



## SDEV UN2300 Challenges of Sustainable Development--Recitation Worksheet

### Your Mission

In a virtual world of extreme poverty, disease, and environmental variability, you must help a family of two (Kodjo and Fatou) survive and prosper over a fifty-year period.

### How to Play

You will need to make decisions about your family's time and money (under the "family actions" tab) and your village's policies (under the "village actions" tab). The simulation ends when all of your family members perish, or when you have completed 100 turns. You earn points based on your family's prosperity.

### A Few Pointers

Keep the following points in mind as you start to make decisions for your family and village.

- You need 3 basic resources to survive: raw food, cooking fuel, and drinking water.
- You can obtain raw food by growing your own food, going fishing, or generating enough income to purchase food.
- You can cook your food using fuelwood you have collected or a propane stove.
- You must spend some time collecting drinking water unless your village has a water pump.
- Rainfall varies each season, and there is always a risk of drought.
- Your village is vulnerable to malaria epidemics.

### Setting Family and Village Actions

A summary of the types of decisions you can make in the control panel is detailed below.



- If subsistence not met previous season, decide how to divide food among family members

#### ► Manage Family Members

- Decide whether to send individual family members to see a doctor to improve health
- Adjust daily hours of labor for each family member (max for non-pregnant adult = 12 hours)
- Once Fatou has attained the age of 20, she can attempt to have a child

#### ► Manage Family Effort

- Divide family labor: farming, fishing, fuel wood collection, water collection, small business
- If you choose to farm, decide for each plot whether to plant maize or cotton
- Total family labor = combined labor of all family members. You start the simulation with 2 adults, each capable of working 12 hours per day for a total of 24 hours of family labor

#### ► Family Finances

- Available family finances: loans from microfinance bank and income from productive tasks
- Invest in capital for a small business., which increases your small business returns
- Borrow money from the microfinance bank (to invest in capital or increase your family fund)

#### ► Buy / Sell Family Improvements

- You can use your family fund to buy family improvements
- Fertilizer improves your maize and cotton yields
- High yield seeds improve your maize yields
- A boat and/or dragnet improve your fishing yields
- Improved wood stove/propane stove and tank reduces/eliminates fuel wood consumption
- A bednet may protect your family in the event of a malaria epidemic

#### Family Actions

#### Village Actions

#### ► Buy Village Improvements

- You can use the village fund to buy village improvements.
- Many of the village improvements are costly, so your village may receive an offer of aid to help it acquire an improvement.

#### ► Implement Policy

- Limit the number of fish a family can catch in a season
- Limit the amount of fuel wood a family can collect in a season
- Increase the value of the village fund by adjusting the tax rate

## Part I: Staying Alive

1. Go to <https://mvsim.ccnmtl.columbia.edu/> and log in with your Columbia UNI
2. Click the button to “**begin a new game**” in the bottom left corner.
3. Select “Default Starting State” from the dropdown menu and click “**Start Game**”
4. Run scenarios for each of the following:
  - a. **grow cotton only** (no maize, no fishing)
  - b. **engage in fishing only** (no cotton, no maize)
  - c. **grow maize only** (no cotton, no fishing).

You can choose whatever you prefer on all other family and village decisions.

5. Click the “**End turn**” button to apply your decisions to the next growing season. Your game will advance by 6 months and you’ll be shown a report summarizing results from the season, including your family’s harvest and financial accounts. In order to take the next turn, you must close the report.
6. Repeat steps 5 and 6 for three more turns (or until the game ends, whichever comes first). Use the vital statistics from your last report to fill in your line of the table below.

	# of turns	Population		Assets		
		Family	Village	Family Fund	Village Fund	Small Business Capital
Cotton						
Fishing						
Maize						

7. Answer the following questions:
  - Were you able to survive 4 turns in each case?
  - Which strategy worked out best and why?
  - Name 1 change in village conditions that you think would affect the best choice.

## Part III: Discussion

- What did you think of the game (including the types of decisions you could make)?
- How does it relate to things we've discussed in class? Think about the following prompts:
  - Fishing effort
  - Taxes
  - Poverty traps
  - Culture
  - Population
  - Environment/resources