THE WATER SECURITY GAME – CAMBODIA

MODERATOR GUIDE

INTRODUCTION

PREMISE: Each player, which may be an individual or team, represents a small community in rural Cambodia. Players must make decisions on water and land uses that balance community well-being and watershed environmental sustainability. These decisions determine overall resilience as well as the gains and losses of income (cash tokens) and water resources (water tokens).

HOW TO WIN: The player with the most cash and water tokens after four rounds wins the game.

KEY THEMES: Throughout the game, moderators should expect to discuss the following key themes:
1. Water security interventions and their associated costs and benefits for communities
2. Land use decisions and their impacts on natural resources and sustainable livelihoods
3. The balance between managing natural resources and sustaining incomes

GAME SET-UP

MODERATOR(S):
- Distribute cash and water tokens to players
- Keep record of water and cash token totals for each player in score table
- Facilitate player discussions on water resources management and land use decisions at the end of each round and discussion on who won the game at the end of the game

PLAYERS (3):
- Represent a community as an individual or in teams
- Decide on water and land uses based on available cash and water tokens

EQUIPMENT:
- 3 game boards
- 240 water and cash tokens (print 4 copies)
- 6 types of land use cards (print 10 copies)
- 5 types of water security activity cards (print 10 copies)
- 1 6-sided dice
- Community and watershed chance cards
- 1 upstream river basin card and 2 downstream river basin cards

KEY CONCEPTS

CASH TOKENS: represent money. Players earn cash tokens from land use or chance cards and spend them on land use changes, community livelihood needs, water security activities, disasters, chance cards, or a water deficit.

WATER TOKENS: represent water security.[1] Players receive a fixed number of tokens from the moderator each round and otherwise can gain water tokens from land uses, water security activities, or chance cards, and may lose water tokens to cover land use requirements, community water needs, disasters, or chance cards.

LAND USE CARDS: represent six land uses. Each has a unique initial cost in no cash tokens which players pay to change land uses, and unique positive earnings in cash tokens. Land uses also positively or negatively impact water tokens, depending on the type and whether players place the card close to or far from the river on the game board.

For certain land uses (forests and plantations) cash and water impacts increase after one round of keeping the land use.

WATER SECURITY ACTIVITY CARDS: represent five water security activities[2]. Each generates water token benefits which players receive the round of purchase and in following rounds. Water security activity cards also are associated with a one-time cost in cash tokens and give players resilience points (in categories of flood, drought, and water-borne disease) to protect players against disasters.

For certain water security activity cards, there are limits to how many can be purchased during the round or during the game, reflecting water scarcity restrictions.

DISASTER DICE: determines which disaster (flood, drought, or water-borne disease) will affect players each round, with negative impacts on cash and water tokens. To avoid disaster impacts, players need a minimum number of resilience points relevant to the specific disaster. If the player does not meet resilience requirements, there are negative water and cash token impacts. When you roll a normal dice 1 and 2 represent disease, 3 and 4 drought, and 5 and 6 flood.

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[1] SWP defines water security as "the adaptive capacity to safeguard the sustainable availability of, access to, and safe use of an adequate, reliable and resilient quantity and quality of water for health, livelihoods, ecosystems and productive economies."

[2] Water security activities fall at various levels on drinking water ladder, ranging between surface water, unimproved, limited, basic, and safely managed water. See the JMP Drinking Water Ladder, found at https://washdata.org/monitoring/drinking-water.

COMMUNITY CHANCE CARDS: represent environmental, political, social, or other events that have positive or negative impacts on cash and water tokens depending on a player's water tokens, land uses, and water security activities. Each player draws one each round.

RIVER BASIN CARDS: represent a player's downstream or upstream location.

WATERSHED CHANCE CARDS: represent environmental, political, social, or other events that have positive or negative impacts on cash and water tokens. Players exchange cash and water tokens depending on whether they are upstream or downstream from other players. A player's upstream or downstream location is determined by a river basin card, which players draw before the first round. Only one watershed chance card is drawn per round which impacts all players.

The table below summarizes some of the game's key concepts, showing how players can gain or lose water tokens, cash tokens, or resilience points through chance cards or their decisions:

CONCEPT	EARNINGS/BENEFITS	COSTS/IMPACTS
CASH TOKENS	Land uses, chance cards	Switching land uses, water security activities, chance cards, disasters, community livelihood costs
WATER TOKENS	Water budget, land uses, water security activities, chance cards	Land uses, chance cards, disasters, community livelihood needs
RESILIENCE POINTS	Water security activities	(N/A: Resilience points cannot be lost once earned)

MODERATOR INSTRUCTIONS

SETTING UP:

1. **Introduction:** Describe the game to players, touching on the premise, how to win, and the key themes that run through the game. Emphasize that players will need to balance cash and their water tokens through their decision-making. Run through the key concepts briefly and show all these game pieces to the audience during the explanation: cash tokens, water tokens, land uses, water security activities, chance cards, and disasters.

2. **Team names:** Tell players to choose team names, which are recorded on the score table. Throughout the game, refer to players (whether a team or a single player) by their chosen name. The team name will inform who chooses water security activity interventions first during the first round.

3. **Equipment set-up:** Distribute a game board to each player along with the four standard land uses that every player starts with.

4. **River basin card:** Players draw river basin cards to determine who is "upstream" or "downstream," which remains constant throughout the game. Players keep the card they drew, for reference throughout the game.

5. **Cash token distribution:** Distribute 10 cash tokens to each player. After Round 1, players start with the cash tokens held at the end of the previous round.

6. **Rounds:** explain to players that every round follows multiple steps: land use selection, water security activities, disaster, community chance cards, and watershed chance cards.

ROUNDS 1-4:

Run through the steps below, tracking any decisions or notes in the score table as needed.

1. **Water budget:** Distribute a fixed number of water tokens to each player, and explain that this represents water from rivers, rain, groundwater, or other sources. The number of tokens distributed each round will decrease to represent potential impacts of climate change and declining water availability as follows, which should be explained to players:

ROUND 1	ROUND 2	ROUND 3	ROUND 4
20	18	16	14

2. **Land uses:** In Round 1, all players start with an assigned set of four Land Use cards. After Round 1, at this step players can choose to purchase land uses using their cash tokens to replace current ones. Players can have a maximum of four land uses at a time. Note which land uses players switch (and whether it is close to or far from the river on the game board) in the score table and distribute the appropriate land use card(s) if a player chooses to switch.

3. **Land use earnings and deductions:** Based on each player's selected land uses, hand out cash tokens generated and water tokens either generated or required by land uses, which is explained on each land use card.

4. **Community livelihood costs:** Players must pay community livelihood costs in cash tokens to the moderator(s) to cover basic costs (education, food, health, etc.) each round. These costs increase each round to represent increasing demand and population growth:

ROUND 1	ROUND 2	ROUND 3	ROUND 4
8	10	12	14
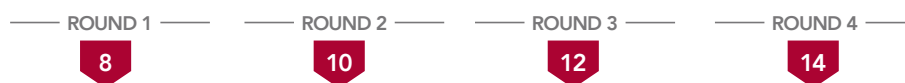
5. **Community water needs:** Collect water tokens for community water needs to cover basic water needs (drinking, sanitation, cooking, etc.). These needs increase each round to represent increasing demand and population growth:

ROUND 1	ROUND 2	ROUND 3	ROUND 4
0	1	2	3

6. **Water security activities:** Explain that players can choose whether to invest in any water security activities to avoid potential disaster impacts and earn water tokens (see next step). In the first round, players choose water security activities in alphabetical order according to their chosen team names. In later rounds, the player with the most cash and water tokens chooses their infrastructure first. Distribute water tokens gained from water security activity cards purchased in previous rounds as well as any new water security activity cards to each player. Collect cash tokens for the cost of any purchased water security activities. Record any water security activities purchased by each player and their associated resilience points in the score table.

7. **Disaster:** Each round, roll the dice to determine which disaster impacts players. Players can avoid the impacts of the disaster with accrued resilience points from their water security activity cards. Explain that resilience points needed to avoid disasters increases each round to represent the growing impacts of climate change, as do the negative impacts on water and cash tokens. If a player does not have the necessary resilience points to avoid the disaster that round, collect the water and cash tokens corresponding to the table:

	ROUND 1	ROUND 2	ROUND 3	ROUND 4
Resilience points to avoid each disaster (water-borne disease, drought, or flood)	+3	+4	+5	+6
Negative impact on both water and cash tokens if resilience points not met	-3	-4	-5	-6

8. **Community chance cards:** Each player draws a community chance card. Collect or distribute tokens accordingly. Record which chance card each player drew in the score table.

9. **Watershed chance card:** Draw one watershed chance card which applies to all players. Explain that these cards require players to exchange tokens. Help player(s) exchange tokens accordingly, based on their upstream or downstream position.

ROUND SUMMARY

1. **Balancing water and cash:** Help teams to balance water and cash tokens at the end of each round. For every "negative" water or cash token (e.g. a player could not pay water needs, livelihood costs, or chance cards), two cash or water tokens must be paid respectively. Collect tokens accordingly, if needed. If a player does not have enough tokens to pay to meet the minimum allowable amounts of 0 water and 0 cash tokens, they may not proceed to the next round. No action is needed if players all have at least 1 water and at least 1 cash token.

2. **Round summary:** Note water and cash token totals in the score table. Players carry land uses, water security activities, and income over to following rounds but must put water tokens aside. Discuss why players have the water and cash tokens they do based on their land use decisions, water security activity choices, chance cards, or disaster.

3. **Number of rounds:** Play for 4 rounds total. Repeat steps 1-11.

4. **End of game.** Debrief players on round outcomes and discusses impact of land use choices, chance cards, and disasters. Facilitate a discussion about how the game was 'won and lost,' which player "won," and how the game could apply to communities that played it.

	Round	1		2		3		4	
	Disaster type								
	Resources	**Cash**	**Water**	**Cash**	**Water**	**Cash**	**Water**	**Cash**	**Water**
	Water budget	-	20	-	18	-	16	-	14
	Community livelihood costs and water needs	-6	0	-8	-1	-10	-2	-12	-3
Community 1	**Watershed position (circle one)**								
	Land use								
	Water security								
	Downstream Disaster								
	Resilience points								
	Community chance								
	Upstream Watershed chance								
	Round total								
	Notes								
Community 2	**Watershed position (circle one)**								
	Land use								
	Water security								
	Downstream Disaster								
	Resilience points								
	Community chance								
	Upstream Watershed chance								
	Round total								
	Notes								
Community 3	**Watershed position (circle one)**								
	Land use								
	Water security								
	Downstream Disaster								
	Resilience points								
	Community chance								
	Upstream Watershed chance								
	Round total								
	Notes								