**“Money Growing on Trees” Instructions**

**Overview:**

You are a household in the beautiful, but low-income, tropical country of Ephoria. You live in a rural area on the margin of a forest. There used to be much more forest and many fewer people living in this area, but expansion of urban areas and agriculture over the last few decades has put a bit of a crunch on your local area (even though it is not geographically close to urban centers).

You and the members of your small, traditional community support yourselves primarily through small-scale agriculture in your garden plots (subsistence farming) and from harvesting wood and non-timber forest products such as fruits and nuts, medicinal plants, fish and game, and bark and fibers from the local forest. You use the wood you harvest from the forest for cooking and heating, but this harvest contributes to climate change and deforestation. If you don’t harvest wood and materials from the forest, you either do without or buy replacement food and fuel on the market.

You were randomly given a playing card at the start of this session. The number on this card (1-10, or Joker or a face card) indicates the benefits your family gets when you harvest from the forest. Harvest values vary for many reasons: different parts of the forest yield different harvestable goods, some households have more family members (e.g., children or aging relatives) to support, and some households have better access to other opportunities to earn income, for example. If you got a number card, then your value for harvesting is usually $10 times the number on your card. If you got a Joker or a face card, then your value for harvesting is $0. Note the forest is commonly owned, but is so large that your harvest doesn’t affect that of your community members right now, and vice versa.

To fight deforestation and raise revenue, policymakers in your country have decided to experiment with payments for ecosystem service (PES) schemes through the UN’s REDD+ program. Local households and/or communities will make contracts with the country’s REDD+ Secretariat. Then people or firms outside the country, typically in developed countries, will “buy” units of avoided deforestation from Ephoria to offset their greenhouse gas emissions.

In this session, we will play through contract periods of several different REDD+ situations. In each period, you must make a decision: whether to enter into a REDD+ contract, which will prohibit you from harvesting wood the forest. You may have another decision to make as well. You will have earnings that will depend on your choices, in some cases the choices of other households, and in some cases on chance. However, if your earnings are not at least $75 in a period, then you and your family are unable to eat for a day, which means that any babies in the family will cry all night and your life will be pretty unpleasant.

At the end of the session, we will pick one or more participants who will earn actual money equal to the sum of their earnings in all rounds divided by $100. Since real money is on the line, you should play close attention and be sure to make the decisions that you really want to make!

**Your earnings:**

In each contract period, your earnings are:

Earnings = Farming Income + REDD+ Payments + Forest Harvesting – (Policing or Fines)

Farming Income: this comes from your subsistence farming on the plot of land in your yard. Except when otherwise noted, this is $70.

REDD+ Payments: if you enter into a REDD+ contract, you get a REDD+ payment from the REDD+ market. Except when otherwise noted, this is $50. You can think of this as including both the money from REDD+ and any additional value (e.g., labor earnings) you get from the time that has been freed up that you would have otherwise spent harvesting from the forest.

Forest Harvesting: if you enter into a REDD+ contract, you agree not to harvest wood from the forest. If you don’t enter into a REDD+ contract, except as noted, you earn an amount from harvesting equal to $10 times the number on the card you were dealt or $0 if you got a Joker or face card.

(Policing or Fines): these do not apply in periods in which fraud is impossible. When fraud is possible, you may incur additional costs from fines or to finance policing.

**Contract Period 1: Baseline**

Earnings and decisions are exactly as described above. If you decide to enter into a REDD+ contract, you must not harvest wood. (All REDD+ parcels are audited and monitored to ensure zero harvesting; this is true in all contract periods except as otherwise noted.)

**Contract Period 2: Baseline + Fraud**

Everything is as in Baseline except that you can commit fraud by entering into a REDD+ contract and then harvesting wood anyway. Each parcel in a REDD+ contract will be audited with a 25% likelihood. If you are audited and found to be harvesting, you will not receive your REDD+ payment and you will have to give up your harvest, and you will be fined $70.

**Contract Period 3: Harvest Uncertainty**

There is a plague of locusts this year, so the forest is very rich in some areas but terrible in others! Each household that tries to harvest has a 50% chance of getting $20 times the number on their card and a 50% chance of getting $0. The plague will strike after you have decided whether to participate in REDD+. Otherwise the period proceeds like Baseline.

**Contract Period 4: Auction**

Instead of declaring whether to enter into a REDD+ contract at a fixed price, you will instead declare the price at which you would be willing to enter into a REDD+ contract. The lowest 50% of the bids will be given REDD+ contracts, and they will be paid an amount equal to the lowest bid that was *not* accepted. The households with higher bids will not have REDD+ contracts and may instead harvest wood from the forest.

**Contract Period 5: Community Contract**

You will be randomly grouped into one of six small communities. As a group, you must discuss and decide whether to enter your community’s forest into a REDD+ contract, at a payment rate of $50 per household. You must figure out amongst yourself how to decide (e.g., majority vote, consensus, etc.) and, if you enter into a contract, how to divide the REDD+ payments among yourselves. If a community enters into a REDD+ contract, *no-one* in the community can harvest wood from the forest.

**Contract Period 6: Community Contract + Fraud**

You will be in the same community as before and again decide collectively on whether to enter into a REDD+ contract and, if so, how to share REDD+ payments. But individual households in the group can now commit fraud: they can secretly harvest from the forest even though their community has entered into a REDD+ contract.

The community can collectively choose to police itself. If it does, each household pays $5 and all member households will be monitored by trustworthy locals. This monitoring prevents illegal harvest because potential fraudsters are totally deterred from entering the forest.

If the community does not police itself, there is a chance it will be audited by the REDD+ Secretariat. The audit likelihood increases by 10% for each person in the community who commits fraud, because more harvest makes it easier to detect. Note that auditing happens at the community level: an entire community is either audited or not. If it is audited and fraud is found, no-one in the community will get REDD+ payments or harvest value (harvested wood must be returned), and each member of the community will be fined $70.

So the order of actions for this contract period is:

1. Community decision: Join REDD+ or not?
2. If REDD+: Community decision: Engage in policing or not?
3. If no policing: Household decision: Conduct fraud or not?
4. Government action: each unpoliced REDD+ *community* audited with probability 10% times number of people committing fraud

**“Money Growing on Trees” Recording Sheet**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

My harvest value (playing card 1-10 or J (for joker or face card)):

My ID number (1 to # participants) from spreadsheet:

My decisions and my earnings (fill in the table below as the contract periods progress):

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CP** | **Conditions** | **CHOOSE:**  **Bid** | **CHOOSE:**  **REDD+?** | **CHOOSE:**  **Fraud?** | **Audited?** | **A**  **Farming Income** | **B**  **REDD+ Payment** | **C**  **Forest Harvesting** | **D**  **Policing, Fines, etc.** | **Earnings=**  **A+B+C-D** |
| 1 | Baseline |  | Y N |  |  | $70 | $ | $ |  | $ |
| 2 | Fraud |  | Y N | Y N | Y N | $70 | $ | $ | $ | $ |
| 3 | Uncertainty |  | Y N |  |  | $70 | $ | $ |  | $ |
| 4 | Auction | $ | Y N |  |  | $70 | $ | $ |  | $ |
| 5 | Community |  | Y N |  |  | $70 | $ | $ |  | $ |
| 6 | Comm + Fraud |  | Y N | Y N | Y N | $70 | $ | $ | $ | $ |
|  |  |  |  |  |  |  |  | TOTAL | $ | $ |

(Reminder: if in some round you commit fraud, are audited, and are fined, cross out your B and C columns for that round – their values are zero if you are caught cheating on a contract!)