semi-structured interviews and focus groups that we can just adapt, print and take to the field.

A: You can take the [Fisheries Manual and LICCI Manual](#) to the field, in there you have some output tables you can use.

Q: Where do I send the fisheries data?

A: You can use any media to collect data: notebooks, tables etc. But the data has to be handed in through the App (species lists, LICCI, LACCI, pebble game etc.) and Project Send (GPS, weather data, FPIC forms and Narratives).

ETHICS AND PUBLICATION POLICIES

Q: Do you accept **oral informed consent** when someone does not want to sign the Free Prior Informed Consent (FPIC) form?

A: Yes, but there is a procedure to that too. ERC is very strict about FPIC. So a witness (research assistant/ translator etc.) has to sign the form assuring that you are asking for consent in every interview.

Q: Can we **audio-register the interviews or take pictures/videos?**

A: Yes, but only if the interviewee agree. You have to include it in the free prior informed consent forms and before starting the interview they have to sign the document allowing you to 1)do the interview and 2)take pictures or video recordings.

Q: What about **ethics committee authorization?**

A: If your institute has an appropriate bioethics committee (for animal and human experiments) we advise you to get their approval. If you don't have a committee you should at least sign the LICCI collaborator agreement before going to the field

Q: What other **levels (national, local) of authorization** do I need?

A: It will depend on the context, but we advise to at least request authorisation from the local administrative government (community leaders or council) and from the village representatives. Some countries (Brazil) require also a national authorization.

Q: Regarding the **anonymization of data**, isn't the GPS data that we collect in the field too specific that someone can figure out which village was visited for interviews? Is that potentially an issue? Also, the signed consent forms have the villager's name...

A: There will be no household GPS data, and interviewee names are not stored, only written in the FPIC forms. So anonymity of interviewees should be kept, even if we show GPS data for the area.

Q: Can we give the community some sort of "reward"....like being mentioned in a newspaper article, in the project website or something like that etc...

A: Yes, we encourage everybody to do some sort of community feedback activity or product (booklets, videos, posters etc.)

Q: The collaborator agreement is personal or institutional?

A: It is an agreement between the data contributor and the project.

PUBLICATION POLICIES –FAQ

Q: Can I use **my site's data** for publications on my own and without telling anyone?

A: The disaggregated data for your fieldsite is yours and you can do as you please with it. In fact, nobody else can use that data alone. We would encourage you however to at least mention in your publications the project funding (in the acknowledgement section) and the data collection protocols (in the methods section).

Project acknowledgement formula:

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Citation formula to reference the data collection protocols:

Reyes-García, Victoria; García del Amo, David; Benyei, Petra; Junqueira, André B; Labeyrie, Vanesse; Li, Xiaoyue; et al. (2020): Local Indicators of Climate Change Impacts. Data collection protocol.. figshare. Book. <https://doi.org/10.6084/m9.figshare.11513511.v3>

Q: Will I be included in **any publication using my data in an aggregated manner?**

A: Following our publication policies, anyone using aggregated LICCI data should invite data contributors of each site to the writing of the publication. However, the inclusion on the final list of authors will depend on significant contribution to the writing and/or commenting of the publication.