APPENDIX 4
[Daily use] Behavior-related Variables for Household Water Treatment and Safe Storage

On May 31, 2005 a group of five participants at the Bangkok WHO Network meeting gathered at lunch to discuss outcome variables and intermediate variables of water treatment behavior and proper storage. Table A presents the result of the discussion regarding behavioral outcomes. Table B presents some variables that the group believed needed to be measured and their role understood in predicting consistent behavior.

Participants in the lunch discussion were: Rob Quick (US/CDC); Vibha (PSI, India); Mubina Agboatwalla (HOPE, Pakistan); Teófilo Monteiro (PAHO); and Maria Elena Figueroa (JHU/CCP)

Table A. Concepts, definition and measurement

Concept	Definition	Measurement	Data source
1. Consistent water treatment	(i) Household has treated water for drinking every day. Treatment may or may not occur every day. Frequency of treatment will depend on type of technology used and number of household members. (ii) All members in the household drink this treated water.	Three measurements are suggested. Preferably get the three of them if time and resources allow. From total households in study area: (i) Number of households that report having treated water for drinking in the house. (ii) Number of households that show treated water in the house. (iii) Number of households with a negative test for E.Coli in their treated water, OR positive test for chlorine residual among those using chlorine-based technology.	Household-based data; preferably population based survey. Data will include: (i) self-reported information; (ii) direct observation at end of survey (iii) tests for water safety
2. Proper storage	Four possible scenarios are considered: (i) Household stores water in a narrow-mouth container and it is covered with a hard tap, not a cloth (cloth can get into water re-contaminating it); OR, (ii) Household uses a jerry can with tap and tap is of	From total households in study area: (i) Number of households that have any of the four possible scenarios of water storage previously defined.	Household-based data; preferably population based survey. Data will include: (i) self-reported information; (ii) direct observation at end of survey

	hard material, not a cloth, OR, (iii) Household has a wide-mouth container that has a hard cover with a spigot, OR (iv) Household stores water in covered water filter that has a spigot.		
3. Proper management (serving water)	Ideal scenario: (i) Water is served directly from the container without the use of a ladle or cup that is introduced into the water; Less ideal scenario: (ii) Water is served using a ladle or a cup with a handle that is stored in a fixed place out of reach of children and covered from dust and hands.	From total households in study area: (i) Number of households that serve water directly from the container without using any device to draw water from the container; OR (ii) Number of households that serve water using a ladle or a cup with a handle without touching the water, AND (iii) ladle or cup is stored in a fixed place out of reach of children and covered from dust and hands touching it.	Household-based data; preferably population based survey. Data will include: (i) direct observation at end of survey

Table B. Some intermediate variables of behavior related to household water treatment and safe storage (more need to be added to this list, this was just the beginning of the conversation when lunch ended).

Variable Level	Variable	Variable has been documented
Cognitive	1. **Knows** that: (i) water source is not safe for drinking; (ii) safe water prevents diarrhea;	Most documented variable showing mixed results on predicting water treatment behavior.
	2. **Agrees** that water needs to be treated to make it safe for drinking,	Has also been documented with mixed results as knowledge
	3. **Agrees** that chlorine-based treatment products are safe	Needs to be measured in population-based survey
	4. **Agrees** that (the technology) is effective in making water safe for drinking,	Needs to be further documented to understand its role in predicting behavior
	5. Agrees that one can make the time to treat water at home,	Needs to be measured in population-based survey to assess its role on behavior
	6. Agrees that water treatment is among the priorities in the house,	Needs to be measured in population-based survey to assess its role on behavior
	7. Thinks others in the community **treat** their water consistently,	Needs to be further documented to understand its role in predicting behavior
Emotional	**8. Has confidence** in treating water herself,	Some intervention studies have started to use it but needs to be further documented in population-based surveys to understand its role in predicting behavior
	9. **Likes the taste** of treated water,	Some intervention studies have started to use it but needs to be further documented to understand its role in predicting behavior
	10. **Feels good (sense of satisfaction)** by providing treated water for all members in the household,	Not yet documented
Social interaction	**11. Others have recommended** to treat water at home,	Some intervention studies have started to use it but needs to be further documented to understand its role in predicting behavior
	12. Advocates water treatment to others in the community,	Not yet documented