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Nicole M. Williams Date

Understanding the Role of Social Capital on Household Crises and Coping Mechanisms Among Homestead Food Production Program Beneficiaries in Post-Conflict Cambodia

By

Nicole M. Williams
Master of Public Health

Hubert Department of Global Health

_____

Dr. Amy Webb Girard
Committee Chair

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By

Nicole M. Williams

Bachelor of Science
University of Missouri
2009

Thesis Committee Chair: Dr. Amy Webb Girard, PhD

An abstract of
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Abstract

Understanding the Role of Social Capital on Household Crises and Coping Mechanisms Among Homestead Food Production Program Beneficiaries in Post-Conflict Cambodia

By Nicole M. Williams

Background: Programs that build social capital contribute to augmentation in the pathway between crisis and poor health, both in quality and quantity of social resources available to vulnerable individuals. Interventions like Helen Keller International's (HKI) Homestead Food Production Program (HFPP), act to strengthen the social capital of its beneficiaries; yet it is not well understood which dimensions of social capital, either cognitive social capital or structural social capital, are most viable. The study of specific interventions that strengthen social capital is crucial to understanding how health can be protected from the adverse effects of crises and stressors.

Objective: This thesis explores, within the context of the HFPP in Cambodia, the importance of social capital in mediating a household's vulnerability to crises and their ability to cope with shocks and the relationship between participation in the HFPP and the various dimensions of social capital

Methods: In-depth interviews (IDIs) with women in control and intervention groups (n=10) investigated their perceptions of crises and attitudes towards coping mechanisms. IDIs with the intervention group investigated how the HFPP encourages the dimensions of social capital. IDIs with village chiefs (n=9) provided the perspective of local leadership. Women from both groups with at least one child under five years old, who did not participate in an IDI, participated in a household survey (n=100).

Results: Participation in the HFPP was associated with higher levels of social capital. Of the three crisis events analyzed, social capital was associated with fewer experiences of food shortage only. Structural social capital as opposed to cognitive social capital largely drove differences in social capital levels between HFPP beneficiaries and women in the control group.

Discussion: Women with higher levels of social capital are rich with social support networks that provide a safety net against experiencing household crises. The endowment of social capital, especially structural social capital, was an asset to coping with crises. The finding of a lack of association between social capital and every crisis events suggests that cognitive social capital is more important in preventing crises. This study will help HKI adapt its HFPP to strengthen the social capital, specifically the forms of cognitive social capital, of it beneficiaries. In this way, the HFPP can better function to mitigate the negative health outcomes of household crisis events.

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Chapter 1: INTRODUCTION

There is no consensus on the intellectual origins or who first implicitly or explicitly introduced the notion of 'social capital' (Islam 2006). Some argue its roots lie in sociology in the works of Durkheim and Marx while others credit economic scientists like Hume and Burke as social capital's intellectual originators. Social capital gained credence in the public health arena following the work of Coleman (1990) and Putnam (2000). Since then, considerable evidence of an association between social capital and health has emerged as scholars try to identify the mechanisms by which social capital influences health.

For the following thesis it was hypothesized that social capital affects health in the sense that individuals, who are embedded in a network or community rich in support, social trust, information, and norms, have resources that mitigate the stress and negative health outcomes that come from experiencing household crisis events. Furthermore, that participation in a nutrition intervention strategy, Helen Keller International's (HKI) Homestead Food Production Program (HFPP), does bolster the social capital of program beneficiaries. In this way the community benefits not only from conventional benefits of the program--lower rates of anemia, increased food security and improved anthropometric measures--but also because the program promotes the building of social capital – trust, belonging, membership, and support – and bolsters the status of women among its beneficiaries. In communities where the program is being implemented, it was hypothesized that the community as a whole benefits by the cooperation of all its parts, while the individual beneficiaries find in their associations the advantages of the help, the sympathy, and the fellowship of their fellow beneficiaries. In this program's specific

context, such social support may influence health through better nutrition with the provision of knowledge about appropriate feeding, food production, storage and preparation and by providing a buffering effect to mitigate stress from household crisis events.

There is evidence to suggest that social capital can be exogenously strengthened (Pronyk 2008) yet an effective intervention strategy has yet to be devised. The multiplicity of definitions and the diverse dimensions of social capital (Murayama 2012) as well as how they are operationalized in different contexts make it difficult to develop and evaluate intervention strategies. Some interventions are designed with the objective to generate social capital (Pronyk 2008) while others may be achieving it as an ancillary, like the HFPP. There is a need to critically evaluate these interventions in order clarify the specific dimensions or forms of social capital that would be most realizable in interventions to improve health. Additionally, there is a gap in knowledge about which dimensions of social capital are most important in shaping health. There is a need to identify the outcomes that would be improved by increasing social capital and the beneficiaries of such improvements.

Programs that build social capital are likely to contribute to the augmentation in the pathway between crisis and poor health, both in quality and quantity, of social resources available to vulnerable individuals (Cullen and Whiteford 2001). Furthermore, there is good evidence that the impact of stress caused by crises is mediated by the psychological, social and physical resources available in a person's environment (Cullen and Whiteford 2001; Marsella 1995; Muntaner and Eaton 1998). The function of social capital in mediating the effect of crises on health by providing (or constraining) access to

other resources or coping mechanisms makes it a crucial but formerly neglected area of analysis for understanding vulnerability of women and their households (Geran 2001). Therefore, the study of specific interventions that may augment these resources, by strengthening social capital, is crucial to understanding how the health of individuals and communities can be protected from the adverse effects of crises and stressors.

The main purpose of this thesis is to explore, within the context of HKI's HFPP intervention in villages in Battambang Province, Cambodia, the role of social capital in mediating a household's vulnerability to crises and their ability to cope with the shocks and to investigate the relationship between participation in the HFPP and the various dimensions of social capital. By comparing women from households receiving the HFPP intervention to those not receiving the HFPP intervention, the author will investigate how participation in the HFPP influences social capital. Additionally the research will explore the role of social capital on households' ability to cope with crises and shocks. The qualitative research objective for the present study was to examine the association between participation in the HFPP and the different dimensions of social capital. The quantitative research objective for the current study was to assess the association between social capital, the occurrence of household crisis events and coping strategies.

Helen Keller International's Homestead Food Production Program (HFPP) has a primary objective to promote and protect health through better nutrition. The organization has documented numerous successes (HKI 2010, HKI 2003, Bushamuka 2005) in achieving this objective. It has not however, studied the program's effect on other outcomes that influence health, namely household crisis events and coping mechanisms nor have there been any studies to explore the dimensions of social capital that may be

transformed as a result of the program's emphasis on group agricultural training, nutrition education and agricultural input and information sharing. The present study's analysis of social capital in relation to coping mechanisms can reveal how social relations mediate crisis effects on households by conditioning the coping strategies available to them. In order to effectively translate the epidemiologic findings on the association between social capital and health into practice, we must therefore demonstrate program effects on various outcomes affecting health as well as the feasibility of building of social capital in its various forms with intervention strategies.

The results of this thesis will help Helen Keller International and the communities it works with understand and tailor their efforts to promote health and development by strengthening social capital and contribute to the growing body of knowledge on the applicability social capital in public health.

1.1 Definition of Terms

In the present thesis social capital is operationalized as the degree of connectedness and the quality and quantity of social relations in the study population that can improve the efficiency of society by facilitating coordinated actions. In order to understand how social capital mediates access to coping strategies for households under crisis it is better to define it as an individual asset. Therefore, the author refers to social capital at the individual psychological level (trust and norms) and micro-level (social networks and social participants) and recognizes the difference between cognitive social capital and structural social capital.

For purposes of this thesis, structural social capital refers to externally observable aspects of social organization, such as membership, networks and citizen activities;

cognitive social capital refers to perceptions of support, reciprocity, belonging and trust. The term ‘beneficiary’ refers to women or households that meet HKI’s inclusion criteria for the HFPP, that is, households with at least one child under the age of five years and extremely poor based on village income and housing records and as identified by village leaders.

Chapter 2: COMPREHENSIVE REVIEW OF THE LITERATURE

2.1 Introduction of the Literature Review

There are four objectives of this literature review. Since scholars operationalize social capital in a variety of ways depending on their research aims, the first objective is to describe its various definitions, dimensions and origins. Second, because no causal pathway has been established to explain the relationship between social capital and health, prospective studies that investigate the influence of social capital on health outcomes are described in order to present the salient knowledge and assumptions. Given that social capital might provide a theoretical basis for assessing the impact that community-based health promotion programs have on the broader health and life of a community (Baum 2003; Murayama 2012), the third objective is to describe the literature surrounding the feasibility of generating social capital. Lastly, the nature of this thesis, as operations research, mandates a description of the organization and its program.

Literature presented were identified for review using searches in Medline, Web of Science, JSTOR, Google Scholar, PubMed, content-specific websites and by cross-referencing sources from influential works.

2.2 Origins and Definitions of Social Capital

There is no consensus on the intellectual origins or who first implicitly or explicitly introduced the notion of social capital (Islam 2006), though its background can be traced back to the classic works of Durkheim, who emphasized a group life as an antidote to anomie and self-destruction (suicide) and Marx, who distinguished between an atomized ‘class-in-itself’ and a mobilized and effective ‘class-for-itself’ (Portes 2000). However, tracing the concept to classical times does not reveal why the idea of social

capital has caught on in recent years (Portes 2000) or why it has come to be implicated, with significant weight, in public health. According to Portes (2000), the power of social capital today comes from its "attention on the positive consequences of sociability while putting aside its less attractive features" and because it "places those positive consequences in the framework of a broader discussion of capital calling to attention how such nonmonetary forms can be important sources of power and influence."

Pierre Bourdieu (1980) is often credited with the first contemporary analysis of social capital. He defined the concept as "the aggregate of the actual or potential resources which are linked to possession of a durable network or less institutionalized relationships of mutual acquaintance or recognition". Yet a review by Darlauf and Fafchamps (2004) asserts that social capital was first introduced into modern social science research by economist Glen Loury in 1977. Loury (1977) defines social capital as "naturally occurring social relationships among persons which promote or assist the acquisition of skills and traits valued in the marketplace an asset which may be significant as financial bequests in accounting for the maintenance of inequality of our society." While it is not clear who first introduced the concept, it is clear that after the work of Bourdieu and Loury, the concept of social capital has been further developed, modified and disseminated by the works of Coleman (1990), Putnam (1993) and Portes (1998). Coleman (1990) defines social capital as "consisting of some aspect of social structure and facilitating certain actions of individuals who are within the structure." Putnam (1993) is more specific with how he operationalizes social capital and its effect by stating that it "refers to features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions."

Lastly, Portes (1998) emphasizes one domain of social capital (structural) over the other (cognitive) by stating that social capital "refers to the capacity of individuals to command resources by virtue of their membership in networks or broader social structure." Although the proponents of social capital differ in their definitions, Lochner (1999) identifies four main theoretical features in the definition of social capital: (1) social trust and reciprocity; (2) collective efficacy; (3) participation in voluntary organizations; and (4) social integration for mutual benefit. Darlauf and Fafchamps (2004) collapse the definitions into social capital's three main ideas: "(a) social capital generates positive externalities for members of a group; (b) these externalities are achieved thanks to shared trust, norms and values and their effects on expectations and behavior; and (c) shared trust, norms and values arise from informal forms of organizations based on social network and association." In this way, they articulate that "the study of social capital is that of network-based process that generate beneficial outcomes through norms and trust" (Darlauf and Fafchamps 2004). This echoed what Portes (2000) described as the growing consensus, that "social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures"

Social capital is generally disaggregated into two components: structural social capital and cognitive social capital. The dimensions of social capital and their operationalization in the literature are captured in Figure 1. Structural components of social capital include the extent and intensity of associational links in social networks and the extent and intensity of activity, like civic engagement, cooperation and membership. Langford (1997) describes support, a form of structural social capital, by its function into the following four categories: emotional (ie encouragement), tangible (ie financial

assistance), informational (ie advice), or companionship (ie sense of belonging). Emotional support includes the offering of empathy, concern, encouragement, caring or nurturing. Tangible support, also called instrumental support, encompasses the direct ways people assist each other. Informational support includes the provision of advice, guidance, suggestions, or useful information while companionship support includes support that yields a sense of social belonging.

Cognitive social capital includes norms, beliefs and perceptions of support, belonging, reciprocity, sharing and trust (Harpham, 2002). Structural and cognitive components are complementary. As McKenzie (2002) describes, the cognitive component assesses people's perceptions of the level of interpersonal relationship characteristics (trust, sharing, and reciprocity) while the structural component of social capital examines networks and activities in society such as measures of informal and formal sociability, group membership and indicators of civic engagement (joining together to address a problem and cooperation with leaders).

In addition to capturing structural and cognitive social capital, assessing bonding and bridging social capital is critically relevant to understanding social capital's role in providing safeguards against vulnerability and adversity associated with shocks and stresses (Narayan 1999). Scholars classify and describe bonding and bridging according to two distinct types of social capital: *horizontal,* which reflects ties that exist among individuals or groups of equals and *vertical* or *linking,* which refers to hierarchical or unequal relations die to differences in power or resource bases and status (Islam 2006; Szreter 2004). Within this classification system, horizontal social capital is further divided into "bonding" social capital and "bridging" social capital. Bonding social capital

refers to *within* community relations or between homogenous groups. Bonding social capital captures strong ties that connect family members, neighbors and close friends and colleagues. In contrast, bridging social capital refers to *extra* community relations among heterogeneous groups. It captures weak ties between people of different ethnic and occupational backgrounds, including formal and informal social interactions. Cullen and Whiteford (2001) establish that bonding relationships act as the primary means for the transmission of behavioral norms to family members and friends and is important for establishing and favoring healthy norms, controlling abnormal social behavior and for generating mutual aid, and protecting the vulnerable. They further establish that bridging social capital is important to the success of civil society in that it offers members of the society opportunities for participation in heterogeneous groups of people from diverse social classes and opens channels to voice concern in favor of those who may have very little opportunity to reach more formal avenues in order to affect societal changes (Cullen and Whiteford 2001). Theoretically, bridging social capital may be associated with better health because it enables disadvantaged groups to access material resources through connections to socially advantaged groups (Islam 2006). Harpham (2002) express potential benefit of bridging social capital in empowerment and development projects. Additionally, Varshney (2002) finds that bridging social capital may also be critical for the prevention of inter-ethnic and religious conflict and violence. Furthermore, the distinction between bonding and bridging social capital in the literature gives clues as to the types of institutions and systems that may be important in generating social capital through programming.

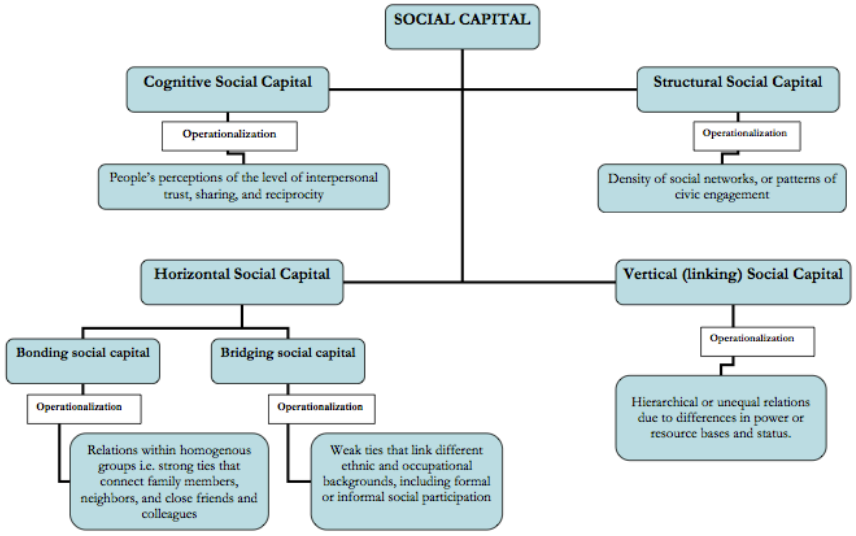


Figure 1. Forms and Dimensions of Social Capital with Operationalization of the Notion in Empirical Studies (Islam 2006)

It should be noted here that social capital is not "wholly positive" (Bradbury 2006) and may not always generate better health outcomes. Portes (1998) has identified several negative externalities of social capital including: "exclusion of outsiders from resources controlled by network members, excess claims on successful group members by free-riding fellow members, restrictions on individual freedom and downward leveling norms". Muntaner et al. (2001) points out that strong association among individuals may both increase and decrease the risk of certain health outcomes. For example, some social groups possess strong social capital, for instance the Ku Klux Klan, but the outcomes of their actions are destructive.

In conclusion, "understanding social capital demands an emphasis on the *nature* of interactions, the *meaning* of linkages and their potential to *enable change*." (MacKian 2002). Furthermore, the effect of social capital can be negative, depending on the

outcome, a point of information that is not popularized in the literature.

2.3 Links between Social Capital and Health

In the nineteenth century, the sociologist Emile Durkheim found a close link between incidence of suicide and the degree to which individuals are integrated into society. More specifically he observed that rates of suicide increased in periods of rapid social change. The effect was attributed to disruption of the social fabric of society and weakened social connectedness (Durkheim in Simpson 1951). Since then, a growing body of research has found that the presence of social capital through social networks and communities has a protective effect on health. As such, social capital is a concept that has been used in recent years to explain health disparities (Murayama 2012). Research has shown social capital to be associated with a wide range of health outcomes including mortality (Kawachi, Kennedy, Lochner, & Prothrow-Smith, 1997; Skrabski, Kopp, & Kawachi, 2003), self-reported health status (Kawachi, Kennedy, & Glass, 1999; Veenstra, 2000), and mental health (De Silva, McKenzie, Huttly, & Harpham, 2005). Social capital affects health risk behavior in the sense that individuals, who are embedded in a network or community rich in support, social trust, information, and norms, have resources that help achieve health goals (Lin, 2001). Social capital also encourages social trust and membership, factors that can discourage individuals from engaging in risky health behaviors (Bolin, 2003). Inversely, a lack of social capital can impair health. It is hypothesized that there are both direct and indirect returns on the production and accumulation of health and social capital. Direct returns stem from the fact that both health and social capital enhance individual welfare, while indirect returns come about as a result of the observation that health capital increases the amount of productive time, and

social capital improves the efficiency of the production technology used for producing health capital (Bolin 2003).

In *Bowling Alone: The Collapse and Revival of American Community*, Putnam (2000) indicates a link between social connectedness, health and personal well-being. He suggests two possible reasons for the links: 1*)* social networks furnish tangible assistance and care which reduce psychic and physical stress; and 2*)* social capital might trigger a physiological mechanism stimulating individual's immune systems to fight disease and buffer stress. Almost all literature related to the association between social capital and health provides evidence to support Putnam's first reason for the link between social capital and health, that it is the social networks furnishing tangible assistance and care which reduce psychic and physical stress and lead to positive health outcomes. Kawachi and Berkman (2000) discussed the mechanisms by which social capital exerts a contextual effect on individual health. They identified 4 plausible pathways: diffusion of knowledge on health promotion, maintenance of healthy behavioral norms through informal social control, promotion of access to local services and amenities, and psychological processes that provide affective support and mutual respect (Kawachi and Berkman 2000).

Harpham (2006) explored the association between maternal social capital and child physical and mental health in Vietnam. The cross sectional survey design measured maternal *structural* social capital as comprised by group membership, citizenship, and social support; measures of cognitive social capital comprised trust, social harmony, sense of fairness, and belonging. Child health was measured by anthropometrics and mothers' reports of acute and chronic physical health problems and child mental health.

The study found low levels of group membership and citizenship (structural social capital) but high levels of cognitive social capital and support, and generally higher levels of social capital among the mothers of older children (8 year olds) than younger children (1 year olds). There were more statistically significant relations between maternal social capital and the health of 1 year olds compared with 8-year-old children, and between measures of social support and cognitive social capital and child health, than with group membership and involvement in citizenship activities. Infact, there was some evidence to suggest that active membership of formal organizations in Vietnam may be damaging to the health of 8 but not of 1 year olds: active participation in formal groups was significantly associated with an increase in stunting among 8 year olds. However, given that the study was cross-sectional, it is not possible to discover if the costs imposed on mothers participating in formal groups leads to child stunting, or whether mothers with a stunted child are more willing to participate in formal groups to receive social support from those groups.

What follows is a summary of the evidence of an association between social capital and health based on a review by Murayama et al (2012). Studies of all-cause mortality reported both positive and negative contextual effects of social capital (Murayama 2012). Mohan et al. (2005) reported that less engagement in neighborhood activity lowered all-cause mortality and Islam et al. (2006) found a limited protective effect of municipal-level social capital on mortality among men, with a particularly strong effect among those aged 65 years or older. In contrast, another study found that the density of community social networks had a detrimental effect on mortality, although community collective efficacy had a protective association (Wen 2005). In a study in

New Zealand, Blakely et al (2006) found no association between neighborhood social capital and all-cause mortality.

Most studies examining the effects of social capital on health have been conducted in developed nations. As such, outcomes associated with chronic diseases were commonly reported. The contextual protective effects of social capital were demonstrated in hospitalizations for CHD and psychosis, (Lofors 2007; Sundquist 2006) but no association was found for hospitalizations due to depression (Lofors 2007). Snelgrove (2009) conducted a study in a community setting and found that both high individual-level and area-level social capital (trust) were inversely associated with poor self-rated health. In a workplace setting, Oksanen et al (2008) reported that lower levels of social capital, at both individual-level and workplace-level, were associated with poor self-rated health.

In a discussion paper by Michelle Cullen and Harvey Whiteford (2001) in which they synthesize existing work examining the interrelations of social capital with health and mental health, they conclude that cognitive social capital (predominantly captured at the micro level) is believed to shape behavioral norms, through control of risk behavior, provision of mutual aid and support, and informal means of informational exchange which may indicate that cognitive social capital the greater influencer of health.

The buffering hypothesis has been studied extensively across disciplines. It supports Putnam's second explanation of a link between social capital and health: that social capital might trigger a physiological mechanism stimulating individual's immune systems to fight disease and buffer stress. The buffering hypothesis is described by Cohen and Wills (1985) as social support that promotes health by protecting people from the

adverse affects of stress. It does so by promoting more adaptive appraisals, more effective coping or both. Support may play a role at two different points in the causal chain linking stress to illness. First, support may intervene between the stressful event (or expectation of that event) and a stress reaction by attenuating or preventing a stress appraisal response (Cohen and Wills 1985). That is, the perception that others can and will provide necessary resources may redefine the potential for harm posed by a situation and/or bolster one's perceived ability to cope with imposed demands, and hence prevent a particular situation from being appraised as highly stressful (Cohen and Wills 1985). Second, adequate support may intervene between the experience of stress and the onset of the pathological outcome by reducing or eliminating the stress reaction or by directly influencing physiological processes (Cohen and Wills 1985). Support may alleviate the impact of stress appraisal by providing a solution to the problem, by reducing the perceived importance of the problem, by tranquilizing the neuroendocrine system so that people are less reactive to perceived stress, or by facilitating healthful behaviors (Cohen and Wills 1985).

During recent years, interest in this role of social support in health maintenance and disease etiology has increased (Caplan 1974, Cassel, 1976, Cobb 1976, Dean and Lin 1977, Gottlieb 1981, 1983, Kaplan 1977, Sarason and Sarason 1985). The buffering hypothesis has been used by researchers in medicine, psychology, sociology, nursing and public health to find and explain links between social support and physical health, specifically mortality (Berkman & Syme, 1979; House, Landis, & Umberson, 1988; Uchino, 2004), and mental health (Sarason, Sarason & Gurung, 2001; Uchino, 2004; Wills & Filer, 2001). Numerous studies indicate that people with spouses, friends, and

family members who provide psychological and material resources are in better health than those with fewer supportive social contacts (Broadhead 1983, Leavy 1983, Mitchell 1982). The chief point of interference of social support has not been identified and infact, both points may be equally capable and important in explaining the mediating role of social support on health.

In conclusion, most studies operationalized social capital as a combination of both cognitive (mostly trust and reciprocity) and structural (mostly informal participation or civic engagement) dimensions of social capital. This review of the literature reveals that prospective epidemiologic evidence on the effect of social capital on health is very limited (Murayama 2012) and there is no conclusive evidence regarding the exact pathway by which social capital acts to affect health. The result is that there is no clear evidence for which health outcomes would be improved by increasing social capital.

2.4 Feasibility of Generating Social Capital

Indeed, a natural extension of previous work of De Silva 2006 and Harpham 2006 would be to ask whether and in what settings might interventions act to strengthen social capital, and whether this results in better health (Harpham, Grant, & Thomas, 2002; Kawachi & Berkman, 2000; Thomson 2004). Better understanding how to work effectively with communities around public health concerns has the potential to strengthen the relevance and application of social capital to public health policy and program development (Pronyk 2008, Hawe & Shiell, 2000).

In 2006, Pronyk et al. conducted the Intervention with Microfinance for AIDS and Gender Equity (IMAGE Study), a cluster randomized trial that explored the effects of a combined microfinance and training intervention on levels of HIV and intimate partner

violence (IPV). One explicit hypothesis of the study was that the IMAGE intervention had the potential to generate changes in social capital – through stimulating participation in social networks, enhancing solidarity, and mobilizing communities around priority concerns including gender and HIV (Pronyk 2008). According to Rural AIDS and Development Action Research Programme (2002), social capital was felt to be important both as a secondary outcome, as well as being a pathway variable with the potential to mediate intervention effects. The aim of Pronyk's 2008 paper was to review the findings of the IMAGE study combined with qualitative research to examine the changes in social capital in response to the IMAGE intervention-asking 'can social capital be intentionally generated?' They examined 1) the magnitude of intervention effects on solidarity and reciprocity (cognitive social capital), as well as network-related (structural) social capital and 2) the nature of bonding (strength of connections within groups) and bridging (connections between more heterogeneous groups) social capital within villages receiving the intervention. After adjusting for baseline imbalances (women enrolled in the intervention were more likely to be members of social groups and more likely to believe that community members would support one another in working towards common goals) estimates for all indicators of social capital changed in a positive direction, though not significant, with large effect estimates for most indicators: more participation in social groups and taken part in collective action. This study represents one of the few longitudinal studies to provide encouraging evidence that social capital can be intentionally generated in relatively short programmatic time frames.

Murayama et al. (2012) depict the relationship between social capital in the community and health promotion activities (intervention programs). They explain that the

existing social capital within a community—which is closely related to civic mobilization, sense of coherence, and commitment—can influence both the efficiency and effectiveness of a program such that the health effectiveness of a program may depend on not only the program itself and the individual participants, but also on community social capital (Murayama 2012). Additionally, enhanced social capital can influence the next program or continuation of the current program, as well as the effect of the program on the community (Murayama 2012). In this way, the program has a continuing effect on health in the community (Murayama 2012). Social capital can be affected (preferably enhanced) by the implementation of a program indicating that intervention programs and social capital do have a reciprocal relationship (Murayama 2012).

2.5 Helen Keller International's Homestead Food Production Program

Cambodia is one of the poorest countries in Southeast Asia and has been severely affected by war and over 30 years of political instability. The recent Cambodian Demographic and Health Survey (2010) testifies to the poor quality of health services and resultant fragile health status of the population (Riddell 2006). The worst health indicators can be found in rural areas where the precarious health and nutritional status of the people is exacerbated by the degradation of natural resources, diminishing food production, rapid deforestation, internal migration and land loss/confiscation (Riddell 2006). In addition, inadequate irrigation, poor soil, limited access to agriculture inputs, as well as sub-optimal nutrition behaviors prevent households from meeting their consumption needs.

Macro and micronutrient malnutrition have lasting and devastating consequences for individual health and ultimately national development. Malnutrition early in life often leads to stunted growth, poor cognitive and physical development, and is associated with increased episodes of infection throughout an individual's lifetime (Olney 2009). Furthermore, maternal nutrition during and after pregnancy including deficits in micronutrient content which has a significant impact on fetal growth and development will later affect the child's physical and cognitive growth potential and consequently contribute to hindered development at a national level (Olney 2009). Therefore, programs that contribute to a reduction in maternal and child malnutrition rates are a crucial component of achieving not only improved health but also national social and economic development.

Helen Keller International (HKI) realized and embraced the need for effective, sustainable programs to prevent malnutrition and so developed the Homestead Food Production Program (HFPP) in 1990 as a pilot program in Bangladesh. Scale-up of HFPP took place in 2003 in Bangladesh, Cambodia, Nepal, Philippines and Burkina Faso and HKI now works through over 200 strategic local non-governmental and governmental organizations to implement the program to provide technical, managerial and start-up supplies; organizations integrate HFPP into their ongoing activities. HKI is involved in implementation for an initial three years while local organizations provide support to beneficiaries for an additional two years. The main objective of the HFPP is to increase and ensure year-round availability and intake of micronutrient-rich foods in poor households, particularly by women and children. As the program has been deployed and adapted, additional objectives of the HFPP now include household income generation

from the sale of surplus vegetables, fruits and animal products and women's empowerment by which women have more control over their household resources and decision-making.

The HFPP works at the household level and targets women from poor households as the primary beneficiaries to build on their capacity by placing farming inputs, knowledge and skills in their hands through a three-pillar program design: 1) agricultural inputs 2) agricultural training and 3) nutrition education. Village Model Farms (VMF) are established as a place for nutrition training and demonstrations of improved agricultural techniques and animal production activities for households participating in the program and serves as a production center for inputs (seeds, saplings and chicks) (HKI 2010).

By design, the HFPP facilitates collaboration between beneficiary households, including the VMF, through group trainings and education as well as information and input sharing. This emphasis on collaboration promotes the building and maintaining of relationships and social support among the beneficiaries. Putnam (1995) describes this as social capital: "features of social organization, such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit".

In recognizing this, the primary goal of the present study was to explore the association between participation in the HFPP and the different dimensions of social capital by comparing the level of social capital among HFPP beneficiaries to women in control villages. Secondly, the study aimed to understand the effect of social capital on the occurrence of household crisis events and coping strategies, thought to be mitigated by participation in the HFPP, by evaluating associations between levels of social capital and occurrence and frequency of crisis events as well as subsequent use of coping

mechanisms.

By providing a comparison of levels of social capital between HFPP beneficiaries and controls, this study will be able to suggest the extent to which the HFPP impacts social capital, though its cross-sectional design will not allow for causality to be established. Additionally, it will provide understanding of the possible ways the HFPP acts to mitigate crises and improve coping mechanisms of beneficiaries. Study findings should be used to inform decisions for the improvement of the existing HFPP and the development of future programs to strengthen social capital as an effective methodology to improve health and wellbeing of households, communities and the country.

Chapter 3: METHODOLOGY

3.1 Objectives

The objectives of this thesis were to examine the role of social capital in mediating the frequency and coping strategies of household crises and to understand the relationship between participation in the HFPP and dimensions of social capital using a mixed methods approach

The first quantitative research question is whether the HFPP has any effect on the level of social capital of its beneficiaries. The second quantitative research question is as whether women's level of social capital is associated with the occurrence or the frequency of three crisis events. The three crisis events studied are 1) crop loss due to drought; 2) food shortage; and 3) hospitalization of a household member. In addition, the qualitative research question answers how HFPP beneficiaries describe the effects of the intervention and how rural Cambodians perceive the different dimensions of their social capital and their attitudes and beliefs about utilizing support.

3.2 Data Collection

The present study, conducted in Battambang Province in western Cambodia, was a cross-sectional, mixed methods study utilizing both qualitative interviews and quantitative surveys to collect data designed to explore the nexus of maternal social capital and household crisis and coping mechanisms. Qualitative and quantitative analysis methods were combined to inform the findings of each and to enrich the overall analysis. Research was carried out in July 2011. The main activities included: reviewing, pre-testing, finalizing and translating the questionnaires, attending survey team training and conducting data collection. Data entry was done by HKI-Cambodia staff. I carried out data cleaning and analysis, and preparing this thesis for dissemination.

Setting

The study was conducted in ten villages throughout Battambang Province, which forms Cambodia's Western border with Thailand. In this province, there exist significant levels of labor migration to Thailand. Distribution was as follows: five villages where HKI was currently implementing the MAC-AIDS funded HFP program and five villages previously identified as the program control group. All study participants for a given village gathered at a central location, interview and survey data were collected in and around either the VMF's house in the case of beneficiary villages or in and around the village chief's house in the case of control villages.

Sample Population

The HFPP in Battambang province was funded by MAC-AIDS and began implementation in 2008. It targeted 28 Village Model Farms (VMF) in one district. Each VMF serves 30-40 households for a total of 1000 beneficiary households. Beneficiary households in five villages in this district were chosen, based on convenience, as sites for study data collection in the present study. HKI maintains a list of 1549 households in 14 villages in the same district, which it uses as a control group for purposes of monitoring and evaluating the HFPP. From those control households, any meeting the same inclusion criteria used for the HFPP, that is at least one child under the age of five years old and extremely poor based on village income and housing records and as identified by village leaders were identified and chosen, based on convenience, as sites for study data collection. Participants for the present study were chosen from among the HFPP beneficiary households and HKI's HFPP control group.

In total, 119 people were recruited to participate in the study: fifty women from beneficiary households and fifty women from control households were randomly chosen to participate in the quantitative portion of this study. The random selection process involved simple random sampling whereby numbers were assigned to each member of the various groups. These numbers were written on pieces of paper and selected without replacement until the required number of subjects for the study from each group was achieved. In the event a randomly sampled participant was unavailable on the day of data collection, another participant was chosen based on availability and convenience.

Additionally, nine Village Chiefs (1 from each of 4 control villages and one from each of five beneficiary villages) and ten women (1 from each of five control villages and one from each of five beneficiary villages) were chosen to participate in in-depth interviews as part of the qualitative portion of the study. The village chief was interviewed in each of the ten study villages (five beneficiary villages and five control villages) except in one village where the village chief was unavailable at the time of data collection. In instances where the village chief was unavailable every effort was made to interview the next ranking village official, the vice village chief. In one village, this was the case and in another village, no interview was obtained from any village leader. Twelve women per village were asked to participate in the study. At the beginning of data collection, two women were randomly chosen for the in-depth interviews; the remaining ten were administered the quantitative survey.

Recruitment

A list of all households participating in the HFPP in Battambang Province and a list of households in the control group (used for monitoring and evaluation of the HFPP)

was obtained from the HKI office in Phnom Penh, Cambodia. HKI enumerators recruited the study participants with the assistance of VMF heads, community leaders and by word-of-mouth during data collection for endline results of the MAC-AIDS funded HFP project in Battambang province the 2 weeks prior to data collection for the present study.

Procedures

To achieve the first research objective of comparing the level of social capital among HFPP beneficiaries and similar women in control villages, 100 quantitative surveys were administered with the following distribution: 50 women from HFPP beneficiary households (10 from each of 5 different villages), and 50 women from HFPP control households (10 from each of 5 different villages) to ascertain quantifiable measures of the dimensions of their social capital and their crisis and coping mechanisms.

To address the second research objective, in-depth interviews (IDI) were conducted with mothers in HFPP beneficiary households, mothers in HFPP control households and Village Chiefs. IDI with mothers in HFPP beneficiary households were done to understand more subjectively about their crisis and coping strategies and how the HFPP encourages group membership, social support networks and feelings of trust, social harmony and belonging and increases the status of its female participants. IDI with women in HFPP control households were done to reveal a deeper understanding of whether the dimensions of their social capital and crisis and coping mechanisms differ from female HFP program beneficiaries and how. Because the village chiefs are well acquainted with community dynamics and issues surrounding and affecting women's status in their communities and because they often serve as liaisons between non-governmental organizations and the community, IDIs were also conducted with the

village chief in each study village. (In one village the village chief was unavailable in which case the vice village chief was an appropriate substitute and was interviewed instead. In another village, neither the village chief nor the vice village chief was available so no interview was obtained from a leader in that village.) Interviews with village chiefs were conducted to understand the dimensions of social capital, HFPP's effect on women's status and crisis and coping mechanisms from the perspective of the local leadership. From the same five beneficiary and five control villages chosen conveniently for the quantitative surveys, the village chief and two randomly chosen women (who did not participate in the quantitative survey) participated in an in-depth interviews.

Each IDI lasted between 1.5-2 hours; each survey took no longer than 30 minutes to administer. With this number of study participants, saturation was sufficiently achieved with strong richness, depth and variation in the data. Field assistants conducted the IDI and surveys and translated and transcribed the data following each session.

Instruments

In this study, quantitative survey questions on social capital were chosen from the Shortened Adapted Social Capital Assessment Tool (SASCAT) (De Silva 2006, Harpham 2002), a derivative of the adapted social capital assessment tool (A-SCAT) developed by Harpham et al (2002). The A-SCAT was psychometrically and qualitatively validated in Vietnam (Harpham, 2006) where the separateness of the different components was shown to be robust. Cultural and situational similarity allow that the tool is relevant for use in neighboring Cambodia. The social capital questions comprised one section of a larger questionnaire which included demographic questions as well as questions about

economic status, home gardening, crisis and coping mechanisms and women's empowerment.

The survey separated social capital into its two components, structural and cognitive, to allow for analysis of each independently and together. Structural social capital was measured in three ways: 1) group membership of formal (women's union, coop, trade union, political) and informal (religious, revolving credit, savings) groups in the past six months; 2) support received from informal (family, relatives, neighbors, friends, religious leaders) and formal (government officials, village chiefs, NGOs) networks during the past six months; 3) citizenship activities in the past six months which includes joining together with other community members to tackle an issue or problem and communication with community/village leaders. Membership of groups and support from networks were dichotomized into formal and informal groups/networks to reflect the distinction in Cambodia between formal government structures and informal people led structures. Group membership was recorded not as the absolute number of groups a respondent is a member of, but whether a respondent is a member of a particular type of group or not (e.g. women's group or micro-credit group). As such, the question may under-report group membership.

Cognitive social capital was measured by asking respondents four questions about perceptions of trust, sense of belonging, social harmony, and perceived fairness. The present study survey tool, like the A-SCAT, was designed for application in low-income developing country settings with low literacy rates, it was interviewer administered, and was pre-tested to ensure it was culturally relevant. Additional items were added to the survey to collect data on crisis and coping strategies of the respondents.

Survey questions to collect demographic information including socio-economic indicators on economic status, household composition, water and sanitation and home garden information were adapted from HKI's generic survey tools and used to control for confounding. Specific data on income and assets of the households were not collected due to the rigid inclusion criteria of the study participants. The survey tool was designed to measure social capital, as part of a larger study that included crisis and coping mechanisms. The survey tool asked about eight possible household crisis events: crop loss due to drought, crop loss due to flood, failed harvest, food shortage, hospitalization of a household member, death of a household member, loss of land and abandonment of a household earner. The survey asked how many times the event was experienced in the last six months and what the resulting coping strategies in the household were.

The qualitative tools were designed to collect data on the causes and consequences of social capital to make decisions about how social capital can be generated through existing or new programming at HKI-Cambodia.

All tools were developed in English, translated into Khmer, pre-tested and revised before widespread administration. Final survey and interview questions were selected to ensure aspects of both structural and cognitive social capital were well captured, alongside the local relevance of potential indicators. Questions and response codes were modified as needed to ensure they were well understood by both interviewers and respondents.

Training

HKI-Cambodia enumerators conducted the in-depth interviews and administered the survey. As part of their employment, they have received significant training by HKI

on evaluation techniques. They additionally received a day-long training that included training on the present study's research goals, justification, tools and qualitative methods including probing techniques, interviewing and surveying techniques, obtaining informed consent and interviewing simulations and role playing. Field testing of the interview guides and the survey were done at the end of the training day to ensure the quality, usefulness and accuracy of the questions as well as to finalize the interviewer's knowledge of the questions and delivery technique.

Data Management and Monitoring

Data collection and management was conducted by HKI-Cambodia. Recordings and transcripts from interviews were kept on password-protected computers and recordings were destroyed after transcription. Transcripts were completely de-identified. Survey data was entered into password-protected computers and paper copies kept secure by HKI-Cambodia.

3.3 Analytical Methodology

Mixed methods data was analyzed using the concurrent triangulation strategy whereby the quantitative and qualitative data were compared to determine if there was convergence, differences or some combination. Mixed methods were used for the present study using the concurrent triangulation strategy as a means to offset any weaknesses in either tool such that the strength of one would add to the strength of the other.

Qualitative interviews were recorded with participant consent and simultaneously translated and transcribed from Khmer into English. Recorded information from the interviews was compared with notes taken during the interviews to ensure that all the views expressed by respondents were captured. Appropriate steps were taken to

anonymize identifying information where necessary. Qualitative data was analyzed using a thematic analysis approach. MAXQDA was used to code and categorize the data into meaningful themes. The qualitative analysis was exploratory and done to fill in gaps in understanding from the quantitative analysis. As such, the analysis focused on identifiable themes and patterns of living and/or behavior. Data were read thoroughly to look for themes that arose. Inductive and deductive codes were developed as meaningful themes that described the essence of the study became evident. Themes emerged as participants' stories were pieced together to form a comprehensive picture of their collective experience. Code development was an iterative process that involved generating, refining, elaborating, defining, rejecting and splitting codes. Thick descriptions of codes to describe relevant themes were developed. Qualitative results were then compared to quantitative results to draw conclusions.

Quantitative data was entered using Microsoft Excel 2010 by two research assistants using the double entry method to verify the accuracy of data entry and to control for operator error during data entry. Data was then exported to Stata version 12.0 for analysis. The social capital index was created by combining the 14 variables that reflect the various components of structural social capital and the 4 variables that reflect the various components of cognitive social capital, specifically, the variables listed in Table 1 to yield a single summary measure. Since only four indicators of cognitive social capital were measured by the survey and 14 indicators of structural social capital were measured, a lower average structural score would not necessarily reflect stronger cognitive social capital than structural social capital. Therefore to create the social capital index, a principal components analysis was done to estimate the correlation structure of

the variables to provide the weights for each item in the index; data was then adjusted accordingly to generate an adjusted social capital score for each respondent. The continuous social capital scores were dichotomized into levels, low and high, using the median adjusted score as the benchmark. Respondents were said to have a low level of social capital if the scored below the median score for the group; likewise respondents were said to have a high level of social capital if they scored greater than or equal to the median score for the group. Pearson's chi-squared test or Fisher's exact test were done to make comparisons using the dichotomized social capital levels across outcome variables: study group, household crisis event occurrence and household crisis frequency. Unadjusted mean scores for structural and cognitive social capital were obtained using a summative index.

TABLE 1. Description of Social Capital Index Variables		
Variable Name	**Description of Variable**	**How Variable is Calculated***
Structural Social Capital		
Group Membership	Measures the percent of 5 possible formal (co-op, women's group, political/social group) and informal (religious group, micro-credit group) groups mother was an active member of during past 6 months	Respondents score a 1 or 0 if she belongs to each of the 5 groups or not, respectively.
Social Support	Measures the percent of 7 possible formal (community leaders, gov't officials, NGO/charity) and informal (family/relatives, neighbors, friends, religious leaders) networks mother received support from during past 6 months	Respondents score a 1 or 0 if she has received support from each of the 7 networks or not, respectively.
Citizen Activities	Measures the percent of 2 possible citizenship activities (joined with other households to address a problem, talked to a community leader about a problem in the community) mother was involved in during past 6 months	Respondents score a 1 or 0 if she was involved in each of the 2 citizenship activities or not, respectively.
Cognitive Social Capital		
Trust, Belonging, Reciprocity and Social Harmony	Measures the percent of 4 possible cognitive social capital indicators mother believes in	Respondents score a 1 or 0 if she agrees with each of the 4 cognitive social capital indicators or not, respectively.
*responses are weighted and summed		

Analysis of the crisis and coping variables was done using Pearson's chi-squared test to compare the ever-occurrence of the three most common crises, crop loss due to drought, food shortage and hospitalization of household member, between the control and intervention groups as well as for the frequency of reported use of different coping mechanisms for each of the three most common crises by group. T-tests were performed to assess whether the means of the two groups differed statistically for each of the three most common crises.

3.4 Ethical Considerations

Risks to Participation

It was not anticipated that participating in this study would cause any risks to the participants above and beyond average daily risk.

Confidentiality

All identifying information including names of individuals, locations and events were removed during transcription and before analysis on a personal computer. Recordings of interviews were uploaded onto password-protected computers and destroyed immediately after transcription. Survey data was transferred to password-protected computers and paper copies kept secure by HKI-Cambodia.

Informed Consent

Choice to participate in this study was made of study participant's own free will. Choice not to participate in the study did not affect participation in the existing HFPP or receipt of training, agricultural inputs, etc. or future eligibility to participate in HKI sponsored programs. Verbal consent was attained from all study participants. Emory IRB determined that this study does not constitute "Research" under the applicable federal regulations 45 CFR Section 46.102(d). Accordingly, IRB review was not required. Helen Keller International-Cambodia was responsible for any and all IRB approval pursuant with Cambodian law.

Plan to Inform Participants

Participants of this study will be informed of the findings through improvements to existing and future program design.

Chapter 4: RESULTS

These results incorporate social capital into an analysis of the crisis events and coping mechanisms of women living in rural villages in Western Cambodia and examine associations between participation in the HFPP and the dimensions of social capital.

Description of the Study Population

Of the 100 women surveyed, 60% had five or fewer people living in their household; 40% of respondents reported household sizes of six to eleven people. As a selection criteria, all women had at least one child under the age of five in the household, 76% of respondents had two children under five, 20% had three children under five and 2% reported having four children under five in the household. Two women reported there were no children under five in her household. This is likely because the child was under five at baseline of the intervention but was over five at the time the survey was administered. Nearly all respondents live in male-headed households (96%). A significant number of respondents (9%) never received any education, formal or informal. Of the respondents who reported receiving formal education, 59% completed at least some primary school (years 1-6), 34% completed at least some lower secondary school (years 7-9) and 7% completed at least some upper secondary (years 10-12). The primary occupation of the main household earner was a rice of crop farmer (64%) followed by a wage laborer (19%). On average, respondents owned 1.3 hectares of land. Women were asked to describe their current homestead garden and responses were categorized according to the HFPP definitions[1]. Most women had a traditional garden (41%) followed

[1] HKI's definitions of garden types are: 1) *traditional*, refers to gardens that produce 1-2 types of vegetables for 1-3 months per year on a scattered plot; 2) *improved*, refers to gardens that produce 3-5 types of vegetables for 4-11 months per year on a fixed plot; and 3) *developed*, refers to gardens that produce 6 or more types of vegetables year-round on a fixed plot.

by 26% with an improved garden; only 16% had a developed garden. Approximately one-fifth of women had no homestead garden. Average at marriage was 22 years and average age at first birth was 23 among study participants. With the exception of garden type, for which significantly more women in the intervention group had an improved or developed garden than women in the control group, no other sociodemographic characteristics differed significantly between intervention and control groups.

Empowerment

The survey assessed dimensions of empowerment including contribution to household wealth, women's decision-making and beliefs about spousal interactions--measured as respect from husband, ability to refuse sex and renouncement of domestic violence. Empowerment, thought to be strengthened by the HFPP, was found to be positively correlated with social capital (correlation coefficient=0.2013).

Every woman reported that it is not acceptable for a husband to beat or hit his wife. Half of women from intervention villages (54%) and control villages (50%) reported that they strongly agree with the statement, "It is okay for a woman to refuse to have sex with her husband." Fewer women from the control group strongly disagreed with the statement than did women in the intervention group (4% compared to 6%). Nearly all (94%) of respondents agree or strongly agree that their husband respects them.

The majority of women in intervention villages (98%) and control villages (96%) agree or strongly agree that their husband allows them to be a part of important decisions in the household. The majority of women surveyed (62%) report contributing some or a lot to income earned in the household; an even higher majority (91%) have some or a lot of influence on the decisions made in the household. As indicated in excerpts from the

qualitative interviews below, women's participation in household decision-making appear to be highly influenced by her ability to earn an income. According to survey data, the two are significantly positively correlated (correlation coefficient=0.2578 p=0.0096).

"For example, my wife can earn income from the program [HFPP] but if a woman can not make money, she cannot participate in decision making."

Village chief, intervention village

"Because I can now also earn some money in my family, so I can participate in decision-making."

Participant, intervention village

"My husband has more rights and is more powerful than me because he earns the money in my family so he can make more decision than me."

Participant, control village

When women in the intervention group were asked about the HFPP's effect on her status in the household, all women responded in the affirmative: 58% that it had some positive effect and 42% that had a lot of effect on her status in the household. Women were asked the same question with respect to HFPP's effect on her status in the community: 4% reported that the HFPP had very little effect on her status in the community, 66% that it had some positive effect and 30% that it had a lot of effect on her

status in the community. Qualitative data confirmed the effect of HFPP on dynamics within the household between husband and wife, as evidenced in the excerpts below.

"We [my husband and I] love each other more now than before joining the program [HFPP]."

Participant, intervention village

"...we had so much stress because there was only my husband to contribute to our household earnings. But after I joined the program, I plant crops. My husband and I are happy because I have work to do at home and my husband loves me more than before."

Participant, intervention village

"We also loved each other in the past, but after joining the program [HFPP], we got some advices ... [and now] he helps me to cook and does house work. We have a better life now. I don't live under the pressure of my husband. My family is full of happiness."

Participant, intervention village

Another key impact of the HFPP identified by qualitative interviews was its effect on the interactions between villagers. Beneficiaries and village chiefs alike, reported drastic changes in the number and types of interactions between neighbors and leaders since the implementation of the program.

"…now they [neighbors] interact with each other every day, so it gives a chance for people to know each other better and be closer and closer with each other."

Village chief, intervention village

"We [neighbors] rarely met with each other before joining the program [HFPP]. We didn't have much of a relationship. After we joined with the program, we have a strong relationship because we are always meeting with each other."

Participant, intervention village

"…so now we want to know how each other plants the vegetables, whether they are doing well or not. Before joining the program [HFPP], we didn't know what we should talk to each other about, we had nothing to say."

Participant, intervention village

Crisis Events and Coping Mechanisms

Of the eight crises asked about in the survey, four crisis events were reported by only one person: failed harvest, death of a household member, loss of land or land confiscation and abandonment of household earner. No one reported experiencing crop loss due to flood. No other types of household crises were reported beyond what was asked.

Three crises emerged as most commonly experienced: crop loss due to drought (58%), food shortage (39%) and hospitalization of a household member (9%). There were 68 total episodes of crop loss due to drought reported, 27 occurred in control villages and 41 occurred in intervention villages. There were 115 total episodes of food shortage

reported, 77 occurred in control villages and 38 occurred in intervention villages. There were nine total episodes of hospitalization of a household member reported, five occurred in control villages and four occurred in intervention villages. For purposes of analysis, only the three most common crisis events were used.

A greater number of beneficiary households than control households, though not statistically more, have ever experienced crop loss due to drought (Table 5). Moreover, women in the intervention group experienced statistically significantly more episodes of crop loss due to drought than women in the control group (Table 3). However, this is probably not attributable to either the intervention or social capital. IDI with women in the intervention group revealed major issues with the canal system shared by three of the five intervention villages. The crop loss described here refers to loss of rice crop in large fields and not homestead gardens. Women and village chiefs alike, from the intervention villages, reported issues of canal management at the commune level as well as insufficient provision of water to households and rice fields by the canal system as exemplified with the quote below.

"Because of water is divided to many places, so it can not provide enough water as our village needs."

Participant, intervention village

Women in the control group experienced about 2.5 times more episodes of food shortage than women in the intervention group, which was found to be statistically significant (Table 3). Lastly, women in the control group experienced, on average, more episodes of a hospitalization of a household member than women in the intervention

group, it was not found to be statistically different (Table 3).

It was hypothesized that fewer women in the intervention group would experience crisis events than women in the control group due to the expected protective effect of the HFPP. Indeed for two of the three most common crisis events, fewer beneficiary households experienced the event. However, it was only statistically significantly less for the food shortage crisis (Table 5).

Study results showed a pattern for coping strategies of crisis events (Table 4). The primary coping mechanisms were getting a loan from relatives or neighbors or credit from a merchant (Table 4). There was consensus within crisis event but not across crises. Survey results confirm that the majority of women (55%) use a coping strategy other than the strategies specifically asked about. Free response answers to this question included the respondent not knowing what to do about the problem but mainly, that they accessed structural social in the form of cooperating to enlist the help of the village chief (citizen activity) or migrated to find work in Thailand. Citizen activity was one primary coping strategy identified in the survey and from the in-depth interviews; women and village chiefs in the intervention villages reported with frequency, coming together to address the issue of drought and the canal system.

"…people cooperate with each other to ask that water be directed into the canal."

Participant, intervention village

"We share our money and give that money to the village chief and he contacts the authority and gives the money to the authority that is in charge of the water source [the

canal]."

Participant, intervention village

"At first people have to cooperate with one another to form a group. Then they ask for support from village chief."

Participant, intervention village

When women experienced crop loss due to drought, they primarily requested support in the form of loans from neighbors (22%) or reported a coping strategy other than the strategies specifically asked about (55%), as described above. When participants experienced crop loss (larger scale rice production) due to drought, they suddenly had to come up with not only enough money to purchase from somewhere the rice that was lost but also enough money to make up for the income that was lost from not selling their surplus rice yield. Given the study population's proximity to the Thai border, migration to Thailand was expressed in the in-depth interviews as the coping strategy most women reported as their response to crop loss due to drought.

"People in this village work for pay at the Thai border because we don't have enough water to make our rice fields."

Participant, control village

"Because we are hopeless when there is a drought crisis, so we will make the decision to go to earn money to eat in Thailand."

Village chief, intervention village

When faced with hospitalization of a household member the majority of women reported receiving support from relatives (67%) or neighbors (11%). Qualitative findings indicate major differences in the coping strategies between women in the intervention versus the control group for this crisis type. Excerpts below illustrate the difference. The qualitative data suggest that participation in the intervention insulates participating households from the shock of hospitalization of a household member. Almost all women in the intervention group described that relationships they had established with neighbors (fellow beneficiaries) eased the accessibility and economic stress of transportation to and from the hospital or health center while women from control villages described no such delivery of support.

"...we trust on other. My neighbor has a moto bike and I can borrow it from them to take my children to the health center. Sometimes, they use their moto bike to bring my parents to see my children at health center."

Participant, intervention village

"No, they don't [get money for transportation]. I go to health center by their car without paying them any money."

Participant, intervention village

"No, I go to health center by myself. I take moto taxi. No one help me. If my neighbor has a moto taxi, they take money from me if I go to health center by their moto.

Even my relative, they take me to health center, but they get money from me for transportation."

Participant, control village

The primary coping strategies for food shortage were evenly split between loans from neighbors (36%) and credit from merchants (41%). Qualitative findings suggest that participation in the intervention insulates participating households from food insecurity shocks. When faced with potential crisis, several spoke of the HFPP counteraction.

"After I joined with the HFPP I plant crops and now I have enough vegetables for eating."

Participant, intervention village

"After joining with the program [HFPP], we plant our own crops, so we rarely buy vegetables from others and now don't have any problems with having no food."

Participant, intervention village

Social Capital

In general, participants in interviews believed that social support and/or assistance would be available from other people should they need it. Quantitatively, women reported receiving support from many sources: relatives (95%), almost exclusively parents, neighbors (60%), charity or non-governmental organizations (24%), community leaders (61%), friends (20%), and in a limited number reported receiving support from government leaders (2%) and religious leaders (4%) (Table 8).

Structural social capital was described in qualitative interviews primarily as support but also as citizen activities as described above. Participants described all four

types of support described by Langford (1977) including receiving emotional support--in the form of offering and receiving empathy, concern, encouragement, caring and nurturing, tangible support—as the provision of financial assistance, through loans with or without interest, or material food goods (to cope with food shortage), informational support—as the offering of advice, guidance and suggestions and useful information for problem solving, mostly from the village chiefs and lastly, companionship support--having feelings of trust, used most often to describe support received from neighbors.

Qualitative data revealed a distinction between *perceived* and *received* support. Barrera (1986) describes perceived support as a person's subjective judgment that someone--in the present study: relatives, neighbors, leaders or organizations--would provide quality assistance in the event it was needed. Perceived support then, in this thesis, appears to reflect both the characteristics of relationships and also the personal characteristics of respondents. As seen in the examples below, women in both groups have strong perceived support.

"I never ask for help from the leader or discuss with anyone about my problems. But I think that if I ask for support from them, they will help me."

Participant, intervention village

"…I could easily ask for support from my relative because we are closer than my neighbor."

Participant, intervention village

"If I didn't have some materials for making my rice field such as spray cans or a tube to

pump water into my field, I could borrow it from my neighbor."

Participant, control village

Qualitative data indicated that women in both groups received support though participants in the intervention villages tended to describe stronger enacted or *received* support from neighbors than participants in the control villages. This finding is confirmed from the survey data; women in the intervention group reported higher levels of received support compared to women in the control group (p=0.000). As discussed above, higher levels of enacted support in the intervention group is mainly a result of receiving transportation to the health center for free from neighbors, a type of support that is not received by women in the control group. Other types of received support frequently described included others who listened to the participant talk about her problems, offered advice to help solve her problem, or provided specific services such as looking after her children or house.

"I ask them [neighbor] to care for my house when I must stay at the health center and no one stays at my house."

Participant, intervention village

"Sometime I don't have transportation, I ask my neighbor to look after my children for a while until I find out motor to take my children to health center."

Participant, control village

"I think that maybe other villages help each other but we don't help each other. When I

fight with my husband or have a problem, no one helps me."

Participant, control village

In the qualitative data, three domains emerged to explain utilization of support by study participants: (1) social norms; (2) expected consequences; and (3) perceived burdens (Figure 4). A feeling of helplessness was described to impact utilization of support when failure to cope adequately was attributed to a woman's belief that support should be autologous and not from an external source.

"...no need to ask for support from anyone. I think that I can help myself instead."

Participant, intervention village

Additionally, there were certain, and often similar, problems that affected utilization of support due to other societal norms. For example, problems between husband and wife were perceived among study participants to be matters that should stay within the family and as such, of this problem with others in stifled.

"My neighbors never help me when I have problem with my husband because they think that it is personal problem in my family."

Participant, intervention village

Seeking a divorce or feeling lonely were problems for which stigmatization prohibited women from seeking help. Domestic violence is the one problem that women

will almost always access support for, though qualitative data show she is more likely to seek support from formal networks (police, village chief) than informal networks (relatives or neighbors) as illustrated with the following excerpt from a village chief.

"Whenever this problem [domestic violence] happens in the village, the villagers inform the village chef and the village chief gives advice. If the conflict is still not solved, the village chief ask the police to assist in this problem. But for serious we need police or the National or Provincial government to assist."

Village chief, control village

Qualitative data show that when women are in need of monetary support for their household, they seek support from their relatives or neighbors for no other reason than it is the cheapest way to borrow the money they need. They fear they will not be able to repay loans with high interest and what the consequence will be.

"Because I'm afraid of the interest. It will increase more and more, so I don't have enough money to pay it back."

Participant, control village

"Because I'm afraid I cannot earn enough money to pay back the interest."

Participant, control village

Qualitative data show that women fail to utilize support available to them because they fear seeking support will only worsen the problem. Regardless of the problem, women want to prevent their own parents from worrying and remove the possibility that in-laws may place blame or seek retribution from her for the household problems as seen in the examples below where women describe actively hide their problems from their relatives to avoid consequences.

"Whenever I feel sad, I go to my parent's house, but I don't tell them that I feel sad and lonely because I'm afraid it will make them upset."

Participant, control village

"…my father doesn't know that I have problems with my husband because I don't want him to worry about me. I visit him and pretend things are normal."

Participant, control village

"I'm afraid my parents will feel upset. I don't want my parents be upset because of me."

Participant, control village

In many interviews, participants described having strong relationships with their neighbors that fostered the ability to rely on each other. However, in times of crisis, they do not. The belief that neighbors are in the same or worse situation or facing the same problem, prevents women from seeking their support during crisis.

In the quotes below, women in control villages describe not wanting to burden on their neighbors as a primary cause for not seeking support.

"I don't think my neighbor can help me because they are poor just like me."

Participant, control village

"It is only my parents-in-law that I rely on. My neighbors also have the same problem as me, so how can I rely on them?"

Participant, control village

As described in the Methods section, measures of social capital were indexed for analysis. The mean summative social capital score was lower for the control group, 5.76, than for the intervention group, 9.04 (Table 6). This score was composed of the mean unadjusted structural social capital score--2.38 for study controls, 5.34 for the intervention group--and the mean unadjusted cognitive social capital scores--3.38 for program controls and 3.7 for the intervention group (Table 6). For all three comparisons, summative social capital score, structural score and cognitive score, the means were statistically significantly different (Table 6).

Significantly more women in the intervention group reported active membership in any formal group than women in the control group but there was no significant difference in membership in informal groups (Table 8). No participant reported membership in co-op, religious, political or social groups; 10% reported membership in a micro-credit group (Table 8).

When asked about their social support networks, the majority of women reported receiving support from family members and relatives (95%) followed by support from community leaders, including village chiefs and VMF (61%), neighbors (60%) and non-

governmental or charity organizations (24%). Only 2% of participants reported receiving support from government officials and 4% from religious leaders. Support from formal networks was statistically significantly higher among women in the intervention group while all women reported strong support from informal networks (99%) (Table 8).

Quantitative data reported low levels of citizen activity in both study groups (Table 8). Less than half of participants reported joining with other households to address a problem (22%) or talking to a community leader about a problem in the community (38%). There was an association between HFPP participation and higher citizen activity; being in the control group was also significantly associated with no citizen activity.

HFPP participation was found to be significantly associated with only one measure of cognitive social capital: belief that people in the community are honest (Table 8). When cognitive variables were added to create a continuous score, significantly more women in the control group reported low cognitive social capital than women in the intervention group.

Only for the crisis event of food shortage was there a statistically significant association between level of social capital and experience of the event (Table 9). Furthermore, results in Table 10 show no significant differences in the frequency of the event by social capital level for the three most common crisis events.

TABLE 2. Study Population				
		Study Method		
Study Group	Respondent Type	Quantitative Surveys	Qualitative In-depth Interviews	Total
Control	Village Chief	-	5	5
	Woman	50	5	55
Total		50	10	60
Intervention	Village Chief	-	4	4
	Woman	50	5	55
Total		50	9	59
Study Totals		100	19	119

TABLE 3. Associations between Number of Times Crisis Experienced by Study Group				
	Group	N	Mean	Result
Crop Loss due to Drought	Control	50	0.54 ± 0.50	**t = -2.1436**
	Intervention	50	0.82 ± 0.77	**p= 0.0345**
	Combined	100	0.68 ± 0.66	
Food Shortage	Control	50	1.54 ± 2.11	**t = 2.5983**
	Intervention	50	0.64 ± 1.24	**p= 0.0108**
	Combined	100	1.09 ± 1.78	
Hospitalization of Household Member	Control	50	0.18 ± 0.66	t = 0.9888
	Intervention	50	0.08 ± 0.27	p= 0.3252
	Combined	100	0.13 ± 0.51	

TABLE 4. Primary Coping Strategies for Crisis Event in Last 6 Months Overall and by Study Group											
		Loan from relatives	Loan from neighbor	Loan from friend outside community	Credit from merchants	Sold HH assets	Occupation change	Taken relief/aid	Men sent out to work	Other	Total
Crop Loss due to Drought	Control	2 (7%)	6 (22%)	0	2 (7%)	0	2 (7%)	-	0	15 (56%)	27 (47%)
	Intervention	0	7 (23%)	1 (3%)	2 (6%)	1 (3%)	1 (3%)	-	2 (6%)	17 (55%)	31 (53%)
	Total n=58 (%)	2 (3%)	13 (22%)	1 (2%)	4 (7%)	1 (2%)	3 (5%)	-	2 (3%)	32 (55%)	58 (100 %)
Food Shortage	Control	5 (19%)	10 (37%) .	-	11 (41%)	-	-	-	-	1 (4%)	27 (69%)
	Intervention	2 (17%)	4 (33%)	-	5 (42%)	-	-	-	-	1 (8%)	12 (31%)
	Total n=39 (%)	7 (18%)	14 (36%)	-	16 (41%)	-	-	-	-	2 (5%)	39 (100 %)
Hospitalization of Household Member	Control	3 (60%)	0	-	-	-	-	1 (20%)	-	1 (20%)	5 (56%)
	Intervention	3 (75%)	1 (25%)	-	-	-	-	0	-	0	4 (44%)
	Total n=9 (%)	6 (67%)	1 (11%)	-	-	-	-	1 (11%)	-	1 (11%)	9 (100 %)

TABLE 5. Percent of Women That Experienced Household Crisis Event At Least Once by Group				
	Control	Intervention	Total	Result
Crop Loss due to Drought	27 (47%)	31 (53%)	58	X^2=0.6568; p=0.418
Food Shortage	27 (69%)	12 (31%)	39	**X^2=9.4578; p=0.002**
Hospitalization of Household Member	5 (56%)	4 (44%)	9	X^2=0.1221; p=0.727

TABLE 6. Summed Scores of Dimensions of Social Capital by Study Group (mean ± sd)			
	Control N=50	Intervention N=50	Result
Structural Social Capital Average Score*	2.38 (± 1.35)	5.34 (± 1.48)	**p=0.00**
Cognitive Social Capital Average Score**	3.38 (± 0.88)	3.7 (± 0.61)	**p=0.0373**
Social Capital Index Average Score***	5.76 (± 1.67)	9.04 (± 1.73)	**p=0.00**
* Maximum 14; ** Maximum 4; ***Maximum 18			

TABLE 7. Weighted Social Capital Score by Study Group*				
	Control	Intervention	Total	Result
Low	29 (58%)	21 (42%)	50 (50%)	X^2=2.56
High	21 (42%)	29 (58%)	50 (50%)	p = 0.110
Total	50 (100%)	50 (100%)	100 (100%)	
*Scores for structural and cognitive measures of social were adjusted for weight and combined to yield a single social capital score. Continuous social capital score was then categorized into low and high based on whether the score was <median (low) or ≥ median (high).				

TABLE 8: Individual Components of Maternal Social Capital Overall and by Study Group				
	Overall n=100	Control n=50	Intervention n=50	P value for difference Result
Structural Social Capital				
Group Membership				
In the past 6 months, have you been an active member of formal group				
Co-op	0	-	-	-
Women's group	50%	0	100%	-
Political or Social group	0	-	-	-
In the past 6 months, have you been an active member of informal group				
Religious group	0	-	-	-
Micro-credit group	10%	10%	10%	1.00 $^{\delta}$
Composite Variable				
None	45%	90%	0	-
Any formal groups	50%	0	100%	**0.00** $^{\delta}$
Any informal groups	10%	10%	10%	1.00 $^{\delta}$
Social Support				
In the past 6 months, have you received support from formal networks				
Community leaders	61%	26%	96%	**0.00** $^{\delta}$
Government officials	2%	4%	0	0.495 $^{\delta}$
Non-governmental/Charity organizations	24%	8%	40%	**0.00** $^{\delta}$
In the past 6 months, have you received support from informal networks				
Family members/relatives	95%	92%	95%	0.362 $^{\delta}$
Neighbors	60%	50%	70%	***0.041*** $^{\Psi}$
Friends (not neighbors)	20%	20%	20%	*1.00* $^{\Psi}$
Religious leaders	4%	2%	6%	0.617 $^{\delta}$
Composite variable				
None	1%	2%	0	-
Any formal networks	66%	34%	98%	**0.00** $^{\delta}$
Any informal networks	99%	98%	100%	1.00 $^{\delta}$
Citizen Activities				
Joined with other households to address a problem	22%	20%	24%	*0.629* $^{\Psi}$
Talked to a community leader about a problem in the community	98%	6%	70%	**0.00** $^{\delta}$
Composite variable				
None	52%	80%	24%	***0.00*** $^{\Psi}$
Some (either joined together or contacted leaders)	48%	20%	76%	**0.00** $^{\Psi}$
Cognitive Social Capital*				
In general, most people in community can be trusted	75%	68%	82%	0.106 $^{\Psi}$

Most people get along well	95%	94%	96%	1.00 $^{\delta}$
Feel like a part of your community	100%	100%	100%	-
People in community are honest	84%	76%	92%	**0.029** $^{\Psi}$
Composite variable				
Low (<3 yes)	17%	26%	8%	**0.017** $^{\Psi}$
Medium (=3 yes)	12%	10%	14%	*0.538* $^{\Psi}$
High (=4 yes)	71%	64%	78%	0.123 $^{\Psi}$

*Variables added together to create continuous score that was categorized into low, medium, and high levels of cognitive social capital.

$^{\Psi}$ Chi-square

$^{\delta}$ Fisher's exact

TABLE 9. Percent of Women That Ever Experienced Household Crisis Event by Weighted Social Capital Score*

	Low	High	Total	Result
Crop Loss due to Drought	25 (43%)	33 (57%)	58	X^2 =2.6273 ; p=0.105
Food Shortage	26 (67%)	13 (33%)	39	**X^2 = 7.1038; p= 0.008**
Hospitalization of Household Member	5 (56%)	4 (44%)	9	X^2 = 0.1221; p= 0.727

*Continuous social capital score was categorized into low and high based on whether the score was <median (low) or ≥ median (high).

TABLE 10. Associations between Number of Times Crisis Experienced by Social Capital Score*

	Score	N	Mean	Result
Crop Loss due to Drought	Low	50	0.6 ± 0.10	t = -1.2060 p= 0.23
	High	50	0.76 ± 0.09	
	Combined	100	0.68 ± 0.66	
Food Shortage	Low	50	1.26 ± 0.20	t = 0.9538 p= 0.3425
	High	50	1.09 ± 0.30	
	Combined	100	1.09 ± 0.18	
Hospitalization of Household Member	Low	50	0.16 ± 0.09	t = 0.5914 p= 0.5556
	High	50	0.10 ± 0.05	
	Combined	100	0.13 ± 0.05	

*scores are weighted to account for there being 14 measures of structural social capital and only 4 measures of cognitive social capital; Continuous social capital score was categorized into low and high based on whether the score was <median (low) or ≥ median (high).

Chapter 5: DISCUSSION

Traditional factors influencing coping mechanisms, like wealth, education and gender, are important but do not explain fully why one coping strategy is pursued over another (Geran 2001). The present study, therefore, aimed to go beyond traditional factors that neglect the mediating role of social relations in order to understand the importance of social capital and how it may contribute to a household's ability to cope with shocks as well as whether it can be strengthened through programming.

5.1 Main Findings

Crisis and Coping

Analysis shows that higher levels of social capital are significantly associated with fewer episodes of food shortage. Households in the intervention group, shown to have significantly higher levels of social capital, are insulated from food shortages due to the nature of the nutrition intervention program they are receiving from HKI; eliminating food insecurity is a pillar of the HFPP. Program beneficiaries receive nutrition education and agricultural training and inputs that foster year-round production of a variety of micronutrient-rich fruits, vegetables and meats and animal products. As well, beneficiary households also benefit from the program in less conventional ways; HKI has demonstrated in numerous publications the impact of the HFPP on women's empowerment and income generation (HKI 2010, HKI 2003, Bushamuka 2005). Women in the control group, shown to have lower social capital, do not receive the conventional benefits of the HFPP (agricultural training and inputs) nor are they likely to receive the indirect benefits of the program including for example, income generation and women's empowerment that may affect their ability to cope with crises and shocks. These results

are in agreement with other studies on social capital and food shortage and hunger. One study by Mohd et al. (2008) found that more mothers in food secure households were income-earners and being a housewife (non-earner) was a significant factor associated with household food insecurity. The combination of their working experience, which included socialization with other people, and their ability to generate and control financial resources in the households allowed them to provide enough food for family members, manage income and food resources efficiently and be innovative in coping with household income or food insufficiency (Mohd 2008). In another study, Martin et al. (2004) found social capital, at both the household and community levels, to be significantly associated with household food security. According to their data from low-income households in Hartford, Connecticut, community-level social capital is significantly associated with decreased odds of experiencing hunger. Households may have similarly limited financial or food resources, but households with higher levels of social capital, particularly in terms of reciprocity among neighbors, are less likely to experience hunger. In an additional finding, Martin et al. (2004) validate the findings of the present study, that having a household member who participates in a social or civic organization is significantly associated with having higher levels of social capital.

Located in the Asia-Pacific region, Cambodia is among the countries that play host to the greatest number of undernourished people in the developing world. It is a net food importer--meaning that it must import food to meet its citizens basic needs making it extremely vulnerable to increasing food prices. According to the World Bank, global food prices have doubled in the last three years causing food shortages (Food Price Watch 2011). Estimates are that this increase will add another 100 million people to the

nearly one billion people worldwide who are suffering from malnutrition caused by a lack of basic nutrients in the food they eat. This food crisis is worsening conditions in rural Cambodia, especially, which were already precarious. The present thesis provides evidence that strengthening social capital can be an important and effective strategy to lessen the negative effects of food shortage in rural households. Pertaining to the unexpected results surrounding crop loss due to drought, the issues with the canal management likely explain much of the difference in the number of times women in the intervention group experienced crop loss due to drought compared to women in the control group (Table 3).

Women with higher levels of social capital were found to be rich with social support networks. These social networks provide a safety net against experiencing household crises or stressful events, so that women with higher levels of social support have fewer episodes of crises. As in other studies (Kaschula 2011), data did show that higher levels of social capital were significantly associated with fewer women who ever experienced food shortage. This is a reflection of the trend toward higher levels of social capital among women receiving the HFPP, an intervention that is designed to combat food insecurity, generate income and empower women.

Geran (2001) introduced a theoretical framework linking social capital theory to an analysis of the resilience of rural households to external shocks. The results of the present study uphold Geran's framework by showing that the endowment of social capital, especially structural social capital is an asset to coping strategies for crisis events. Although stressful events may elicit needs for multiple resources, it is reasonable to assume that specific events elicit particular salient coping mechanisms. Study results did

show a pattern for coping strategies of crisis events (Table 4) whereby three sources of support emerged as primary coping mechanisms: getting a loan from relatives or neighbors or credit from a merchant (Table 4). The results also agree with the second concept of Geran's framework, that social capital is the basis for gaining access to other productive assets--money and food--and livelihood strategies--cooperation, trust and citizen activities--for rural women. In identifying the importance of social capital and how it may contribute to a woman's ability to cope with crises in her household, this thesis finds that social capital theory and measurement are important in practical analyses of the vulnerability and resilience of rural livelihoods to external shocks, particularly food insecurity and shortage.

Generation of Social Capital by HFPP

An effective intervention strategy to build social capital has yet to be devised (Murayama 2012). Therefore, the author examined the effect of participation in the HFPP nutrition intervention on social capital in rural villages in Western Cambodia. The results suggest that an association between social capital and participation in HFPP did exist: the data trended towards higher social capital among HFPP beneficiaries and with the small sample size, the p-value of 0.100 could appropriately indicate significance. However, this may be the result of reverse causality due to the cross-sectional nature of the study.

Understanding HFPP's potential effect on each domain of social capital is useful to determine how program resources should be allocated and which aspects of the program are most effective at strengthening social capital such that it will have an impact on outcomes affecting health. The present thesis found that the specific dimension of social capital—structural social capital--was most associated with participation in the

HFPP intervention. The differences in outcome (crisis events and coping mechanisms) and social capital levels were largely driven by differences in structural capital as opposed to cognitive capital. This is likely because the HFFP acts on the tangible behaviors that form connections—what people "do"—such as social networks and the extent and intensity of activity, like civic engagement, cooperation and group membership (participation in the intervention) and less on the subjective attitudes about social connections—what people "feel"—such as notions of trust and reciprocity. The IMAGE Study had a similar finding that the effects of that intervention on structural social capital were large, with particular evidence of expanded social group membership (Pronyk 2008). Results show that forms of structural social capital drive the differences in levels of social capital between women in the intervention versus control group. Therefore, the finding of a lack of association between social capital and all crisis events perhaps suggests that cognitive social capital is more important in preventing crisis. This study finding follows findings from Martin et al. (2004). In trying to identify the characteristics that are most strongly associated with social capital and the mechanisms by which social capital may influence whether households have enough to eat they described reciprocity (a form of cognitive social capital), as the aspect of social capital, which translated into greater access to tangible resources (ability to cope with crisis).

Very few participants reported receiving support from government officials (2%) or religious leaders (4%) suggesting that formal networks are not strong or important avenues for support in this study population. However, participation in the HFPP was shown to be associated with receiving more support from community leaders-- likely a function of the presence of VMF for support and advice and receiving support from non-

governmental or charity organizations—and neighbors—likely a function of the relationships created between neighbors by participation in the HFPP. Qualitative data suggests a reliance on neighbors as an important coping strategy due in large part to the information sharing that takes place between HFPP beneficiaries during trainings that builds significant and meaningful relationships between the women such that they can rely on each other in times of crisis or stress to provide support. There was likely underreporting of citizen activity from the survey data as these types of activities were described extensively in the qualitative data as common coping strategies from women in both groups. This bias is attributable to misinterpretation of the simplified survey question or ambiguity of what constitutes a problem necessitating action.

This thesis also found there are competing factors that influence 1) whether or not a woman seeks support 2) the type of support that she seeks and 3) reasons why she seeks that support (Figure 2).

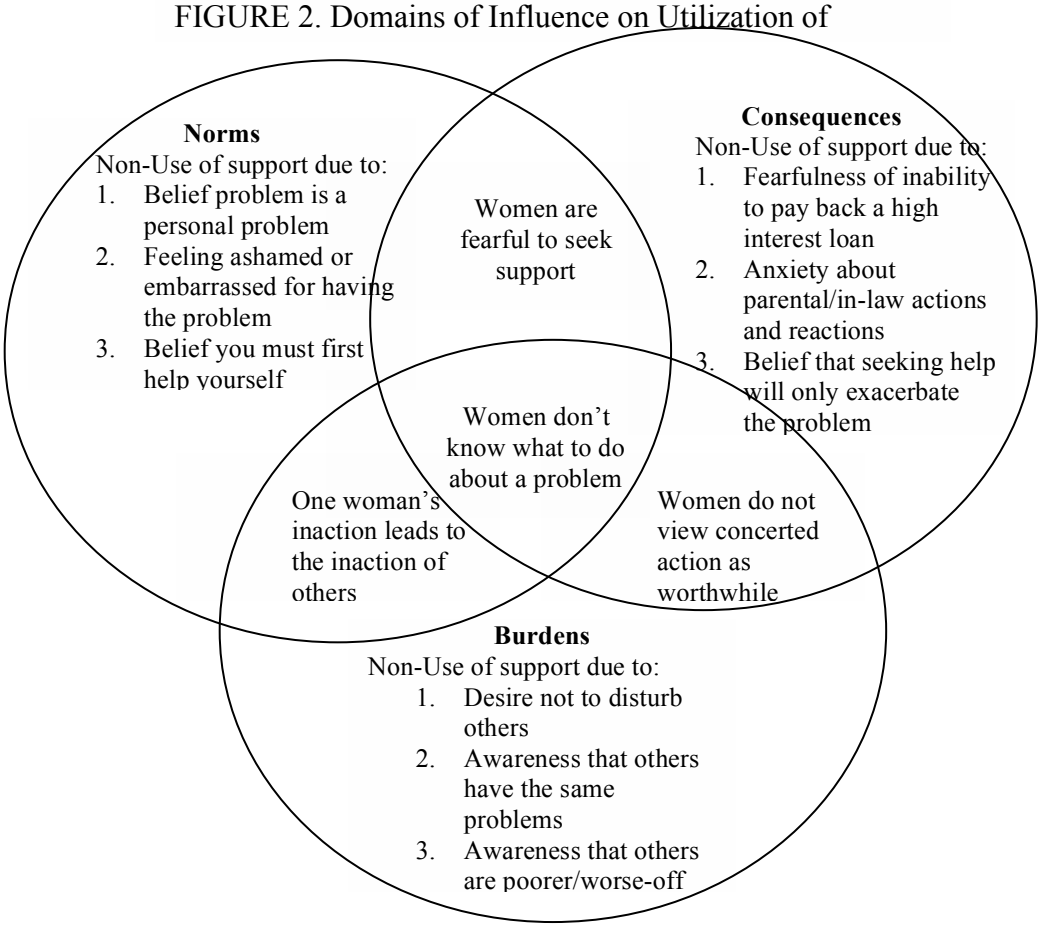
The nuances of societal norms that influence utilization of support will have significant impact on how programs are designed to strengthen relationships between villagers to cope with more private types of problems. Unlike in many cultures, domestic violence is not a stigmatized problem in Cambodia; it is publically discussed on the airwaves through public service announcements sponsored by the government and non-governmental organizations. Evidence from qualitative data suggest that, in Cambodia, like many other developing nations, information is readily disseminated via the radio. This may therefore be an effective strategy to destigmatize other norms that prevent women from seeking support.

Women indicated in quantitative data seeking financial support from both relatives and neighbors, primarily. However, qualitative data revealed that, no matter the reason for seeking the support (crop loss, food shortage, hospitalization of a household member or another reason), the motivating factor prescribing whom she sought financial support from was the interest or cost of the borrowing the money. Presumably, if it was cheaper to borrow money from the bank or the village chief, that is what they would do instead. This suggests that informal networks may not play as big of a role in providing support as was originally thought, at least not when the crisis coping strategy requires financial support. Even with this now known, the reliance on family for support is natural. As such, strengthening this network is vital to provide women with the support they need to cope with crises.

The intersection of societal norms and perceived burdens to others led women to forgo seeking support even if they were in need because they didn't see other women seeking support. This creates a vicious cycle of inaction that is hard to break. To ensure women have the wherewithal to seek help, it is essential to interrupt this cycle. The overlap of pressures from societal norms and the expected consequences push women into being fearful of seeking help. Expected consequences overlap with perceived burdens to propagate the message that accessing support collectively is not a worthwhile coping strategy. This was often described as women weighing their options and reaching the conclusion not to take deliberate action to solve a problem. Overall, it's clear that coping strategies are chosen for strategic, logical reasons as stated by all study participants. Levels of social capital are of meaningful influence as mediating factors affecting coping mechanisms, but as these three domains of utilization operate in tandem

and as competing forces to influence women's support seeking behavior, ultimately, they can culminate in women not knowing what to do to cope with a crisis or stressful event, no matter her level of social capital.

FIGURE 2. Domains of Influence on Utilization of



The present thesis suggests that the benefits of the HFPP are not limited to improving food security and nutritional status. By selecting women to manage HFPP activities, the program builds social capital by (1) empowering women to take responsibility for their families' consumption through activities and educated consumption choices; (2) causing significant changes in household dynamics as women are overwhelmingly the primary decisions makers regarding production activities and consequently, spending; and (3) stimulating participation in social networks, enhancing

solidarity, and mobilizing communities around priority concerns. The Intervention with Microfinance for AIDS & Gender Equity (IMAGE Study), a cluster randomized trial, which explored the effects of a combined microfinance and training intervention on levels of HIV and intimate partner violence (IPV) was found to have positive effects of on numerous dimensions of empowerment, as well (Kim 2007). Like the present thesis researched in the context of the HFPP, the IMAGE Study found the combination of income generation and training generated additional financial resources for participants, while simultaneously enhancing self-confidence and self-esteem (Pronyk 2008). Taken together, this expansion of financial and social resources was shown to improve both the quantity of social network membership as well as the quality of participation in these groups (Pronyk 2008). Results from the IMAGE study showed that its intervention of combined group-based microfinance and gender and HIV training catalyzed shifts in multiple dimensions of social capital among participating households relative to a matched comparison group over a two year period (Pronyk 2008). This is in contrast to Putnam's proposal that the accumulation of social capital takes place only very slowly (Putnam 1993). The IMAGE Study represents one of the few longitudinal studies to provide encouraging evidence that social capital can be intentionally generated in relatively short programmatic time frames. Along with the IMAGE Study, this thesis resonates with research from the development sector suggesting that communities endowed with rich and diverse social networks may be in a stronger position to confront poverty and vulnerability (Moser, 1996), share beneficial information (Isham, 1999) and resolve disputes (Schafft & Brown, 2000).

Cohen and Wills (1985) describe possible stress-buffering mechanisms of social support that are likely relevant to the findings of the present thesis. Stress arises when one appraises a situation as threatening or otherwise demanding and does not have an appropriate coping response (Cohen and Wills 1985). These situations are ones in which the person perceives that it is important to respond but an appropriate response is not immediately available (Cohen and Wills 1985). Although a single stressful event may not place great demands on the coping abilities of the women, it is when multiple problems accumulate, described in the present study as poverty, food shortage, crop loss, hospitalization of a household member and issues of domestic tensions, persisting and straining her problem-solving capacity that the potential for serious dire outcomes occur. Study findings support the buffering hypothesis. That is, they do not support that higher levels of social capital prevent crises but rather that higher levels of social capital seem to insulate women from the event should it occur by providing her with adequate, quality support for coping.

To conclude, there was high agreement between qualitative and quantitative findings. As expected, the qualitative findings allowed for a more in-depth analysis of the measures of social capital and their relationship to crisis event occurrence and coping mechanisms. While the household survey data pointed the way to broad generalizations and demonstrated associations, the qualitative data revealed explanations about the complexities of these associations (Krishna 1999). This study explored the association between multiple dimensions of social capital and a range of different crisis outcomes in rural Western Cambodia. These results now need to be tested using multi-level longitudinal data.

5.2 Limitations

Limitations of the present study revolve around the study design. Perhaps the greatest challenge to the current study was the small sample size, which resulted in many of the statistical tests lacking significance and power. For some indicators, statistical test were inappropriate due to zero responses or no variance in responses between the study groups. Small sample size also limits generalizability beyond the study sites. Logistic and time constraints could not be overcome to achieve a larger sample size and is recognized as a main limitation of the study

Secondly, as operations research and due to its qualitative component, study findings should not be used as generalizable to programs other than HKI's HFPP. Due to the similar nature of implementation and setting, results could be extrapolated beyond Cambodia to other Asia-Pacific intervention sites. However, where the results of the present study guide the revision of existing HFPP interventions or development of new programs designed to intentionally generate maternal social capital, rigorous piloting should be done in the new population prior to implementation or scale-up to ensure compatibility and effectiveness.

Thirdly, because these data are cross-sectional, causal inference is limited; results are suggestive, rather than definitive. The results are unable to prove higher maternal social capital scores are the result of the HFPP. Nonetheless, the association between social capital and the HFPP, while not statistically significant at the 95% confidence level, did trend towards higher levels among beneficiaries compared to controls. As such,

study results are an indication that future longitudinal studies are needed to provide robust evidence that intervention strategies can promote the generation of social capital.

Fourth, since all study villages were selected, using convenience sampling, from the same district in Battambang province, there is some possibility that intervention effects have inadvertently had some effect on the control villages. Additionally, beneficiaries who were identified by HKI as meeting the participation criteria, then self-selected into the intervention. Therefore, there may be inherent differences, in social capital levels, of particular interest in the present study, between HFPP beneficiaries and women in HFPP villages who chose not to participate in the intervention. This was not captured in the present study but the comparison provides an avenue for future research.

Fifth, group membership was recorded not as the absolute number of groups a respondent is a member of, but whether a respondent was a member of a particular type of group or not (e.g. women's group or micro-credit group). As such, the question may under-report group membership in the event that a particular group she is a member of is not asked about. A second methodological limitation is potential measurement error owing to source bias, particularly since non-validated measures of social capital were used; respondents may have interpreted questions differently than they were intended. However, every effort was made during the design and piloting of the survey tool to ensure its comprehensiveness and clarity.

Lastly, it is assumed that social capital did not differ at baseline between control and intervention groups because villages were randomized into the HFPP but the cross-sectional design of this study mandates that this potential bias be acknowledged. Furthermore, the present study design does not allow for identification of directionality

between HFPP garden type and social capital among beneficiaries, that is, whether more developed gardens yield higher social capital or whether higher social capital yields more developed gardens. A related bias may be that women who are actively participating in the HFPP such that they have developed garden types, that is a garden which produces six or more types of vegetables year round and is maintained on a fixed plot, may have innately higher levels of social capital-a characteristic that may enable them to achieve the 'developed' garden- than women with less developed garden types. The probable cyclical pattern of this relationship should be pursued in future studies.

5.3 Recommendations for Public Health

Social capital data are critical to help guide decisions about how to design programs to strengthen relationships and networks across the country and at local levels. These data will help Helen Keller International and the communities it works with understand and tailor their efforts to promote health and development by strengthening social capital in order to mitigate the negative outcomes of household crisis events.

Programmatic

The HFPP is effective at facilitating women coming together under the auspices of nutrition education and agricultural training, which lays the framework for women to come together outside of the formal meetings. But this leaves out the building, maintenance and strengthening of relationships between relatives and merchants, shown in the current study to be primary sources of support during times of crisis along with support from neighbors. Additionally, the HFPP should focus more efforts on strengthening the forms of cognitive social capital by promoting better lines of communication and feelings of trust and belonging among participants who are

presumably neighbors. As the present study shows, the social networks of the poor are one of the primary resources they have for managing risk and vulnerability. Outside agents, like programs, therefore need to find ways to complement these resources (Szreter 2004; Murayama 2012), rather than substitute for them (Woolcock and Narayan 2000), which the current HFPP design is doing to some extent. In order to strengthen the HFPP program and its ability to compliment rather than replace social networks of its beneficiaries, appendages to the current intervention should target the three primary coping mechanisms: receiving loans or credit from neighbors, relatives and merchants. Creating or encouraging inorganic practices, like lending from formal banks, would not be advised. The program should build on existing organizations in the community rather than impose new organizations. For example, providing technical assistance, through partner organizations, to micro-credit lending organizations in the community or including information about borrowing wisely into the curriculum of training modules about income generation already in use by HFPP would both be activities easily incorporated into the existing HFPP. Additionally, information, education and communication could be disseminated over a community radio program; this was mentioned in qualitative interviews as the most popular way communities received information about identifying and preventing domestic violence, a common problem in Cambodian households. Furthermore, HKI should go beyond the VMF in encouraging leadership participation from the beneficiaries. As one study shows, when poor communities have direct input into the design, implementation, management, and evaluation of projects, returns on investments and the sustainability of the project are enhanced (Esman and Uphoff, 1984). This is less directly related to the current study and

is more a general recommendation for the program, irrespective of the issue of social capital.

Figure 4 represents the contribution to public health that this thesis makes. Understanding the applicability of this model of utilization of support to populations at risk has practical merits because each domain has direct implications for the design of interventions in the study population. In general, any addition to the existing HFPP or the creation of any new intervention geared at generating social capital as a means of mediating the pathway between stressful or crises events and health should focus on ways to overcome the social pressures which undermine women's social capital.

General

Some argue that the development of social capital would bring about the sustainable recovery of people and society (Yamao 2010). But there is considerable concern about how to improve social capital in communities that have histories of social and political conflict (Brune 2009). Studies of post-conflict situations suggest the need to develop interventions that can help improve trust and participation in order to reestablish the civic society's capacity to contribute to a stable and economically sound community (Brune 2009; Kreimer 1998; Kuroda 2002; Michailof 2002). One study in post-conflict Nicaragua (Brune 2009) confirms that it is worth attempting to improve social capital in post-conflict communities, and perhaps in all communities with low levels of social capital. Authors showed that such programs can have a positive impact on levels of social capital, health behaviors and on civic participation in governance processes. A case study from Cambodia carried out by the World Bank's Social Capital Initiative (Colletta and Cullen 2000) shows that while bonds of kinship remain strong, bridging social capital is

now only slowly emerging, due in large part to market forces. They summarize that the "integration of strong bridging horizontal and integrating vertical social capital to shape a cohesive society remains a challenge to Cambodia on the road to sustainable peace and economic development." (Colletta and Cullen 2000). The case study clearly defines the remaining milestones on that road to include "the opening up of state-civil society dialogue, and steps toward an increasingly free press, a transparent rule of law perhaps through the impending war crimes tribunal, the promotion of local elections, and a more inclusive, participatory development process." (Colletta and Cullen 2000).

Future Studies

Despite increasing work in the arenas of social capital, public health and epidemiology, Kawachi (2006) asserts that the mechanisms that link social capital to health are not yet clearly understood: "At the individual level, it is not completely established whether good health is the result of social capital or whether social capital is the result of good health and/or other unmeasured personal characteristics that determine both health status and patterns of social engagement." The present study did not look at pathways between health and social capital. Future research should focus on identifying directionality of the association between social capital and health.

The present study has also identified the need for subsequent longitudinal studies to evaluate the impact of the HFPP on levels of social capital among beneficiary women and communities. The present study was only able to show a trend towards higher social capital among HFPP beneficiaries but its cross-sectional nature did not allow higher social capital scores to be attributable to the HFPP. It may also be helpful for program design purposes to have data from other longitudinal studies evaluating the impact of the

HFPP on frequency of household crisis events and relevant coping mechanisms.

5.4 Conclusion

This thesis explores the associations between the social capital and crisis coping strategies of women living in rural Cambodia. Cambodia experienced civil war and genocide throughout the 1970s under the Khmer Rouge regimen and was the target of political manipulation by the United States' during the war in Vietnam. The Khmer Rouge persecuted the educated in an effort to create a society without competition. As a result, development in Cambodia has been severely hampered due to the unique struggle to recover and rebuild an educated workforce and instill in the populous feelings of trust and belonging. These forms of cognitive social capital, lacking among study participants likely due to Cambodia's violent and turbulent history were found to be most important in coping with crises. Due to gender inequalities, women are extremely vulnerable to this developmental challenge and are often forced into informal economies where they are further marginalized and lack access to public services. Study methods incorporated qualitative and quantitative methods to create complementary measures of the myriad of dimensions of maternal social capital and crisis and coping mechanisms to better understand the domains influencing utilization of social support by low-income women in resource-poor areas. In-depth interviews measured social support as the participant's perception that they have assistance available. Quantitative surveys measured social support as the actual received assistance and measured social integration using measures of cognitive social capital as well as actual group membership.

This thesis finds evidence to suggest that the HFPP has a positive impact on

building social capital, which may lessen the burden of household crisis events and promote stable, adequate coping mechanisms and recommends that strengthening the social capital of women will be an effective means to promoting health and development.

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Appendix I: SUPPLEMENTAL TABLES

TABLE 11. Thick Description of Theme 'Support'				
What are the different aspects?	**What is the context and meaning?**	**How is it discussed? (emotions, examples)**	**How often is it mentioned? By who?**	**What intersects?**
Neighbor	Neighbors give help but sometimes women don't go to them; depends on the problem; Proximity plays a role in seeking and receiving support from neighbors	Women trust their neighbors; Cooperation between neighbors was emphasized	Unanimously by all women as received. Seldom by village chiefs; Intervention women described in more positive light	Relative, Interest, Fight, Lonely, Child health, Trust, Drought
Relative	Relatives will always give help but sometimes women don't go to them; depends on the problem	Relatives are family so 'they have to help'; older relatives are 'more wise'	Unanimously by all women as received. Seldom by village chiefs	Neighbor, Child health, Husband, Money
Village Chief	Village chiefs describe themselves as seemingly more important avenues for support than the women describe them; village chief do 2 main things: address management problems (canal issues, building new roads, writing official letters) or offer advice (what to do with children's behavioral problems, when husband is gambling)	Annoyance in one village of corruption of village chief; but more often with confidence in his ability 'to lead and develop the village'; village chiefs were proud to talk about their responsibilities to the village as its leader	Unanimously by all women;	Fight, Drought, Rice field
Emotional	Providing encouragement; simply listening; empathy; nurturing	Control women say they do nothing for problems intervention women describe accessing emotional support (loneliness, problems with husband)	Unanimously by all women. Seldom, if at all, described by village chiefs	Loneliness, Husband, Relative, Neighbor

Informational	Advice, guidance, useful information	'they advise me to take my child to the health center'; competence of source to provide quality information/assistance	Unanimously by all women. Village chiefs report providing a significant amount of this to villagers	Neighbor, Relative, Village Chief, Child health, Food shortage
Companionship	Sense of belonging, trust; seldom sought	Feels like a part of her community; belief that others will help; citizen activities	Talked about more by intervention women, village chief seems removed from these types of interactions between villagers	Trust, Neighbor, Loneliness, Relative, Village characteristics
Tangible	Financial assistance (loans with or without interest); cooperation	'neighbor will watch my house if I have to go to the health center'; some fear and anxiety surrounds receiving loan with interest	Unanimously by all women	Neighbor, Relative, Drought, Money, Interest, Micro credit

TABLE 12. Thick Description of Theme 'Utilization'

What are the different aspects?	**What is the context and meaning?**	**How is it discussed? (emotions, examples)**	**How often is it mentioned? By who?**	**What intersects?**
Burden	Perception of others' circumstances is important when deciding to seek support	Feelings of guilt; realistic estimation of	More frequently by women in control group; Seldom by village chiefs	Neighbor, Relative, Food shortage,
Consequences	Sometimes women don't tell because they're afraid relatives will worry or blame them; Fear to no be able to pay back interest on a loan timely or at all	Fear, anxiety, weighing of options	Unanimously by all women. Seldom by village chiefs	Interest, Relative, Money, Micro-credit

Norms	Social norms around divorce and stigma influence seeking support but not necessarily receiving it	'this is a problem to stay within the family'; '…don't tell because…try to convince me it's better to stay with him'	Unanimously by all women; seldom by village chiefs	Husband, Village characteristics, Money

TABLE 13. Active Membership in Informal and Formal Groups by Study Group			
	Control N=50 (%)	Intervention N=50 (%)	Total N=100 (%)
Not a member in any groups	45 (90%)	0	45 (45%)
Member in one group	5 (10%)	45 (90%)	50 (50%)
Member of two groups	0	5 (10%)	5 (5%)
Total	50	50	100

TABLE 14. Received Social Support from Formal and Informal Networks by Study Group*			
	Control N=50 (%)	Intervention N=50 (%)	Total N=100 (%)
Received no social support	1 (2%)	0	1 (1%)
Received support from one network	17 (34%)	1 (2%)	18 (18%)
Received support from two networks	15 (30%)	17 (34%)	27 (27%)
Received support from three networks	14 (28%)	17 (34%)	31 (31%)
Received support from four networks	3 (6%)	12 (24%)	15 (15%)
Received support from five networks	0	7 (14%)	7 (7%)
Received support from six networks	0	1 (2%)	1 (1%)
Total	50	50	100

TABLE 15. Participated in Citizen Activities by Study Group			
	Control N=50 (%)	Intervention N=50 (%)	Total N=100 (%)
Participated in no citizen activities	40 (80%)	12 (24%)	52 (52%)
Participated in one citizen activity	7 (14%)	29 (58%)	36 (36%)
Participated in both citizen activities	3 (6%)	9 (18%)	12 (12%)
Total	50	50	100

TABLE 16. Raw Structural Social Capital Scores by Study Group*			
Score	Control N=50 (%)	Intervention N=50 (%)	Total N=100 (%)
0	1 (2%)	0	1 (1%)
1	12 (24%)	0	12 (12%)
2	17 (34%)	0	17 (17%)
3	14 (28%)	4 (8%)	18 (18%)
4	2 (4%)	13 (26%)	15 (15%)
5	2 (4%)	11 (22%)	13 (26%)
6	1 (2%)	12 (24%)	13 (13%)
7	1 (2%)	5 (10%)	6 (6%)
8	0	4 (8%)	4 (4%)
9	0	1 (2%)	1 (1%)
Total	50	50	100
*Maximum 14; no one scored above 9.			

TABLE 17. Raw Cognitive Social Capital Scores by Study Group*			
Score	Control N=50 (%)	Intervention N=50 (%)	Total N=100 (%)
2	13 (26%)	4 (8%)	17 (17%)
3	5 (10%)	7 (14%)	12 (12%)
4	32 (64%)	39 (78%)	71 (71%)
Total	50	50	100
*Maximum 4; no one scored below 2.			

Appendix II: QUALATATIVE STUDY INSTRUMENTS

Facilitator's Guide for In-Depth Interviews – Village Chief Intervention Village

Interviewer:_____ Respondent Ref. No._____ VMF
——————————Yes ——————————No
Date of Interview:_____ Start Time: _____:_____End Time
_____:_____
Province_____ District _____ Commune _____ Village
_____

Greeting: Remind the participant who you are and what you are doing. Thank them for their participation

Obtaining consent for participation:

We would like to invite you to participate in a study that is looking at the social capital and status of HFP women in this village. The purpose of this Operations Research (OR) is to provide feedback to HKI-Cambodia especially the HFP program managers about how the program currently affects women's social capital and status so that the program can be improved to provide the best possible services in this village.

Any information obtained will be used for only research purposes and your name will not appear in the report produced from this study. We will make every effort to keep your information private. Your participation in this research is very important and will provide us much needed information to help serve rural Cambodians better. It will also help us to improve the implementation of the project in which you are participating. This interview will take no longer than 1 hour. Please sign below if you are willing to participate in this interview.

_____ _____
Participant's Signature Date

_____ _____
Facilitator's Signature Date

BACKGROUND

1. Can you tell me about yourself?

(Probes: Age? No. children? Urban/Rural residence? Education? Head of household? Who lives in your house? Education of husband? Occupation of husband?)

2. Can you tell me about your village? What are the characteristics of your village?

(Probes: what are the people like? What kinds of services are available? What makes it a village?)

STRUCTURAL SOCIAL CAPITAL

3. If people in your village have a problem with not having enough money, what do they do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

4. What if they have a problem of not having enough food, what do they do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

5. If they have a problem with their husband, what do they do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

6. If they have a problem with their children, what do they do?
(Probe: a problem with their health? A problem with their behavior? Get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

7. If they are feeling sad or lonely, what do they do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

8. Can you tell me about how the HFP program has affected how your households in your village deal with a problem/challenge?
(Probes: How did they handle problems before? How do they handle them now?)

9. Can you describe a recent crisis/problem that affected your village?
(Probe: flood, drought, no food, crime, no water, etc.)

10. How did the village respond to this crisis?
(Probe: what did you do as a leader do? The women? the men? The youth? Did the National or Provincial government assist? Did any NGOs assist?)

COGNITIVE SOCIAL CAPITAL

11. In general, what is the interaction like between people in this village?
(Probe: they interact to help each other, when there is a problem, How do men and women interact? How do children interact with adults, How do the village leaders, including VMF, interact with the villagers)

12. What is your interaction like with the members of your village?
(Probe: do you go to them? Or do they come to you? For what reasons? etc)

13. How do you think the people in this village perceive you as a leader?

14. Can you tell me about how the HFP program has affected the way that your village interacts with each other?
(Probes: How was it before the program? After the program?)

EMPOWERMENT

15. What do you do as a leader that affects the status of women in your village?

16. What is your perception of how much women in this village contribute to the money that their household has?

17. What is the relationship like between husbands and wives in this village? (Probes: decision making? Violence? Communication?)

18. What effect has the HFP program had on the relationship between husbands and wives in this village?
(Probes: who makes the decisions? How decisions are made? How the household is run? The atmosphere of the household?)

19. How has the HFP program affected how women are viewed in this village? (Probes: How were women viewed before? How are they viewed now? they are viewed to have more abilities? They are more capable to make decisions? They should be allowed to do more or different things? They can have more or different kinds of responsibilities?)

CONCLUSION

20. How do you describe the level of solidarity in your village?

21. What would happen if the HFP program stopped operating in your village? (Probes: what would it mean for women? Would things go back to how they were before the program? Would they stay the same? Would they continue to get better? Would someone step-up and take over to make sure the activities still could continue?)

That is all the questions I have for you. I want to thank you for sharing with me; I have really enjoyed hearing your thoughts and opinions. To summarize, today we've talked about your village and the status of women here. Do you have anything to add? Do you have any other questions for me? Thank you again.

Facilitator's Guide for In-Depth Interviews – Village Chief Control Village

Interviewer:_____ Respondent Ref. No._____
Date of Interview:_____ Start Time: _____:_____End Time _____:_____
Province_____ District _____ Commune _____ Village _____

Greeting: Remind the participant who you are and what you are doing. Thank them for their participation

Obtaining consent for participation:

We would like to invite you to participate in a study that is looking at the social capital and status of women in this village. The purpose of this Operations Research (OR) is to provide HKI-Cambodia especially the HFP program managers an understanding of the social capital and status of women in Cambodia.

Any information obtained will be used for only research purposes and your name will not appear in the report produced from this study. We will make every effort to keep your information private. Your participation in this research is very important and will provide us much needed information to help serve rural Cambodians better. This interview will take no longer than 1 hour. Please sign below if you are willing to participate in this interview.

_____ _____
Participant's Signature Date

_____ _____
Facilitator's Signature Date

BACKGROUND

1. Can you tell me about yourself?

(Probes: Age? No. children? Urban/Rural residence? Education? Head of household? Who lives in your house? Education of husband? Occupation of husband?)

2. Can you tell me about your village? What are the characteristics of your village?

(Probes: what are the people like? What kinds of services are available? What makes it a village?)

STRUCTURAL SOCIAL CAPITAL

3. If people in your village have a problem with not having enough money, what do they do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

4. What if they have a problem of not having enough food, what do they do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

5. If they have a problem with their husband, what do they do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

6. If they have a problem with their children, what do they do?
(Probe: a problem with their health? A problem with their behavior? Get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

7. If they are feeling sad or lonely, what do they do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

8. Can you describe a recent crisis/problem that affected your village?
(Probe: flood, drought, no food, crime, no water, etc.)

9. How did the village respond to this crisis?
(Probe: what did you do as a leader do? The women? the men? The youth? Did the National or Provincial government assist? Did any NGOs assist?)

COGNITIVE SOCIAL CAPITAL

10. In general, what is the interaction like between people in this village?
(Probe: they interact to help each other, when there is a problem, How do men and women interact? How do children interact with adults, How do the village leaders, including VMF, interact with the villagers)

11. What is your interaction like with the members of your village?
(Probe: do you go to them? Or do they come to you? For what reasons? etc)

12. How do you think the people in this village perceive you as a leader?

EMPOWERMENT

13. What is your perception of how much women in this village contribute to the money that their household has?
14. What is the relationship like between husbands and wives in this village?
(Probes: decision making? Violence? Communication?)

15. How are women viewed in this village?

(Probes: they are viewed to have abilities to do what? They are capable to make decisions? They should be allowed to do more or different things than is happening currently? They should have more or different kinds of responsibilities?)

16. What do you do as a leader that affects the status of women in your village?

CONCLUSION

17. How would you describe the status of women in this village?
18. How do you describe the level of solidarity in your village?

That is all the questions I have for you. I want to thank you for sharing with me; I have really enjoyed hearing your thoughts and opinions. To summarize, today we've talked about your village and the status of women here. Do you have anything to add? Do you have any other questions for me? Thank you again.

Facilitator's Guide for In-Depth Interviews – Intervention Household

Interviewer:_____ Respondent Ref. No._____
Date of Interview:_____ Start Time: _____:_____End Time _____:_____
Province_____ District _____ Commune _____ Village _____

Greeting: Remind the participant who you are and what you are doing. Thank them for their participation

Obtaining consent for participation:

We would like to invite you to participate in a study that is looking at the social capital and status of HFP women in this village. The purpose of this Operations Research (OR) is to provide feedback to HKI-Cambodia especially the HFP program managers about how the program currently affects women's social capital and status so that the program can be improved to provide the best possible services in this village.

Any information obtained will be used for only research purposes and your name will not appear in the report produced from this study. We will make every effort to keep your information private. Your participation in this research is very important and will provide us much needed information to help serve rural Cambodians better. It will also help us to improve the implementation of the project in which you are participating. This interview will take no longer than 1 hour. Please sign below if you are willing to participate in this interview.

_____ _____
Participant's Signature Date

_____ _____
Facilitator's Signature Date

BACKGROUND

1. Can you tell me about yourself?

(Probes: Age? No. children? Urban/Rural residence? Education? Head of household? Who lives in your house? Education of husband? Occupation of husband?)

2. Can you tell me about your village? What are the characteristics of your village?

(Probes: what are the people like? What kinds of services are available? What makes it a village?)

STRUCTURAL SOCIAL CAPITAL

These next questions are about what you do when you have a problem.

3. If you have a problem with not having enough money, what do you do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

4. What if you have a problem of not having enough food, what do you do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

5. If you have a problem with your husband, what do you do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

6. If you have a problem with your children, what do you do?
(Probe: a problem with their health? A problem with their behavior? Get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

7. If you are feeling sad or lonely, what do you do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

8. Can you tell me about how the HFP program has affected how your household deals with a problem/challenge?
(Probes: How did they handle problems before? How do they handle them now?)

9. Can you describe a recent crisis/problem that affected your village?
(Probe: flood, drought, no food, crime, no water, etc.)

10. How did the village respond to this crisis?
(Probe: what did the leaders do? The women? the men? The youth? Did the National or Provincial government assist? Did any NGOs assist?)

COGNITIVE SOCIAL CAPITAL

11. In general, how do the people in your village interact with each other?
(Probe: they interact to help each other, when there is a problem, How do men and women interact? How do children interact with adults, How do the village leaders, including VMF, interact with the villagers? What is your of the leaders in your village?)

12. What are the interactions like between the village leaders and the village members?

13. Can you tell me about how the HFP program has affected the way that your village interacts with each other?

EMPOWERMENT

14. Can you tell me about the ways you contribute to the money that your household earns?
(Probes: by working in the garden. By selling vegetables. By raising animals. Other work. By supporting the husband so he can work. Do you contribute a lot? Do you contribute a little?)

15. Who is in charge of how the money is spent in your household?

(Probe: What would happen if you disagreed with your husband about how to spend the money? If there is a discussion, who initiates it? How is it decided who is in charge of the money from different sources?)

16. Can you tell me about how you participate in the decision-making in your household?

(Probe: What happens when you and your husband do not agree on a decision? How do you participate in decisions about health, education, children, what/when to plant, etc)

17. What effect has participating in the HFP program had on your relationship with your husband?

(Probes: who makes the decisions? How decisions are made? How the household is run? The atmosphere of the household? How is it different now? How is it the same?)

CONCLUSION

18. In general, can you describe the effect participating in the HFP program has had on you as a woman?
19. Who do you rely on the most if you have a problem or need help?

That is all the questions I have for you. I want to thank you for sharing with me; I have really enjoyed hearing your thoughts and opinions. To summarize, today we've talked about your social relationships and support and about your village and your status as a woman. Do you have anything to add? Do you have any other questions for me? Thank you again.

Facilitator's Guide for In-Depth Interviews – Control Household

Interviewer:_____ Respondent Ref. No._____
Date of Interview:_____ Start Time: _____:_____End Time _____:_____
Province_____ District _____ Commune _____ Village _____

Greeting: Remind the participant who you are and what you are doing. Thank them for their participation

Obtaining consent for participation:

We would like to invite you to participate in a study that is looking at the social capital and status of women in this village. The purpose of this Operations Research (OR) is to provide HKI-Cambodia especially the HFP program managers an understanding of the social capital and status of women in Cambodia.

Any information obtained will be used for only research purposes and your name will not appear in the report produced from this study. We will make every effort to keep your information private. Your participation in this research is very important and will provide us much needed information to help serve rural Cambodians better. This interview will take no longer than 1 hour. Please sign below if you are willing to participate in this interview.

_____ _____
Participant's Signature Date

_____ _____
Facilitator's Signature Date

BACKGROUND

1. Can you tell me about yourself?

(Probes: Age? No. children? Urban/Rural residence? Education? Head of household? Who lives in your house? Education of husband? Occupation of husband?)

2. Can you tell me about your village? What are the characteristics of your village?

(Probes: what are the people like? What kinds of services are available? What makes it a village?)

STRUCTURAL SOCIAL CAPITAL

These next questions are about what you do when you have a problem.

3. If you have a problem with not having enough money, what do you do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

4. What if you have a problem of not having enough food, what do you do?

(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

5. If you have a problem with your husband, what do you do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

6. If you have a problem with your children, what do you do?
(Probe: a problem with their health? A problem with their behavior? Get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

7. If you are feeling sad or lonely, what do you do?
(Probe: get support/advice within your village? Outside your village? From family, neighbors, friends, organizations, religious leaders, village leaders)

8. Can you describe a recent crisis/problem that affected your village?
(Probe: flood, drought, no food, crime, no water, etc.)

9. How did the village respond to this crisis?
(Probe: what did the leaders do? The women? the men? The youth? Did the National or Provincial government assist? Did any NGOs assist?)

COGNITIVE SOCIAL CAPITAL

10. In general, how do the people in your village interact with each other?
(Probe: they interact to help each other, when there is a problem, How do men and women interact? How do children interact with adults, How do the village leaders, including VMF, interact with the villagers. What is your perception of the leaders in your village?)

11. What are your interactions like with other members of your village?
(Probe: other women of your same SES, other women different SES, men, other women's children, your village leaders, religious leaders, police, shop owners, etc)

EMPOWERMENT

12. Can you tell me about the ways you contribute to the money that your household earns?
(Probes: by working in the garden. By selling vegetables. By raising animals. Other work. By supporting the husband so he can work. Do you contribute a lot? Do you contribute a little?)

13. Who is in charge of how the money is spent in your household?
(Probe: What would happen if you disagreed with your husband about how to spend the money? If there is a discussion, who initiates it? How is it decided who is in charge of the money from different sources?)

14. Can you tell me about how you participate in the decision-making in your household?

(Probe: What happens when you and your husband do not agree on a decision? How do you participate in decisions about health, education, children, what/when to plant, etc)

15. Can you describe what your relationship is like with your husband?

(Probes: who makes the decisions? How decisions are made? How the household is run? The atmosphere of the household?)

CONCLUSION

18. In general, how would you describe your status as a woman?
19. Who do you rely on the most if you have a problem or need help?

That is all the questions I have for you. I want to thank you for sharing with me, I have really enjoyed hearing your thoughts and opinions. To summarize, today we've talked about your social relationships and support and about your village and your status as a woman. Do you have anything to add? Do you have any other questions for me? Thank you again.

Appendix III: QUANTATIVE STUDY TOOL

Social Capital Survey- July 2011

CONFIDENTIAL

All information collected in this survey is strictly confidential and will be used for statistical purposes only.

A. IDENTIFICATION INFORMATION

GEOGRAPHIC IDENTIFICATION

PROVINCE:_____ | | |

DISTRICT :_____ | | |

COMMUNE:_____ | | |

VILLAGE :_____ | | |

KIND OF CLUSTER
(Code: Control = 0; Intervention = 1) | | |

ID HOUSEHOLD : _____

Address (Location)):_____
Name of Respondent

_____
Mother is head of household
_____ YES
_____NO

INTERVIEW RECORD

Interviewer's Name:_____

Signature :_____ Date :_____

Remarks:_____

_____
Monitor
Name: _____
Signature: _____ Date: _____

CONSENT

Respondent Name: _____

Signature: _____ Date: _____

B. HOUSEHOLD COMPOSITION	
1. How many people live in your household?	people
2. How many children under five years of age are in your household?	people
3. How many children 5 – 11 years of age are in your household?	people
4. How many household members do you have above 18 years of age?	people
5. What is the sex of the head of the household	1=male 2=female
6. Do you live with your husband?	0 = no (widowed/separated/divorced) 1=yes
C. ECONOMIC STATUS	
7. How many years of schooling has the father of the children (under five years of age) completed?	00 = never had school 01 = formal education _____ (years) 66 = informal education 77=don't know 88=no father
8. How many years of schooling has the mother of the children (under five years of age) completed?	00 = never had school 01 = formal education _____ (years) 66 = informal education 77=don't know 88=mother deceased or left
9. Who is the main income earner in your household?	1 = father of the child (ren) 2 = self 3 = grandparents 4 = children 5 = other, specify
10. What is the main occupation of the main earner?	01 = rice/crop farmer 02 = animal raising 03 = fishing 04 = small business 05 = wood cutting 06 = hunting 07 = wage labor 08 = lend money to others (for interest) 09 = salaried worker 10 = skilled labor/crafts 11 = gather goods from forest 12 = unemployed 13 = other ,specify _____
11. How much land does your household own including the homestead land? Circle Unit square meters hectares Rai	_____ square meters _____ hectares _____ rai
OBSERVE AND RECORD 12. What is the main material of the roof of the house	1 = roof of bamboo, thatch, grass, hay, leaves or other temporary materials 2 = concrete, brick, stone, galvanized iron/aluminum, other metal sheets and asbestos cement sheets, or other permanent materials

OBSERVE AND RECORD	

13. What is the main material of the walls of the house?	1 = walls of bamboo, thatch, grass, reed, earth and salvaged materials, hay, leaves, or other temporary materials 2 = walls of wood, plywood, concrete, brick, stone, galvanized iron/aluminum and other metal sheets and asbestos cement sheets, or other permanent materials

D. WATER AND SANITATION

14. Where do adult members of your household usually defecate?	1=closedlatrine 2 = open latrine 3 = river/pond side 4 = bush/open field 5 = other, specify	
15. Where do young children (under 5) of your household usually defecate?	1=closedlatrine 2 = open latrine 3 = river/pond side 4 = bush/open field 5 = around the house 6 =other, specify_____	
16. What is the household's main source of drinking water at this time?	1=pond/river/canal 2 = open ringwell 3 = closed ringwell 4 = open spring 5 = handpump	6 = rain water-------→**If rain, SKIP to number 18** 7 = bought 8 = hand dug (no ring) 9 = other, specify_____
17. How far away is your household from your water source (for domestic use)? (in meters)	meters	

E. HOME GARDEN

OBSERVE AND RECORD 18. Current homestead garden	0 – none----------→**If none, SKIP to number 21** 1 = traditional 2 = mixed/medium 3 = year round
19. How much homestead land does your household have?	(sq.m)
20. What is the size of your garden?	□□□(sq.m)

21. In the last 2 months, how much has your family earned from your garden?	(riel)	(USD)
22. Who in your family is mainly responsible for keeping the money earned from home gardening?	1 = husband 2 = wife (self) 3 = child 4 = other, specify_____ 8 = N/A	
23. What do you mostly spend this money on?	01 = food 02 = clothes 03 = medicine 04 = education 05 = saving 06 = amusement 07 = housing	08 = social activities 09 = productive 10 = other, specify_____ 88 =N/A
24. Who in your family is mainly responsible for keeping the money earned from selling the animal products?	1 = husband 2 = wife (self) 3 = child 4 = other, specify_____ *8 = N/A*	
25. What do you mostly spend this money on?	01 = food 02 = clothes 03 = medicine 04 = education 05 = saving 06 = amusement 07 = housing	08 = social activities 09 = productive 10 = other, specify_____ 88 =N/A
F. MATERNAL SOCIAL CAPITAL		
26. In the past year, have you been an active member of: **(check all that apply)**	01= Trade union 02= Co-op 03= Women's group (includes HFP program) 04= Political or Social group 05= Other _____	
27. In the past year, have you been an active member of: **(check all that apply)**	01= Religious group 02= Micro-credit group 03= Other	
28. In the past year, have you received support from: (check all that apply) ****"Support" could include emotional, physical, financial or other types of support received****	01= Community leaders 02= Politicians 03= Government officials 04= Non-governmental/Charity organizations 05= Other source	
29. In the past year, have you received support from: (check all that apply) ****"Support" could include emotional, physical, financial or other types of support received****	01= Family members/relatives 02= Neighbors 03= Friends (not neighbors) 04= Religious leaders	
30. In the past year, have you joined with other households to address a problem?	01= Yes 02= No If yes, what was the problem? _____	
31. In the past year, have you talked to a community leader (including VMF) about a problem in the community?	01= Yes 02= No If yes, what was the problem? _____	
32. Do you believe that in general, most people in your community can be trusted?	01= Yes 02= No	
33. Do you believe most people in your community get along together?	01= Yes 02= No	

34. Do you feel like a part of your community?	01= Yes 02= No
35. Do you feel that people in this community would take advantage if they had the chance (stealing, charging too much, deceiving, etc.)?	01= Yes 02= No
36. To what extent do you agree that people in this community can be trusted?	01= Strongly disagree 02= Disagree 03= Neither agree nor disagree 04= Agree 05= Strongly agree
37. To what extent do you agree that this is a close-knit community?	01= Strongly disagree 02= Disagree 03= Neither agree nor disagree 04= Agree 05= Strongly agree
38. To what extent do you agree that people in this community are willing to help their neighbors?	01= Strongly disagree 02= Disagree 03= Neither agree nor disagree 04= Agree 05= Strongly agree
39. To what extent do you agree that people in this community generally don't get along with each other?	05= Strongly disagree 04= Disagree 03= Neither agree nor disagree 02= Agree 01= Strongly agree
40. To what extent do you agree that people in this community do not share the same values?	05= Strongly disagree 04= Disagree 03= Neither agree nor disagree 02= Agree 01= Strongly agree

G. CRISIS and COPING

Question 41-49. **In the past YEAR, how many times has your household experienced the following problems/crises? Wha coping strategies?**

	****Choose all that apply****
41. Crop loss due to Drought: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
42. Crop loss due to Flood: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
43. Failed harvest: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
44. Food shortage: Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals

	06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
45. Hospitalization of HH member: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
46. Death of HH member: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
47. Loss of land: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
48. Abandonment: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
49. Other: _____Times	01 Loan from relatives 02 Loan from neighbor 03 Loan from friend outside community 04 Credit from merchants 05 Adjustment to meals 06 Sold livestock 07 Sold household assets 08 Sold crop at low cost 09 Occupation change 10 Taken relief/aid 11 Withdrew child from schoo 12 Child sent out to work 13 Men sent out to work 14 Women sent out to work 15 Other:
H. EMPOWERMENT	
50. How much do you contribute to the money earned in your household?	01= None 02= Very little 03= Some 04= A lot
51. How much influence do you have on the decisions made in your household?	01= None 02= Very little 03= Some 04= A lot
52. To what extent do you agree that your husband respects you?	01= Strongly disagree 02= Disagree 03= Neither agree nor disagree 04= Agree 05= Strongly agree
53. To what extent do you agree that your husband allows you to be a part of important decisions in your household?	01= Strongly disagree 02= Disagree

	03= Neither agree nor disagree 04= Agree 05= Strongly agree
54. To what extent do you agree that it is ok for girls to stay home from school to help at home?	05= Strongly disagree 04= Disagree 03= Neither agree nor disagree 02= Agree 01= Strongly agree
55. **For HFP participants only** How much effect has participating in the HFP program had on your status in your household?	01= None 02= Very little 03= Some 04= A lot
56. **For HFP participants only** How much effect has participating in the HFP program had on your status in your community?	01= None 02= Very little 03= Some 04= A lot
57. In your opinion, is it acceptable for a woman to refuse sex with her husband?	01= Yes 02= No
58. In your opinion, is it acceptable for a husband to beat his wife?	01= Yes 02= No
59. Are you currently using a form of contraception?	01= Yes 02= No
60. What was your age at first birth?	
61. What was your age at marriage?	

Thank You!