INSTRUCTIONS FOR THE IRRIGATION GAME

Baseline Phase - No Variability

This exercise is intended to recreate a situation in which people must make decisions about using water to irrigate land. You have been selected to participate in a group of five individuals. You will play several rounds, each of which is roughly equivalent to an agricultural year or irrigation season.

In each round, you will have to make two decisions. First, each of you will have to decide how much to contribute into a public fund to maintain the irrigation canal. The sum of all the contributions to the fund will determine the quantity of water units that will be available to your group. In the second decision, you will take turns extracting water units from the system. Each unit you collect during the game is equivalent to 5 cents. For example, if you collect 200 units during the game, you will receive $10.

We will now discuss the first decision in detail. Each round, you will begin with 10 units to spend. You have to decide how many of those units to contribute into the public fund and how many to keep for yourself. You can think of this as the amount of labor you might invest into the maintenance of the irrigation system. The amount of effort you may contribute is between 0 and 10 units. You will enter your contribution quantity onto your Decision Form in Column A.

We will write down your contribution decision and calculate the quantity of water units available to the group using the TABLE OF AVAILABLE WATER QUANTITY, which you have for reference. This payoff table shows you how the available water quantity is calculated based upon the size of the public fund, from your contribution and those of the other 4 players in your group.

Once we have recorded your contribution decisions and calculated the quantity of available water, we will write that quantity onto your Decision Form in Column B.

So, for example, if everyone were to contribute 2 units to the public fund and kept 8 units for themselves, no water would be available to be distributed to the group. As a result, everyone would end up with 8 units at the end of the round.

In another example, if everyone were to invest 10 units into the public fund, 100 units of water would be available to be distributed to the group.

Keep in mind that decisions are private, and everyone can decide how much they want to invest into the public fund.

Once the total water quantity has been written onto your decision form, each individual in your group will take turns in deciding how much water to extract from the irrigation system. In this experiment, everyone has the same size of land to be irrigated. The amount of money that you will earn is directly dependent upon the amount of water you take from the system.

After you signed in today, you drew a random card labeled with your group number and a letter, A, B, C, D, or E. That card determined your position within your group.

Your group will take turns in deciding how much water to take for irrigating their land. These turns are determined by the letter of the card you received, which indicates your position in the irrigation system.

This means that first, player A decides how much water to take and writes down that decision onto the Decision Form in Column C. We will record that decision and subtract the taken water from the available water for player B. We will write down the remaining available water quantity and show this number to player B so they can take their turn and decide how much water to take. Each player takes their turn in this manner until player E has written down their decision.

[example: The instructor shows what happens if first player A takes from the pool, then B, etc.]

You may keep track of your earnings each round by filling in Columns D and E on your Decision Form. Column D is the amount of units you kept for yourself instead of investing into the public fund. Column E is your earnings for the round, which is the sum of the water you extracted plus the units you kept in the first decision.

The next round begins with your decisions on the contributions to the public fund as in the previous round.

It is very important to keep in mind that your decisions are absolutely individual. This means that the numbers you write down on the forms are private and you must not show them or discuss them with the other members of the group.

Are there any questions about this? *[MONITOR: pause to resolve questions.]*

Remember that the units you earn depend on your own decisions, and they will become money at the end of this exercise.

Keep in mind that from now on you are not allowed to talk unless I give you permission.

We will have one practice round that will NOT count for your real earnings. It is just an opportunity for you to familiarize yourself with the game. For this practice round, contribute 5 units into the public fund.

We will now record your contribution decisions.

Because everyone contributed 5 units, resulting in 25 units in the public fund, 40 units of water are available to the group.

Now you will take turns in deciding how much water to extract from the system, beginning with player A.

We will now start the actual experiment

[continue with phase.]

Low Variability Phase

It is time to make one change to the game. A new payoff table will be handed out. Now, each round has the possibility of having a low, medium, or high level of rainfall, which will affect the amount of water that the irrigation system can produce. Medium rainfall produces the normal amount of water in the irrigation system as was used in the previous rounds. However, if a round has low rainfall, the amount of water generated for a given quantity of contributions will be lower than in a normal round. If the round has high rainfall, the amount of water generated will be higher than normal.

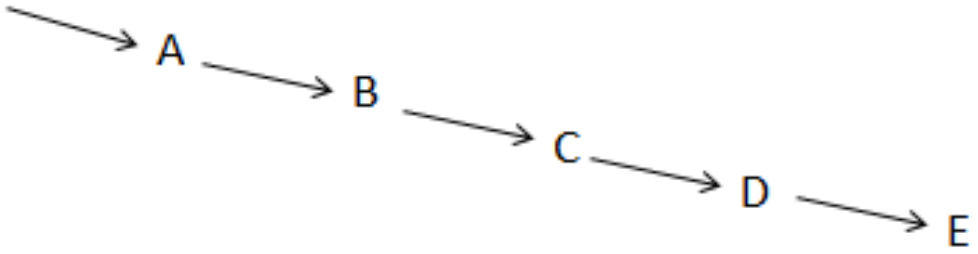
After all contributions into the public fund have recorded, the rainfall level will be announced. To determine whether each of the upcoming rounds will have low, medium, or high rainfall, a 6-sided die was rolled and recorded. If the die was a 1, the round will be a low rainfall. If the die was a 6, the round will be a high rainfall. If the die was a 2 through 5, then the round will be medium rainfall. Therefore, there is a 1 in 6 chance for a round to be low rainfall, 1 in 6 chance for a round to be high rainfall, and a 4 in 6 chance for a normal month. After the rainfall level is announced, the amount of water available to the group will be written onto your decision forms, and the second part of the round will continue.

High Variability Phase

It is time to make another change to the game. We will continue to use the same payoff table as before, but this time, if the die was a 1 or 2, the round will be low rainfall. If it was a 3 or 4, then the round will be medium rainfall, and if the die was a 5 or 6, the round will be high rainfall. Each type of round has an equal chance of 1 in 3 in occurring. After the rainfall level is announced, the amount of water available to the group will be written onto your decision forms, and the second part of the round will continue.

Information provided to Participants: Table of Water availability

Table of available water quantity			
Total units invested in the public fund by all 5 players	Water available		
	Low	Middle	High
0-10	0	0	0
11-15	2	5	8
16-20	8	20	32
21-25	16	40	64
26-30	24	60	96
31-35	30	75	120
36-40	34	85	136
41-45	38	95	152
46-50	40	100	160



Participant Decision Form

Player no:			Time:		
Capital letter:			Date:		
Round	My Decisions				
	A	B	C	D	E
	Contribution	Water for group	Amount extracted	Amount kept = 10-A	Earnings: C+D
Practice					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					

INDIVIDUAL SURVEY

Participant ID:

1. How old are you? years

2. Sex ☐ Male ☐ Female

3. What is your major?:

4. Year of study (chose one option)
☐ 1. Freshman
☐ 2. Sophomore
☐ 3. Junior
☐ 4. Senior
☐ 5. Graduate student

5. How satisfied were you with the earnings during the exercises?
☐ 1. I was completely dissatisfied
☐ 2. I was not satisfied
☐ 3. I was somewhat satisfied
☐ 4. I was satisfied
☐ 5. I was very satisfied

6. Did you understand the instructions of the exercises?
☐ 1. I did not understood anything
☐ 2. I did understand only a bit of the instructions
☐ 3. I did understood half of the instructions
☐ 4. I did understood most of the instructions
☐ 5. I did understood everything

7. Have you ever voted in an election (including student governance elections)?
☐ 1. yes
☐ 2. No

8. Global warming is a fact and is mostly caused by emissions from vehicles and industrial facilities.
☐ 1. I completely agree
☐ 2. I somewhat agree
☐ 3. I have no opinion
☐ 4. I somewhat disagree
☐ 5. I completely disagree

SEE ALSO THE BACKSIDE

9. The federal Government should manage the U.S. economy.

☐ 1. I completely agree
☐ 2. I somewhat agree
☐ 3. I have no opinion
☐ 4. I somewhat disagree
☐ 5. I completely disagree

10. Tell me whether the first statement or the second statement comes closer to your own views — even if neither is exactly right.

☐ 1. Most people who want to get ahead can make it if they're willing to work hard

OR

☐ 2. Hard work and determination are no guarantee of success for most people

11. Tell me whether the first statement or the second statement comes closer to your own views — even if neither is exactly right.

☐ 1. The government should do more to help needy Americans, even if it means going deeper into debt

OR

☐ 2. The government today can't afford to do much more to help the needy

12. Aside from weddings and funerals, how often do you attend religious services

☐ 1. More than once a week
☐ 2. Once a week
☐ 3. Once or twice a month
☐ 4. A few times a year
☐ 5. Seldom
☐ 6. Never

13. How important is religion in your life

☐ 1. Very important
☐ 2. Somewhat important
☐ 3. Not too important
☐ 4. Not at all important
☐ 5. Don't know

14. Please provide any comments on the experiment you have.

_____
_____