

# **PROTOCOL FOR CONDUCTING FOCUS GROUP DISCUSSIONS INVOLVING THE ANALYSIS OF THE INTERDEPENDENCE OF RISKS USING SCORED CAUSAL DIAGRAMS**

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**Aim of the study:** To investigate the role of the analysis of interdependence between risks in changing perceptions of farmers.

## **Research Question 2:**

(i) What are farmers' perceptions of the interdependence between risks? (ii) Are farmers' perceptions of individual risks changed through analysing their interdependence? (iii) How and why are the perceptions changing?

## **Research team:**

- Research student (Facilitator on research activities)
- Field assistant (Note-taker and observer of research activities)

## **Introduction and Participant Information**

My name is Nuru Kipato. I am PhD student at the University of Reading but currently based at the Sokoine University in Morogoro. As part of my thesis I am conducting research into the management of risks for smallholder farmers.

This research project aims to find out the challenges that farmers face in hopes of coming with ways to improve the management of some of these challenges. We are interested in exploring challenges with you on an individual basis and in groups, to see how the challenges relate to one another, and what the impact of this relationships can be in our agricultural activities and daily decision making.

To undertake this research, we are currently contacting farmers - women and men - who may be willing to participate in the research. We would like to invite you to participate in this group exercise (workshop) taking place in Malolo/Mdilil village which will take approximately 2.5 hours of your time. We have reached out to you with the help of the local staff here in your village to invite you to participate in the exercise as you are potentially a decision-maker in your household, and we are interested in your opinions about the topic. You are encouraged to freely express your opinions and please be assured that your views are valued and that there are no right or wrong answers to the questions asked.

The discussion will be audio recorded and photos taken if you agree. The anonymised transcripts of the audio recordings will be used by the student and

supervisors working on the project. Once transcribed the original recording will be deleted. Your anonymity will not be compromised as only a reference number will be used to identify the transcript. Your identity will not be revealed to anyone other than the researchers working on this research. I will store your name and phone-numbers so that I can contact you in 4 months' time for some follow up questions. Your name and phone-numbers will be linked to your original responses by means of a keyed spreadsheet held separately. This spreadsheet and contact details will be password protected and the password known only to me and my supervisor, and will not be shared with any third parties. The spreadsheet will be kept on my password protected PC and will be destroyed at the end of my degree in March 2024. Your name and phone-number will not be published as part of my research. As all data is presented in aggregate format it will not be possible to identify any individuals from their responses.

Participation is entirely voluntary and you are free to withdraw from the exercise at any time you feel uncomfortable or unwilling to participate, and you do not have to specify a reason. Any in-part or total contribution cannot be withdrawn once the activity is completed since the activity is participatory and impractical to distinguish one's contribution from another.

If at any stage you wish to receive further information about this research project please do not hesitate to contact Nuru Kipato. The findings will be written up into my thesis and possibly published in academic journals. This will not affect your anonymity.

All data I collect will be stored securely electronically on a password-protected computer or in hard copy version in a locked cupboard. Any personal data (names and contact details) will be destroyed at the end of the research project no later than March 2024.

By participating in this exercise, you are acknowledging that you understand the terms and conditions of participation in this study and that you consent to these terms.

This research project has been reviewed according to the procedures specified by the University Research Ethics Committee, and has been given a favourable ethical opinion for conduct.

Thank you very much for taking time to take part in this study!

Nuru Nassoro Kipato

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## **PROCESS OF ENGAGING FARMERS IN THE EXERCISE**

### **PART 1: PREPARING THE FOCUS GROUP DISCUSSIONS AND ACTIVITIES**

- a) Since the objective was to analyse the interdependence of risks with farmers, the target participants in this study were farmers who had at least 5 years of experience farming in the region and lived in the village.
- b) The focus groups can include 4 to 7 farmers.
- c) The facilitator/researcher and research assistant should introduce themselves to the focus group, highlighting the purpose of the study as indicated above.
- d) In each group, farmers will choose a note-taker (or 2 note-takers) who will be drawing the diagram on the flipchart.

### **PART 2: IDENTIFYING OUTCOMES OF INTEREST AND ASSOCIATED RISKS TWO-CROPS DIAGNOSIS**

**(Start audio recording – label as session 1 of the focus group discussion)**

- 1. Today we would like to talk to about the crops MAIZE and SUNFLOWER, which are known as very important crops in Singida.
- 2. What do you grow these crops for? (example of objectives for growing a crop could be: to get enough food for the family; to get income; for nutritional purposes; etc. LET farmers mention all the objectives for the crops.)
- 3. Are these objectives shared by both crops or distinct for each crop? (HERE: if an objective like ‘to get income’ was mentioned and the farmers say it is shared by both crops, then the objective will be written as ‘to get income’, BUT if they say the objective is distinct for a particular crop then the objective is written as ‘to get income from maize’ or to get ‘to get income from sunflower’)

4. STARTING WITH ONE OBJECTIVE, ASK: “What are the problems associated with achieving this objective from the mentioned crops?” **Ask farmers to mention problems faced from the planting stages to harvesting and selling stages, which could be associated with the processes of production, market, finances, personal and institutional elements of the crop.** (Let farmers mention the problems as notetaker/farmer notes them on the flipchart and GREEN sticky notes) (SWAHILI: Ni zipi changamoto mnazokabiliana nazo kufikia malengo yenu ya zao husika? Taja changamoto kuanzia wakati wa kupanda mpaka kwenye uvunaji na uuzaji AMBAZO zinaweza husiana na uzalishaji, masoko, mitaji ya kilimo, masuala binafsi ya mkulima, na za kitaasisi/kiserikali kuhusiana na zao hili)
5. For each problem, ASK: “what does problem X look like or mean?” (SWAHILI: Nini maana ya changamoto X? AU ni mda gani unaweza dmea umekumbwa na changamoto X?)
6. For each problem, ASK: “Does problem X happen all seasons? What happens in other seasons?” (SWAHILI: Je, changamoto X hutokea mara zote? Nini hutokea kipindi kingine?)
7. If facilitator thinks there are some known problems that have been forgotten in the list, PROBE: Is XY a problem for this crop in this area? If there is no response from farmers, you can PROBE: From planting to selling, what are other challenges associated with this crop in this area?
8. NOTE: As farmers mention the problems, let notetaker write the problems on a flipchart.
9. NOTE: After the exercise, let the note-taker show the list of problems on the flipchart to farmers and ask farmers to confirm the list or add more risks.

**(Stop the audio recording)**

### **PART 3: INDIVIDUAL SCORING OF RISKS**

- a) Scoring of risks. Ask farmers to individually score the list of risks according to the relative threat a risk poses to the farmer on the piece of paper given (see **Error! Reference source not found.**). **Question to ASK farmers:** (a) Can you now LIST the risks shown on the flipchart on the given piece of paper? (b) Can you give SCORES to the risks using the numbers 1 to 5 to show the risks posing high threat to lowest threat to you (where 1 means low threat, and 5 high threat)? (NOTE: For farmers who cannot read or write, let note-taker and facilitator assist farmers to write down the risks on the piece of paper, and to

read the risks to the farmers so that the farmers can indicate the score for them accordingly)

SWAHILI: a) Je, mnaweza kuandika hizi changamoto zilizotajwa katika karatasi mlizopewa? (b) Je, unaweza kuonyesha alama kwenye hizo changamoto kulingana na kiwango cha tishio au athari ya changamoto kwako? Mfano, 1 iwe changamoto ndogo sana, 2 ni changamoto ndogo, 3 ni changamoto ya wastani, 4 changamoto kubwa, an 5 changamoto ni kubwa sana.

### **SCORE CARD USED BY FARMERS TO INDIVIDUALLY SCORE RISKS**

JINA LA MKULIMA/Name of farmer:

NAMBA YA SIMU YA MKULIMA/ Phonenummer:

Kijiji/Village:

UMRI/Age:

JINSIA/Sex:

ELIMU/Education level:

JUKUMU LAKO KATIKA KAYA (baba/mama/mtoto/ndugu)/ role in the household (father/mother/child/relative):

EKARI ZA MASHAMBA ULIYONAYO/ Number of acres of farming land owned by participant or participant's household:

IDADI YA MIFUGO (ng'ombe, mbuzi, kondoo)/ Number of livestock (cows, goats, sheep):

**SWALI: Je, unaweza weka alama kwenye hizo changamoto kulingana na kiwango cha tishio kwa dhumuni husika?**

Weka Alama 1 mpaka 5:

1 ni changamoto/tishio ndogo sana (it is very small/very low/negligible challenge/threat),

2 ni changamoto/tishio ndogo (it is a small/low challenge/threat),

3 ni changamoto/tishio ya wastani (is a moderate challenge/threat),

4 ni changamoto/tishio kubwa (it is a big/high challenge/threat),

5 ni changamoto/tishio kubwa sana (it is a very big/very high challenge/threat)

| Changamoto (Challenge) | Alama ya awali (First scoring) | Alama ya pili (Second scoring) |
|------------------------|--------------------------------|--------------------------------|
|                        |                                |                                |
|                        |                                |                                |

#### PART 4: DRAWING OF THE CAUSAL DIAGRAM

(Start audio recording – label recordings as session 2 of focus group discussion)

Facilitator should explain to farmers that often problems are related, and the next step is to look at the connections between the problems identified. You can use an example of the ‘users of a bus’ problem (described in (Galpin et al., 2000, p. 12) manual). PRINT DIAGRAM TO SHOW AND EXPLAIN IT TO FARMERS.

(Swahili explanation: Mara nyingi matatizo huwa yanahusiana, kana kwamba tatizo moja huweza kusababisha tatizo lingine. Hivyo basi yatupasa kuyaangalia haya matatizo kwa pamoja. Mfano, ukiangalia picha hii (waonyeshe picha) unaona jinsi gani matatizo mbalimbali yanahusiana. Mfano, jinsi gani basi (bus) kuwa bovu husababisha kuchelewa kwa mabasi na hivyo dereva kuendesha haraka, na mwishowe kusababisha ajali za barabarani. Sasa tunataka kuona ni kwa jinsi gani haya matatizo ya zao la mahindi yanavyoweza kuwa yanahusiana.)

FACILITATOR to ask the following questions:

(SWAHILI:

- (A): Mmetaja dhumuni kuu la zao/mazao hili/haya na hivyo changamoto kuu tutokana na zao hili ni lipi? AU, Je, tunaweza kusema kuwa changamoto kuu ya zao hili kutofikia dhumuni la zaohilo ambalo ni X?
- (B): Kati ya hizi changamoto mlizotaja awali, ni changamoto gani husababisha moja kwa moja kutokea kwa mapato duni katika mazao haya? Mfano: Je, ni sababu gani za moja kwa moja za mapato duni kwa shamba lako kwa mazao haya? (WEKA STICKY NOTE ZA MATATIZO HUSIKA KWENYE FLIPCHART).
- (C) Kama changamoto ni mpya kutajwa uliza, “Je, changamoto A mliyoitaja humaanisha nini?”
- (D) Nini husababisha changamoto A kutokea? Baada ya kutaja visababishi vya changamoto A, endelea na changamoto nyingine (B) na uliza visababishi vyake pia? Endelea hivyo hadi visababishi vya changamoto husika vitajwe vyote.

- a) You stated the following objective(s). State the selected objective(s) or outcome(s) of interest as a problem(s). These will be the end-problems which all other problems cause (Example: if the objective is to get enough for food, the problem will be “NOT enough food to eat”. If the objective is to get income, the problem will be “low income from farming”). Confirm these objective(s) with farmers.
- b) Let the note-taker Draw boxes for the end-problems on the flipchart.
- c) Looking at the end-problem(s), ASK: what are the direct causes for these end-problems? (**For example: What are the direct causes for low income for your farm for these crops?**) Let farmers mention the direct causes. (As they mention the causes, let a farmer write new identified problems (using symbols where possible) on YELLOW sticky notes, and note-keeper should place them on the right positioning on the flipchart and add arrows to represent the causal relationship with the objectives).
- d) Moving to the direct causes of the end problems for each ‘direct cause’ ASK: what are the direct causes of this problem? (Add the causes and arrows on the diagram on the flipchart. Each problem/cause should appear only once on the diagram.)
- e) Continue process of identifying causes to the problems until there are no causes identified by farmers.
- f) Look at the list of problems identified by farmers in the beginning of the exercise. If it contains problems not indicated on the diagram, mention it to farmers and ASK: Where do we allocate the problem YY on the diagram?
- g) TIP 1: Separate the cause/problem ‘lack of money’ from the end problem of ‘low income from a crop’. It will be helpful to exclude the problem of ‘lack of money’ altogether from the diagram as it can dominate and be seen as the source of all the problems.
- h) TIP 2: Do not include causes relating to people’s personal traits such as ‘laziness’, ‘irresponsibility’ in the causal diagram. If farmers insist, probe: “Let’s say you are responsible and not lazy, what are the other possible cases of problem?”
- i) TIP 3: The problems at the top of the diagram with no identified causes are the root causes. If the logic of the diagram is correct, solving these root causes will result in other problems being overcome.

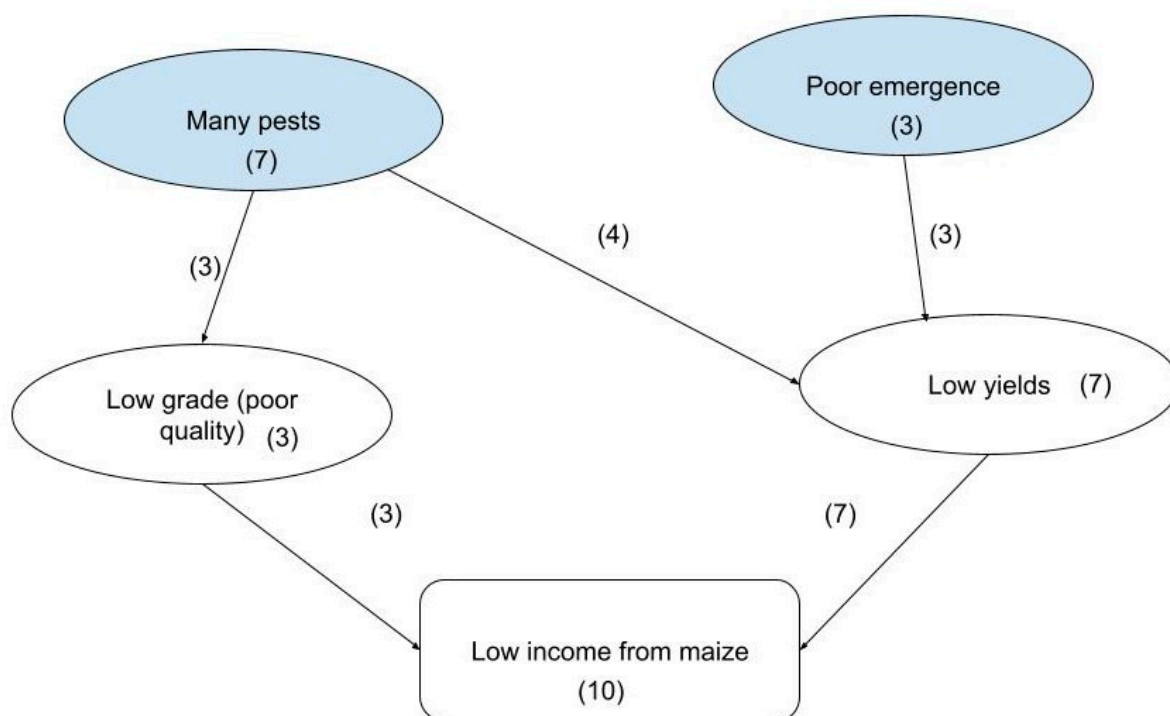


Figure S 1: An example of a Scored Causal Diagram at the end of the scoring process

**(Stop audio recording)**

-----BREAK FOR 10 MINS-----

## PART 6: SCORING THE CAUSAL DIAGRAM

- a) FACILITATOR: If there are two end problems for both crops, prepare 100 counters. Ask farmers to distribute the counters according to the importance of the end problems to them (NOTE: increase the counters appropriately depending on the number of end problems). Ask farmers: 'Looking at these end problems, which once are the most important to you? Can you distribute these counters by the level of their importance to you? (SWAHILI: Je, katika hizi changamoto kuu katika mashamba yenu, je mnaweza gawa hivi vizibo kuonyesha ipi ni changamoto ya muhimu kwenu zaidi?)
- b) Ask farmers to distribute the counters according to the relative contribution of 'causal'<sup>1</sup> risks on the 'effect' risk. Relative contribution of a risk on causing another risk means the extent at which one risk causes another risk.
  - o **Question to use during scoring process:** Can you distribute the X counters in the different causal risks depending on the extent at which it causes (or, depending on its relative contribution in

<sup>1</sup> A 'causal' risk refers to the risk at the start point of an arrow, while the 'effect' risk refers to the risk at the end point of an arrow.



causing) the effect risk? (SWAHILI: Tumeona jinsi changamoto zinavyotegemeana na kuwa sababishi kwa zingine. Je, mnaweza kugawa hizi vizibo katika ya hizi changamoto sababishi kuonesha ni sababishi gani zenye uzito zaidi na zipi zina uzito mdogo katika kusababisha changamoto husika?)

## **PART 7: DISCUSSION AFTER THE SCORING OF THE CAUSAL DIAGRAM** (Start audio recording – label recording as Session 3 of the focus group discussion)

FACILITATOR to explain the meaning of the diagram i.e. the links in the diagram and the meaning of the scores in the diagram. Facilitator to ask farmers to identify the root problems for their outcomes of interests from the scored causal diagram, and any possible solutions to them as follows:

- i. Can you identify the major problems from this diagram? (SWAHILI: Sasa tumeona jinsi gani hizi changamoto zinavyotegemeana. Je, mnaweza tambua changamoto kubwa kutoka katika hili jedwali?)
- ii. Can you identify the 'root' problems for the outcome of interest X? (SWAHILI: Je, mnaweza kutambua ni zipi vyanzo vya changamoto zote?)
- iii. What is the most important 'root problem' of all these problems? (SWAHILI: Je, zipi kati ya hizi vyanzo vya matatizo/changamoto ni muhimu zaidi?)
- iv. What is a possible management strategy for root problem A? (NOTE: When farmers are mentioning the management strategies, try to point to some strategies that are related to agroecology e.g. could the planting of trees help in managing risk X? etc.) (SWAHILI: Je, mbinu gani inaweza kutumika kutatua changamoto A (chanzo muhimu zaidi)?)
- v. How would this management strategy(ies) (highlighted in (b)(ii)) solve the end-problem X? (Let farmers discuss the logic of the 'identified solution' in solving the 'end problem'. Allow one farmer to describe the process) (SWAHILI: Je, mbinu hii mliyotaja inawezaje kutatua tatizo/kutotimia kwa lengo la zao hili mfano kutatua ukosefu wa chakula?)
  - o OR, ASK: Can you see identify a route to focus on in solving the problem on objective X? (Here we anticipate farmers will be eager to solve the big problems first)
  - o Are there alternative strategies for solving problem X? (NOTE: The reason for this question is to try to make farmers think of alternative strategies that are agroecologically-oriented, e.g instead of relying of fertilizers to use urine, etc.) (SWAHILI: Je, kuna mbinu mbadala za kutatua changamoto X?)

**(Stop audio recording)**

## **PART 8: INDIVIDUAL SCORING OF RISKS (2<sup>nd</sup> scoring)**

Facilitator to ask farmer X,

1. Looking at the scores you gave to the problems initially, do you want to change any of the scores? If yes, which ones? Could you put the new scores on them now? **SWAHILI:** Je, mkiangalia alama za awali kwenye changamoto hizo, kuna changamoto zozote mnazotaka kubadilisha alama zake? Kama ndio, ni changamoto zipi? Weka alama hizo mpya hapo?

**(Start audio recording – label as session 4 of focus group discussion)**

2. Why did you change the scores some risks? **SWAHILI:** Mkulima X, Kwa nini ulibadilisha alama kwenye baadhi ya changamoto? Kwa nini hukubadilisha changamoto kwenye alama zingine?
3. Why did you not change the scores of some risks? **SWAHILI:** Mkulima X, Kwa nini uliacha alama kwenye baadhi ya changamoto vilevile? Kwa nini hukubadilisha changamoto kwenye alama zingine?
4. Can you list the new risks on the sheet? **SWAHILI:** Mnaweza andika hizi changamoto zingine kwenye karatasi?
5. Could you assign scores to the other risks as well? **SWAHILI:** Unaweza weka alama kwa hizo changamoto mpya pia?

**(Stop audio recording)**

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## **DATA TO BE COLLECTED IN THE PROCESS**

- a) A list of risks identified before the process and after the process (This is necessary to show how looking at the interdependence helps a farmer examine other risks that might have been overlooked without the exploration of their interdependence)
- b) Farmers' individual scores of risks before the causal diagram (scores of 1 to 5: low threat to high threat)
- c) Farmers' individual scores of risks after the causal diagram (scores of 1 to 5: low threat to high threat)
- d) Farmers' reasons for the scorings of risks before and after the causal diagram (audio recordings)
- e) Notes on observations of group exercise of CD of risks
- f) Photos of groups' Scored Causal Diagrams + farmers participating in the activity

- g) Recording of the discussion of the root problems: What are the root problems? Why do they think they are the root problems? and how the proposed solutions will help solve the end problems? What have they learnt from the diagram and process of building it?
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**REFERENCE:**

Galpin, M., Dorward, P., & Shepherd, D. (2000). *Participatory farm management methods for agricultural research and extension: a training manual*. University of Reading.