Plan Overview

A Data Management Plan created using DMPonline

Title: Strengthening Adaptive Resilience of Mountain Ecosystems and Communities

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Project abstract:

An inter-disciplinary, trans-sectoral, cross-country collaboration between sociologists, economists, agronomists and IT academics and a Pakistani NGO with the aim of strengthening Pakistan's mountain communities' resilience to climate change by engaging them in co-designing the implementation of climate smart agricultural methods that are currently mainly used in developed countries.

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Strengthening Adaptive Resilience of Mountain Ecosystems and Communities

Assessment of existing data

Provide an explanation of the existing data sources that will be used by the research project, with references

The project introduces modern CSA techniques to remote mountain farming communities based in Pakistan that have never previously been exposed to such techniques. The effectiveness of these interventions will be studied by the project team via quantitative and qualitative surveys, interviews, scans and spatial measurements conducted on site in these communities. In addition to the direct effects of CSA interventions on crop outcomes and livelihoods, the project intends to study indirect effects on social outcomes such as gender dynamics and time use by household members.

To our knowledge, existing data sources on CSA interventions do not cover these particular communities or the comprehensive set of effects that we intend to study.

Provide an analysis of the gaps identified between the currently available and required data for the research

A number of studies have collected data on the effects of CSA interventions in various regions of the global South. Our study will contribute to the existing data by (i) introducing recently developed CSA techniques that, for example, incorporate AI; (ii) focusing on remote mountain communities in an ecologically important but largely neglected region of the world; (iii) going beyond the immediate agricultural impact of CSA to its effects on household dynamics and social welfare.

Information on new data

Provide information on the data that will be produced or accessed by the research project

Types of information: Data files, audio interviews, soil samples, scans, satellite images, historical data, household surveys.

Methods of capture: Soil tests, satellite images, quantitative surveys, verbal interviews, lab-in-the-field experiments.

Quantity of information: The units of data collection are villages, farming and household units and individuals. The project engages with six villages. The estimated number of farms is approximately 100 per village times six villages (therefore 600 farms). Assuming one household per farm, the expected number of households is also 600. At an average of 6-7 members per household, the total number of individuals is expected to be approximately 4000.

Data formats: Quantitative farm level information (input use, output, soil analysis, technique dummies) will be stored in a standard data file (.csv or .xls). Satellite images and scans will be saved in appropriate formats (.jpeg, .png).

Quantitative data from household surveys will be stored in a standard data file while interview

recordings will be saved as audio files (.mp4).

At the start of the project, we shall acquire historical and administrative data from local registers which in turn will be saved in the appropriate format. We shall also conduct baseline surveys which will be saved in one of the formats mentioned above, as appropriate. In addition,

Quality assurance of data

Describe the procedures for quality assurance that will be carried out on the data collected at the time of data collection, data entry, digitisation and data checking.

Technical information, satellite images and soil data from farms will be collected by members of the Project Team who are agronomists and specialise in these types of data. They will ensure that instruments work properly and will conduct whatever checks are necessary to ensure consistency of the information collected. Once verified, the information will be transferred to and stored on a shared drive in the format appropriate to that information.

The shared drive will be password protected and accessible by all members of the Project Team.

Household surveys, interviews and field experiments will be conducted by University of Baltistan students who have been properly trained by the Project Team and overseen by the Local Project Manager and/or members of the Local Organising Committee of the village.

Quality assurance will be conducted through multiple collection of the most salient and context-sensitive types of information, such as soil test results, attitudinal measures.

Each survey will be conducted on a tablet which will directly transfer the results onto a database on the University of Ottawa-based shared drive. The software will be programmed to warn whenever a repeat survey yields an inconsistent result. Each survey will be piloted on a synthetic sample in order to show that data transfer works smoothly.

Data collection itself will not need an internet connection, which can be problematic in the area where we will be working. At the end of each day, or soon thereafter as possible, the data will be transferred to the shared drive.

Audio recordings will be conducted mainly in the local dialect. These will need to be both translated and transcribed for use by the Project Team. Double translation will be used to ensure accuracy of the translation. The Local Project Manager and other Baltistan-based members of the Project Team will oversee this process.

A copy of the audio recordings will be saved on the shared drive even before the translation/transcription occurs. Once the translated version has been completed the document will also be uploaded on the shared drive.

Backup and security of data

Describe the data security and backup procedures you will adopt to ensure the data and metadata are securely stored during the lifetime of the project.

The shared drive will be password protected and accessible only by members of the Project Team. All legitimate manipulation of data such as polishing, renaming variables will be clearly indicated by

saving under a different filename.

The Project Manager based in Ottawa will regularly copy all files in all formats that are saved on the shared drive and save them in a series of folders that sit on a device that is accessible only by the Lead PI and the Ottawa based Project Manager.

Each folder will be identified by the date it was created and each file in that folder will be dated according to the last time it was saved on the shared drive. This will allow any unexplained modification or manipulation of data or information to be detected.

As further protection against data loss or device failure, all data will be backed up at computers based in each of three partner institutions: University of Ottawa, City, University of London and Virgina Tech. Access will be protected by username and password and restricted to authorised persons. However, requests for data sharing will be honoured.

Management and curation of data

Outline your plans for preparing, organising and documenting data.

The raw data will be saved under a filename that clearly indicates that it is the main source upon which subsequent manipulations and refinements have been conducted.

Each subsequent refinement such as changing labels to make them more user-friendly, merging data for better comparisons etc, will be saved under a new filename and an explanation will added stating the nature of and rationale for the change.

For the transcription of interviews and testimonies, we shall use the UK Data Service guidelines.

Difficulties in data sharing and measures to overcome these

Identify any potential obstacles to sharing your data, explain which and the possible measures you can apply to overcome these.

All data will be shareable with researchers outside the project and the only concern will be to preserve anonymity which will be addressed by assigning ID tags to respondents rather than use their names.

Consent, anonymisation and strategies to enable further re-use of data

Make explicit mention of the planned procedures to handle consent for data sharing for data obtained from human participants, and/or how to anonymise data, to make sure that data can be made available and accessible for future scientific research.

Consent

All activities will involve co-design by the communities targeted for intervention. A Local Organising Committee chosen by villagers will agree on the nature of interventions to be offered to the community and their consent for the surveys and field experiments needed to evaluate the effects will be needed beforehand.

Individual household heads will be able to choose which if any of the interventions they would like to adopt, in full awareness that doing so will require participation in the survey activity.

Individuals and community leaders will be informed that the data will be used in our research for publication purposes and be made available to other researchers but always on an anonymised basis.

Anonymity

All households and household members will be assigned ID nos in order to preserve anonymity. Similarly, village-level ID numbers will also be used in case knowing which village a respondent is from might reveal their identity.

Further Reuse

We believe that anonymized data will potentially help other researchers to build upon research in the same area and for comparative purposes. Some journals require data to be submitted for publication.

We will prepare the dataset so that it can be shared with the broader academic society for learning or comparative purposes.

Copyright and intellectual property ownership

State who will own the copyright and IPR of any new data that you will generate.

The PIs and their affiliated University will own the data and related IP. All data will remain confidential and will be stored at computers at University of Ottawa, City, University of London and Virginia Tech.

Responsibilities

Outline responsibilities for data management within research teams at all partner institutions

Responsibilities for quality assurance of data, including maintaining ethical standards, will be:

Asim Zia for CSA-related technical data.

Maaz Gardezi for interviews and qualitative information from household surveys

Saqib Jafarey for quantitative data from household surveys.

Ultimate responsibility for data storage, security and sharing will be shared between the three Co-PIs, under advice from their respective Research Offices.

The Local Project Manager will provide administrative support for data collection and the Ottawa-based Project Manager will provide administrative support for storage, security and sharing.

Preparation of data for sharing and archiving

Are the plans for preparing and documenting data for sharing and archiving with the UK Data Service appropriate?

The Project Team will be willing to share all data and will do so on request.

An email address will be set up, controlled by the Ottawa based Project Manager, for conveying data requests and these will be met by sending links to a drive explicitly set up for data sharing.

Is there evidence that data will be well documented during research to provide highquality contextual information and/or structured metadata for secondary users?

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