Feed the future Innovation lab for Livestock Systems

**Case Study for Cambodia:**

**Integrating Gender and Nutrition into Food Safety Issues in the Pork Value Chain**

This is the Case Study Material for all three Case Study Exercises (Project Design, Data Collection and Analysis, and Framing and Reporting).

**Background**

Pigs are the main livestock species in Cambodia with respect to tons of meat produced (93 million tons/year). There are approximately 2.8 million pigs nationwide, with about 5 pigs/household (Royal Government of Cambodia and European Union, 2007).

Animal diseases are recognized as one of the major bottlenecks of livestock productivity in Cambodia, posing significant threats to public and animal health as well as economic stability. Livestock mortality due to disease in Cambodia is extremely high: 10% of cattle and buffalo, 46% of pigs, and 60% mortality of poultry (Shankar et al, 2012). Animal diseases are caused by a number of pathogens, including viruses, bacteria, protozoa, and parasites.

**Burden of Food Born Diseases (FBDs)**

In the World Health Organization’s (WHO) estimation of the global burden of food borne disease, Cambodia is included in the Western Pacific Region B alongside China, Lao PDR, Malaysia, the Philippines, Korea, Vietnam, and other nations in South East Asia. Overall, FBD burden was ranked as “intermediate” for this region. Diarrhea represented 14% of FBDs, with *Campylobacter* spp. ranked highest among diarrheal agents. FBD due to aflatoxin, a mold caused by poor storage of grain, was also a large contributor of FBD in this area (Havelaar et al., 2015).

Of the Association of South East Asian Nations (ASEAN) countries, Cambodia has the highest rates of communicable and diarrheal diseases. With respect to foodborne illnesses, risk factors that contribute to Cambodia’s high burden of disease include the following:

* Use of wastewater in agricultural production
* Sale of “hot” meat (unrefrigerated)
* Use Poor slaughterhouse hygiene
* Limited public knowledge and awareness of food borne illnesses
* High poverty
* Inadequate water, sanitation, and hygiene (WASH)
* Poor health and nutrition
* Vulnerability to climate change/severe weather events

(Davies et al., 2013; Vuong et al., 2007; FAO/WHO, 2004)

Rates of diarrhea are highest among young children (19-20% among children below one year of age) than older children (13% among children between 1 and 5 years of age). Surprisingly, prevalence of diarrhea is not heavily influenced by location; both rural or urban residents have the same rates. Poor children are more likely to have diarrhea than children in wealthier households. Rates of diarrhea are higher in areas where improved water, sanitation, and hygiene are limited (DHS Cambodia, 2015).

Health problems like chronic undernutrition increase susceptibility to diarrheal disease. About 32% of children in Cambodia are undernourished (FANTA, 2014). Among indigenous children, rates of malnutrition are even higher (70%), leading to increased susceptibility (Health Unlimited, 2002). Foodborne disease may also affect children’s growth and development, potentially leading to permanent stunting or cognitive impairment in severe cases (Niehaus et al., 2002). Researchers have found that even asymptomatic infections with enteric pathogens may lead to malnutrition and stunting through environmental enteropathy (Mbuya & Humphrey, 2016).

**Gender Issues**

Women have critical roles throughout the livestock value chain from production to consumption; however, they often have limited access to and control over benefits from livestock, including the consumption of animal-source foods (World Bank, FAO and IFAD 2009). Findings from a study in Uganda (ILRI, 2018) revealed that women and men have distinct and complementary roles in pig husbandry and disease control. The women bear the most burden in biosecurity implementation at farm with their tasks more labor demanding on a daily basis, in addition to shared husbandry responsibilities (with men) and domestic chores. In contrast, men’s roles are less taxing, flexible and periodic in nature. It is women’s responsibility to care for pigs while the men’s activities are mainly off-farm, such as sourcing for pig markets, and liaising with and reporting disease outbreaks local authorities. However, during an outbreak of African swine fever, there is no stringent division of roles, as all farm activities can be jointly carried out by men and women.

Men and women’s responsibilities are determined by resource control and decision making, perpetuated largely by the patriarchy nature of the households and communities (ILRI, 2018). Women’s lack of decision making power undermines their abilities to effectively co-pattern with men to prevent disease outbreaks. On a daily basis, women face competing demands on their time, labor, and increasing health risks related to the work that they do, in addition to poor working conditions and limited opportunities to better their situation. On the other hand, men face constraints occasionally and those constraints tend to be associated with social standing, required knowledge in pig management, and limited market opportunities.

Animal-source foods (ASF) are a dense source of bioavailable macro- and micronutrients and the consumption of ASF in appropriate quantities has been linked to improved nutrition, particularly in young children (Murphy and Allen 2003; Dror et al. 2011; Schonfeldt et al. 2013; Iannotti and Lesorogol 2014; Kohler et al. 2019). In 2017, 22% of children under five were stunted globally with higher stunting rates of 34.1% found in Sub-Saharan Africa, and 35% in South Asia. The first 1,000 days of life is regarded as the critical window where proper nutrition, or lack thereof, plays an outsized role in the overall development of a child, and lack of proper nutrition can have life-long effects on their physical and cognitive development (World Bank Data; Black et al 2008; Victoria et al 2008; Dewey and Begum 2011; Dewey 2013; Kohler et al. 2019).

In addition to factors related to bargaining power and empowerment, other factors that have been linked to intra-household food distribution include serving order and social status. In South Asia, younger and lower status women in the household (i.e. daughter’s in law, newly married women) are more likely to serve themselves less, which was associated with eating less due to limited food availability (Harris-Fry 2017a). In a systematic review, Harris-Fry (2017a) found 14 studies in the South Asian context that reported social status as a determinant of intra-household food allocation, although this effect was not quantified. Some studies also found that these beliefs were internalized by women, and that these could also be linked with perceptions about body image that led women to eat less (Harris-Fry 2017a). Other beliefs that influenced food allocation were beliefs about what ‘fair’ meant, with some descriptions determining the definition of fair on the basis of nutritional need or that men deserved to be given more than women (Harris-Fry 2017a).

**Assignment 1 – Project Design**

The donor for this project wants to see a reduction in bacterial contamination in the household from pork handling that will ultimately help reduce childhood stunting.

For this small group assignment, please answer the following questions on a flip chart:

1) Create a research question that addresses both the donor’s needs and the current gender situation in Cambodia using the information provided above, as well as in the course.

2) What steps will you take to create the research question? Any special considerations? Do you have sufficient information? What is lacking?

3) How will you address both gender and food safety issues in your research question?

**Assignment 2 – Data Collection and Analysis:**

Using the same group as the previous assignment and the research question you created in the first exercise, create a Data Collection and Analysis plan using the case study. The plan will include both quantitative and qualitative methodologies and answer the following questions:

* Who will you collect data from?
* What type of information will you collect and where?
* What gender and food safety considerations do you need to make to collect the data?
* How will you analyze the data?

Capture answers to the above on a flip chart to share with the plenary later.

**Assignment 3 – Framing and Reporting**

Form new small groups and use the following example of research results to create bulleted statements that contain key project findings you would like to provide to the donor agency based on your project’s data.

The majority of rural households in Cambodia own poultry. Of these, the vast majority are free range in the broadest sense of the term, as chickens (the main type of poultry being raised) scavenge for household food scraps both inside and outside of the family’s primary dwelling. Approximately half of households surveyed own poultry, and half of those keep their poultry inside the dwelling overnight. The donor would like to see increased consumption of eggs by children under age 5 to improve their growth rates.

After a review of secondary literature related to poultry production for rural households in Cambodia, the research team decided to focus on improving local feedstuffs to increase egg production of indigenous poultry. Families were provided with purchased feed and day old chicks, and minimal training in using the new feed. At the end of the project, there were mixed results related to the project objective, with a limited increase in household consumption of eggs.

The research team wrote their final report, but the donor returned it and asked for gender and nutrition implications of the project results on vulnerable households. They also asked for the team’s recommendations to increase impact on children’s nutrition, particularly to increase egg consumption in the diet.

Use the above information to answer the following questions:

1. How will you address the donor’s concerns in your final report?
2. What specific recommendations could you give to the donor to improve the nutrition of children based on the project’s current focus?
3. What might you do differently in the future to integrate gender, nutrition and food safety concerns into the project from the beginning?

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