

Instructions for the water allocation game

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This game uses the AiA mechanism:

<http://www.aguanomics.com/2012/12/all-in-auctions-is-published.html>

The game can be played with three variations:

Drought game: Need to BID high to win, unit-by-unit, e.g., A bids 6 and 4 for first two units. Price paid equals clearing price.

Pollutant game: Same bidding for different function: right to emit units of monitored pollution

Flood game: need to OFFER low to "win" but in blocks of ALL units by type, e.g, A offers 20 (>16) to remove 5 units of land from production (allow it to be flooded). Endowments add up to land that can be "saved" by paying the clearing price (30 players, 2 units on average means 60 units saved, out of 120 total units). In this game, players BEGIN with the right to keep land in production (they earn values by type), but they must PAY according to their endowment (i.e., it's really a tax). 60 units will be paid and offers for the lowest 60 units to be flooded will be paid out (may require an arbitrary rounding decision at/near the 60 unit line due to "chunky" land sizes). The other 60 units that are not flooded produce according to type values. NB: Strategies: A types offer at least 16 (3.2 per unit); B at least 18 (4.5/unit); C and least 26 (8.66/unit).

The table on the next page should be printed/cut up/distributed to players.

Left 3 columns: Types (A, B, C in upper right corner) have numbers for values in each game.

Right 3 columns : User ID on upper right and units endowed (middle)

Running the game

1. Types and endowments are issued. They can be shuffled in each round (try endowments first, to help them understand how outcomes should NOT change but cash flows will)
2. Participants keep score on a sheet that shows round #, final price, endowment, units bought, cash out (bought*price), cash in (endowment * price), net cash, value of units bought, and total profit (net cash + value of units)
3. In set up round, have participants calculate profit without trade and unlimited water. Then calculate profit if water is limited to endowment, THEN go to AiA, i.e.,
4. Participants bid on small pieces of paper (last page) with their bid in center and User ID (1-30) on upper right. The moderator collects, sorts and accepts highest n bids (n = total water).
5. Participants can issue new bids, to win more units (others who do not bid more will lose their winning bids. Stop when there are no new bids (or no more time)
6. Calculate profits and compare to unrestricted and restricted profits from (3).
7. Discuss value of markets and/or strategies for doing better.
8. Email me (dzetland@gmail.com) with your feedback!

6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	0	1	2	3
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	3	4	5	6
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	1	7	8	9
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	4	10	11	12
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	2	13	14	15
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	0	16	17	18
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	3	19	20	21
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	1	22	23	24
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	4	25	26	27
6 4 3 2 1	A	8 5 3 2	B	10 9 7	C	2	28	29	30

User ID: _____

Endowment (units): _____

1) Profit with unlimited water: _____ (= max profit, or 16 for A-Type, 18 for B-type, 26 for C-type)

2) Profit with **limited** water: _____ (=min profit, use endowment on some land; rest of land makes 1)

3) Profit from All-in-Auction

A. Endowment	
B. Units bought	
C. Net units (A-B)	
D. Final price	
E. Change in cash (C*D)	
F. Profit from land (use B)	
Total profits (E+F)	

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