Food and Agriculture Organization of the United Nations

RUAF

CITY REGION FOOD SYSTEM TOOLKIT

Assessing and planning resilient and sustainable city region food systems

Guidance: Developing a research method for the in-depth assessment

Brief description	This tool sets out a logical process for developing the research method for the in-depth assessment
Expected outcome	The project team is able to draw up quantitative and qualitative research methods, and ideas about where to go to receive answers and what methods are most appropriate.
Expected output	A set of quantitative and qualitative research questions; identified data sources; data collection methods determined
Scale of application	Project level
Expertise required	Project management
Examples of application	
Year of development	2021
Author(s)	Jess Halliday
Relevant CRFS Handbook modules; related tools, examples and activities	In-depth assessment module *Related to Example: Kigali research method development table*

Full description and justification

This tool sets out a logical process for developing the research method for the in-depth assessment, consisting of: drawing up quantitative and qualitative research questions; identifying data sources; and determining data collection methods. It provides a preliminary rationalization exercise ahead of designing data collection instruments, to ensure that just one data collection method is applied to each data source (group of stakeholders).

Annex A contains a table of example indicators and their related research questions data sources, and data collection methods, developed by following stages 1 – 3 of devising the research methods

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Before the project teams begins developing the in-depth research methodology, ideally:

- the rapid scan will have been completed, including drawing up initial priorities and identifying information gaps;
- a set of indicators tailored to priorities will have been drawn up.

The process contained in this tool utilizes the outputs of this earlier work.

Reminder

The purpose of the in-depth assessment is to:

1) obtain primary quantitative and qualitative data to fill the secondary data gaps that were identified during the rapid scan, relating to the broad research questions on potential impact to the CRFS from climate shocks and stresses and other events such as pandemic measures, vulnerability and exposure;
2) obtain primary quantitative data to establish a baseline for each of the indicators, which show existing (lack of) adaptive capacity in the priority areas;
3) obtain qualitative data on the CRFS components and stakeholders within the priority focus areas are vulnerable to different shocks and stresses, and the nature and extent of their vulnerability; why some have coping capacity and others do not; and how coping capacity could be improved.
4) analyse the findings using a food-systems approach, in order to have a deep, fine-grained knowledge both of the vulnerabilities and lack of adaptive capacity within the priority focus area, including their drivers/underlying causes, and their implications throughout the whole CRFS as a whole.
5) Identify priorities for policy action planning to address the drivers/underlying causes of vulnerabilities and lack of adaptive capacity.

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1 Process of developing the research method

1.1 Filling gaps from the rapid scan

It is expected that some data gaps will have been identified during the rapid scan. Some gaps exist because the specific data has never been collected before; others result from data collection at scales other than the city region and disaggregation is not possible. Some data will have been collected several years ago and may no longer be accurate.

The identification of gaps is a finding in itself. It demonstrates food- and climate-related issues that have been overlooked in the city region to date.

The in-depth assessment provides an opportunity to fill some of the gaps, to gain a more complete overview of CRFS vulnerabilities to climate shocks and stresses and other events.

To do this, you need to list the unanswered questions that you wish to address and identify a data source and data collection method for each. You can do this by following the process in section 3.2 below (stages 2 and 3).

1.2 In-depth assessment

The research methodology for the in-depth assessment is specific to each city region, depending on the priorities identified.

The process for developing the research methodology starts with the chosen indicators and involves working left to right across the columns below:

See the extended table at the end of this document for examples.

Stage 1: Research questions

Each quantitative indictor will translate easily into a quantitative research question, beginning ‘how many’ or, where we need an idea of proportion, ‘what percentage’.

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However, we also want to discover why the quantitative value is as it is and, where relevant, who are the people affected. To do this, we need to take each indicator in turn and formulate one or more related qualitative question.

Example A

If the indicator is:

'*Number of extension agents trained on good, risk-sensitive agriculture practices',*

the qualitative research question is:

'Why are extension agents not trained in good, risk sensitive agricultural practices?'.

Possible answers are:

i) because good, risk sensitive agricultural practices are not included in the policy that determines training topics of agricultural agents,
ii) because there are no knowledgeable trainers in the local area;
iii) because there is a lack of funding to train extension workers in this topic.

Each of these possible answers demonstrates a problem that may be addressed in the action planning stage.

Example B

If the indicator is:

'Number of farmers who are equipped with water harvesting techniques at community and household level',

the obvious qualitative research question is:

'Why are some farmers unequipped with water harvesting techniques at community and household level?'

Simple answers could be:

i) because they lack knowledge of water harvesting techniques;
ii) because they cannot afford the necessary equipment.

However, these answers generate new why questions. Why do the farmers lack knowledge? Why can they not afford the necessary equipment?

Therefore, it is more helpful to ask first who 'some farmers' are:

'Who (which subgroup of farmers) is unequipped with water harvesting techniques?'

The answer may be: i) women farmers; ii) farmers with low income or capital; iii) farmers of a particular religion, ethnicity, age, etc.

We can then ask again:

'Why are these farmers in particular unequipped with water harvesting techniques?

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We are looking for rich answers, such as:

i) farmers of a particular religion or ethnicity lack knowledge because they are excluded from training courses, or women cannot attend around family commitments;
ii) many women farmers cannot purchase equipment because they are not offered favourable loan terms;
iii) the income cut-off for farmers to receive subsidies to buy equipment is too low, excluding middle-income farmers who do not have the capital to invest themselves.

Again, these answers demonstrate problems that may be addressed in the action planning stage.

Example C

If the indicator is:

'Number of small/medium scale food processing units located in production areas for continuous supply of raw materials,'

The qualitative research question is:

'Why are small/medium scale food processing units not located in production areas?'

A potential answer could be:

i) because few farmers in the area have the technical or business knowledge to diversify into food processing;
ii) because few farmers in the area have the capital to invest in equipment needed;
iii) because there is no established local market for processed produce.

Once more, the problems to be address in action planning are evident from the answers

Stage 2: Data sources

Once the research questions have been established (both quantitative and qualitative) you need to determine the source of data to answer those questions.

Some of the quantitative research questions may have been answered in the rapid scan phase already. In this case, there is no need to collect additional data. If they are new questions that were not included in the rapid scan, it may be possible to find data from secondary sources, such as documents or databases.

Otherwise, it will be necessary to collect new, primary data for both the quantitative and the qualitative questions. Sources are likely to be specific stakeholders or groups of stakeholders by value chain node or profession.

Stage 3: Data collection method

Next, you need to think about the ideal data collection method for each research question.

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Quantitative questions: Primary data collection methods will depend on what you need to quantify. You might need to conduct a physical survey or participatory mapping to count assets or infrastructure. For number or percentage of stakeholders in a particular situation, you could conduct a survey among a representative sample group.

Qualitative questions: Qualitative questions are most likely to be answered through surveys, focus groups, or interviews.

Reminder:

- **Surveys** are useful for asking multiple closed ended questions of a large cohort of people at a particular value chain node (e.g. producers, market vendors, or heads of household). It is possible to distinguish responses on the basis of factors like age, gender, socio-economic status, race, religion, to have a more precise impression of impacts on vulnerable groups.
- **One-to-one, in -depth interviews** are useful for asking specific questions of individual professionals or experts on a topic (such as heads of food processing companies or warehouse managers), to tap their knowledge or opinion. Interviews can be semi-structured, which gives the option of seeking clarification or following up on interesting answers that cover point you had not considered. Questions are also open-ended, so the subject can express an opinion in their own words.
- **Focus groups** are useful for obtaining more detailed, nuanced specialist knowledge than is possible from closed-ended surveys, from a homogenous group of 6 – 10 actors, such as farmers, market vendors, or shoppers at a market.

Stage 4: Rationalisation ahead of designing data collection instruments

Once you have identified the data source and ideal data collection method for all your research questions, it is helpful to carry out a rationalisation exercise. You can do this by re-ordering the columns in the table above so that alongside each data source list you list:

i) the research questions you will address; and
ii) the data collection method for each question.

Data source	Research questions	Data collection method
Source 1	RQ 1	Method 1
	RQ 2	Method 1
	RQ 3	Method 2

If you have multiple data collection method for the exact same data source (group of stakeholders), select the one method that is most likely to be able to deliver answers to all of your questions.

Finally, switch the columns around again so that you have a list of data sources, each with one data collection method and one or more research questions.

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Data source	Data collection method	Research questions
Source 1	Method 1	RQ 1
		RQ 2
		RQ 3
Source 2	Method 2	RQ 4
		RQ 5
		RQ 6
Source 3	Method 1	RQ 7
		RQ 8
		RQ 9

Use this as the basis for designing your data collection instruments, bearing in mind that you may need to articulate the research questions in different ways depending on the data source (group of stakeholders). This may mean asking several sub-questions in order to fully answer the research question. Remember also to include questions relating to socio-economic factors, which are vital for understanding how vulnerability and adaptive capacity varies between different groups of stakeholders.

You should also consider what other research Is being carried out, and/or what data is collected, from whom, on a systematic basis. Where the data source (group of stakeholders) is the same and where timescales align, it may be possible to insert some additional questions into surveys being conducted by other organisations or local government teams (ensuring that the data collectors are fully briefed on the nature of the data required). Such 'intelligent links' avoid duplication of effort, saving time and resources. This engagement may result in systematisation of your questions into regular data collection, beyond the duration of the CRFS project.

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Annex A: Table of example indicators and their related research questions data sources, and data collection methods (stages 1 – 3)

Indicator	Research questions	Data sources	Data collection method
[Increase in] Number of farmers who are equipped with water harvesting techniques at community and household level	*Quantitative:* What percentage of farmers are equipped with water harvesting techniques at community and household level?	Sample of farmers (all groups)	Survey
		Extension support officers	Survey
	Qualitative: Who are the farmers that are unequipped with water harvesting techniques?	Sample of farmers (all groups)	Survey
		Extension support officers	Survey
	Why are these farmers unequipped with water harvesting techniques at community and household level?	Sub-groups of farmers (as identified above)	Focus group
		Extension support officers	Survey
[Increase in] Number of extension agents trained in good, risk-sensitive agriculture practices	*Quantitative:* How many extension agents (or ratio of agents:farmers) are trained in good, risk-sensitive agriculture techniques?	Extension services manager (dept of agriculture)	Interview
		Extension support officers	Survey
		Dept of agriculture extension services manager	Interview

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		Documentary records of trainings offered and attended (if they exist)	Document analysis
	Qualitative: Why are extension agents not trained in good, risk-sensitive agricultural practices?		
		Dept of agriculture extension services manager	Interview
[Increase in] Number of small/medium scale food processing units located in production areas for continuous supply of raw materials	*Quantitative:* How many small/medium scale food processing units located in production areas for continuous supply of raw materials	Chamber of commerce and unions (e.g. food business register)	Document analysis
	Why are small/medium scale food processing units not located in production areas?	Farmers, market stall holders	Focus groups
		Any existing small/medium processors	Interview
[Increase in] Quantity (by kg) of the stored food for climate risk/stress emergency situations	*Quantitative:* How many kg of food are stored for emergency situations?	Warehouse inventory documentation	Document analysis
		Warehouse managers	Interview
		Emergency food providers	Interview
	Why is more food not being stored?	Warehouse managers	Interview
		Emergency food providers	Interview
[Increase in] Percentage of population using alternative source of energy (gas/biogas) for food	*Quantitative:* What percentage of population using alternative source of energy	Energy providers client data (if accessible	Document/data analysis

preparation while protecting the environment	(gas/biogas) for food preparation while protecting the environment	Sample of households	Surveys
	Qualitative: Who are the people who do not use alternative energy for food preparation? Why do these people in particular not using alternative energy sources (gas/biogas) for food preparation?	Sample of households (all groups)	Survey
		Sub-groups of households (as identified above)	Focus group
		NGOs or aid organisations working with identified sub-groups	Interviews