Data Management Plan

Project acronym:

LICCI

Project Title:

Local Indicators of Climate Change Impacts (LICCI)

The Contribution of Local Knowledge to Climate Change Research

Grant Agreement No: **771056**

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List of Acronyms

APC: Author Processing Charges

APDCAT: Catalan Data Protection Authority

CEEAH: Comissió d'Ètica en l'Experimentació Animal i Humana

DMP: Data Management Plan

DOI: Digital Object Identifier

ERC: European Research Council

FGD: Focus Group Discussion(s)

FPIC: Free, Prior and Informed Consent(s)

ILK: Indigenous and Local Knowledge

IPLC: Indigenous Peoples and Local Communities

LICCI: Local Indicator(s) of Climate Change Impacts

ORD: Open Research Data

PI: Principal Investigator

PPP: Purchasing Power Parity

SubjId: Subject Identifier

UAB: Universitat Autònoma de Barcelona

1   Executive summary

The LICCI (**L**ocal **I**ndicators of **C**limate **C**hange **I**mpacts) project is funded with a Consolidator Grant from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme and aims at bringing insights from indigenous and local knowledge to climate change research. The project will fulfil the requirements for open access to publications and to research data. The project has opted in to participate in the Open Research Data (ORD) pilot and will apply the 'FAIR data principles' (making research data **f**indable, **a**ccessible, **i**nteroperable and **r**e-usable).

The LICCI project will principally collect field data and create a web-based citizen science platform on knowledge of local indicators of climate change impacts but will additionally collect secondary data (e.g., from literature, climate data from weather stations). The fieldwork will take place in approximately 40 indigenous and local communities globally distributed over five different climate zones. It will include semi-structured interviews, focus group discussions (FGD) and surveys. The citizen science platform will be an online collection of information on knowledge of local indicators of climate change impacts contributed by any interested person worldwide.

All data collection of primary data will only be carried out when the Free, Prior and Informed Consent (FPIC) of participants exist. Persons contributing data to the citizen science platform can decide on the licence and the access modality they wish to assign to their own data. Publications and research data collected within the project will be made openly and freely accessible via the LICCI citizen science platform, the LICCI webpage, and via other online repository (principally ZENODO and Europe PMC), provided that study participants agree on publishing. Personal data will be protected by anonymisation and by assigning passwords and will not in any case be published.

2   Introduction

The LICCI (**L**ocal **I**ndicators of **C**limate **C**hange **I**mpacts) project is funded by the European Research Council (ERC) under the umbrella of Horizon 2020 EU Framework Programme for Research and Innovation and participates in the Horizon 2020 Open Research Data (ORD) pilot. Thus, additionally to the commitment to ensure open access to all peer-reviewed scientific publications derived from the project, the LICCI project will apply the 'FAIR data principles' (making data **f**indable, openly **a**ccessible, **i**nteroperable and **r**e-usable) to the research data generated by the LICCI project (ERC, 2016).

The LICCI project will collect primary data on local indicators of climate change impacts through 1) fieldwork and 2) a web-based citizen science platform and secondary data, e.g., data related to LICCI from literature review and recorded climate data from weather stations. The fieldwork will take place in approximately 40 sites (hereafter 40+) belonging to Indigenous Peoples and Local Communities (IPLCs) with high dependence on natural resources. Sites will be selected so they are globally distributed to cover the five main climates according to the Koeppen-Geiger classification system (polar, cold, temperate, arid and tropical). Field data will be collected using semi-structured interviews, focus group discussions, and face-to-face household surveys. Collected data will contain information on individual and group perceptions of indicators of climate change impacts, individual and community's livelihood strategies, vulnerability, and adaptation strategies. The web-based citizen science platform will be an open platform, where every citizens is encouraged to enter information (including text, pictures, videos and audio files) on observed climate-related changes in the environment.

This document constitutes the first version of the Data Management Plan (DMP) of the LICCI project. This DMP includes a description of the management life cycle for all research data belonging to the LICCI project. The introduction to the LICCI project is followed by a description of the data with details on the methodology to be applied during the process of data collection and on the expected data structure, size, types and formats. The fourth section describes how the LICCI project will follow and apply each of the 'FAIR' principles. The fifth section includes information on the long-term data storage, the allocated resources, and issues related to data security considered by the LICCI team. The last section discusses ethical aspects related to data collection and management.

As the project is in the first steps and no data has been yet collected, detailed information on some aspects cannot be provided at this stage. Furthermore, some changes in the data management will occur while the project evolves. Thus, this first version of the DMP is open to future changes and adaptations.

3 Data summary

The LICCI project will collect primary data on local indicators of climate change impacts, households' adaptive strategies and vulnerability to climate change. Primary data will be collected through fieldwork and through a web-based citizen science platform. Additionally, the project will collect secondary data from literature review and online research. In the following, we describe in detail the process of data collection and the structure and the formats of the collected data.

3.1 Data collection

The LICCI team needs to collect new data in order to address the project research interests and objectives. Data on local indicators of climate change impacts will be collected through two approaches: 1) field data collection in 40+ study sites all belonging to IPLCs in several parts of the world (sites to be defined), and 2) a citizen science web-based application (see Table 1). Field data collection will be undertaken by 40 external students and by about five LICCI core team members during a period of about 18 months. Data collection methods will include semi-structured interviews, focus group discussions and face-to-face surveys. For each field site, the LICCI project intends to collect geographical information data (i.e., geographical coordinates and altitudes).

The LICCI project plans to be working with adults in medium- and low-income countries, who will be requested to provide personal data. We are aware of ethical issues related to the protection of personal data and we will take all necessary measures to ensure this (see Chapters 5.2 and 6). No data will be collected without a Free, Prior and Informed Consent (FPIC) of participants (see Chapter 6.3).

Table 1: Overview of the collected data

Local Indicators of Climate Change Impacts, vulnerability and adaptation (group perception)		
Method	**Type of data**	**Sample**
Semi-structured interviews	Primary (background information)	Knowledgeable key informants, including elders and people considered knowledgeable by their peers.
Focus group discussions	Primary	Elders and local experts, and people practising different primary economic activities in a village.
Literature review	Secondary (background)	Academic articles on local indicators of climate change impacts published at international, peer-reviewed journals.
Local Indicators of Climate Change Impacts, vulnerability and adaptation (individual perception)		
Face-to-face survey	Primary	Random sample of adults in study villages.
Web-based data collection	Primary	Any citizen in the world willing to enter data.

3.1.1 Secondary data

As a first step, secondary data will be collected though a literature review on case studies previously documenting LICCI. Data from the literature review will be initially stored in an Access database and latter included in the LICCI platform. Further secondary data to be collected include 1) climate data from local weather stations in the study site, 2) site location data, and 3) model calculations from global and regional climate models.

3.1.2 Semi-structured interviews

We will obtain initial assessments of local indicators of climate change impacts through semi-structured interviews with knowledgeable key informants, including elders. Interview questions will focus on a) local livelihoods and dependency on the natural environment (e.g., primary activity, division of labour, seasonality), b) time line of events important to the society, c) perceived changes in the local environment and their drivers (e.g., attribution to climate change) and d) vulnerability and adaptation measures. Researchers will take handwritten notes of information provided in the interviews and audio recordings if participants agree.

3.1.3 Focus Group Discussions

To capture information encoded in the group social memory, in each site we will identify LICCI through focus group discussions with 4 to 12 participants. We will ask the group a) to identify additional LICCI not mentioned in the list compiled through semi-structured interviews, b) to discuss the importance of the observed LICCI, c) to provide time-lines for the LICCI mentioned, and d) to discuss the potential drivers for the changes observed. The total number of groups will vary from site to site, but on each site, we will organize at least 1) one group of elders and local experts and 2) several groups representing the main primary economic activities in the area. Depending on the site, specific women's and men's separate groups will also be conducted. With participant's agreement, FGD will be digitally audio-recorded.

As different groups might perceive different indicators or report different drivers, time-lines, and impacts, we will combine information from various focus group discussions to identify overlaps and differences. After we have analysed FGD data, we will conduct a site workshop in which we will present to the participants the compiled information and ask them to ratify, correct, and add information. The participatory, collective, and iterative nature of the process will ensure that the final list of indicators reflect the group social memory.

3.1.4 Face-to-face survey

We will use inputs from FGD to construct face-to-face surveys. Survey data will be collected from one individual per household, both randomly selected. Randomizing household selection will result in variation in households' direct dependence on natural resources and on informant's

age. Within a household, we will randomly select either the female or the male household head. To allow for comparability, surveys will be structurally identical in all the sites, although the LICCI team will use findings from the semi-structured interviews and the FGD to create site-specific questions (e.g., adapted to site-specific LICCI). The survey will include four sections: 1) individually perceived impacts, 2) household´s direct dependence on natural resources, 3) household´s vulnerability and 4) other socio-demographic information (e.g., education level, gender, occupation) and controls for individual's awareness and belief in climate change.

First, to ask about individually perceived impacts, we will select site-specific LICCI and ask respondents to report a) whether they have observed the change, 2) whether that change has any noticeable (positive or negative) impact on their livelihood, and 3) the severity of the impact. Second, we will consider direct dependence on natural as a proxy of the share of household income directly derived from the natural environment. Among IPLCs, income refers to the sum of a) the cash received from the sale of goods and services, b) the value of goods and services from barter and gifts, c) the value of consumption from fields and forest, and d) the cash received from remittances or pensions. The LICCI team will adopt this definition of income (i.e., cash plus consumption) to collect information on the household's income from natural resources (including income from agriculture, forest products, fishing and aquaculture, livestock, and so forth) and on household's income from other sources (including wage labour, own business, and remittances, gifts, and pensions). For cross-country comparisons, all monetary values will be expressed in purchasing power parity (PPP) adjusted US$. Third, rather than measuring vulnerability to climate change, the LICCI project will measure household's overall vulnerability. To do so, the LICCI project will select data on the five assets that allow households to pursuit their livelihood strategies: financial (e.g., income from different sources, savings and credit), physical (e.g., ownership of productive assets, and access to communal assets, for example local infrastructure), human (e.g., education level, local knowledge), social (membership to associations, social relations in the village, perception of trust and cooperativeness), and natural capital (e.g., land ownership and access to communal assets, such as pasture, forests, fisheries, or water). In the fourth section of the survey, the LICCI team will collect individual-level data on education, gender, age, occupation, and awareness and belief in climate change.

3.1.5 Web-based data collection

The LICCI project will collect data on local indicators of climate change impacts through a citizen science platform. In a nutshell, the LICCI project will create a web-based platform where any citizen worldwide will be able to register and report observed changes attributed to climate change in their local environment. Registration will be free of any charge and will imply to accept the platform's terms of use, which will be designed following the FPIC used during fieldwork.

Aiming at the collection of comparative data, the platform will be designed so that users introduce information following the same structure designed for field data collection. To achieve that goal, platform users will be guided to provide information such as geographical location, observed LICCI (e.g., name of the species for which a change is reported), length and time-lines of the observed changes, and intensity. Besides text inputs, users will be able to upload media files (e.g., images, video and audio recordings). Every contributor can decide on the licence and the access restrictions s/he wants to assign to her/his data (see Chapters 4.3 and 4.5.1). Before the launching of the platform, we will feed it with previously collected data on LICCI obtained from a literature review and from the FGD. The LICCI citizen science platform will work on regular computer (desktop, laptop) and as well on mobile devices (smartphones, tablets) allowing the users to capture information while being disconnected from the web and to upload them at a later time. The LICCI citizen science platform will only collect and archive data given and uploaded by users voluntarily. The LICCI platform will store only data that is important for the project (e.g., location and date of media files) but will not store any data not related to the purpose of the project (e.g., browser fingerprints, device type).

3.1.6 Additional data collection

Each researcher of the LICCI core team is encouraged to collect additional data for exploring additional research questions (i.e., for PhD and postdoctoral projects). This might include additional FGD and additional questions in the face-to-face survey as well as other additional methods of data collection. Additional data collection will be detailed in further versions of this DMP. In any case, additional data collection will always be done after obtaining participant's FPIC and following regional, national and international laws and agreements.

3.2 Data size

Field data collection will take place in 40+ sites around the world. All case-studies will correspond to IPLCs characterized by direct dependence on local natural resources for their livelihood. Depending on the site size, the LICCI project will execute up to 20 semi-structured interviews and approximately 3-5 FGD. A site might include several villages. The number of households to be sampled in a village will depend on its population size. In villages with between 10 – 40 households, the LICCI project will interview 10 households to participate in the survey and in villages with more than 40 households we will select 25% of the households. In each site, the LICCI project will aim at a minimum sample of 150 surveys. We estimate approximately 1 MB for each word document related to semi-structured interviews, FGD and face-to-face surveys. This results in approximately 15*40 sites = 600 semi-structured interviews (600*1 MB = 600 MB), 4*40 sites = 160 FGD (160*1 MB = 160 MB) and 150*40 sites = 6000

face-to-face surveys (6000*1MB = 6 GB). Extra photos and audio records will require additional memory capacity.

We expect that the database containing secondary data from publications on local knowledge on climate change impacts with information on authors, published year, title, journal, and research content will not exceed 5 MB.

For each study site of the LICCI project, the LICCI team intends to select secondary data from closest local weather stations, if available. The LICCI core team will put a focus on temperature data and precipitation records. As these data highly depend on the availability of secondary climate data, the related data size cannot be estimated at this stage of the project.

The size of the database from the web-based citizen platform highly depends on the participation and the extent of uploads of media files such as photos and videos. The platform will increase continuously over time. Taking into account the number of entries of similar citizen science networks (i.e., LEO network and Environmental Justice Atlas) we estimate between 1000 and 2000 entries at the end of the project. Assuming an approximate upper boundary of 1 MB for each entry, we expect the LICCI platform not to exceed 2 GB at the end of the project.

3.3   Data types and formats

Whenever possible, the LICCI team will use free open source software and open formats, or widely adopted formats, such as those from Microsoft Office. The list of expected file types and formats includes:

- text documents (.txt, .docx, .odt, .pdf)
- tables (.xlsx, .ods, .csv, .dta)
- databases (.sql, .psql, .accdb, .dbf)
- images (.jpeg, .png, .tiff)
- audio files (.mp3, .wav, .ogg)
- video files (.mp4, .mov, .avi, .wmv)
- geodata: different files related to geoinformation systems, such as QGIS (e.g., .shp, .kml, .dbf, .qgz); ArcGIS will be used only in exceptional cases if work cannot be done with QGIS or if ArcGIS provides considerable advantages
- other structured data (.json, .xml)

3.4   Data processing and analysis

Data derived from fieldwork and from the web-based citizen science platform will be subsequently processed (i.e., digitized, checked, cleaned, validated, and anonymized) and analysed for econometric and modelling work.

3.4.1 Statistical analysis

Semi-structured interview and FGD data will be coded through qualitative content analysis (most probably using Atlas.ti). Survey data will be analysed by applying statistical methods. Some data will be analysed using commercial statistical programs, such as Stata, SPSS and XLStat. But we will put effort towards the use of open source programs, such as R/Rstudion, PSPP, IraMuTecQ, iGraph and the programming language python.

3.4.2 Modelling process

Modelling techniques will be also used. Specifically, existing models, especially climate models, will be applied and adapted for in-depth understandings of LICCI. The LICCI team will use freely available open source models and model results (e.g., from RegGEM, MPI-ESM) and will provide detailed information on the modelling process, including information on input data, parameters and the calibration processes for each modelling work to ensure that the modelling process is comprehensible and reproducible.

The LICCI project is interested in modelling the relations between perception, socio-demographic factors and adaption to climate change. Any developed model related to the LICCI project will be made public together with the rest of the data (see Chapter 4).

4   FAIR data

The LICCI project participates in the Horizon 2020 Open Research Data (ORD) pilot. Thus, it follows the 'FAIR data principles' by making the project's research data findable, accessible, interoperable and re-usable. The following sections describe how the data are organized to fulfil each requirement in an appropriate manner. The LICCI project will follow the articles 29.2. (*Open access to scientific publications*) and 29.3. (*Open access to research data*) of the ERC Mono-Beneficiary Model Grant Agreement (ERC, 2016).

For best compliance with the 'FAIR data principles', the LICCI project will store data on the online repository ZENODO, that allows open access, long-term storage, and downloads for all kind of data types. Moreover, ZENODO also makes data findable by providing a Digital Object Identifier (DOI), a standard for metadata, and a search engine. ZENODO will link automatically to Open AIRE.

The LICCI citizen science platform will provide search and download functions for data on the platform that is stated as 'public'.

In all publications associated with the LICCI project (including publications in peer-reviewed articles, open accessible data, and information associated with dissemination strategies), the LICCI project will acknowledge the source of funding as follows:

"The project leading to this application has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (ERC Consolidator Grant No 771056 LICCI)".

4.1   Open access to publications in peer-reviewed journals

According to Article 29.2 of the ERC Multi-Beneficiary Model Grant Agreement '[e]ach beneficiary must ensure open access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results' (ERC, 2016). The LICCI project will archive pre-prints, accepted manuscripts and published articles on openly accessible online repositories, by following the journals' open access terms and embargo periods. The LICCI project will give immediate open access to its preprints of accepted manuscripts by uploading and archiving them in four repositories: 1) the LICCI webpage, 2) the repository of the Universitat Autònoma de Barcelona (UAB), 3) the Europe PubMed Central[1] and 4) the non-specific repository ZENODO. These preprints will be linked to the final publication via the DOI.

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[1]   http://europepmc.org/

In the 'Guidelines on Implementation of Open Access to Scientific Publications and Research Data' (ERC, 2017) the ERC specifies two ways for open access for publications:

- *Green open access* (immediate or delayed open access that is provided through self-archiving): the author, or a representative, archives (deposits) the published article or the final peer-reviewed manuscript in an online repository before, at the same time as, or after publication. Some publishers request that open access be granted only after an embargo period has elapsed. In this case, they must ensure open access to the publication within a maximum of six months (twelve months for publications in the social sciences and humanities).

- *Gold open access* (immediate open access that is provided by a publisher): an article is immediately published in open access mode. In this model, the payment of publication costs is shifted away from subscribing readers. The most common business model is based on one-off payments by authors.

The LICCI team will opt for gold and green access depending different reasons. For publications with highly impacting results, the LICCI project will choose gold open access, so LICCI researchers retain the ownership of the copyright for their work and the right to deposit the article in an open access repository. This will also help overcome the fact that projects supported by the ERC under Horizon 2020 must provide open access to publications within six months (or twelve months for publications in Social Science and Humanities) (ERC, 2017), because the gold open access provides immediate and permanent free access to the final published article, e.g., on ScienceDirect. The LICCI project will choose green open access when the embargo period of the respective journal is consistent with the open access requirements established by the ERC. The conditions for gold and green access for some scientific journals are listed in Table 2.

Table 2: Selected journals and their conditions for green and gold access

Journal	Gold open access: publishing fee, excluding taxes	Green open access: embargo period
Climate Risk Management (Open Access Journal)	USD 1500	No green open access
Climate Services (Open Access Journal)	USD 1800	No green open access
Environmental Science & Policy	USD 3550	24 months
Global Environmental Change	USD 3950	36 months
Climate & Development	USD 3500	12 months
Environmental Impact Assessment Review	USD 3300	24 months

| Environmental Modelling & Software | USD 3300 | 24 months |

When possible, the LICCI team will attach a Creative Commons Attribution (CC BY). In other circumstances, such as when a green open access is chosen, a Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) licence will be used:

- CC BY[2]: lets others distribute, copy and reuse the article, such as to create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), to include in a collective work (such as an anthology), to text or data mine the article, even for commercial purposes, as long as they credit the author(s);
- CC BY-NC-ND[3]: for non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), provided that they credit the author(s) and provided they do not alter or modify the article.

4.2   Making data findable

Field data will only be published if study participants agree on publication and open access. Data for publication will be made public at different ways. Data from FGD will be immediately coded and made available to the public in the LICCI citizen science platform. Data from surveys will undergo a two-stage access process: a) internal access only (i.e., an embargo period on data during which only LICCI team members will have access to data); and b) public access (i.e., data will be publicly available at ZENODO).

During the 'internal access only' phase, field survey data will be treated on case-to-case: data from ongoing case studies will be accessible only to the person that has collected the data in the field, so this person has first right to publish results from the data collected. To do so, after field data from the surveys is completely clean and ready to be used, the LICCI project will establish an embargo period of 24 months before datasets will be open to public consultation. During this first phase, data will be stored in the NEBULA server of the UAB. After the embargo period, survey data will be stored on the LICCI citizen science platform and on a public data base such as ZENODO as recommended by the ERC and the EU OpenAIRE initiative. ZENODO is a general non-for-profit depository for research data hosted by CERN. This repository allows to store the different types of data that the project will generate (e.g., plain text, structured text,

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2   https://creativecommons.org/licenses/by/4.0/legalcode

3   https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode

raw data, audio visual data), both open and embargoed. The repository can receive data sets, publications but also presentations or lessons among other material to be shared. Its initial 50 GB capacity is sufficient for the expected volume of data to be generated within the LICCI project. To each uploaded file, ZENODO assigns a DOI and a URL in order to make the data findable and citable. Once the data becomes available for submission to the open repository, the LICCI core team will provide the metadata to be published with the data sets. Thanks to ZENODO's search facilities, all data provided with metadata will be findable.

Any modelling codes developed during the LICCI project will be made accessible and stored by an open access repository, probably GitHub, that can be linked to the ZENODO dataset. Alike ZENODO, GitHub also provides specific DOI identifier.

On the citizen science platform, data provided by users will be stored in a relational database. The LICCI project will try to follow guidelines that make the data indexable by search engines that are specialized on datasets (e.g., Google Dataset Search).

4.2.1 Metadata

Metadata are important to describe the underlying data with sufficient detail to be intelligible for other users and to allow a proper organization, search and access to the information of interest, so that it can be used to identify and locate the data via a web browser or a web repository such as ZENODO. All metadata in ZENODO is stored in JSON format and can be exported in several schemas (e.g., MARCXML, Dublin Core, DataCite Metadata Schema). The LICCI metadata will follow a generalized scheme in ZENODO including:

- title,
- creator(s) and contact person(s): names, first names,
- date,
- version,
- location
- contributor: e.g., funding body, including the grant agreement number,
- data format(s),
- keywords,
- identifiers: DOI and url,
- access rights: licence(s),
- a suggestion for citation,
- a description of the methodology that has produced the data,
- brief description of the LICCI project.

The LICCI team will furthermore provide a README.txt file with a description of the structure of the data sets and subsets, on how the data are organized, how data sets are related to each other and on how to use the data.

Metadata of the LICCI platform will probably follow the Dublin Core Standard[4] or the Schema standard[5].

4.3   Making data openly accessible

The LICCI team will apply an embargo period of $^{24\ months}$ for survey data to ensure that the person that collected the data has a first right for publication. Thereafter, the data will be made public on the LICCI citizen science platform and on ZENODO, with the exception of sensitive and confidential information (e.g., personal information) that will be kept closed. The LICCI team will anonymize personal data (see Chapter 6.2) and will consider the possibility to slightly falsify sensitive GPS data by applying random errors in cases that the exact localization incorporates any risk (e.g., in cases of rare and endangered species or when communities do not wish to disclose their exact location). Otherwise, the accessible data will include all kind of cleaned raw data and processed data from the face-to-face surveys (not only data related to scientific publications).

The data needed to reproduce results presented in publications (e.g., in peer-reviewed journals or at conferences) will be later made available with article's publications.

Data from the FGD collected in the 40+ study sites will be immediately (this includes a short period of data processing, such as cleaning and digitalisation) openly accessible on the LICCI platform and on ZENODO. Users of the LICCI platform that enter and upload information can choose between public and restricted (e.g., private, followers-only) access although we will encourage them to choose public access. Public data on the LICCI platform will be openly accessible to everybody, not only to registered users.

4.4   Making data interoperable

The LICCI team seeks to make the citizen science platform interoperable with akin citizen science platforms that collect similar data (e.g., LeoNetwork, Environmental Justice Atlas). Our aim is to bring interested platform providers together and formulate a format of exchange. One possibility we are considering is ActivityPub[6], a decentralized social networking protocol

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[4]   http://dublincore.org/

[5]   https://schema.org/

[6]   https://www.w3.org/TR/activitypub/

published by the W3C as recommendation, which describes a federated server to server API for delivering notifications and content. The LICCI project will provide the complete or parts of the dataset in simple formats and will share them in open-formats (see Chapter 3.3). As standard for the metadata, the LICCI team will probably follow the Dublin Core Standards or the Schema standards to make the data interoperable (see Chapter 4.2).

The LICCI citizen science platform will request some personal information, such as age, gender and occupation for registration. The team is considering whether anonymous submissions should also be considered. In case we allow for anonymous submission, provided information from anonymous authors will be reviewed and edited by a qualified person before being published. When uploading data, users will be asked to provide further information on the data, in order to keep it consistent with the metadata format described above (e.g., title, author, date, location and so forth).

4.5 Making data re-usable

All the LICCI data disclosed to the public will be re-usable and anyone will be entitled to re-use them once the LICCI data are made freely available. A high interest of re-usability of the LICCI data is probably given for persons with a political, academic or personal interest related to the many fields incorporated in the project (e.g., climatology, environment, sociology, anthropology). Data will be especially interesting for people working in climate and environmental change issues, such as impact assessments, and policies oriented to mitigation, adaptation, and sustainability in the context of climate change.

Once made publicly accessible on the LICCI webpage, the LICCI citizen platform and on ZENODO, the data will remain re-usable as long as the LICCI webpage and citizen science platform run and until ZENODO discontinues the datasets.

Datasets from the LICCI citizen science platform that are declared as 'public' by the author will be made publicly available, either as database dumps or through API call against the LICCI platforms.

4.5.1 Data licence

The LICCI project will follow the recommendations stated in the Guidelines on Open Access to Scientific Publications and Research Data in H2020 (EC, 2017). The LICCI project will collect data of the knowledge of Indigenous Peoples, and the team is aware of the sensitiveness of the data being collected, particularly regarding the issue of appropriation. To accomplish with the mandate of making data as open as possible, while avoiding unfair knowledge use, the LICCI project will attach the deposited data to a Creative Common licence in general, and particularly to the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-

NC-SA licence). This licence allows re-distribution and re-use of the licenced work and data on the condition that the creator is appropriately credited, the data are not commercially used and that modified data will be distributed under the same licence7. Additionally, the user has to provide a link to the licence and has to indicate if changes were made. The users of the citizen science platform will be able to define the privacy of each entry they make and to choose among the Creative Commons a licence they prefer.

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7   https://creativecommons.org/licenses/by-nc-sa/4.0/legalcode

5   Allocation of resources and data security

We do not expect any additional cost for long-term storage of data generated by the project. For the publication in gold access for three to five papers, we estimate costs up to €15000, which is included in the current budget of the project. In the following, the long-term storage of the data as well as the data security structure are explained.

5.1   Long-term data preservation

The data will be kept stored for as long as possible at the UAB under the responsibility of the principal investigator (PI). During the duration of the project, data will only be destroyed if requested by participants. Signed consent forms obtained from the participants will be kept at the UAB until three years after the end of the project. After that period, they will be destroyed. Table 3 provides an overview of the life cycle of the collected data and the designated duration of storage to open access.

We will use the UAB repository NEBULA for internal data storage during embargo periods apply and then switch data to ZENODO and the LICCI platform with open access to data. Data stored on ZENODO are expected to be archived as long as possible and beyond the end of the LICCI project. Similarly, the LICCI citizen science platform is expected to run beyond the duration of this project, by handing over the responsibility to maintain the online platform to a responsible non-commercial third party.

During the data collection period, quantitative and qualitative data will be backed up onto an external disk on a regular basis.

Table 3: Overview of the life cycle of collected data

Method	Foreseeable period(s) of collection	Embargoed	nal	Journal
Semi-structured interviews	Month 18-36	No	None	Yes (coded and entered in the online platform)
Focus group discussions	Month 18-36	No	None	Yes (coded and entered in the online platform)
Online citizen science platform	Month 18-60 (and potentially beyond)	No	None	Yes (coded and anonymized)
Face-to-face surveys	Month 18-36	24 months after cleaning	None	Yes (coded and anonymized)
Survey IDs and names	Month 18-36	Non disclosed	3 years after project ends	No

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5.2   Transfer of sensitive data

The team working for the LICCI project will treat any personal information with a high level of consideration, privacy and ethical practice (see also Chapter 6.2).

In the field, all electronic information stored on mobile devices will be protected by password to ensure that it is accessible only to the researchers. The team and researchers will transfer and store electronic copies of the data to the NEBULA secure server at the UAB as soon as possible (during or after the fieldwork). The NEBULA server of the UAB complies with the relevant EU legislation and is characterized by high security standards and by strong and comprehensive security and protection measures for storage of data. The security is overseen by the UAB security officer who has provided a detailed description of the security measures for this DMP (see Annex 8.1). The server and the data are physically located within the IT campus facilities. In case the research collects data on paper, the project will keep the raw data in a locked file cabinet at the host institution, accessible only to the principal investigator and the team members. Once the file transfer from the field to the NEBULA secure server at the UAB has been completed, all local copies will be erased permanently.

Given that this research will be conducted in 40+ sites that have not yet been determined, it is not possible to obtain authorization for exporting the data. However, most countries allow data export under the following circumstances 1) a FPIC has been signed by the person providing the data, 2) non-sensitive data (i.e. for data other than racial or ethnic origin, political opinion, religious or philosophical belief, trade union membership, health data) and 3) data has been anonymized. As all data collected under this project will meet these requirements, the LICCI project do not expect any problem with importing data to Spain. In addition, in most of the cases, the project will be developed in collaboration with national universities and research institutes, which will provide the necessary support for contacting with national data protection authorities. If authorizations for data export are required, they will be obtained and send to the ERCEA Ethics Review and Expert Management Unit before data is transferred. No personal data will be exported from the EU to countries outside of the EU.

6 Ethical aspects

LICCI plans to be working with adults in medium- and low-income countries, who will be requested to provide personal data during the development of the project. Thus, ethical-related aspects of the research are a basic dimension to be addressed in the context of data management. This section provides an overview of some relevant ethics remarks related this project data management.

Participants' involvement in the LICCI project will be strictly voluntary, and all participants will have the right to choose not to participate or to withdraw at any point. In all cases, LICCI will use FPIC to recruit participants (see section 6.3).

6.1 Legal framework for the collection of personal data

The DMP has been created by taking into account several recommendations and guidelines and involving institutions regarding the ethical conduct of research and data / privacy protection:

- The research complies with the Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regards to the processing of personal data and on the free movement of such data.

- We have consulted the Catalan Data Protection Agency (Catalonian Government), the competent Institutional National Data Protection Authority, which mentioned that from 25th May 2018 the European Code for Data Protection will not require to register files with personal data, for which there is no need to legalize the file beforehand. Nevertheless, once data collection starts, we will register files with personal data at the Catalan Data Protection Authority (APDCAT) in order to allow users to exert their rights ("Ley Orgánica 15/1999, de 13 de Diciembre, de Protección de Datos de Carácter Personal" and EC 45/2001 on the protection of individuals). We have already informed on the need to create this database to the responsible for data protection at UAB (see Annex 8.2). Overall, the research process will follow the European Commission General Data Protection Regulation adopted by the EU in April 2016."

- The ethical issues related to data collection and storage during the lifetime of the research project will be supervised by the Comissió d'Ètica en l'Experimentació Animal i Humana (CEEAH) at UAB (ceeah@uab.cat), – an independent organism appointed by the Council of the UAB, which will supervise the research process. CEEAH members do not have any conflict of interests when making their deliberations- and comply with relevant EU legislations (e.g., the European Charter of Fundamentals Rights). The ethical approval of the Institutional Review Board of the host institution to conduct the research proposed here has already been obtains (see Annex 8.3). If any unforeseen ethical issues

arise during the project, the PI will consult with the ethics specialists at the CEEAH-UAB.

- The LICCI project also counts with an ethical advisor, Dr Prof. Dr Michael Schoenhuth, Chair of anthropology / Abt. Soziologie - Fach Ethnologie, University of Trier, who will be supervising ethical aspects of this project and reporting to ERC.

6.2   Anonymization of personal data

Field data will be immediately anonymised by assignation of individual IDs (see Chapter 6.2.1). The table containing the sensitive data (personal information and assigned IDs) will never be openly accessible, but password protected and only accessible by the LICCI team for a limited time period. LICCI team members will have access to the original identifiers during five years of the duration of the project. Personal information will be destroyed three years after the end of the project. None of the openly accessible data (from fieldwork and the citizen science platform) will contain any identifier that would allow users to identify any person. Presentations of intermediate or final findings (e.g., publications or presentations at conferences) will take care to withhold any personal information which will permit to identify participants in order to protect their anonymity.

No data, other than a count for an anonymous person unwilling to participate, will be kept from people who do not want to take part in the study. LICCI will keep record of the number of people deciding not to participate to assess whether this type of attrition bias research results.

In order to ensure the safety and confidentiality of the information collected, all electronic data (questionnaires, audio, transcripts) will be safely stored in an electronic database only accessible to team members with passwords.

Before archiving video files, we will pixel (digitally obscuring) name badges and faces, and remove date and place information. Regarding protection issues, the project might apply an error to the GPS data for example to hide the exact position if the community does not wish to exposure their exact living position.

Referring to the LICCI citizen science platform, the LICCI project will provide metadata on the dataset, but keep personal sensitive information secret (e.g., username, email addresses) to protect individuals.

6.2.1   SubjID coding (anonymisation of field data)

One of the most important protocols relates to the assignation of an individual ID (subjID) to each participant in the LICCI study, as working with subjID will allow us the anonymization of data. All data collected in this project will associates the names of the participants with the anonymized SubjID. The LICCI project will be working with both common (shared) codes, as

well as country-specific codes according to the criteria presented in Annexes 8.4 and 8.5). Personal information (e.g., name, age) and assignations to the anonymized subjIDs will be compiled in a password protected file, that is managed according to ethical requirements.

Due to the personal nature of the interviews, workshops and focus groups, recordings and transcripts will not be made public. Rather, data collected with these tools will be coded and entered in the online citizen science platform without assigning a particular person to the information.

6.3 Procedures for obtaining Free Prior Informed Consent

Before the onset of data collection, we will obtain Free, Prior and Informed Consent (FPIC) from the communities where we aim to work. To do so, the LICCI team will use different documents and methods: information sheets, informed consent forms (representatives and individuals), oral consent scripts and oral consent cards. Depending on where the study sites will be located, we will additionally comply with national guidelines and protocols. As study sites are not selected yet, details on corresponding procedures will be added in a later version of the DMP.

Following best practices in the field (see Alaei et al. 2013), at least one week before the start of data collection, we will conduct an initial meeting in which we will explain the study aims and methods to local leaders and encourage them to talk to potential participants about the research process in their own terms. At this point we will obtain their written consent to conduct a village meeting. Explaining the project to village leaders some time before data collection starts gives prospective participants enough time to consider potential issues related to the research, so they can freely discuss doubts with local authorities, family, neighbours, and friends. Then, we will conduct a community meeting in which we will present detailed information on the objectives of the study, the participation of subjects, and the costs and benefits associated with their participation. Researchers will be encouraged to work out with the communities and the relevant indigenous organizations to produce 'Community/Indigenous Engagement Protocols' or other forms of agreements. Those agreements will contain detailed explanations of the project's objectives of collaborations, expectations, and return of information. They will also include detailed information about the rules of conduct researchers should follow while in the field. The agreement will also detail issues related to payments to the local translators and guides. During this meeting, participants will be encouraged to discuss issues or questions related to the project such as confidentiality, data protection, risks, and the like. During the meeting, we will also explain the differences between written and oral consents.

Then, we will visit each household individually and ask adults for consent to participate in the research. We will provide written information and a consent form to subjects who are literate (see Annexes 8.6 and 8.7), but give the possibility to give oral consent to participants who are illiterate or not sufficiently at ease with printed material (see Annex 8.8).

In previous research of Dr Victoria Reyes-García, she has found that among illiterate people it is better to explain the project orally than through print. Part of the target populations will have had little schooling and very little exposure to Western customs that involve mastery of concepts such as agreements, legal contracts, or 'informed consent'. Consequently, many will not understand the implications of signing a form and might feel 'non-trusted'. In contrast, they are comfortable providing informed consent verbally. Anthropologists (and professionals from other disciplines working with illiterate populations) have developed a set of standard procedures for obtaining 'Oral informed consent' (see for example the guidelines of the American Association of Anthropologists[8], the IRB for SBS of the University of Virginia[9] and published articles on the topic, e.g., Alaei et al. 2013).

To obtain oral informed consent from participants who are not at ease signing the standard 'Informed Consent form (Individuals)' developed for this project, we will follow a two-step process. First, researchers collecting information under the framework of this project will present sufficient information to participants. To do so, researchers, with the assistance of a trained interpreter will present the relevant information orally to the participant. The relevant information to be presented include the 'Oral consent Script', where the general goal of the project and the information to be collected are described, and the 'Oral Consent Card' (see Annex 8.8). 'Oral Consent Cards', typically used in anthropological studies, provide consent information in a bulleted list so that the researcher can refer to each point as s/he obtains consent from the participant[10]. The investigator, with the assistance of the interpreter, will then answer any questions from the prospective subject (including questions raised by the reading of the Card, or in previous discussions with village fellows). In the second step, the documentation of the consent will be done in the presence of a witness. In general, the interpreter (who will be fluent in the language of the oral presentation) will act as a witness to the oral presentation and sign the copy of the 'Informed Consent form (Individuals)', together with the researcher obtaining consent.

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8   http://www.americananthro.org/ParticipateAndAdvocate/Content.aspx?ItemNumber=1652

9   http://www.virginia.edu/vpr/irb/sbs/forms_consent.html

10   http://www.virginia.edu/vpr/irb/sbs/forms_consent.html

The signed consent forms obtained from the participants will be kept by the PI until three years after the end of the project.

Before users can provide information to the LICCI citizen science platform we will ask them for a FPIC, that follows the above described procedure but is adapted to the different circumstances and conditions of an online platform.

7   References

Alaei, Mahnaz, Akram Pourshams, Najmeh Altaha, Goharshad Goglani, and Elham Jafari. 2013. Obtaining Informed Consent in an Illiterate Population. Middle East Journal of Digestive Diseases 5 (1): 37-40.

EC, 2017. H2020 Programme Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020. Version 3.2.

ERC, 2017. Guidelines on Implementation of Open Access to Scientific Publications and Research Data in projects supported by the European Research Council under Horizon 2020. Version 1.1.

ERC, 2016. Mono-Beneficiary Model Grant Agreement, ERC Starting Grants, Consolidator Grants and Advanced Grants (H2020 ERC MGA— Mono). Version 3.0, p. 55-56.

8 Annex

8.1 Security measures of the UAB NEBULA server

Security and protection of the Data Center and Informatic Services at the UAB protecting the NEBULA system

The principal security and protection measures of the Nebula system, a document repository intended for collaborative management, are as follows:

- From the perspective of informatics and communication, and generally for the whole of the data-centre systems:
    - Perimeter network security: new generation perimeter firewall, IDS (intrusion detection system) and antivirus.
    - Logical segmentation of the internal corporate communications network.
    - Zone segmentation and definition of demilitarized zones (DMZ) for the different types of data-centre servers, via internal firewalls.
    - Logical rules, implemented on the internal firewall, access to network resources and applications.
    - Identity Management System to manage user-authentication and access permissions to applications and platforms.
    - Workstations with anti-virus and anti-malware (anti-malware programs), and personal firewalls managed from a centralized console.
    - Normative policies to regulate access to and use of computer resources.
    - Policies for the management of data backup and recovery, and custody of the physical media of the copies.
- Specifically for the Nebula platform:
    - Segmentation of zones between the public part of the system (frontend segment) and the private part (backend segment).
    - Access to the system by user and password through a web application (located in the frontend segment). Authentication of university users is based on an identity-management system. External users invited to access the platform can register by creating a password that remains encrypted within the system.
    - Data distributed in an Oracle database and Network File System:
        - NFS access is facilitated by a disk system device not accessible at the operating-system level.
        - Nebula is a service based on the Alfresco content management product. The metadata of the files are stored in a database and on the NFS repository the files are stored without any structure that refers to any user or group and under a name different from the original. In this way, the NFS directory structure does not facilitate the file identification of any specific user or group.

- The NFS database and repository are located on a private subnet of the Firewall (backend segment) only accessible from authorized servers on the subnet of the frontend segment to which the users are connected. Access from other network segments or from other servers is not allowed.

- In addition, to facilitate interaction, users can access their repository using DFS/CIFS file-system services after user authentication and password acceptance.

8.2 Certificate by the UAB for application to APDCAT

UAB
Universitat Autònoma
de Barcelona

Responsable de Protecció de Dades
Edifici A · Campus de la UAB
08193 Bellaterra (Cerdanyola del Vallès) · Barcelona · Spain

Agustí Verde Parera, Data Protector Officer in Universitat Autònoma de Barcelona,

HEREBY CERTIFIES:

Than an application for the legalization of the data file to the APDCAT (the Catalan Authority for Data Protection) has been submitted by Victoria Reyes Garcia on behalf of the project behalf of the project "Local Indicators of Climate Change Impacts. The Contribution of Local Knowledge to Climate Change Research" (ERC-2017-CoG - 771056 LICCI). According to the application and material submitted, the procedures and organization of data-collection, protection, transfer, storage, retention and destruction comply with the regulations of the Spanish data protection law.

Therefore, proceedings have been initiated to legalize the database and its registration in the Catalan Data Protection Registry, according to the Law 15 of 1999 (Spanish Data Protection) and the Law 32 of 2010 (Catalan Data Protection Authority).

Signature, Bellaterra (Cerdanyola del Vallès), on December 5, 2017

UAB
Universitat Autònoma de Barcelona

8.3   Ethical approval by the CEEAH

UAB
Universitat Autònoma de Barcelona

Vicerectorat d'Investigació

Comissió d'Ètica en l'Experimentació Animal i Humana (CEEAH)
Universitat Autònoma de Barcelona
08193 Bellaterra (Cerdanyola del Vallès)

To whom it may concern:

The Ethics Committee on Animal and Human Research of the *Universitat Autònoma de Barcelona* INFORMS:

That the research project **"Local Indicators of Climate Change Impacts. The Contribution of Local Knowledge to Climate Change Research"** submitted by **Dra. Victoria Reyes García** and reviewed by the CEEAH on December 16th, meets the Code of Good Practices on Research of this university, and the provisions of Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine. This convention was approved by European Council (Oviedo, November 19th,1997) and ratified by the Spanish Parliament in October 5th, 1999.

In that sense, the researchers are aware about the absolute necessity of preserving the individual rights, privacy and dignity of the volunteers participating in the project.

Finally, the right of research subjects to safeguard their privacy will be guaranteed by the confidentiality of the participant's information, according to the Law that applies to Spain the EU directives on private data protection *"Ley Orgánica 15/1999: Ley de Protección de Datos de Carácter Personal (LOPD)"* of 13th December 1999. Therefore, all information will be processed with total anonymity.

Yours faithfully.

In Bellaterra (Barcelona), November 29th 2017

Elaborated:	Approved:
Nuria Perez Pastor Secretary of the Ethics Committee (CEEAH) UAB Date:	José Luis Molina González President of the Ethics Committee (CEEAH) UAB Date:

Edifici A - Campus de la UAB – 08193 Bellaterra (Cerdanyola del Vallès) – Barcelona Spain
Tel.: 34 – 93 581 35 78 – Fax: 34 – 93 581 20 23
www.uab.cat / ceeah@uab.cat

8.4   General considerations on coding

Here are some general rules on coding:

- The codes already assigned should not be changed. In general, for both common and country-specific codes, new items and codes will be added as the needs arise.

- All common codes are compiled in the Excel document "Master Compilation of LICCI Codes", which is always stored an updated in a shared folder in the cloud.

- Once in the field, the researcher can only assign codes to persons in their community, or to new country-specific products or items that arise during the fieldwork.

- The coding procedure for all country-specific variables (e.g., villages) is that the code always starts with the first digit being the country code, so information can later be clumped into one with additional coding if wanted/needed.

- Everything lacking a code should be sent to the team at UAB, which will assign a new code and incorporate these into the code lists and the database.

The following codes will be consistently applied in all study sites and by all persons participating in the LICCI project:

- Yes/No/Don't know: Several questions are 1-0 questions, where 1 = yes and 0 = no, and -9 = don't know/don't remember

- 0 and missing values: Some questions may not apply or the respondent simply cannot answer. The following codes are used for that:
  - 0: the person answered and the value of the answer is 0 (e.g., the value of products sold is 0 because s/he sold nothing).
  - -8: When the question does not apply (e.g., to ask a man if he is pregnant) you must not put zero; instead you record -8 (minus 8) to indicate that the question "does not apply" to the circumstances of the respondent(s).
  - -9: If the person does not know or remember the answer to the question (but you asked the question), then you record -9 (minus 9) to indicate that the respondent (or the researcher) "does not know". Naturally, one should aim to minimize the use of this response, but in some cases it is unavoidable.
  - -10: If a response on the data sheet needs a code, but does not yet have one, record -10 (minus 10), and the name of the item to be coded in the column "notes" (this will make it easier for the cleaning phase). Later, the -10 will be replaced by the new code for that response/item. If a value is missing (the person is away and you could not ask the question, or you forgot to ask it), then you should leave the cell blank. Missing values must be replaced with real values, so if you forgot to ask a question, return as soon as possible to collect the missing data, or if the person was away, collect the data upon his or her return.
  - -11: this code is to be assigned if the person clearly knows (or has) an answer to the question posed, but refuses to share the information, for whatever reason (e.g., because it is too sensitive, a secret, a cultural taboo, etc.)

- Every data sheet must have a notes section where the researcher can record non-coded items and explanations for any entry that differs from the format.
- Dates: All years are written with 4 digits, i.e., yyyy. All dates should always be written in the date-month-year format, i.e.: ddmmyyyy
- Age: For adults (we consider persons of 16 years and older as adults although the age of majority is country-specific): If the respondent does not know his or her age, write down the age range in which they belong. To write a range, you must add 900 to the estimated age. Write the lowest number in a range of 5 years. For example, if you believe that the person is between 40 and 45, put 940. For children (younger than 16 years): Estimate the age in years, not as a range. For example, if the interviewer believes that the child is 3 years old, put 903 (not the range, which would be 900).

8.5   Criteria and procedure for the assignation of an individual ID (subjID)

In addition to the country codes, the codes for village, household and personal ID will be assigned according to the following criteria:

- *Country codes (CID):* to be assigned. Two digits
- *Village identification number (VID):* Number villages in your country consecutively (01, 02, 03) as they appear in the data. This will have to be coordinated in each site. Note: each village has a 2 digit code. However, when combined with the country code, they result in being 3 digits - with the first digit being the number of the country.
- *Household identification number (HID):* The households in the sample are given a 3-digit code
- *Personal identification number (PID):* Each person in the household is given a *personal* 2 digit code, following the following criteria:
  - If the person is a woman, assign an even number, if he is a man, assign an odd number. The numbers for adults (persons 16 years of age or higher, 16≤x) start at 30 (female) and 31 (male).
  - CCVVHHH30 is assigned to the female household head.
  - CCVVHHH31 is assigned to the male household head.
  - The codes for children (persons less than 16 years of age, 16> x) start at 10 (female) and 11 (male).

Hence, the Subject Id code is a personal identification number. It is unique and composed of 9 digits: CCID(2)VID(2)+HHID(3)+PID(2)=CCVVHHHPP.

8.6   Informed consent script

Thanks for agreeing to talk with me. As I mentioned before, I am working in a research project led by professor Victoria Reyes-García at the Universitat Autònoma de Barcelona, in Spain. We are doing a research about changes you have observed in the local environment (e.g., changes you have seen in plants or in animal's behaviour or abundance, or changes in the soil, the water, and the ice) and how these changes affect your daily life. I'd like to ask you some questions about these topics.

There are no risks involved in this interview and your participation in this interview or any other part of the study is completely voluntary. If you do not want to answer a question, please let me know and we'll move on to another. If at any time you decide you don't want your information included in the study, you can let us know at the end of the interview or by contacting us later via e-mail, letter, or phone at the contact information we are providing you. You can also obtain our contact information from the village representative. Your answers and identity will be protected and no one will be able to see which specific information you have provided for this study. After we have completed the research, we will present the results of our findings at conferences primarily in our countries and publish articles in scientific journals, but we will also conduct a workshop in the community to present to you our main results. Do you have any questions that you would like to ask about the study or about your participation in it?

8.7   Informed consent form (example: individual)

We are asking for your participation, because you live in one of the villages selected for our study. You do not have to participate if you do not wish so, and you are welcome to decline to proceed at any time. Participation in this study is strictly voluntary. The only alternative to participation is not to participate. There are no penalties to people who decide not to participate, or who started to participate and later decided to withdraw.

The personal data we might collect through this project will only available to the project's key personnel and be completely confidential. Any publications or reports will not identify you by name. Personal data will not be sold, given, or pass in any other way to third parties that might use it with any other purpose than research. Even in this case, we will ensure that third parties cannot identify the person who provided data. The information on local changes in the environment will be uploaded in a web-based platform, so anyone interested can consult it.

Information will be used to inform scientists and the public in general about which changes you see in the local environment and how they affect you. At the end of fieldwork, we will carry out a workshop to inform you and all the villagers about our research results. We will invite participants, village leaders, members of local institutions, and municipal government representatives. In the workshop, we will present our preliminary results and ask you whether you think that what we found is accurate.

Victoria Reyes-Garcia is the responsible for the project, and you might ask her any questions about the project or the procedures. She might visit the village, but you can always write to her at Institut de Ciència i Tecnologia Ambientals, Universitat Autònoma de Barcelona, 08193 Cerdanyola del Vallès, Spain. You may also call at 00 34 93 581 8976 or send an e-mail to Victoria.reyes@uab.cat. If you have questions about your legal rights as a research subject, you may contact: nuria.perez@uab.cat. To contact her, you should ask the researcher living in the village who will have complete instructions and will do it on your behalf at no cost to you.

By agreeing to participate and giving consent, you are not waiving any of your legal rights, claims, or remedies. You may sign the form yourself or ask for someone else to sign on your behalf.

I have read (or someone has read to me) the information in the consent form. I have had an opportunity to ask questions and all my questions have been answered to my satisfaction. By signing this consent form, I willingly agree to participate in this study.

Name of subject (type or print):

Signature of subject or legal representative   Date (must be signed prior to entry)

I have explained the research to the subject and answered all of his/her questions. I believe that he/she understands the information described in this consent form and freely consents to participate.

Name of Investigator/research team member (type or print):

Signature of investigator/research team member   Date

8.8   Oral consent card

[NOTE: Before the witness sing in behalf of the subject, the researcher should]

MAKE SURE THAT:

People understand they are taking part in a research. They understand what you are asking of them, and they freely consent to participate. You have their permission to use the information you gather about them in the ways you intend.

People understand what kinds of information you are collecting and that you are not carrying away any material from your interactions with them.

People know when you are collecting personal identifying information about them and that you will keep their identity confidential.

People understand the risks they incur in participating on your research and what you are doing to minimize them.

People know what are the particular benefits that participating in the research brings to them.

People know they can opt out of the study at any time, and that they can request that any materials implicating them be destroyed. They know they are free to remain silent in any topic.

People know they can ask if they have any questions or concerns about research. You should provide them with your contact information and the contact information of the Ethics Committee at UAB

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