Table A 1 offers a schematic representation of SHARP+ coding system that can help the analyst familiarize with the dataset.

Table A 1. SHARP+ coding system

Domain name	Prefix	Module name	Label	Technical (average)	Adequacy
Environment	EN	Crop production	crop	EN_crop_ac_average	EN_crop_adq
		Weed species and management	weed	EN_weed_ac_average	EN_weed_adq
		Pest management practices	spm	EN_spm_ac_average	EN_spm_adq
		Livestock production practices	animal	EN_animal_ac_average	EN_animal_adq
		Livestock breeding practices	breed	EN_breed_ac_average	EN_breed_adq
		Livestock nutrition and health	health	EN_health_ac_average	EN_health_adq
		Water access and management	wacc	EN_wacc_ac_average	EN_wacc_adq
		Water quality	wqa	EN_wqa_ac_average	EN_wqa_adq
		Soil quality and land degradation	landqa	EN_landqa_ac_average	EN_landqa_adq
		Land management practices	slm	EN_slm_ac_average	EN_slm_adq
		Trees	trees	EN_trees_ac_average	EN_trees_adq
		Landscape characteristics	lands	EN_lands_ac_average	EN_lands_adq
		Energy conservation practices	enercp	EN_enercp_ac_average	EN_spm_adq
		Shocks	cc	EN_cc_ac_average	EN_cc_adq
Social	SO	Household characteristics	hh	SO_hh_ac_average	SO_hh_adq
		Agricultural production activities	agr	SO_agr_ac_average	SO_agr_adq
		Land access	landac	SO_landac_ac_average	SO_landac_adq
		Access to information on weather and climate change adaptation practices	infoac	SO_infoac_ac_average	SO_infoac_adq
		Information and communication technologies	ict	SO_ict_ac_average	SO_ict_adq
		Community cooperation	coop	SO_coop_ac_average	SO_coop_adq
		Group membership	group	SO_group_ac_average	SO_group_adq
		Nutrition	meal	SO_meal_ac_average	SO_meal_adq
		Decision-making (Household)	dmhh	SO_dmhh_ac_average	SO_dmhh_adq
		Decision-making (Farm management)	dmfarm	SO_dmfarm_ac_average	SO_dmfarm_adq
Economic	EC	Farm inputs	input	EC_input_ac_average	EC_input_adq

Domain name	Prefix	Module name	Label	Technical (average)	Adequacy
		Energy sources	enerso	EC_enerso_ac_average	EC_enerso_adq
		Access to markets	mkt	EC_mkt_ac_average	EC_mkt_adq
		Income sources, expenditures and savings	inc	EC_inc_ac_average	EC_inc_adq
		Major productive assets	ass	EC_ass_ac_average	EC_ass_adq
		Access to financial services	fin	EC_fin_ac_average	EC_fin_adq
		Insurance	ins	EC_ins_ac_average	EC_ins_adq
Governance	GO	Government policies and programmes on climate change and sustainable agriculture	gov	GO_gov_ac_average	GO_gov_adq

How to analyse your data collected with SHARP+?

a) What does the project want to learn through SHARP+?

The data analyst, together with the project team, need to know why they are using SHARP+ for, i.e. have a set goal for the survey, as this will determine how the information will be analysed and the results interpreted (see subsection 5.2 in the handbook for more details on how to set the purpose of the survey).

For instance, a project with focus on land degradation issues might be interested in knowing the main degradation processes affecting farmers, as well as the number of farmers being affected by them. To respond to the questions, the project would include the module on "Land quality and degradation".

In an example from a project in Namibia where 161 farmers were interviewed, the survey results revealed that 73 percent of farmers (118) in the project sites had noticed soil and land degradation process on their farmlands. Out these 118 farmers, erosion from wind (34 percent of responses) was the main land degradation process observed. The percentages in this example show the number of respondents that answered whether they had observed degradation or not in the last 3 years (quantifiable data), as well as the type of processes observed (qualitative information) as a proportion of the number of people who answered the question.

Table A 2. Example of SHARP+ data tabulation

Question	No. of respondents (N=161)	% of respondents
Farmers not observing land degradation problems	43	27%

Question	No. of respondents (N=161)	% of respondents
Farmers observing land degradation problems	118	73%
Out of which (multiple selection):		
Erosion (wind)	*40*	*34%*
Erosion (water)	*17*	*14%*
Fertility decline	*21*	*18%*
Compaction	*10*	*8%*
Waterlogging	*13*	*11%*
Other degradation processes	*17*	*14%*

b) Filtering results by cross-tabulating subgroups

Following the objectives of the project or study, the design of the survey and data analysis plan should include the criteria of respondent groups that need to be interviewed (e.g. gender, community, productive system, age group, land use type). This is important in order to decide the sample size and how the data will be analysed and reported.

Thus, at this step of the analysis the analyst will compare the groups of interest. For this, cross-tabulations are useful to present the answers per question and that are disaggregated by each subgroup.

The table below shows an example of the number of income sources disaggregated by the sex of the household head.

Table A 3. Example of SHARP+ data cross-tabulation by sex of the household sex

Income sources	Male-headed households	Female-headed households	Dual-headed households
1 source	82%	86%	76%
2 sources	14%	9%	19%
3 sources	4%	5%	5%
N=	57	106	150

Through this example it can be noticed that most households – regardless the gender of the head - rely on a single source of income. However, when comparing the three of them, dual-led

households tend to have more diversified income sources, whereas women-led households have the lowest number. This is revealed by the 24 percent of dual-headed households having two or more income sources compared to only 14 percent of women-led families.

Data can also be filtered by community and gender simultaneously for a more refined analysis. It is important to note that the **disaggregation of data into smaller groups will reduce the sample size**. Thus, when computing cross-tabulations there is need to check that the sample size is valid enough to make statistical inferences.

A sample size calculator[31] can be used during the planification of the field assessment and data analysis to ensure that the results are statistically significant.

c) Scrutinizing the data

Usually when using SHARP+ for resilience studies, practitioners and researchers tend to look at overall resilience levels (e.g. using the 13 agro-ecosystem indicators or by thematic module), without looking into detail at the rest of the data gathered.

The data collected not only helps to **determine the resilience levels** of the farmers and communities assessed, but also to **understand how these populations live, what are their main features, which strategies are in place to build resilience and which actions can be taken to strengthen and address resilience gaps**. It is strongly advised that to have a thorough look at the survey questions to have a precise understanding of what is being asked and – to the extent possible – have a good knowledge of the populations the project/study is targeting. The following questions are suggested to conduct a more in-depth study:

- What are the most common responses to questions "X, Y, Z"?
- What are the main differences between women and men respondents? And among the different communities?
- Are there Indigenous groups being interviewed? Which ones?
- What did respondents in group "D" say?
- Which group of respondents are most affected by issue "Z"?
- Have farmers noticed any change in issue "Z" through project interventions?
- What are the resilience scores of module "L"?

[31] There are several sources available online, including survey monkey's sample size calculator: https://www.surveymonkey.com/mp/sample-size-calculator/

- What is the share of the population presenting the lowest resilience scores? Which aspects need to be addressed?
- What are the aspects that farmers rated as of high importance?

Due to the nature of the data, **different sections of the population (strata) can be compared**, such as two groups of respondents (e.g., by gender) and **in different points in time** (particularly important for monitoring and evaluation). The disaggregation of information allows to look at particular topics and track progress by asking questions such as "what are the land management practices being used among farmers in community X?", "are men and women having the same adoption rates?". If the survey is conducted at different stages of the project cycle, following the example, evaluation questions can include "has the number of women adopting sustainable land management practices increased after the project and as a result of it?".

The results can be further discussed using focus group discussions (see Annex D5 for more details) to understand the why (e.g., the barriers, motivations) in the questions being asked.

d) Using survey weights in data analysis

When analysing the SHARP+ data, the analyst needs to know whether there is need to use survey weights. These are values that are assigned to each individual surveyed and are usually used improve the representativeness of the population interviewed. The weights will tell how much each unit surveyed (i.e., the farmer, the household) will count in a statistical analysis. Weights are always positive and different from zero. To exemplify this, a weight of three means that each unit will count in the dataset as three identical units (proportion 3:1). On the other hand, a weight of one means that the case only counts as one case in the dataset (proportion 1:1). Weights can be, and usually are, fractions (1/2:1)

The most common weights are:

- **Design weights**: These are usually used to balance for cases of under- or over-sampling or when the strata (groups) sampled are disproportionate. The use of these weights helps ensuring that the statistics generated through the analysis are representative of the actual population under study. For instance, when we are surveying minority groups (e.g. ethnic groups, pastoral populations, women-headed households) within a larger population group that predominantly differs from these, it is a common practice to select a larger sample (over-sample) of such groups. If the size of the sample is tripled from minority groups with respect to the broader population (i.e. using a proportion 3:1), then each individual in that area would get a design weight of 0.3 to ensure the results of these individuals are an actual representation of the whole population under study and not an over estimation.

- **Non-response or post-stratification weight**: This type of weight is used to balance for cases in which individuals with certain characteristics (e.g., gender, education level, ethnicity, age) are not as likely to respond to the survey than others. For example, often household surveys in rural settings have substantially more female respondents than male ones. This is the case since women tend to oversee domestic activities, increasing their likelihood of being present at home at the time of the interview. Because the survey over-represents female respondents and under-represents men respondents in the population assessed, using weights during the analysis is needed to compensate for this imbalance and reduce biases in the results.

A weight the value of zero should be avoided when conducting the analysis, unless there is an explicit intention to exclude a group from the analysis. Likewise, if there is enough information on how the sample is designed, for example using a proportion 3:1, then the weight will be the inverse of these number, i.e. 1/3 or 0.3. If there are no over- or under-sampled cases in the survey, then the weight will be equal to one by default. Statistical software for data analysis, including Excel, offer the option to generate weights as needed.

When conducting the analysis, only one weight per case can be used. If there is need weight for different factors, these weights must be combined together into a single weight.

e) Cross-check and complement the analysis with other type of data

Once you the analysis of SHARP+ data is completed, it is important to cross-check the tabulations and results with other data sources, such as census information or other household surveys. Usually, these datasets are not fully available and not always up to date, but these may help the analyst and team spot any inconsistencies throughout the analysis and address them in a timely manner (e.g. population characteristics such as age or education, production practices in the assessed area).

Also, it is crucial to verify any inconsistencies with enumerators or field project staff to ensure that the results are of high quality and that interpretation does reflect the realities in the field.

When presenting the results, it is important to outline whether the findings come from a statistically significant study (e.g. such as the SHARP+ survey used for M&E), whether the survey only covers some communities / populations, or if the information comes from a different source (e.g., other survey or census data).

Tools for survey data analysis

Traditional survey analysis tends to be highly manual, thus prone to errors, particularly when handling large datasets, as the one resulting from SHARP+. One option to mitigate this risk is to use statistical software to guarantee that all the data are properly managed and to reduce

potential analytical errors and time to process it. Specialized statistical software can allow the automatization and replication of the process as many times as needed.

Below there is a non-exhaustive list of software examples the analyst could use to clean, manage and analyse the SHARP+ data:

- Microsoft Excel ®: The software is easy to use and allows to apply several statical functions needed to provide a clear description of the data. The tool also allows to generate pivot tables and to create graphs and charts to visualize the results.
- NVivo ®: It is a tool that can be used to store, organize, categorize and analyse data and also create visualisations of the results. NVivo also allows to exchange data with SPSS for further statistical analysis. NVivo works online and a free trial is available on their website.
- SPSS ® and STATA ®: Both are specialized software designed for advanced statistical analysis. The user will require some knowledge on programming and multiple dedicated user guides are available online. However, both require a paid license.
- R ®: It is a free software environment for statistical analysis and data visualization. As with SPSS and STATA programming skills are needed to manage data through the software.
- Saiku Analytics ®: It is a free-of-charge software that helps the user to explore complex data sources. The interface used drag and drop features which facilitate the analysis of data. The tool also helps to conduct basic statistical analysis (percentages, counts) and provides good data visualisations.

D3. Guidance matrix for interpretation of resilience assessment results

This section offers a general guidance on how to read and interpret the results of the technical (objective) scores obtained after the completion of a survey. These guidelines also aim to support users and analysts to easily understand how the technical scores are built to measure "objective resilience".

This guide offers an explanation when the technical components show high scores, i.e. high resilience is observed. When scores are low, then the inverse scenario should be considered. However, the interpretation of the average technical score of each module needs to be done carefully as it results from the combination (average) of various elements. Therefore, the user should identify which element(s) within the average technical score is (are) driving its overall direction.

Table A 4. Interpretation of the technical scores by module

Module	What does high technical resilience score indicate?
2. Household	• Elders or experienced household members actively contribute to the education of children, particularly passing on information on agricultural practices. • Low percentage of household members unable to work due to age or health reasons (over 10 percent for a score of 7 points or more). • Gender equality in access to school represented by a high ratio of girls (between 0 to 15 years) who are literate over boys' value (if ratio is equal to or larger than one, then 10 points are assigned). • High percentage of household members who are literate (over 50 percent for a score over 7.5 points). • Household members have access to education.
3. Production activities	• Farmers carry out many different activities within the same farm unit. • There are multiple purposes for agricultural production (both selling and on farm-consumption for most activities)
4. Land access	• Households have access good access to land accessible. More than 1 ha gives a score of 6 points. • Farmers have access to "public" land to practice agriculture, either communal lands, forestland and pastureland. • Farmers have access to private land for agriculture.
5. Crop production	• Crop production is distributed over several crop systems. • At least half of the cultivated land is intercropped. • Crops are associated with livestock in the same space and at the same or different time. • Several crop species are cultivated on the same field, including seasonal and perennial (more than 4 crop species). • There is a large diversity of varieties cultivated across the selected crop species. • Farmers are able to source their seeds and plants from different means (three or more types gives a score of 10 points).

Module	What does high technical resilience score indicate?
	• Producers know how to manage the products after harvesting to reduce losses and increase production value (depending on options selected, penalized for immediate consumption only option). • Farmers have a large share of land cultivated with multiple crops at the same time (intercropping is selected with over 40 percent of land gives a score of 6 points). • The respondent uses leguminous plants and/or trees. • Farmers uses a significant percentage of native/local crop varieties. • Varieties used (local and new) are well adapted to current local conditions.
6. Weed management practices	• Farmers have observed a controlled number of weeds in the field and used some practices among the following to manage it: cover crops, hand weeding, hoe weeding, crop association and livestock grazing. If at least two practices are selected, a score of 7 points is given.
7. Pest management practices	• Households faced pest problems in their fields and have taken actions practices to them. • Different practices are used by farmers to manage plant diseases and pests (at least 2 practices for a score of 6 points or above). • Natural/biological methods are used to manage diseases and pests (biological pesticides, biological control methods, manually catching the pests; using traps; increased biodiversity around the fields). • Farmers do not use synthetic pesticides. • Farmers look for pests or disease before applying pesticides. • When synthetic pesticides are used, farmers practice correct pesticide disposal. • Farmers use of protective gear when applying synthetic pesticides (if only used sometimes the score is 5 points).
8. Animal production practices	• Producers have different animal species (at least three to have a score of 7 points) • Producers have more than one breed per species (score of 5 points if farmers have more than one breed for at least one species) • Farmers uses a significant percentage of native/local animal breeds.

Module	What does high technical resilience score indicate?
	• Breeds used (local and new) are well adapted to current local conditions.
9. Animal breeding practices	• Farmers use different sources of animal breeds. • Farmers have tried to breed better animals on farm.
10. Animal nutrition and health	• Animals have experienced health issues, and the farmer has been able to consult experts (e.g. veterinary services or local knowledge) to manage animal diseases. • Respondents have vaccinated the livestock when needed. • Food supplements are given to livestock. • Animals are kept grazing on pasture or agricultural lands at least during part of the year. • Animals have housing if needed.
11. Local farm inputs	• Households can easily access a large range of farm inputs. • Households have access to more than one supplier for most inputs.
12. Water access and management	• Households have several accessible water sources for each purpose, including household, irrigation and livestock (at least two for each purpose is selected for a score 6 points). • Households usually afford to pay the fees for using water for agriculture. • Farmers use several practices and techniques to preserve the quantity of water (at least three practices for a score of 6 points).
13. Water quality	• Farmers use practices and techniques to preserve the quality of water (at least three practices for a score of 6 points). • Few water quality problems are encountered (maximum of two problems for a score of 5 points).
14. Soil quality and land degradation	• The soil is rich in organic matter (dark-brown colour is mostly observed). • The soil on farm is able to retain and drain water adequately during rain or irrigation. • Only few land degradation problems have been observed (maximum two issues for a score of 6 points) and trends in these are not increasing. • The soil has a good texture for tilling (even if the farmer does not till).

Module	What does high technical resilience score indicate?
	• The soil is rich in microbiota, as seen by presence of earthworms, termites etc.
15. Land improving practices	• Farmers have taken any action to improve the quality of their land/soil and in particular at least three of the following practices: crop rotation, rotational grazing, fallowing/shifting cultivation, wind break/hedge, intercropping, living fences, liming, vegetative strips, agroforestry, terracing, manuring/composting, gully control/rehabilitation, mulching, cover crops, and building soil bunds. • Farmers use at least three practices which increase temporal and spatial heterogeneity such as: crop rotation, rotational grazing, fallowing/shifting cultivation, wind break/hedge, intercropping, living fences, liming, vegetative strips, agroforestry, terracing, manuring/composting, gully control/rehabilitation, mulching, cover crops, building earth or soil bunds, manuring and animal urea (three practices are selected give a score of 6 points). • Farmers check for need of fertilisers before using them. • Farmers are able to produce their own organic fertilisers, such as compost.
16. Trees	• Households have trees on their farmland and the number of trees has increased in the last three years. • The density of trees is high. • Several tree species are present on the land (at least six species for a score of 6 points). • Different tree products are used showing good knowledge of tree production and forest management (at least two products used for a score of 7 points). • Households have access to forests and these are not degraded.
17. Landscape characteristics	• Beneficial insects (bees, wasps, ladybugs, ants, etc.) are regularly present in the fields indicating a healthy ecosystem. • The field is surrounded by different types of landscape elements which provide refuges for diverse species and increase heterogeneity of landscape. • Especially good score if following elements surround the land: pastureland, planted trees, hedges, wild unmanaged area, tree plantations, used wetland (e.g. for cropping, pasturing), forest patch, protected natural area, water body, mangroves, protected wetland.

Module	What does high technical resilience score indicate?
18. Energy sources	• Farmers use of environmentally friendly sources of energy for household and agricultural purposes, including solar, wind, biogas, domestic waste, agricultural residues, wood residues and manure. • At least three different energy sources are available for each purpose.
19. Energy conservation practices	• Farmers use different practices to save energy (at least two practices selected give a score of 7 points).
20. Shocks	• The household has been exposed to unexpected shocks, generally more than one type of shock and more than once. These have occurred for a relatively short period of time with no major negative impacts on the household. • Members of the households have learned from the past and changed their behaviour following the disturbance. • Households would be able to recover in a short time after the shock and would be able to access support for recovery.
21. Access to information on weather and climate change adaptation practices	• Households have access to information on future weather and natural events and it obtains the weather forecasts from at least two sources of information (for a score of 8 points). • Score is higher when these sources include extension workers, traditional forecasters/indigenous knowledge, farmer organizations, cooperatives, community-based organizations and farmer field schools. • The weather information obtained is considered very helpful. • Households have access to information on cropping/livestock practices and it obtains the information on practices from at least two different sources (score of 8 points) • Score is higher when these sources include extension workers, traditional forecasters/indigenous knowledge, farmer organizations, cooperatives, community-based organizations and farmer field schools. • Information on cropping/livestock practices is considered very helpful. • Households have access to information on sustainable resource management and agricultural practices.
22. Information and	• Households have access and use one or more electronic device such as telephone, internet access, television and radio, to access information.

Module	What does high technical resilience score indicate?
communication technologies	• Households have ownership of a number of electronic devices.
23. Access to markets	• Farmers are able to sell most of their agricultural products when desired. • Farmers are organised to sell their products (e.g. through a famer organization). • Farmers sell their products in local markets, through cooperative/farmer organizations, other types of group selling, farmer fairs, rather than selling to intermediaries, dealers or in the street. • Farmers have access to information on market prices and set prices through the cooperative/farmer organizations or based on available information. • Farmers are involved in certifications schemes to increase the production value. • Prices at which farmers sell their produce are good enough to make a profit. • Most or all the products sold in the last 12 months were paid on time.
24. Income sources, expenditures and savings	• Households are engaged in non-farm activities to generate income. • Households make investments on the farm. • Households can afford education (fees and/or supplies). • Agricultural activities (crop production, livestock production, agroforestry, aquaculture, beekeeping, fishing) are the main sources of income for the households, indicating the profitability of the activity. • Households can afford education and school supplies. • Households are able to save some money after taking care of its expenses. • Households have increased their savings over the past three years. • Agricultural activities have been profitable most times in the past three years.
25. Major productive assets	• Households own different productive assets (at least two assets for score of 7 points).
26. Access to financial services	• Over the past three years, households have been able to cope with unexpected expenditures without the need of external financial support. • Households have been able to receive financial support when needed.

Module	What does high technical resilience score indicate?
	• Households have access to several sources of financial support (at least two sources for a score of 7 points). A lower score is obtained if the support comes from traders or shopkeepers.
27. Insurance	• Household goods (crops, livestock or land) are protected by insurance.
28. Community cooperation	• Farmers are able to join with other members of the community to solve problems cooperatively (collective action). • Households are in a community with customary rules and mechanisms in place to deal with problems within and/or across communities. • In their community, elder committees or councils are used as problem solving mechanisms. • There is a strong feeling of trust among community members to ask for help in times of need (if the options "always" or "most of the times score" are selected the question gives a score of 7 points). • There are no inequality patterns or marginalization observed in the community.
29. Group membership	• At least one member of the household is a member of a group, organization or association. • Being part of several groups is rewarded (if at least two groups are selected gives a score of 7 points). • At least one of the groups of which farmers are part was a community initiative. • Famers are members of one of the groups that promotes exchange of knowledge on agricultural practices (crops, animals, forestry, and fisheries) and traditional knowledge. • Leadership roles in the selected groups are rewarded. • People in the community organize festivals linked to key moments of the season to preserve traditional practices (e.g. coinciding with harvest, planting, flowering).
30. Meals	• Families have diversified diets, reflected in a household dietary diversity score higher than six points out of 12 (score of 5 points). • Household have access to infrastructure to stock food or seeds, such as cereal banks or granaries, in the community.

Module	What does high technical resilience score indicate?
	• Household have been able to stock food (cereals, tubers, etc.) to be consumed throughout the year. • Household source their foodstuff from different sources (at least three different sources for a score of 7 points).
31. Household decision-making (household)	• Decisions in the households are made jointly between female and male members, in particular between the household head and his/her partner. • Household members feel that they can participate to a good extent in decisions concerning the household management. • Both men and women spend about the same time in household activities.
32. Household decision-making (farm management)	• Decisions concerning agricultural activities are made jointly between female and male members, in particular between the household head and his/her partner. • Household members feel that they can participate to a good extent in decisions concerning the management of the farm. • Both men and women spend about the same time in farm activities.
33. Government policies and programmes on climate change and sustainable agriculture	• Farmers are part of the government initiatives on sustainable agriculture and climate change. • Farmers have been part of projects and programmes other than agriculture with equal access to all household members. • Farmers received services such as education, training and legal advice from the programmes (score of 7 points).

D4. How to build the 13 agro-ecosystem indicators for resilience assessment

The SHARP+ application itself does not offer the automatic visualization and calculation of the 13 agro-ecosystem indicators, as for project design these concepts remain abstract and hard to operationalize and to interpret from a farmer viewpoint.

However, with the use of the scoring table in annex C, the technical scores can be easily calculated for a further manual computation of the 13 agro-ecosystem indicators.

One option to calculate these is to use the scoring table that is presented by indicator (Annex C), where all the questions that contribute to each indicator are outlined. In this option, some questions are assigned to several indicators, which can lead to artificial correlations between indicators during further statistical analysis. The codes only include those elements belonging to the technical score that are used for measuring resilience. In order to include adequacy scores as well, each score should be assigned to an indicator according to its relevance. This option might result very useful, particularly if the scoring system is adjusted based on the project or research needs.

A second option is to use the table below containing all the codes as exported from the SHARP+ tool and that are needed to calculate every agro-ecosystem indicator. The codes are extracted from the scoring table and also only include the technical scores. In this table, each question has been assigned to the most relevant indicator in order to avoid artificial correlation mentioned above.

The codes highlighted in green correspond to all the mandatory modules that contribute to the construction of the indicators; whilst those codes in white reflect the non-mandatory modules. Therefore, the green-shaded codes shall always be present in the computation of the indicators, while the white-shaded codes might or might not be part of this computation, which will depend on the survey design.

The calculation of the 13 agro-ecosystem indicators using the table below should follow the next steps:

1. **Identify which modules where used to conduct the resilience assessment**, particularly those that are optional and were integrated as part of the survey.

2. With the use of the table below, **highlight all the mandatory and optional modules used.**

- Tip: discard (delete) all the white-shaded codes that are not part of the assessment; this will help avoid confusion when calculating your scores.

3. **Identify the codes** in the dataset.

- Tip: using "Ctrl + F" in Excel can help finding these quickly.
- Tip: while identifying each of the codes, a tab in the Excel file can be created for each indicator to organize better organize the results.

4. **Calculate the average of each of the indicators**. To do this, sum all the numbers from the codes and divide by the number of codes used to calculate the indicator.

- Note: remember the number of codes will vary depending on the number of non-mandatory modules used. For instance, to calculate indicator 11, the total should be divided by nine if the module on access to information is included, or by seven if this module is excluded, as it has two scoring contributing to the indicator (see tips in step two)
- Tip: the result of the indicator should not exceed 10 as this is the maximum achievable of each of the scoring components. If the individual score or average is higher, then there might be a miscomputation in the average or in the individual scored components.

Table A 5. Interpretation of the technical scores by module

Indicator	Codes of the technical scores
1	SO_landac_ac_b, EC_mkt_ac_h, EC_mkt_ac_b, SO_coop_ac_a, SO_coop_ac_b, SO_group_ac_a, SO_group_ac_b, GO_gov_ac_e
2	EN_crop_ac_a, EN_crop_ac_k, EN_new_ac_a, EN_new_ac_b, EN_landqa_ac_a, EN_landqa_ac_c, EN_landqa_ac_d, EN_slm_ac_c, EN_trees_ac_b, EN_trees_ac_c, EN_lands_ac_a
3	EC_input_ac_a, EN_cc_ac_g, EN_cc_ac_h, SO_infoac_ac_a, SO_infoac_ac_b, SO_infoac_ac_c, SO_infoac_ac_d, SO_infoac_ac_e, SO_ict_ac_a, SO_ict_ac_b, EC_mkt_ac_a, EC_mkt_ac_e, SO_coop_ac_d, SO_coop_ac_e
4	SO_agr_ac_a, EN_crop_ac_b, EN_spm_ac_c, EN_animal_ac_c, EN_animal_ac_a, EN_health_ac_b, EN_trees_ac_d, EC_inc_ac_h, EC_ass_ac_a, EC_fin_ac_d, SO_group_ac_c
5	SO_landac_ac_a, EN_crop_ac_c, EN_crop_ac_d, EN_crop_ac_l, EN_animal_ac_b, EN_breed_ac_a, EN_health_ac_d, EC_input_ac_b, EN_wacc_ac_a, EC_enerso_ac_b, EC_fin_ac_c, SO_meal_ac_b, SO_meal_ac_c

Indicator	Codes of the technical scores
6	EN_crop_ac_m, EN_landqa_ac_f, EN_slm_ac_b, EN_trees_ac_a, EN_trees_ac_g, EN_trees_ac_h, EN_lands_ac_b
7	EN_weed_ac_b, EN_spm_ac_a, EN_spm_ac_b, EN_animal_ac_f, EN_health_ac_a, EN_new_ac_c, EN_new_ac_d, EN_wqa_ac_a, EN_landqa_ac_b, EN_lands_ac_c, EN_cc_ac_a, EN_cc_ac_b, EN_cc_ac_c, EN_cc_ac_d, EN_cc_ac_e, EC_fin_ac_a
8	SO_landac_ac_e, EN_crop_ac_i, EN_crop_ac_n, EN_spm_ac_d, EN_spm_ac_g, EN_animal_ac_d, EN_animal_ac_g, EN_animal_ac_h, EN_wacc_ac_c, EN_wqa_ac_b, EN_landqa_ac_e, EN_slm_ac_a, EN_slm_ac_d, EN_trees_ac_e, EN_enercp_ac_a
9	EN_health_ac_c, EN_cc_ac_i, EN_cc_ac_f, SO_infoac_ac_f, SO_infoac_ac_g, SO_infoac_ac_h, SO_infoac_ac_i, SO_group_ac_d, SO_group_ac_e
10	SO_agr_ac_b, EN_breed_ac_b, EN_health_ac_e, EC_enerso_ac_a, EC_mkt_ac_d, EC_mkt_ac_c, SO_meal_ac_d
11	SO_hh_ac_g, EN_crop_ac_g, EN_spm_ac_e, EN_animal_ac_e, EN_trees_ac_f, EN_trees_ac_i, SO_coop_ac_c
12	SO_hh_ac_b, SO_hh_ac_d, SO_hh_ac_c, SO_hh_ac_a, SO_hh_ac_e, SO_hh_ac_f, SO_hh_ac_i, SO_hh_ac_j, SO_hh_ac_h, EN_spm_ac_i, EN_spm_ac_h, EN_health_ac_f, EN_wacc_ac_d, SO_ict_ac_c, EC_inc_ac_a, EC_inc_ac_f, SO_group_ac_f, SO_group_ac_g, SO_meal_ac_a, SO_meal_ac_e, SO_dmhh_ac_a, SO_dmhh_ac_b, SO_dmfarm_ac_a, SO_dmfarm_ac_b, GO_gov_ac_a, GO_gov_ac_d, GO_gov_ac_b, GO_gov_ac_c
13	SO_landac_ac_c, SO_landac_ac_d, EN_crop_ac_e, EN_crop_ac_f, EN_crop_ac_j, EN_wacc_ac_b, EC_mkt_ac_f, EC_inc_ac_e, EC_inc_ac_b, EC_inc_ac_c, EC_inc_ac_g, EC_fin_ac_b, EC_ins_ac_a

D5. Sharing SHARP+ assessment results with communities

Why is it important to share the SHARP+ assessment results with communities?

Sharing the assessment results and findings with local communities enables their access to data, which in turn was only made possible through their participation in the survey. Sharing this knowledge can help **communities can gain ownership of the findings and** use these to define their own goals for resilience building, while protect their own interests. The increased ownership is likely to positively influence impact of project/programme interventions and reach the expected goals.

By sharing and discussing the results with communities, projects and research aiming for community empowerment and seek an active community engagement throughout the project cycle, can also mitigate the challenges of survey-based assessments though more participatory approaches. This is particularly important as surveys can be very extractive from the community perspective.

Interaction between the community and decision-makers (e.g., project and programme managers) presents a learning opportunity for both. On the one hand, community members have the chance to interact with the findings, corroborate and validate these. On the other hand, decision-makers can directly learn from communities to refine strategies and interventions, while decreasing the likelihood of having negative unexpected results based on community feedback.

Appropriate and timely dissemination of data and results can contribute to reducing the gap that usually exists in decision-making between projects and communities. Inclusive planning and decision-making may enhance trust and empowerment of community stakeholders.

How to bring the SHARP+ results back to the communities?

There are some key considerations to keep in mind when bring back the SHARP+ results to the community members. Five steps are considered as core to ensure an interactive process that provide benefits for both communities and project team to gain understanding and ownership of the results and learn how these can be best used for an informed decision-making.

Step 1. Identification of key results and areas for discussion

Based on the results, the project field staff, researchers and the evaluation team (if applicable), henceforth referred as project team, should identify those areas highlighted with low and high resilience levels and of high priority for participants. Based on the wealth of information

collected, the team should try to understand the drivers of resilience to identify the main gaps (e.g. barriers to access productive assets, knowledge, services) and opportunities for action.

This step will also allow the project team to understand about the main concerns and priorities of communities themselves, and beyond from project's own objectives.

Aside from resilience gaps, the project team should identify other information that can be crucial to be shared with communities. This, to improve the interpretation of results (i.e., understanding the "why") and support an inclusive decision-making process for the formulation of relevant and context-specific interventions. For instance, a project focused on addressing land and soil degradation can discuss on the findings related to land access and tenure situation, land degradation processes observed, ongoing practices used by farmers to improve land quality and barriers for their adoption and tenure right situation of women and members of minority groups.

Step 2. Development of communication strategies for sharing the results

After identifying the key information areas to be shared, appropriate strategies to communicate basic statistics (e.g. the ones produced and presented in the results report) and expected changes over time (e.g. temperatures, land use change) should be developed in order to share the results with communities.

For example, the project team can use posters with simple charts (e.g., bar graphs or pie charts) and with pictures farmers can relate to. Limited text should be used in the material prepared, in order to facilitate the understanding by those with reduced literacy. It is important that the text used in any material is available in local languages to ensure it is comprehended by everybody.

Step 3. Preparation of a presentation of the results and the guided discussion

Before approaching the communities, a presentation should be prepared using all the visual materials needed. The presentation should evolve around a participatory and engaging guided discussion of key findings. The presentation needs to be appropriate to the audience, i.e. considering their specific characteristics, such as gender, literacy levels, group age, income level and ethnicity. The statistics comprised within the presentation should be customized to each community.

In close consultation with the communities participating in the project, the interactive presentation will aim to include all available community members and population groups in the different locations covered during the assessment. The presentation not supposed to last more than three hours, as it should focus on key information that will better inform the main project or research objectives (see step 1).

Ideally, a presentation should be organized in every assessed community to maximize the reach of the data and the findings, as most community members are unlikely to travel to another town to participate in the data sharing presentation. However, aware of the time and financial resources implications, focus group discussions could be set in order to improve the efficiency of the process.

Step 4. Presentation of the results and discussion with farmers

Focus group discussions can be organized (e.g. by gender, land tenure situation, socioeconomic status) as needed to address specific topics or concerns that are particularly sensitive and/or to be tackled as part of the project. For example, if the project aims to foster women participation in value chains, groups of women can be organized to discuss their current involvement levels and the main role they bare (e.g., in production, post-harvest practices, marketing) and what are the main social, cultural and economic barriers they currently face.

The discussion of each aspect should include:

- A brief introduction about the current situation on this topic, for instance, based on the SHARP+ assessment results and other information available to the project
- An overview of changes in the community in past years and/or any expected changes in the future
- An open dialogue with community stakeholders and a period for reflection

During the open discussion, it is strongly advised that facilitators who are well knowledgeable of the community/area, guide the conversation in the local language so participants can easily engage in the discussion. Community members should have an opportunity to provide comments, to question findings and to have the chance to validate these and their interpretation.

Step 5. Record discussion and report on main discussion outcomes

It is advised that the feedback from communities is recorded to have a registry that can always be consulted and to increase accountability. During the project formulation and monitoring, the analysis of these recordings presents an opportunity to get a deeper understanding on the perception of communities regarding the assessment, the results and the project itself.

The recording should be done by the project team, for example by using a paper form to be completed by facilitators immediately after the discussions. The form could have information on the topics discussed, specific findings and social dynamics.

The recording should also contain a section on the priorities and concerns of communities that the project could address, and which is particularly relevant in the case of a SHARP+ baseline survey or a needs-assessment. If SHARP+ was used for evaluation purposes, the discussions and feedback form could contain information related to the success (or failure) project activities and their impact on communities' livelihoods.

The presentation and discussions can also be recorded using voice or video devices, ensuring with prior and informed consent from all participants.

How to use the community discussions information?

All the data gathered through the group discussions can be used in different ways:

- to identify the capacity and other needs, gaps and barriers in the targeted communities;
- to understand the strategies currently used by communities as a whole to build their resilience and that the project can foster to boost its impact;
- to learn about communities' priorities and concerns regarding specific topics;
- to inform the design and refine project interventions that are suitable to the communities and the population groups within these;
- to refine the SHARP+ tool for continued learning and assessment, particularly if used as part of the project's monitoring and evaluation system;
- to identify bottlenecks in ongoing projects so these can be timely addressed, especially during monitoring activities; and
- to analyse evolution in resilience levels and adaptive capacity of farmers before and after the project. This is particularly useful in the context of monitoring and evaluation, when the project team aims to learn about the direct impact of the interventions on communities.

D6. Outline of SHARP+ report

The below presents a general outline of a report to be followed when presenting the main results. The outline can and should be modified based on the project/study objectives and target audience.

Section	Content
1. Introduction	Provides an overview of the project/study and its objectives. This section also includes an introduction of the SHARP+ tool, explaining what it is and how it has been used as part of the study.
2. Methodology	Presents the methodology followed for the analysis of the data, including the sampling strategy and data collection method.
3. Household characteristics	This section offers an overview of the households interviewed, including sex and age of the respondents, distribution of household by project site and presence of Indigenous Peoples. The section should provide to readers a good understanding of the main socioeconomic characteristics of population under study.
4. Profiling of livelihoods	All the information collected will be presented in a structured manner, for instance, dividing the section by domains (social and economic characteristics, environmental features and governance mechanisms). The analysis of all the modules within each domain will include tabulations and charts and information should be disaggregated as needed (e.g. by gender or community).
5. Resilience assessment	This section presents a thorough analysis of the resilience levels of the populations assessed. This implies the identification of the main resilience gaps as well as the high resilient aspects, offering an indication what are the main drivers of the trends and patterns observed. It is encouraged to include a resilience analysis disaggregating by gender (of the respondent or the sex of the household head) and by geographical area. The analysis should also include a subsection on farmers' own prioritization for resilience building.
6. General recommendations	Resilience building recommendations can be included in this section, following the resilience analysis, including farmers' priorities, and profiling of livelihoods. The recommendations should be jointly developed with the project team and relevant technical experts.
7. Annexes	Tabulations, qualitative reports and questionnaire version used for data collection can be included in this section.

D7. Sampling guidance

Defining a correct and robust sampling strategy when planning a SHARP+ assessment is key to ensure that representative and reliable conclusions of a target population are derived.

In practical terms, a successful sampling strategy involves defining how data collection will be organized (where, who, what and how) to fit the overall research/project purpose. The selection of the sampling strategy will depend on the objectives of the project, the context and the type of the research. This document presents the most suitable potential strategies when using SHARP. However, this document is not exhaustive, and the expertise of the monitoring and evaluation expert or lead researcher is required when designing the data collection plan and activities.

In probability methods, all persons/sample units in the target population have the same chances of being interviewed, while in non-probability sampling methods, the sample units do not have equal chances of being selected. Independently from the type of research conducted, the researcher must have a clear question driving the data collection. In the case of SHARP+, the study unit is the household, which is represented by a member answering the questions on behalf of the household.

Probability sampling methods:

As a rule of thumb, probability sampling should be used in social sciences for household surveys in order to be able to generalize the results to a wider population. Few terms are needed before exploring the different probability methods:

- Sample frame: this comprises the documentation or information (lists, population census, surveys) used to select the study sample.
- Sample area: a selection of geographical area units within the sample frame.
- Target population: the part of the population the research aims to draw generalization for.
- Sample unit: the unit used for the research/project (e.g. a project might target households, hence the sample unit will be the household and not the single individuals living there. Another study might target only farms; hence the farm is the sample unit).
- Study sample: The sample of a study simply refers to the participants who are chosen through a sampling strategy.

Probability sampling methods are mainly used in quantitative studies and as such they allow generalizations from collected data. Probability sampling involves the calculation of the probability of an individual in a given community/place to be selected, which means that every sample unit (household, individuals, farms …) enjoy the same chance of being selected. This is the reason why only probability sampling methods can be used to draw conclusions on the entire target population.

Main probability sampling methods:

- **Simple random sampling**: having created a numbered list (1=..; 2=..; 3=..; n) of all the units in the target population (e.g. people living in the district "X") and decided the size of the sample, the researcher randomly selects the actual people to be interviewed (Microsoft Excel ® has a dedicated function for this).[32]
- **Systematic sampling**: in this method, after creating a numbered list, the study units are selected at regular intervals from the sampling frame starting from a randomly selected number. Based on the sample size, the researcher divides the target population (y) by the sample size (n), obtaining the interval to use (t). He then randomly picks a number between 1 and t, which represents the starting point, then adds t to it and selects the next one, until they select all the sample size.

Formula :
Interval (t) = y/n *Start:* random number between 1 and t.

- **Stratified sampling**: this aims at avoiding the representation of only a certain group/category of the target population. It consists of dividing the population into sub-groups (strata) which are different to each other but share similar characteristics within the group. Stratification allows the researcher to obtain data from different subgroups. The most common example for stratification is to divide the population of a certain administrative region (province, region, state) into urban and rural strata. The two strata have different characteristics, but the households within each of the strata tend to be similar (e.g. in terms of household size, gender, agricultural production system, Indigenous groups, socioeconomic status).

[32] For more information on how to use this excel function, please consult this link: https://www.surveymonkey.com/mp/random-sample-in-excel/

- **Cluster sampling**: cluster sampling is based on an already available list of units (e.g. villages, districts, irrigation sites). The selected units represent the clusters for the analysis, which will tend to be rather similar to each other i.e. homogeneous (the opposite of stratified sampling). To achieve reliability, it is advisable to create a large number of clusters with few people rather than few clusters with many people (e.g. if the sample size is 1000 households, instead of having 50 clusters of 20 household each, it is suggested to have 100 clusters of 10 households each). This is especially true for geographically determined clusters (e.g. districts, villages) where similar characteristics in the variables within each cluster are present (types of employment, income level) and the generalization possibilities are thus limited.

Overall, four main components are taken into consideration when designing an effective sampling strategy:

a) Setting a geographical sample area. This is the geographical area in which the surveys will take place, following the project targeted areas.

b) Setting the sample frame. Available population census or surveys can be used, as well as cadastre information and remote sensing imagery as the material from which to select the population sample. It is very important to select the population sample using only probability methods (without excluding parts of the population) to avoid biases in the results. This will ensure obtaining meaningful information in the sample area and allow for data comparison among the different project sites. Ultimately, this data will help decision-making to develop tailored solutions, programmes and policies.

c) Definition of the target population. The target population will be selected based on selected criteria (e.g. production activities, income level and gender) and that are located in the geographical sample area.

d) Selection of the sample size. This is the total number of people (units) to be interviewed and the larger the sample size, the more representative the results will be. Usually in social sciences, the definition of the size uses a 95 percent confidence level and a 5 percent confidence interval.

BOX 12

Improving Resilience to Climate Change in South Sudan

Building Resilience and Adaption to Climate Extremes and Disasters (BRACED) was a three-year programme aiming to help people to become more resilient to climate extremes across a number of countries. In South-Sudan, BRACED worked at multiple levels, supporting the development of household, community and national resilience to climate extremes and disasters. The areas of field implementation were the former states of Northern Bahr El Ghazal (NBeG) and Warrap, covering three counties (Aweil West, Aweil North and Tonj South). The focus of the project in these areas was to develop households' capacity to adapt, to absorb and anticipate climate extremes and disasters with a particular focus on the most vulnerable, especially women and children. In this context, SHARP was used to monitor the evolution of resilience in project areas. An endline assessment as well as FGDs and interviews with key informants were undertaken between autumn 2017 and spring 2018. This combination of quantitative and qualitative methods allowed them to complement the results, validating SHARP data as well as exploring interesting or unexpected outcomes and better understanding the drivers of resilience.

Baseline assessment

Following the South-Sudan administrative division in state, county, *payam* and *boma*, a random selection process was used to target five *payams* within the three project counties. To be able to generalize the results, the samples size for the baseline was calculated using a 90 percent confidence interval (CI) and 10 percent of confidence level. Using these parameters, a total of 668 households were selected for interviews across the five *payams* selected.

State	County	Payam	Males	Females	Sample Size
NBeG	Aweil West	Gomjuer Centre	43	92	135 (90% CI)
	Aweil North	Malual North	58	57	115 (90% CI)
Warrap	Tonj South	Tonji	196	222	418 (90% CI)
		Agugo			
		Manyang-ngok			
Total	BRACED programme areas		297	371	668

The next step in the sampling process was to randomly select a representative number of *bomas* within each county, and to allocate the sample size in a proportional way (according to the target population of each county). In this context, the accessibility of the *bomas* was a key aspect to consider. As such, if a given randomly selected *boma* was not accessible (e.g. for logistic reasons or ongoing conflicts), a different *boma* was randomly selected.

[Box break]

Endline assessment

For the endline assessment, the decision was to exclude, as per the baseline assessment, *bomas* that were not accessible (i.e. due to ongoing conflicts). The design effect was similarly taken into account. Based on the random selection of households, less than 5 percent of them were likely to be the same respondents of the baseline data collection. Thus, it was not possible to follow-up on the same people surveyed during the baseline assessment. However, since the baseline sample size was statistically relevant, it was possible to generalize the baseline results to measure the impact of the BRACED project on resilience levels.

State	Baseline sample size	Endline sample size
Aweil North and Aweil West	250 (90% CI)	116 (90% CI)
Tonj South	418 (90% CI)	154 (90% CI)
Total	668 (90% CI)	270 (90% CI)

Qualitative assessment

The BRACED team had additionally collected primary qualitative data using a mix of workshops, focus group discussions (FGD), key informant interviews (KII), and group or paired interviews. The combination of quantitative (baseline and endline assessments) with qualitative methodologies enabled the project to gain more insights on the drivers of resilience in the selected South Sudan sites and on the beneficiaries' perceptions regarding the impact of the project.

Participants	Method	Location	Number of participants
BRACED beneficiaries and SHARP endline survey respondents – female	Workshop	Aweil –Nyamlell	16
BRACED beneficiaries and SHARP endline survey respondents – male	Workshop	Aweil –Nyamlell	15
BRACED FFS Lead Farmers	Group interview	Aweil West	3
Concern FSL management	KII	Aweil – Nyamlell	1
Concern BRACED field staff – workshop translators/facilitators	Debrief	Aweil –Nyamlell	4
BRACED beneficiaries and SHARP endline survey respondents – male	FGD	Tonj South – Khartoum Jidid	13
BRACED beneficiaries and SHARP endline survey respondents – female	FGD	Tonj South – Khartoum Jidid	11
BRACED beneficiaries and SHARP endline survey respondents – male and female	FGD	Tonj South – Wargiir	11
BRACED beneficiaries and SHARP endline survey respondents – female	FGD	Tonj South - Rungangou	8
BRACED beneficiaries and SHARP endline survey respondents – male	FGD	Tonj South - Rungangou	8
BRACED beneficiaries and SHARP endline survey respondents – male and female	FGD	Tonj South - Akuceng	12
ACTED FSL management and M&E	Paired interview	Tonj South	2

Annex E
Survey questions for the evaluation of SHARP+

The FAO-developed SHARP+ tool has been launched in 2017 and the SHARP team is interested in learning more about its performance in the field. By filling-in this 15-question survey, you will help us understand better how it has been used and what needs to be improved for projects and beneficiaries.

i. Name (not mandatory)

ii. E-mail address (not mandatory)

iii. Country of use *

iv. Which application version did you use? *

- SHARP+ (dev-surge: sharp-dev.surge.sh) on the tablet/phone
- SHARP+ (dev-surge: sharp-dev.surge.sh) on the browser
- SHARP+ Collect Mobile
- Not sure
- Other:_____

v. Approximately, how many people were interviewed? (number of surveys conducted) *

- 50 or less
- 51 to 100 surveys
- 101 to 200 surveys
- 201 to 300 surveys
- More than 300 surveys
- Not applicable (e.g. I'm a project coordinator / project designer)

1. Did you receive training to use SHARP+ in the field? *

- Yes, by a member of the SHARP team (FAO HQ)
- Yes, by another SHARP expert (i.e. from FAO but based in an office outside HQ)

- Yes, by a master trainer (i.e. Trainer of Trainers)
- No, I read the relevant documentation and received general guidance by the SHARP team
- No, I learned about the tool by reading the documents without any additional support
- Not applicable (e.g. I am a project coordinator / project designer)
- Other:_____

2. For what purpose(s) did you use SHARP+? *

- Research (e.g. case studies, MSc/PhD thesis)
- Design of project interventions to strengthen resilience
- Select beneficiaries / areas of interventions to strengthen resilience
- As a monitoring tool in climate-related projects
- As an evaluation tool in climate-related projects
- As an M&E tool in other types of projects
- Other:_____

3. What was your role in the use of the tool? *

- M&E expert
- Project Staff
- Project Designer
- Data collection (e.g. research associate, enumerator)
- Government counterpart
- NGO
- Independent researcher
- Other: _____

4. Were you involved in the data analysis, interpretation and/or reporting? *

- Yes, in the three steps
- Yes, but only in the data analysis part
- Yes, but only in the interpretation and reporting

- No, but someone from the national team was involved
- No, the SHARP team in FAO HQ (Rome) oversaw these activities
- No, and I was not meant to – I only took care of data collection
- No, and I was not meant to – I was part of the project coordination/implementation team
- Other: _____

5. On a scale from 1 to 5 (5 being very completely), does the tool present the outcomes in an easy and understandable way? *

- 1 (Not at all)
- 2
- 3
- 4
- 5 (Completely)

6. In your experience, what was (were) the main advantage(s) of using SHARP+ (i.e. over other tools)? *

- It is easy to use
- It is flexible so it allows for customization
- It is very comprehensive and rich in content
- It is relevant to the project objectives / indicators
- If needed, allows for participatory assessment and discussion of the results
- Works on a tablet and offline
- Collects geo-referenced information
- Allows to interact with different stakeholders (e.g. during the training and in interviews)
- Other:

7. In your view, what (were) the major challenge(s) when using the application? *

- It is very long and time consuming
- The language is very technical, difficult to understand and translate

- There were technical difficulties using the application (e.g. GPS did not work, failing at submitting data, the app is too slow)
- There were technical difficulties using the tablet (i.e. the quality of the equipment was low, the screen was too small, the battery did not last long)
- I did not understand well the methodology and its scope
- The questions are not relevant to understand resilience
- It is too expensive for implementation (e.g. logistics, translation, training)
- I did not understand the results and/or how to use them
- It is not participatory enough
- Other: _____

8. On a scale from 1 to 5 (5 being very), do you consider the results of the tool precise? *

- 1 (Not at all)
- 2
- 3
- 4
- 5 (Very)

9. Based on the tool outcomes, how do you think SHARP has contributed to the project? *

- It has allowed the identification of areas of interventions and beneficiaries (targeting)
- It has supported the design of better interventions though data for evidence-based project formulation
- It has helped the identification of bottlenecks, so we were able to address them in a timely manner (monitoring)
- It has allowed a better understanding of livelihoods in the field
- It provided valuable information to understand farms' resilience status and determinants
- It has not contributed the communities in any way
- Not applicable (e.g. it was used for research purposes only)
- Other: _____

10. On a scale from 1 to 5 (5 being completely), was SHARP's expected use met? *

- 1 (Not at all)
- 2
- 3
- 4
- 5 (Completely)

11. On a scale from 1 to 5 (5 being very likely), how likely would you consider using or recommending SHARP+ in other climate and resilience-related project or study? *

- 1 (Not likely at all)
- 2
- 3
- 4
- 5 (Very likely)

12. On a scale from 1 to 5 (5 being very much), do you think SHARP has positively contributed to the wellbeing of beneficiaries and their communities? (e.g. through better understanding of livelihoods and drivers of resilience). Select 0 if the question is not applicable. *

- 0 (Not applicable)
- 1 (Not at all)
- 2
- 3
- 4
- 5 (Very much)

13. Based on your experience, which potential improvements the SHARP team should consider enhancing the quality and performance of SHARP+ and its use in the field? (Select only a maximum of three options as "High Priority") *

- Nothing, I am satisfied with the tool / I have nothing else to add
- Reduce the length of the questionnaire without compromising the methodology

- Provide face-to-face training on how to manage and analyse the data gathered
- Make material available on how to manage and analyse the data gathered
- Provide guidance on how to interpret the results based on the analyzed data (i.e. though training or guidance notes)
- Reformulate the technical questions in a way these are more user-friendly
- Reformulate self-assessments (importance and adequacy) to better capture farmers' desires and concerns
- Provide face-to-face guidance to enumerators during the data collection phase (e.g. accompany the enumerators the first days of data collection)
- Provide timely IT support when bugs are reported on the application
- Ensure that the application fulfills all its technical functions before starting field activities (i.e. GPS, data submission, translations)
- Provide guidance on how to share and discuss the results with the communities assessed
- Allow customization of surveys by users
- Other

13b. Please specify which other improvement (This is only applicable if "Other" is selected above)

14. Please write any other comment you would like to give us on your overall experience using SHARP+ or on how we can improve the tool. Thanks.

15. Would you agree to be contacted by the SHARP team to further share your experience and valuable suggestions, if needed? *

- Yes (please make sure to provide your e-mail address in question ii)
- No

Annex F
Training agenda

Day 1	Presenting and understanding the SHARP tool
08.30 – 09.00	Welcome of participants.
09.00 – 09.10	Workshop opening.
09.10 – 09.30	Starting the training: expectations.
09.30 – 10.00	Brainstorming on climate resilience and land management. General presentation of the SHARP+ tool.
10.00 – 10.30	Questions and answers session.
10.30 – 11.00	Coffee/Tea break.
11.30 – 12.30	Individual work: review of the SHARP+ questionnaire.
12.30 – 13.00	SHARP+ questionnaire: discussion and first impressions.
13.00 – 14.00	Lunch break.
14.00 – 15.00	Presentation of the SHARP+ application and explanation on download, update and launch of the application.
15.00 – 16.00	Working groups on the use of the SHARP+ application.
16.00 – 16.15	Coffee/Tea break.
16.15 – 17.30	Working groups on the use of the SHARP application.
17.30	End of Day 1.

Day 2	Working groups on the use of SHARP+
08.30 – 08.45	Feedback from Day 1.
08.45 – 09.45	Working groups on the use of the SHARP+ application.
09.45 – 10.30	Feedback from working groups on the use of the SHARP+ application and discussion on encountered problems.
10.30 – 11.00	Coffee/Tea break.

Day 2	Working groups on the use of SHARP+
11.00-11.30	Facilitation presentation on the SHARP+ tool.
11.30 – 12.00	Working groups: translation of key concepts in local language.
12.00 – 14.00	Lunch break.
14.00 – 14.30	Working groups: translation of key concepts in local language.
14.30 – 15.00	Feedback from translation exercise: difficulties and possible solutions.
15.00 – 16.30	Case study: Testing the application and interpreting the results.
16.30 – 16.45	Coffee/Tea break.
16.45 – 17.15	Feedback.
17.15	End of day 2.

Day 3	Development of individual work plans
9.00 – 12.00	Filed visit to test the application.
12.00 – 13.30	Lunch break.
13.30 – 15.00	Feedback on application performance and content.
15.00 – 17.00	Addressing application issues.
17.00	End of Day 3.

Day 4	Development of individual work plans
9.00 – 10.00	Resume: Interpretation of the results and qualitative analysis.
10.00 – 11.30	Selection of project sites (communities).
11.30 – 11.45	Coffee/Tea break.
11.45 – 12.15	Definition of the sample size.
12.15 – 13.15	Preliminary preparation of the work plan: national inception workshops, interview plans, roles and working calendar and qualitative analysis report.
13.15 – 14.30	Lunch break.
14.30 – 15.00	Preliminary preparation of the work plan: national inception workshops, interview plans, roles and working calendar and qualitative analysis report.
15.00 – 15.30	Evaluation and closing of the workshop, and hand-out of training certificates.

Annex G
Terms of reference of enumerators

General description of task(s) and objectives to be achieved

The enumerators will assist the climate resilience expert in the development of the baseline through supporting the design, testing, conducting and reporting of the survey findings. In particular the research associate will:

- participate at the training conducted by the SHARP team;
- assist the SHARP team in the preparation of the survey questionnaire by identifying locally relevant indicators (e.g. lists of crops, trees);
- test the survey questionnaire developed by the SHARP team;
- if applicable, conduct key-informant interviews (the enumerators will be briefed and provided with the lead questions) and assist the SHARP team in conducting focus group discussions with socioeconomic interest groups, including women's and youth groups, at target project sites and prepare synthetic transcripts of the above as well as lists of interviewed stakeholders;
- implement the household survey in project sites by administering the questionnaire to a random sample in the project beneficiary pool up to reaching the selected sample size;
- submit household survey data to the server or send it via mail to the SHARP team;
- in collaboration with the SHARP team, run descriptive analyses of the data and produce relevant figures and graphics; and
- prepare a summary report highlighting the main findings of the key-informant interviews, focus group discussions and household survey, thus providing baseline livelihoods information, gender and vulnerable groups characterization.

Key performance indicators

- Participation at the SHARP+ training workshop.
- SHARP+ survey draft qualitative report.
- SHARP+ survey final qualitative report.

Deliverables

- Finalized household survey questionnaire.
- Household survey data.
- Draft summary qualitative report.
- Final summary qualitative report with sampling and survey methodology and main findings.
- Transcripts of key-informant interviews and focus groups discussions (if applicable).
- Lists of stakeholders interviewed (if applicable).

Required qualifications and experience

- A bachelor's degree or about to graduate in social sciences, natural resources management or any other related fields.
- Knowledge of local language(s).
- Experience in participatory rural appraisal techniques.
- Experience in preparing and conducting household surveys.
- Proven skills in data entering and computing, matrix management and statistical elaborations with Excel.
- Knowledge of local landscapes.

Plant Production and Protection Division (NSP)

Food and Agriculture Organization of the United Nations (FAO)

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