

Game protocol – Administered in Malagasy and in Swahili

[first set up the seating, preferably forming a circle, read consent form, record participant names write their identifier codes on the score recording sheet, set up tablets, and put in participant identifier]

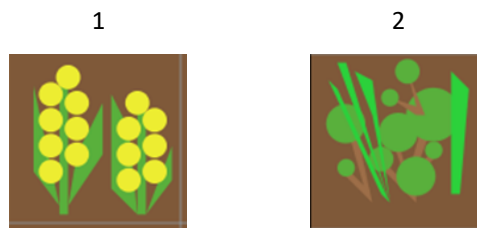
Hello, and thank you for being here today.

Today we are going to ask you to make land use decisions using a decision tool on tablet computers. You'll use such tool in groups of four, and each participant will have an equal share of the land in the game, a total of 9 squares. Your participation is voluntary, but we would really appreciate if you stay until the end as the sessions can't run without all four participants.

We are offering some gift items to thank you for your participation in today's experiment which should take about 60-90 minutes. In addition, the content of the gift items will depend on your management decisions in the decision tool, which we will explain in a moment. We'd really to encourage you to make decision as in real life and to make full use of this tool to express your land management preferences and views.

Do you consent to continue? If at any time you find that this is something that you do not wish to participate in for any reason, you are of course free to leave whether we have started the experiment or not.

In each of those squares, you can do one of two things:



1. Farm the square for your private business
2. Leave the forest/fallow land as is

Each of you will take responsibility for land use decisions on a 3 x 3 grid-cell section (farm) of a 6 x 6 grid-cell agricultural landscape as shown in the following figure.

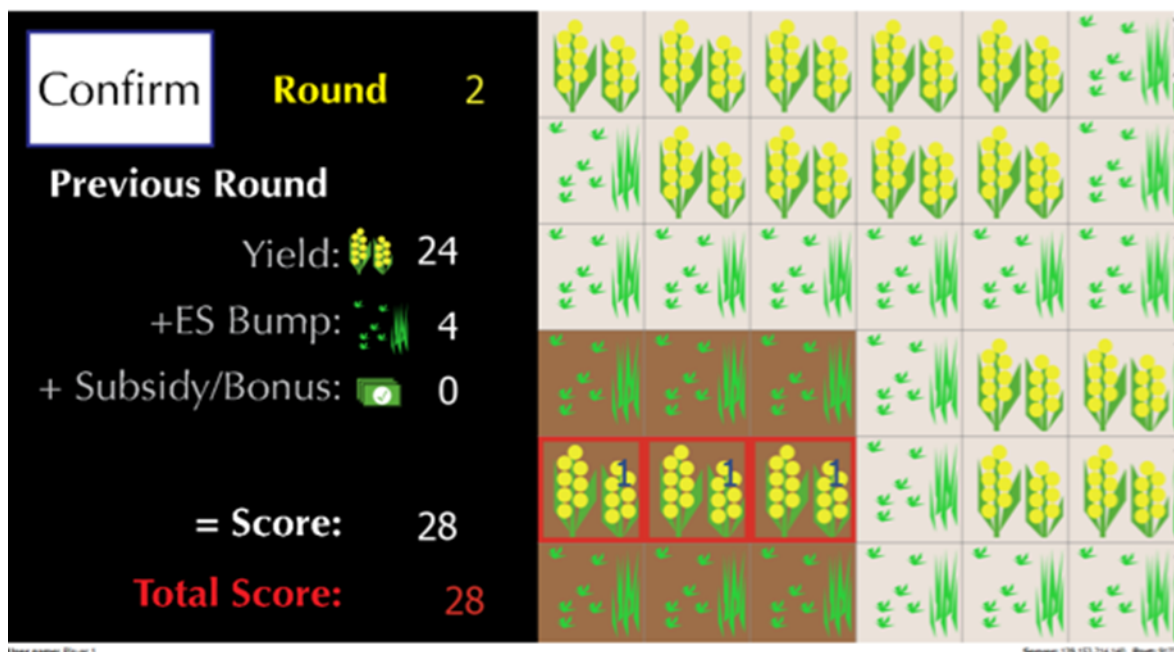


Figure: Bottom left corner of the landscape is active participant

As you can see in your handout, each of these two options has different benefits and costs. Let me introduce each of them in turn.

You don't need to memorize this – you can use the handout as a reference while you play the game [*hand in the handout now*].

At the start of each round, the default land use options on all 36 grid cells are forest/fallow lands (option 1). If you decide to farm on a given cell, then you will get a yield of +12, but if you choose to farm the same cell in two consecutive rounds, the yield goes down to +10 on the third and onward rounds. This is very similar to soil fertility in traditional swidden agricultural systems [*use local language*], the first two years, the yield is good but then it declines the following years.

To get the fertility of a cell back to +12, you must not to cultivate the cell for two consecutive rounds at least. Leaving the forest/fallow land as is brings no yield. However, the neighbouring farmed cells will gain more yields of +1 from the ecosystem services from the forest/fallow land. This to illustrate the benefits that forests provide to your farmlands, such as protection against soil erosion and water regulation.

In some of the game sessions that we are going to play today, a subsidy (of different amounts) and/or bonus is given for every forest/fallow land in the landscape. You can think of it as a reward that the richer countries offer you for protecting these forests. You can also interpret it as a compensation for the fact that you cannot cultivate and harvest crops.

You can cycle through the choices for each square by clicking on the square itself, and we'll practice that in a minute. When you've decided, you can click 'Confirm' and wait for the other participants to confirm. Once everyone has confirmed, the round is over and the "score" (i.e., the total points earned) is calculated for each cell based on your choices in and around the cell, and the process is repeated in the next round.

You will be permitted a period of discussion (2-3 minute) before you make your individual decisions at the beginning of each round. You will make decisions simultaneously on your land squares and will see at the end of each round what has happened across the whole landscape, and what yields are achieved in each square. Although you can observe other participants' decisions on your own screen, you won't be able to match these decisions to the individual (i.e., you won't know which score is whose participant).

One other note – you can change any of the 9 squares to any of the two land use choices you like, in each round.

So just to review, farming brings a yield of +12. Farming for two consecutive rounds reduces yield to +10, and to get the yield back up to +12, the cells will should not be farmed for two consecutive rounds. Leaving forest/fallow lands bring no yield but they increase yield in the adjacent cells by +1.

After I have finished the explanation we will play a short practice game to help you to understand the process.

PRACTICE [GP]

We'll just play a few short rounds now so that you get comfortable with the rules of the game. I'll walk you through the first turn so you can see how it goes, and you can ask me questions during your turn or between rounds. I encourage you to use the practice session as an opportunity to explore different options and see what happens. Feel free to discuss with others, but please do keep your screen to yourself.

[walk through a 3-round practice game]

Got it? *[answer any follow-up questions]*

Ok, let's move on to the experiment.

We are going to play four different sessions, each one of which will differ a little bit, and might change a bit from what we've done in the practice.

Now, as you make your decisions, we'd like you to maximize your utility (or "do well") by trying to earn points, and that's where the gift items come in. At the end of the session, we'll record the score for each participant on the paper and pick one of the four games that you played randomly and look at the total score. The gift items that you will each receive equally will be based on that total score.

Most importantly, we want your decisions to reflect what you would do in real life.

Ok, let's begin.

[Each game group will play four treatments; the order is randomised across groups. Thus, the four treatments can be introduced in a way that does not depend on other treatments having been played first. Participants are free to discuss with others, but please do keep their screens to themselves]

I) Treatment T1: Individual property rights, no subsidy (6 rounds)

Each participant is endowed nine fallow forest patches (3x3 grid-cell section of the 6x6 grid-cell agricultural landscape) on which they can make land use decisions (figure 1). There are two main land use decisions available to each participant, farm or fallow. So, in this session, you can be confident that your household legally own a piece of forest plot, with a legal title. You fully own such plot; you don't share it with others, and you are totally free to decide what to do on it.

No subsidy is offered for conserving fallow lands.

II) Treatment T2: Individual property rights with subsidy (6 rounds)

Each participant is endowed nine fallow forest patches (3x3 grid-cell section of the 6x6 grid-cell agricultural landscape) on which they can make land use decisions. There are two main land use decisions available to each participant, farm or fallow. The same procedure in T1 applies here. That is, you can be confident that your household legally own a piece of forest plot, with a legal title. You fully own such plot; you don't share it with others, and you are totally free to decide what to do on it.

Now, a randomly assigned flat subsidy is offered to fallow lands. You can think of it as a reward that the richer countries offer you for protecting these forests. You can also interpret it as a compensation for the fact that you cannot cultivate and harvest crops.

III) Treatment T3: Common access (shared space) without subsidy (6 rounds)






All four participants can access any cells in the agricultural landscape, this mimics situation where you collectively own and manage forested lands. A cell that is farmed by one participant can no longer be farmed by another participant (cells are allocated on a first come first serve basis during the round). You can choose to farm the same cells in subsequent rounds or move to other cells (in which case the cell becomes available to other players). However, each of you can farm a maximum of 9 cells. So in this session, your community legally owns a communal forestland, and each community member can access an equal share of plots within that forestland. These plots do not all have to be in the same location, you are free to discuss among yourselves how you are going to go about it.

No subsidy is offered for fallow forestlands.

IV) Treatment T4: Common access (shared space) with subsidy (6 rounds)

All four participants can access any cells in the agricultural landscape, this mimics situation where you collectively own and manage forested lands. A cell that is farmed by one participant can no longer be farmed by another participant (cells are allocated on a first come first serve basis during the round). You can choose to farm the same cells in subsequent rounds or move to other cells (in which case the cell becomes available to other players). However, each of you can farm a maximum of 9 cells. So in this session, your community legally owns a communal forestland, and each community member can access an equal share of plots within that forestland. These plots do not all have to be in the same location, you are free to discuss among yourselves how you are going to go about it.

Now, a randomly assigned flat subsidy is offered to fallow lands in the landscape and the total amount will be shared equally by the four of you. You can think of it as a reward that the richer countries offer you for protecting these forests. You can also interpret it as a compensation for the fact that you cannot cultivate and harvest crops. So here whether you farm less or more, everyone will get the same share as the forestland is owned collectively.

	1. FOREST LANDS / FALLOW LANDS 	2. FARMLANDS 	
		MORE FERTILE	LESS FERTILE
YIELD 	0	12	10
ECOSYSTEM SERVICES 	+1 FOR NEIGHBOURING FARMLANDS (perimeter of 2 squares)	-	-
SUBSIDIES 	VARIES	0	0

I. **SCORE = YIELD + ECOSYSTEM SERVICES + SUBSIDIES**