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HOUSEHOLD RECOVERY AND RESILIENCE IN CAMBODIA

AFTER THE 2015-2016 EL NIÑO DROUGHT, ACROSS THREE SURVEY ROUNDS

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Following the drought associated with the 2015-2016 El Niño event, the World Food Programme (WFP), together with the United Nations Children's Fund (UNICEF) and the Food and Agriculture Organization (FAO), and in collaboration with the National Committee for Disaster Management (NCDM), conducted a national household survey in May 2016. Two subsequent rounds of the national household survey were conducted in December 2016 and August 2017. This report is based on an analysis of all three survey rounds.

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LIST OF ACRYNOMS

DDS	Dietary Diversity Score
FAO	Food and Agricultural Organization of the United Nations
FCS	Food Consumption Score
HHS	Household Hunger Scale
NCDM	National Committee for Disaster Management
PCDM	Provincial Committees for Disaster Management
rCSI	Reduced Coping Strategy Index
UNICEF	United Nations Children's Fund
WFP	World Food Programme

KEY TAKEAWAY MESSAGES

Food Security

- The findings demonstrate that food security levels remained stable after the El Niño drought with households at baseline (Round 1- May 2016) reporting high food consumption and dietary diversity, and low levels of household hunger and food insecurity. Little to no changes are seen across the three survey rounds.
- However, there was a higher use of negative coping strategies following the El Niño drought, which largely included relying on less preferred/less expensive foods, selling household goods, using savings, borrowing money or food from a formal lender or bank, and/or sending an adult household member to seek work elsewhere.
- This draws attention to the limitations of current food security indicators to understand vulnerability to climatic events within Cambodia.
- Decreases in yearly, monthly, and per capita expenditures are seen across the three survey rounds. Households
 are allocating a greater percentage of their expenditures towards the purchase of food items. More research is
 needed to better explain this trend.

Geographic Trends

Across the ecological zones, the Plains had the worse food security outcomes after the El Niño drought, but show improvements in Round 2 (December 2016) and Round 3 (August 2017), whereas the Tonle Sap and Coastal zones had worsening food security over the same 15-month period. Additionally, whereas most zones rely less on coping strategies over time, Coastal households increase the use of stress coping strategies more than 15.0 percent across the three survey rounds. This indicates how the impacts of climatic events might be felt more strongly in certain parts of the country compared with others and this corresponds well to historical data that shows the Plains and Plateau zones as being the hardest hit in terms of drought (Figure 1).

Seasonality

The third round of the survey was conducted in August, at the start of the lean season, so the worsening food security results over the study period in some zones, such as Tonle Sap and Coastal zones, could be more indicative of seasonal vulnerabilities.

Gender- related vulnerabilities

• Female-headed households are more susceptible to food security impacts following the El Niño drought than male-headed households. They are also more likely to reduce or change food habits as a coping mechanism.

Resilience Capacity

- Households were grouped according to low, medium and high resilience capacity based on the resilience capacity index. Highly resilient households had better food security outcomes and had higher yearly, monthly, and per capita expenditures. They also spent less toward food purchases and more towards non-food items.
- Indicators used to calculate resilience capacity for Round 3 (August 2017) show that linking social capital (links between households and local authorities and non-governmental organisations), access to information, and social networks provide the greatest contribution towards the overall index. The existing findings indicate that strengthening access to information and community relationships could be important actions to improve resilience. Initiatives at community level that strengthen community cooperation and enhance relationships between households and local authorities could also play a pivotal role.
- It should be noted that community based indicators were not incorporated in this study so more research needs to be done on the role that factors such as access to social assistance, basic services and infrastructure have on improving resilience as it is likely that these would play a key role.

BACKGROUND

The 2015-2016 El Niño weather phenomenon resulted in unseasonably low precipitation levels and increases in temperature resulting in the worst drought for Southeast Asia in the last 50 years. Cambodia, specifically, experienced crop losses, depletion of fish stocks, and water shortages for households throughout the country. It is estimated that 2.5 million people in Cambodia were severely impacted, triggering a national response of targeted distribution of drinking water and rehabilitation of water sources (Figure 1 shows the drought intensity during the worst period in Mid-June 2015). With the arrival of the rainy season, the Royal Government of Cambodia officially ended the response at the end of May 2016. The impacts of the El Niño event, however, were expected to extend well past the initial drought. In order to better understand how households were affected and their ability to recover (or not recover), the World Food Programme (WFP), the United Nations Children's Fund (UNICEF), and Food and Agricultural Organization of the United Nations (FAO), in collaboration with the National Committee for Disaster Management (NCDM) and the Provincial Committees for Disaster Management (PCDMs), conducted a nationwide household survey in May 2016. Two subsequent rounds of the national household survey were collected among a panel of households in December 2016 and August 2017 to monitor changes over the 15-month period after the El Niño drought. Data was collected from the four ecological zones of Cambodia (Plains, Tonle Sap, Plateau/Mountain and Coastal), shown in Figure 5 *(in the Technical Annex)*.



The three survey rounds were conducted in May 2016 (Round 1), December 2016 (Round 2) and August 2017 (Round 3), which correspond to different agricultural seasons (refer to Figure 2). In May, households typically start to prepare the land for wet season sowing and transplanting. December is during the dry season when households prepare and sow their land for dry season rice. August is in the rainy season and experiences the greatest number of shocks due to flooding and dry spells. It is also the start of the lean season as main staple crops are not yet harvested. Understanding the seasonality patterns within Cambodia provides greater depth into understanding the results of the analysis discussed further in the Findings section of the report.

EVENTS/	ΝΟΥ	DEC*	JAN	FEB	MAR	APR	MAY*	JUN	JUL	AUG*	SEP	ост
CROPS	DRY SEASON						RAINY SEASON					
Flood												
Dry Spell												
Lean Season												
Wet Season						La	nd prep &	sowing	Transplanting/growing			
Rice		Har	vesting									Har- vesting
Dry Season Rice	Lar	nd prep & s	sowing		Harv	esting						
Maize							Land p	orep	Gro	owing	Har	vesting

Figure 2. Seasonal Crop and Hazard Calendar, Cambodia

Asterisks (*) represent the months in which the household questionnaires were administered: May 2016 (Round 1), December 2016 (Round 2), and August 2017 (Round 3).

OBJECTIVE

The objective of this report is to answer the following questions:

Question 1: What impact did the El Niño event and drought have on Cambodian households' food security, coping strategies, and expenditures in May 2016 and how did this change over the subsequent 15 months?

Question 2: What was the resilience capacity of Cambodian households 15 months after the drought?

METHODOLOGY BRIEF

An in-depth description of the methodology is provided in the Technical Annex.

Trend Analysis: Three nationwide surveys were administered among matched households in May 2016, December 2016, and August 2017. A total of 934 households were paired across the three survey rounds. A trend analysis was conducted to compare mean values and proportion levels of key well-being indicators over the 15-month period after the 2015/2016 El Niño event. Data was further disaggregated by sex of head of household and by the four ecological zones of Cambodia (*Figure 5 in the Technical Annex*).

Resilience Capacity Analysis: The Round 3 survey was modified to include a full set of resilience questions from which an overall resilience capacity index was created by combining individual, non-duplicate indicators of the absorptive, adaptive, and transformative capacity measures into a single composite index using factor analysis. Terciles of low, medium and high resilience capacity households were created using this index. A total of 1034 households in Round 3 were divided equally across these terciles to examine how different levels of resilience capacity influence key well-being outcomes.

FINDINGS

QUESTION 1: WHAT IMPACT DID THE EL NIÑO EVENT AND DROUGHT HAVE ON CAMBODIAN HOUSEHOLDS' FOOD SECURITY, COPING STRATEGIES, AND EXPENDITURES IN MAY 2016 AND HOW DID THIS CHANGE OVER THE SUBSEQUENT 15 MONTHS?

The 2015/2016 El Niño event had little impact on household food security. Following the drought, the data from Round 1 (May 2016) show that households have high levels of food consumption and dietary diversity, and a large majority report little to no hunger. In the subsequent 15-months there are little to no changes across household food security indicators. Conversely, households in Round 1 use more consumption coping strategies than in subsequent rounds. Decreases in livelihood coping strategies are also observed which is largely attributed to households utilizing less stress coping strategies over time. Across the ecological zones, the Plains had the worse food security outcomes after the El Niño drought, but show improvements in Rounds 2 and 3, whereas the Tonle Sap and Coastal zones had worsening food security over the same 15-month period. Female-headed households are also more vulnerable to food security impacts of the drought than male-headed households and are more likely to use consumption coping mechanisms to manage the effects of the drought.

It would be expected that household expenditures would follow a similar pattern; however, data show that it decreases substantially across each survey round. An in-depth explanation of this trend requires further exploration beyond the scope of this analysis. Interestingly and in contrast to other food security findings, the percentage of households moderately to severely food insecure according to Food Expenditure Share (a measure of household expenditure) show a decrease in Round 2 but an increase in Round 3 to baseline levels. This fluctuation may be attributed to changes in seasonality and crop production due to the timing of the Round 3 survey.

FOOD SECURITY OUTCOMES AND COPING STRATEGIES

Table 1 provides household food security outcomes following the El Niño drought of 2015/2016 over a 15-month period. At baseline (Round 1), the data show that 92.5 percent of households are within the "acceptable" level for food consumption, over 80.0 percent have medium to high levels of dietary diversity, and 90.0 percent report little to no hunger according to the Household Hunger Scale (HHS). Data from subsequent rounds show little to no changes in food security outcomes. The mean HHS score shows an improvement of 0.2 from Round 1 (May

2016) to Rounds 2 (Dec 2016) and 3 (August 2017). This is a result of an approximate 5.0 percent increase in the percentage of households with little to no hunger and a similar decrease in the percentage of households with moderate hunger. The Dietary Diversity Score (DDS) mean decreases 0.1 from Round 1 to Rounds 2 and 3. When comparing DDS groups, the percentage of households with low dietary diversity significantly increases in Rounds 2 and 3; conversely, the percentage of households with high dietary diversity decreases during the same time-period. The mean Food Consumption Score (FCS)



remains stable, with no significant changes from Round 1 to Rounds 2 and 3.

The Reduced Coping Strategy Index (rCSI) is a weighted measure of five consumption coping strategies utilized by households to deal with the lack of food (or money to purchase food) in the seven days prior to the survey. Data from Table 1 show that households, overall, do not often employ consumption coping strategies, and when utilized, they are more likely to rely on less preferred, less expensive foods as their main coping mechanism (Figure 3). As expected, households in Round 1, following the El Niño drought, used significantly more coping strategies than in the subsequent rounds. Correspondingly, livelihood coping strategies saw a similar decrease across the rounds. This is largely attributed to significant changes in stress coping strategies. A decrease of approximately nine percent was observed over the 15-month period. Stress coping strategies include selling household goods, using savings, borrowing money or food from a formal lender or bank, and sending an adult household member to seek work elsewhere.¹

Table I. Food Security Outcomes by Survey Round, Paired Data								
		By Survey Round						
	Round I	Round 2	Round 3					
FOOD SECURITY OUTCOMES								
Food Consumption Score, FCS (mean, 0-112)	56.6	56.8	55.9					
FCS groups								
Poor, scale 0-24.5 (%)	2.7	0.6 *	0.5 *					
Borderline, scale 25-38.5 (%)	4.9	I.4 *	· I.4 *					
Acceptable, scale 39-112 (%)	92.5	98.0 *	98.3 *					
Dietary Diversity Score, DDS (mean, 0-7)	5.2	5.1 *	5.1 *					
DDS groups								
Low, scale 0-4.4 (%)	18.6	26.5 *	22.6 *					
Medium, scale 4.5-6 (%)	73.7	66.3 *	72.1					
High, scale 6.1-7 (%)	7.7	7.2	5.3 *					
Household Hunger Scale, HHS (mean, 0-6)	0.4	0.2 *	• 0.2 *					
Severe Hunger (%)	0.1	0.1	0.0					
Moderate Hunger (%)	9.8	4.6 *	5.I *					
No/Little Hunger (%)	90.0	95.3 *	94.8 *					
Reduced Coping Strategy Index, rCSI (mean, 0-56)	2.4	1.3 *	· I.4 *					
Livelihood Coping Strategies (mean, 1-4)	1.6	1.5	1.5 *					
Emergency Coping Strategies (%)	6.9	5.2	6.0					
Crisis Coping Strategies (%)	12.9	11.1	11.6					
Stress Coping Strategies (%)	27.5	27.0	18.2 *					
	n 934	934	934					

Asterisks (*) represent significance at the 0.05 level comparing Round 1 to Round 2 and Round 3.

EXPENDITURES

In Table 2, decreases in yearly, monthly, and per capita expenditures are shown over a 15-month period following the El Niño event. Decreases in overall yearly expenditures from Round 1 to Round 3 amount to a mean negative difference of US\$1,346². When disaggregated, data show that households at Round 1 allocate 42.2 percent of their yearly (and monthly) expenditure towards food expenses. This amount increases in subsequent rounds. By Round 3, households allocate 43.2 percent of their yearly (and monthly) expenditures towards the purchase of food items amounting to an increase of 1.1 percent over 15 months. Non-food expenditures, conversely, show a decrease of 1.1 percent over the same time-period. Similarly, total per capita expenditures also decrease from Round 1 to Round 3, for a mean difference of US\$30. When comparing across

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