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Tatiana Gonzalez April 21st, 2022

The Different Considerations for Food Ration Selection and Distribution Within the Keep Food Markets Working (KFMW) Program: A Mixed-Methods Approach

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2018

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An abstract of
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Abstract

By Tatiana Gonzalez

Food insecurity and nutritional related diseases are major public health concerns that afflict more than 2 billion people globally. With the onset of COVID-19, it was predicted that rates of food insecurity, malnutrition, and non-communicable diseases (NCD) would increase as a result of on-going COVID-19 regulations regarding quarantines, closures, job losses, and loss of transportation. The Global Alliance for Improved Nutrition (GAIN) implemented an international emergency food program known as the Keeping Food Markets Working (KFMW) grant as a response to COVID-19. The KFMW grant provided funding for small-to-medium enterprises (SMEs) in order for companies to mitigate worsening nutritional status amongst vulnerable populations through the distribution of nutritious food items. The KFMW program was implemented in four target countries (Bangladesh, Kenya, India and Pakistan), funded a total of 14 companies, targeted over 200,0000 beneficiaries and lasted from 2-3 months, depending on the target country.

Emory University was recruited by GAIN to evaluate KFMW's food grant programming in order to address successes and challenges within the implementation process. This thesis project aims to further evaluate different considerations that went into the food selection process through analyzing qualitative interviews with company representatives. Themes that arose during qualitative analysis included local food availability and affordability, COVID-19's impact on beneficiary diet, cultural considerations, following GAIN's dietary and nutritious food guidelines, company perspectives on nutritional content within food items, and company perspectives on KFMW's impact. Beneficiary surveys were conducted and analyzed to reveal beneficiary perspectives on KFMW's impact regarding food security, food accessibility and affordability, preferred food distribution methods and KFMW program recommendations.

As a result of KFMW programming, companies reported increased worker motivation and productivity, while beneficiaries reported increased food accessibility and affordability during KFMW implementation. While the KFMW program addressed essential nutritional requirements for beneficiaries, sustained impact of affordability and accessibility of nutritious foods is stunted by the program's short duration. Future food aid interventions should address increasing duration of food aid programming, include more nutritional training in pairing with nutritious food distribution, and confront affordability restraints for nutritious foods on a local, national, and global level.

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CHAPTER 1: INTRODUCTION

Food insecurity is defined by the Food and Agriculture Organization as when an individual lacks regular access to nutritious food required for normal growth and development, and can be experienced in moderating levels from mild to severe food insecurity [11]. An additional definition of food insecurity can be viewed as the disruption of food intake or eating patterns, as a result of lack of resources [40]. There are currently about 296 million people globally who are categorized as severely food insecure, with a significant increase in global food insecurity rates being attributed to COVID-19 related consequences such as reduced incomes and disrupted food supply chains [39]. COVID-19 is not only a global health crisis, but also created negative outcomes on national and global economies. As a consequence of COVID-19 related mandates and closures, food supply chain disruptions resulted in increased food prices and limited food products, leading to reduced affordability of food for vulnerable populations, with loss of income further exacerbating food insecurity rates on a global level. The effect of COVID-19's disruption of livelihoods was felt most significantly amongst those living within low-to-middle income countries (LMIC) due to food system workers being more at risk for food and nutritional security. Disruptions of food chains on a local, national and global level reduced individual's accessibility to nutritious foods, resulting in less nutritious diets and increased risks for malnutrition, undernutrition, and non-communicable diet related diseases.

As a result of increased food insecurity and reduced consumption of nutritious foods, the global non-profit Global Alliance for Improved Nutrition (GAIN) initiated a workforce nutrition program known as Keep Food Markets Working (KFMW) in order to support the nutrition and food security of essential food system workers living within LMIC. The KFMW program provided grants to in-country partner companies and/or non-governmental organizations so that

selected companies could provide nutritious foods to their employees and selected beneficiaries who are declared as vulnerable food system workers. Nutritious food was distributed to beneficiaries in the forms of food rations, cooked meals or take-home food baskets as means of increasing accessibility and affordability to nutritious foods while mitigating negative consequences of COVID-19 related repercussions. The KFMW grant was implemented in four target countries within Asia and Africa [Bangladesh, India, Pakistan and Kenya] and targeted over 200,000 beneficiaries. Within each country, a variety of companies were chosen as grant beneficiaries, ranging from supermarkets, farms, garment industries, crab hatcheries, tea plantations, and other food production industries. Each company was awarded a different amount of funds depending on their request within their application and also depended on the base of their beneficiary coverage.

Emory University was recruited by GAIN to conduct an evaluation of the KFMW grant within each country to determine successes and challenges of KFMW administration and implementation. The initial research questions for this evaluation was to understand how different companies navigated KFMW design and implementation, how their methods have implications for the future, and how their methods influenced impact for their target beneficiaries. Throughout the initial evaluation for the KFMW program, various factors such as the application process, distribution, procurement, fund distribution, and nutritional considerations were evaluated – however, considerations revolving the food selection process was not covered extensively. Therefore, there is a gap of information regarding the different considerations at play that may have influenced the food selection process for companies within the four target countries, which could have in-turn impacted food insecurity and malnutrition rates amongst beneficiaries.

Problem Statement:

There is a high burden of malnutrition, food insecurity and other diet-related diseases in low-to-middle income countries (LMIC), specifically within Asian and African countries. Rates of food insecurity worsened as a result of the COVID-19 pandemic and was mitigated by global and national food security programming in order to mediate negative consequences on individual's nutrition. However, there is a gap in information regarding the considerations revolving around nutritious food selection that may have influenced perceived impacts on beneficiaries. This study explores that gap and examines environmental, cultural and financial factors that influenced nutritious food selection within the Keeping Food Markets Working (KFMW) program initiated by Global Alliance for Improved Nutrition (GAIN).

Purpose Statement:

The purpose of this thesis was to assess what kinds of factors influenced companies' selection of nutritious food items for the food ration distribution, and how distribution of the selected food items impacted beneficiaries on food security, financial and overall program satisfaction measures.

Research Question:

Which factors influenced food item selection within KFMW implementation, and how did food ration distribution impact the target beneficiaries of the KFMW program?

The objectives of this thesis are to:

1) Identify factors related to the food selection process within the KFMW program from the perspective of company representatives
2) Identify levels of impact that KFMW implementation had on beneficiary populations amongst the four target countries [Bangladesh, Kenya, India, Pakistan]

Significant Statement:

This research is significant in further evaluating the factors that influence nutritional impacts and food security programming within global and national food security programs. Through identifying themes regarding factors that influenced nutritious food selection within the KFMW program, future food aid interventions may apply these considerations within the design, administration and implementation of their programming in order to enhance beneficiary food security and nutritional outcomes. Additionally, perspectives from company representatives can serve as recommendations regarding food aid programming and can be integrated into future interventions, especially in regard to the successes and challenges surrounding nutritious food selection, procurement and distribution.

CHAPTER 2 LITERATURE REVIEW

Diet Related Diseases: Malnutrition, Undernutrition, and Chronic Disease

Global malnutrition is defined as the deficient, excessive or imbalanced consumption of necessary nutrients, which could result in diet related non-communicable diseases, increased prevalence of infectious disease, or symptoms of undernutrition, such as being underweight, wasting, or stunting [1]. As of 2017, poor diet, including a variety of different dietary risks, is the leading cause of death in the world [25]. Acquiring the status of malnutrition arises from a variety of factors including inadequate food quality, diminished food intake or reduced access to food, and repeated transmission of infectious diseases [5]. Micronutrient-related malnutrition specifically relates to the inadequate intake of vitamins and minerals, due to insufficient food intake and as well as poor bioavailability of vitamins and/or minerals [6]. Micronutrients, such as vitamin A, iron, and iodine, are essential for sustaining physiological support and healthy development and can only be obtained through food, since the body cannot synthesize its own micronutrients [7]. Micronutrient deficiency is a significant public health concern, especially for women and children, and can create additional developmental, economic, and medical impacts on individuals, families, communities and countries. The World Health Organization (WHO) declares that more than 2 billion individuals suffer from vitamin and mineral deficiencies [8]. The main three micronutrient deficiencies most prevalent on a global scale are vitamin A deficiency (VAD), iodine deficiency disorders (IDD), and iron deficiency anemia (IDA) [6]. Iron deficiency remains the most prevalent nutritional deficiency, and could lead to anemia and increased maternal and infant mortality. Symptoms of IDD include goiter, hypothyroidism, cognitive impairment and birth defects. VAD could lead to night blindness and increased mortality in children and pregnant women [8]. While children are most at risk for developing

micronutrient-related malnutrition, especially within the first 1000 days of their life, pregnant women and lactating mothers also experience high risk for developing micronutrient deficiencies [9]. For example, in regards to IDA, there is a 56% prevalence of anemia for pregnant women in non-industrialized countries, as compared to a 34% prevalence of anemia for men in non-industrialized countries. In addition, self-report surveys measuring the prevalence of night blindness, a notable symptom of VAD, detected high night blindness reports amongst women in the Southeast Asia region, specifically Nepal, India, and Laos [6]. Micronutrient malnutrition continues to be a major public health concern within developing countries. Approximately 90% of the reported 101 million underweight individuals in 2013 are associated with only 36 countries, with the highest prevalence of micronutrient malnutrition related symptoms being within Southeast Asia and Subsaharan Africa [7]. About 40% of the developing world experience iron deficiency, and about 15% of those living in the developing world lack proper iodine. Micronutrient deficiency is a significant contributor to child and maternal mortality within the developing world, with most of these preventable deaths attributed to regions within Southeast Asia and Subsaharan Africa [10]. Solutions for addressing micronutrient related malnutrition consist of enhancing dietary diversity, fortifying food, and providing vitamin and/or mineral supplements to those who may be at most risk for micronutrient-related malnutrition [8]. More political solutions include reducing poverty, enhancing literacy, and creating more opportunity for economic development within communities and countries.

In addition to micronutrient-related malnutrition, undernutrition is defined as the lack of proper nutrition caused by not eating enough food containing nutrient rich components that are vital for health growth and development [2]. Undernourishment affects 9.9% of people globally, and has grown to affect as many as 811 million people since the onset of the COVID-19

pandemic [3,4]. Related to undernutrition, changes in lifestyle and dietary patterns have resulted in diet related non-communicable diseases (NCD) such as cardiovascular diseases, obesity, respiratory diseases, and diabetes mellitus, which in 2019 accounted for 71% of yearly global deaths [41 million people] [25,26]. Malnutrition is also a key risk factor for NCD, linking unhealthy food diets with undernutrition, micronutrient-related malnutrition and diet related chronic diseases. While chronic diseases and NCD affect both high income and low-to-middle income (LMIC) countries, 80% of those experiencing the burden of chronic disease on a global scale occur within LMIC, with 70% of NCD related deaths among individuals younger than 70 occurring in LMIC. Data suggests that the prevalence of NCD within LMIC continues to be increasing, while NCD and risk of death due to cardiovascular disease may be decreasing within high income countries [26]. This transition of LMIC experiencing more NCD, such as cardiovascular disease and diabetes, occurs as a consequence of rapid changes in diet due to economic expansion, industrial growth, and market globalization. While market expansion on a global level can improve standards of living, it can also produce unintended consequences relating to the diversification of food products. As a result of globalization, certain food items become readily available but contain unhealthy levels of saturated fat and refined carbohydrates, leading to a shifting of dietary patterns. Synergistically, increased consumption of energy-dense foods is now paired with a more sedentary lifestyle, resulting in the development of chronic disease [27]. Consequences for individuals and populations experiencing the increasing burden of chronic disease includes both physical and financial hardships. The physical consequence of experiencing chronic disease includes an increased risk for premature death and disability, while financial hardships would include increased healthcare costs for accessing long-term health care services and increased costs in requiring pharmacological treatment [26]. Chronic disease places

an additional strain on the workforce, where those experiencing diet related NCD may not produce as much output as their healthy colleagues [25]. An individual's inability to work and earn a wage also influences their food security level, potentially burdening themselves and their family's malnutrition status even more. While nutritional programming and health policy in LMIC should address undernutrition and micronutrient related malnutrition, it should also address the prevention of chronic disease. Additionally, enhanced surveillance and monitoring is required in order to assess how much of the population living within LMIC are experiencing NCD and how those experiencing chronic disease can be best addressed. Future programming regarding diet related disease in LMIC must be focused on the prevention of chronic disease, addressing both nutritional recommendations for a healthier diet as well as encouraging physical activity. However, NCD are gaining recognition in both high income countries and LMIC – the World Health Organization's 2018-2019 Work Plan reported that countries are placing NCD as the top area for technical support on a list of 21 health topics, with implementations addressing NCD occurring within the health sector, trade and industry ministries, food standard settings, and education and agricultural sectors [31]. Additionally, the 2030 Agenda for Sustainable Development includes a specific NCD target where by 2030, the goal will be to reduce premature mortality due to NCD by one-third through prevention, treatment and a promotion of health and well-being [33].

Diet Related Diseases by Country

India

From 2018-2020, there was an average prevalence of 15.3% of undernutrition, resulting in 208.6 million people suffering from undernutrition within India. More than half the population suffer from anemia, with women and children placing the highest level of burden and prevalence.

The Ministry of Health and Family Welfare reported that the prevalence for anemia was 58.6 for children aged 6-59 months, 53.1% for women aged 14-49 years of age, 50.4 for pregnant women aged 15-49 years of age, and 22.7% for men aged 15-49 years of age [16]. Studies have indicated that B12 deficiency can be as high as 70-100% in India. Theories suggest that this may be due to the fact that 29% of the Indian population is vegetarian. VAD, measured through subclinical Vitamin A deficiency (serum retinol <20 μg/dl), was reported to be about four percent for women of reproductive age living in rural India, while another study reported the prevalence of subclinical vitamin A deficiency as 32.6% for children aged under five years old. In India, iodine deficiency has been addressed through the measures of iodizing household salt, leading to about 93.1% of households using iodized salt from 2015-2016 [16]. Goiter, a symptom of IDD and indicator for monitoring IDD, was measured throughout the whole country and was reported to have a total goiter rate of more than 5%; however, the total goiter rate does vary throughout different regions of the country. Additional micronutrient deficiencies present within India include zinc and Vitamin C.

Additionally, populations living within India are also suffering from the double burden of malnutrition – micronutrient related malnutrition and an increasing prevalence of chronic disease. In 2016, there was 3.9% prevalence of adult obesity within India, with a 0.8% increase in prevalence since 2012 [30].

Bangladesh

While Bangladesh's morbidity pattern is distinctly marked by chronic energy deficiency (CED) and infectious disease, diet related non-communicable diseases (NCD) are now also contributing to adult morbidity in both urban and rural areas. In 2006, a study was conducted comparing BMI levels amongst women of reproductive age in order to assess levels of under-

and-over nutrition, which demonstrated that over a five year period [2000-2005] there was a trend towards increasing prevalence of overweight women within both urban and rural areas. This upward trend was more significant amongst women in rural areas, suggesting that the transition of dietary patterns have begun to pervade rural areas more substantially. However, overall prevalence of higher BMI was higher amongst women living in urban centers [29]. In 2016, there was a 3.6 percent prevalence of adult obesity, indicating that 3.7 million adults living in Bangladesh suffer from obesity [30].

Kenya

Within Kenya, there was a 24.8 percent prevalence of undernutrition within 2018-2020, and a 7.1 percent prevalence of adult obesity in 2016. Meaning, that there were 10.4 million undernourished people and 1.8 million obese people living within Kenya. In addition, there was a 23.9 percent prevalence of anemia amongst women of reproductive age in 2016 [30].

Pakistan

There was an average prevalence of 12.9% for populations suffering from undernutrition within the years of 2018-2020, resulting in 27.9 million people suffering from undernutrition in Pakistan. Additionally, there was a prevalence of 41.3% of anemia amongst women of reproductive age in 2019 [30].

Food Security and Food Systems

Linked with malnutrition and undernutrition, food insecurity is a pressing public health concern that influences the dietary habits of individuals in both the developing and the developed world. The Food and Agriculture Organization defines food insecurity as "lacking regular access to enough safe and nutritious foods for normal growth and development" [11]. Additionally, food insecurity can be thought of by considering four different dimensions: food availability,

food accessibility, food utilization and food stability [13]. Food availability refers to whether the supply of food is adequate, food accessibility refers to whether people can obtain the food they need, food utilization refers to whether people are able to acquire adequate nutrients from their food, and food stability refers to whether people are able to access proper food at all times [14]. Food insecurity can be measured using the Food Insecurity Experience Scale (FIES) where food insecurity ranges from mild food insecurity to severe food insecurity. Mild food insecurity would refer to an individual or a family being uncertain in their ability to obtain food, while moderate food insecurity would be defined as an individual or a family having to compromise on food quality and variety, as well as reducing food quantity or skipping meals. The reasons for one having to reduce food quantity or quality could be due to a person or family having insufficient resources to obtain quality food for a healthy diet and may have run out of food on occasion. Severe food insecurity would encapsulate those who have not had any food for a whole day or more [11]. Typically for those experiencing moderate food insecurity, persons will acquire food that is readily available and affordable, but is not very nutritious or does not contain the essential vitamins and minerals necessary for optimal growth, development, and overall well-being. This may lead to the overconsumption of highly over-processed foods full of saturated fats and excessive carbohydrates. The consumption of these foods may satisfy adequate calorie count, but sacrifices essential nutrients that are found in fruits and vegetables. Therefore, food insecurity can lead to displays of malnutrition, ranging from stunting, wasting and being underweight, to experiencing obesity and non-communicable chronic illnesses.

Cost and affordability of a healthy diet are important factors when considering an individual's or a population's ability in establishing food security. Cost refers to the price of obtaining a healthy diet, while affordability is a measure of the cost of a diet relative to income.

The United Nation defines a healthy diet through the inclusion of macronutrient [proteins, fats, carbohydrates, fiber] and micronutrients [vitamins and minerals], and is marked by containing a balanced, diverse and appropriate consumption of foods over a certain period of time [30]. Obtaining a healthy diet protects individuals from diet related diseases such as undernutrition and NCDs – therefore it is vital that cost and affordability are considered when evaluating food security measures. If affordability decreases while cost of a healthy diet increases, this would result in more people unable to afford healthy diets on a global scale. Across all countries, the cost of a diet increases as the diet quality increases, and the cost of a healthy diet is, on average, 60% more than a diet that just requires essential nutrients and energy levels. In 2019, the average cost of healthy diet on a global level was 4.04 USD per day, with an average increase of 7.9 percent between the years 2017-2019. Overall national costs of healthy diets differed amongst different regions and different countries. Africa had the largest increase in cost between 2017-2019, with an increase in cost of 12.9 percent, while Asia had the smallest increase in cost, only increasing in 4.1 percent between 2017-2019. India, Bangladesh and Pakistan would be considered South Asian countries, which experienced a 1.2 percent change in cost of a healthy diet between 2017 to 2019, averaging to a cost of 4.12 USD per person per day. Kenya would be considered an East African country, which experienced a 6.4 percent increase in overall cost of a healthy diet, averaging to a cost of 4.99 USD per person per day [30]. Additional data revealed that 71.3 percent of individuals living in South Asian countries were unable afford a healthy diet, and 85 percent of individuals living in East African countries were unable to afford a healthy diet. Both of these averages fall significantly above the global average of 41.9 percent of individuals being able to afford a healthy diet.

Food insecurity within the developing world presents more severe cases of food scarcity, inaccessibility to nutritious foods and reduced affordability of nutritious foods. Food insecurity is also closely linked with poverty. Around 520 million individuals experiencing food insecurity live in South Asia and East Asia, 180 million live in East Africa, and about 100 million individuals experiencing food insecurity are distributed amongst Latin America, the Middle East and North Africa [12]. Those living within developing countries typically live within more rural areas which affects one's accessibility to food and opportunities for economic growth. However, among those within rural areas, working in agriculture is usually a main source for both food security and job attainment. Although agriculture is an essential component of culture, society, and livelihood, it can be disrupted by events such as climate change, infrastructure modifications, or global pandemics.

The COVID-19 pandemic displayed the fragility of food systems in both the developed and the developing world [4]. COVID-19 impacted billions of people through the threat of direct infection and transmission, but also presented indirect consequences that affected the security of people's livelihoods. Indirect consequences of the pandemic included extended lockdowns, losses of jobs, mobility restrictions, and economic instability [13]. The loss of secure income synergistically influenced the purchasing power that individuals had on procuring nutritious foods, which in turn affects one's food security and nutritional status. As a result of these indirect consequences, the resilience of food systems was brought into question all over the globe, and required a shift in systematic programming or enhanced assistance in managing the food security of both food system workers and produce consumers. The discussion of food systems includes considering the inputs, processes, environment, people and infrastructure needed in order to complete essential activities related to the production, procurement, processing and distribution

of food [13]. Due to labor shortages and travel restrictions, many aspects of local food systems have encountered shocks and stressors that revealed the structural issues present in many low-to-middle income countries (LMIC) local and national food systems. The quarantine of people and restrictions of goods as means for disease control measures, resulted in disrupted livelihoods for poor rural farmers, livestock keepers, and other food system workers [15]. One short-term resolution to mediate the exacerbation of food insecurity is to enhance food provisions in the workplace and create more programming for workplace nutrition.

Workforce Nutrition

Workforce nutrition programs are an effective, unique and complementary way to incorporate distribution of food provisions, physical wellness activities and nutrition based education to selected employees that may be more at risk for experiencing malnutrition or food insecurity. The Global Alliance for Improved Nutrition defines workforce nutrition programs as "a set of interventions that work through the existing structures of the workplace to address fundamental aspects of nutrition amongst employee or supply chain workers" [18]. Workforce nutrition programs can also develop inherently collaborative relationships between the public and private sectors. Embedded within workforce nutrition programs are four different components that aim to enhance nutrition needs. The four different aims include (1) providing healthy food at work, (2) providing nutrition education, (3) providing nutrition-focused health checks and (4) providing breastfeeding support so that parents can provide adequate nutrition to their children. There are associations between workforce nutrition programs and improved health outcomes which reveal that daily exposure to healthier meals improves short-term cognitive functioning and long-term improved nutritional health. Individual level outcomes from workforce nutrition programs include better nutritional knowledge, increased consumption of

foods high in nutritional value, reduced sick days, increased wage earnings and increased intake of energy and micronutrients. At the organizational level, improved employee nutrition results in reduced absenteeism, decreased medical costs and enhanced productivity [18,19, 20]. The overall health impact from including workforce nutrition programs into the workplace is to enhance a healthier workforce and to reduce malnutrition or food insecurity amongst employees. However, incorporating workforce nutrition into the workplace can also improve work productivity and economic performance [18]. In LMIC, malnutrition caused through inadequate consumption of energy and nutrient rich food affects an employee's productivity at work, which can affect individual and population economic development, and can also affect an organization's financial health as well. The socio-ecological model suggests that health behavior is a result of the interaction between the individual and their environment - therefore, health related workforce interventions promote better well-being and encourage more informed nutritious decisions [19]. Increasing accessibility and demand for healthy food for commodity value chain employees would mediate malnutrition and food insecurity for those experiencing poverty in LMIC. The Global Alliance for Improved Nutrition suggests that the value chain is a quality entry point for a nutrition workforce program due to the fact that the focus on nutrition can become inherent to the organization's objectives and allows for an organized way to deliver nutrition based interventions [21].

Impacts on Undernutrition and Iron Deficient Anemia

An example of a workforce nutrition program that delivered improved nutritional outcomes was a workplace nutrition program implemented in four ready-made garment (RMG) factories within Bangladesh that aimed to reduce anemia amongst their female workers [19]. This program went on for 10 months and consisted of a package of different interventions

including nutritionally improved lunches (including fruits, vegetables, staples and fortified foods) and iron-folic acid (IFA) supplements, or twice weekly iron supplements. This intervention included four different arms, depending on the designation of their grouping. For women employees that worked at a factory that provided lunches, one comparison group (A) and one control group (B) was established. Among women employees that worked at a factory that did not provide lunches, one comparison group (C) and one control group (D) was also established. The differences in the first two groups, where factories already provided lunch, were established in order to determine if (A) providing fortified lunch in combination with IFA supplements would be more effective in reducing anemia when compared with providing (B) regular lunch with non-fortified foods in combination with twice weekly IFA supplements. For the other two groups, where factories did not provide lunch for their employees, group (C) functioned as the intervention group, receiving only the twice weekly IFA supplements, whereas group (D) did not receive any meals or IFA supplements. All groups (A,B, C and D) received behavioral change communication educational interventions in the workplace. The primary outcome for this intervention was to detect any differences in anemia prevalence amongst the female workers. Data collection included semi-structured questionnaires (asking about demographics, sanitation and food recall), anthropometric measurements (weight), blood-sample collection, and qualitative interviews. Thirty-two qualitative interviews were conducted in order to understand the participants' experiences on food intake and preference throughout the study, their knowledge of nutrition related topics, and attitudes about the IFA supplementation. Results demonstrated that through the workforce nutrition intervention, anemia prevalence amongst the female workers decreased by 32% (from baseline to endline) through the provision of nutritionally enhanced lunches, weekly IFA supplements, and enhanced BCC training. Amongst

participants that only received the twice weekly IFA supplements and enhanced BCC training, anemia prevalence decreased by 12%. These results suggest that the inclusion of nutritionally enhanced food provisions is an effective strategy at reducing anemia [19].

Impact on Diet Related Chronic Diseases

Due to the felt effect of NCD impacting employee absenteeism, presentism, and employee healthcare expenditures, implementing workforce nutrition programs that address NCD and diet related chronic diseases would benefit both employers and beneficiaries. Workplace wellness programs (WWP) are a workforce nutrition strategy designed to address the risk factors for NCD, including a variety of applications such as physical activity components, smoking cessation programs, and nutritional education. WWP typically consist of multi-component interventions, in order to fully address the environmental and behavioral factors that influences an individual obtaining a diet related chronic disease [32]. Employers that have implemented WWP have seen significant reductions in health care costs – 49% of companies that have implemented WWP reported lower health care costs after a single year, while 80% of companies reported lower health care costs over a period of five years. However, on a global scale, only 29% of companies have implemented WWP [33]. Within Asia, only 5% of employees have access to a workplace health program. WWP within Asian countries include engagement of physical activity, use of preventive health screenings, enhancing workplace environments, and increasing compliance with recommended care for health conditions [34].

A case study for an organization in LMIC that addresses NCD within workplaces is Arogya World, which is a global health NGO that address NCD through lifestyle changes and health education and has reached over 145 different companies and 3.1 million employees in India [34, 35]. Arogya World initiated a Healthy Workplace Program that partners with

employers, employees, wellness service providers and health experts in order to assess a companies' current WWP and encourage improvements in their companies workplace wellness measures through improving physical health criteria such as healthy eating, tobacco cessation, and physical activity. Similarly, Arogya World established a Healthy Workplace Criteria measurement which has been deployed in companies in order to shape companies so that they are 'driven around the health and wellness of their employees' [35].

Impact on Nutritional Knowledge and Food Security

Another example of a flourishing workforce nutrition program within the supply chain market includes the private company Unilever and their commitment to improving the diets of 300,000 tea plantation workers through the integration of workforce nutrition programs. Those working in the tea supply chain typically suffer from malnutrition, depending on starches and cereals as their food sources for energy. Therefore, Unilever partnered with GAIN and the Sustainable Trade Initiative (IDH) to develop a program called Seeds of Prosperity in order to promote the consumption of nutritious foods. The program aims to provide education about nutritious food consumption and dietary diversity through using educational tools such as health training, community events, and educational booklets about nutrition. In addition, the program increases availability and accessibility to food through the act of planting fruit trees, creating kitchen gardens, and distributing bio-fortified orange sweet potato plants [23]. The geographical spread of this program began in India, and has now been spread to Kenya, Malawi and Tanzania. [22] Seeds of Prosperity began during COVID-19 as a means to reduce any associated health risks that would increase risk of COVID-19 morbidity and mortality.

Keeping Food Markets Working (KFMW)

Similarly, as a response to the COVID-19 pandemic, the Global Alliance for Improved Nutrition (GAIN) initiated a special emergency grant program known as "Keep Food Markets Working: Supporting Frontline Food System Workers" (KFMW) to support the nutrition and food security of essential workers within LMIC. This emergency food grant targeted potential GAIN partner employers. Any private company or non-governmental organization (NGO) could apply for the KFMW grant in order to support their most vulnerable workers' health and nutrition through the provision of emergency food support. GAIN's objective in improving nutritional security amongst vulnerable workers living in LMIC was accomplished by establishing short-term emergency grants for partner companies to provide short term nutritious food provisions to workers for 2-6 months. The KFMW grant also had a gender consideration, prioritizing pregnant or lactating women as the targeted beneficiaries within the different companies. The KFMW grant supported a total of 200,000 vulnerable workers within India, Kenya, Bangladesh, and Pakistan. The KFMW grant was evaluated by Emory University in order to address and analyze the effectiveness and challenges of the KFMW implementation process throughout all four countries. Part of the KFMW emergency grant evaluation included learning about best practices and lessons learned in consideration of other emergency food grant programs and future workforce nutrition implementations.

The evaluation process for the KFMW grant consisted of quantitative data collection, through the distribution of surveys to grant beneficiaries, as well as qualitative data collection. The beneficiary surveys regarded demographics, employment, questions regarding prior and current nutritious food distribution, and questions regarding the perceived impact of the KFMW program. The qualitative interviews were conducted with GAIN Country Directors and different

partner company representatives. The qualitative interviews related to the GAIN country offices focused on the roles and involvements of the grant provider, relevant criteria regarding the company selection process, the grants' monitoring and evaluation, and workplace policies regarding gender and equality. However, the qualitative interviews conducted with different company representatives aimed to understand the different implementation processes, such as distribution and procurement, program challenges and successes, and company partnerships with GAIN.

During the analytical process of reviewing the evaluative data, the selection of nutritious foods was addressed, but not covered in extensive detail. Therefore, the purpose of this thesis project is to further understand the different processes, social and environmental factors that influenced companies and company representatives in selecting, procuring and distributing their elected food provisions. The relevance of this research question is grounded on the fact that the diverse selection of nutritious foods could address diet related diseases and nutritional status amongst beneficiaries located in the different regions where the KFMW grant was implemented.

CHAPTER 3: METHODS

The Keeping Food Markets Working (KFMW) evaluation utilized a mixed-methods, multiple case studies approach to assess the processes involved within the program's implementation, the challenges, and the successes of the KFMW program. The Consolidated Framework for Implementation Research (CFIR) was used as the conceptual framework in guiding the evaluation techniques used in each of the four countries, including India, Kenya, Pakistan and Bangladesh. This framework emphasizes the various levels of influence and how interactions between these levels of influence affect program implementation, sustainability, and effectiveness. Levels of influence include the broader socio-cultural and political context, the internal context of the organization, characteristics of the intervention, the implementation process and the beliefs, attitudes, and social norms of the beneficiary population.

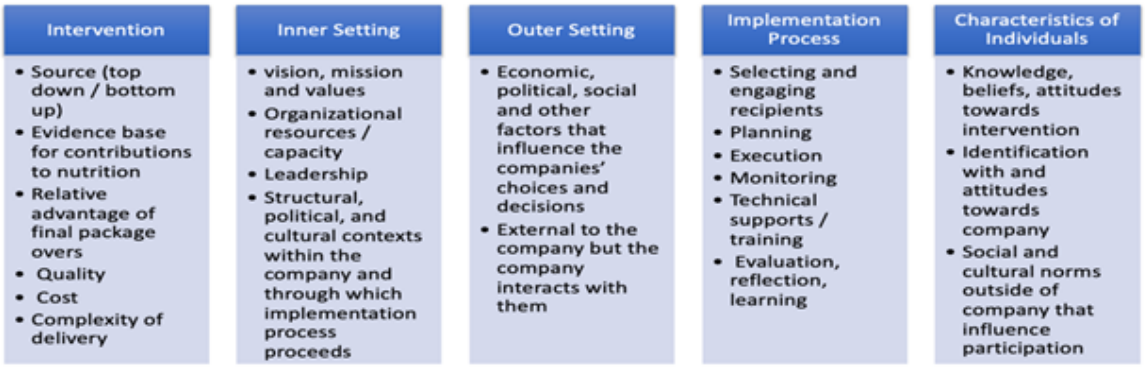

Figure 1. *Domains of Consolidated Framework for Implementation Research (CFIR) adapted to the KFMW emergency food security grants program from https://cfirguide.org/*

Company Selection:

As part of the company selection process, all applications, both funded and unfunded, from the four countries were reviewed. The applications asked for information regarding the organization's geographical location, the company's industry focus, the size of the company, the

prioritization of gender within the company, the preferred type of food distribution [take home rations, vouchers, cooked meals], the length of the grant's implementations [2-6 months], and whether the organization had prior experience with GAIN. At the time of evaluation, there were a total of 51 funded companies throughout the four countries, but only 14 funded companies were selected for the company case study evaluation. Within Bangladesh there were a total of 33 funded companies, within Kenya there were a total of 8 funded companies, within India there were a total of 4 funded companies, and within Pakistan there were a total of 6 funded companies. For the KFMW case study evaluation, three companies were chosen from India, four companies were chosen from Pakistan, four companies were chosen from Kenya, and three companies were chosen from Pakistan. The selected companies within Kenya and Pakistan were all involved in the food sector industry, ranging from various aspects such as producers, processors, distributors and retail. Two of the selected companies in Bangladesh represented aspects of the food sector industry and one selected company represented a factory from the ready-made garment sector. Within India, the grantees were all NGO's who partnered with food production and processing companies. This unique partnership was required within India due to the Foreign Contribution Regulation Act, which only allows private companies to accept foreign funds if they are in association with an in-country NGO.

Country	Food Sector	Garment Sector	NGO	Total Companies Selected	Total Number of Funded Companies
India	0	0	3*	3	4
Kenya	4	0	0	4	8
Bangladesh	2	1	0	5	33
Pakistan	4	0	0	4	6
* government regulations prohibit international donor partnerships with private sector and so all funds were routed through NGO's who partnered with in-country private - sector tea and spice companies					

Data Collection:

For the KMFW evaluation, quantitative data was collected through telephone beneficiary surveys and qualitative data was collected through key informant interviews with GAIN country office staff and company representatives. The qualitative interviews with GAIN country office staff were conducted remotely through zoom by Emory team members. In regards to the company representative interviews, in-country partners were trained by the Emory team and conducted local language interviews either remotely or in-person, transcribed these interviews into English and shared de-identified transcripts with the Emory team. In-country partners also conducted beneficiary telephone surveys.

Prior to the qualitative interviews, semi-structured in-depth interview (IDI) guides were prepared and used to guide the interviews. There were a total of 13 GAIN country office staff interviews [4 female, 9 male], and there were a total of 37 company representative interviews [10 female, 27 male]. The GAIN country interviews consisted of a variety of staff members, including directors, monitoring and evaluation consultants, and implementation managers. Company staff interviews consisted of a company's CEO or president, a company's implementation lead, a company's financial manager, or other implementing partners. Interviews were recorded if possible, and verbatim transcripts were prepared. In-country partners conducted a total of 1059 telephone beneficiary surveys [489 female, 570 male] with company employees and/or community grant beneficiaries.

To support remote phone surveys, Emory contracted the data collection companies in each of the implementing countries. In Bangladesh: an independent consultant was contracted, in India: Dr. Pravesh Dwivedi and Fieldscope, in Kenya: 60 Decibels, and in Pakistan: two independent consultants.

Data Collection Materials:

Qualitative Data

The IDI guides were developed by Emory University and revisions were completed by local research partners to ensure questions were comprehensive and culturally appropriate. There were a total of two IDI guides. One was created specifically for GAIN country staff and one was created for company management teams. The IDI guide for the GAIN country office focused on the role and involvement of the grant provider, criteria for company selection, process of grant administration and monitoring, and workplace policies concerning gender and equality. The IDI guide for company management level aimed to understand implementation processes, program challenges and successes, and partnerships with GAIN.

An iterative process was used for the codebook development by identifying deductive codes from the adapted CFIR framework and tools then inductive codes based on reading and memo-ing of a subset of transcripts. The codebook was tested on the second set of transcripts and refined in terms of new codes, code definitions, inclusion, and exclusion criteria. A team-based approach to coding was applied by each country team with intensive training to achieve intercoder reliability > 85% across all four teams. Coded data were then reviewed via a three-pass approach applying a descriptive lens to the first pass, an analytical / comparative lens to the second pass and a third pass to identify patterns and code coalescence into themes.

Quantitative Data

The beneficiary survey was developed in collaboration with Emory University's research team, local research partners, GAIN country offices, and team leads for grant evaluation in Pakistan, Bangladesh, India, and Kenya. The survey question checklist was designed to explore beneficiaries' experiences regarding nutrition and to evaluate the program impacts on workplace

and household. Emory University's research team and in-country partners worked collaboratively to localize the telephone beneficiary survey for local contexts. Respondents were sampled from the contact list provided by companies through population proportionate sampling method. For all companies, the total number of beneficiaries that companies planned to reach, based on their grant application, was used as the population for that company. This method first calculates a total sample size, assuming 5% margin of error, 95% confidence interval and an assumed 75% proportion of beneficiary participation. The sample size for each company was then calculated based on the proportion of beneficiaries in that company over the total number of beneficiaries. Consequently, surveys were conducted, by in-country research partners, with 279 beneficiaries in Kenya, 235 in India, 277 in Bangladesh, and 268 in Pakistan for a total of 1059 survey respondents. For this thesis project, the survey result of interest includes 'Impacts of KFMW' related questions and results.

Data Analysis:

For purposes of this thesis, additional codebook development was conducted to focus specifically on the food selection process. Similarly, this process of codebook development consisted of both deductive and inductive approaches. Further analysis of the nutritious food selection process included using MAXQDA to code transcripts across all four countries with the newly defined codes, comparing the nutritious food selection process across countries, and identifying any unique or emerging themes regarding the food selection process.

Descriptive analysis of quantitative results regarding overall impact of KFMW on selected beneficiaries was collected and compared across all four targeted countries, regarding topics such as perceived program effects on beneficiaries, overall satisfaction with food distribution, and additional program feedback.

Timeline of Evaluation:

The total timeline of the KFMW evaluation spanned from April to November. From April to May, evaluation design was initiated. From June to August, case study companies were selected then qualitative interviews were conducted with GAIN Country offices and company offices. From September to October, qualitative interviews with companies were still being completed, beneficiary surveys were conducted through the phone, and qualitative analysis began. From October to December, the cumulative quantitative and qualitative data was cleaned and analyzed, and report writing began. From January to March, additional analysis focused on nutritious food selection was conducted.

Ethical Considerations:

This research was considered non-human subjects research by Emory IRB and was deemed exempt from IRB review and approval. Ethical practices and informed consent governing human subjects research were adhered to regardless.

CHAPTER 4: RESULTS

Qualitative Data

There was a total of 27 qualitative interviews that were conducted with company representatives from each of the four target countries [India, Kenya, Pakistan and Bangladesh]. Within each country, there was a total of five company interviews in Kenya, eight company interviews within Bangladesh, nine company interviews within India, and four company interviews within Pakistan.

The themes that arose from qualitative analysis involved further dissemination of different reasonings for food ration selection from the perception of company representatives. Some emerging patterns included variations in food availability, the variation between food ration selections themselves, the ways in food was distributed to the beneficiaries, the perception of nutritional content within the selected food rations, cultural considerations, the effect that COVID-19 had on beneficiary diets, and the presence of nutritional trainings paired with food ration distribution.

COVID-19 Impacts on Diet

Firstly, it was important to consider how beneficiary diet was affected by the COVID-19 pandemic, and how closures, lockdowns and social isolation influenced dietary patterns. The KFMW grant was designed to mediate the potential consequences of worsening food insecurity amongst vulnerable populations, due to the onset and spread of COVID-19. However, the consequences that COVID-19 had on beneficiary diet were varied, with some populations experiencing dietary and economic shifts while other populations of beneficiaries were said to have experienced no significant loss of both income or dietary diversity.

A repercussion of COVID-19's lockdowns and social distancing measures were that local markets were either closed or had reduced availability of otherwise common and nutritious food items. In Pakistan, a company representative discussed how vegetables are often sold fresh, but farmers could not sell their produce because the markets were on lockdown. Due to this, farmers were unable to produce income from some of their crops, which left them in debt, due to having to pay for farming supplies such as fertilizer and seeds, and left them at an increased risk for food insecurity and malnutrition.

> *"However, this year the farmers could not sell the vegetables timely because the markets were on a lockdown. Hence, farmers could not make money, there was no other employment opportunity, and they were also under debt now as they had to borrow money for fertilizers, seeds, etc." – Pakistan Company Representative*

Similarly, within India, one company's factory was closed for 21 days, leaving the daily wage workers without wages for about a month's time. Due to certain beneficiary population's incomes being affected, their purchasing power decreased as affordability of items decreased. Company representatives from Kenya mentioned that beneficiaries could not get access to foods that were not grown in local areas, and that certain foods outside of the local area became more expensive.

> *"…there was a time where there was a total lockdown during COVID and they could not access some foods that were not grown in the in the areas. So, with that lockdown it limited them to a certain type of food that they grow only around where they come from... this also made that type of food that came from outside maybe more expensive than usual because it became a rare commodity." – Kenyan Company Representative*

Amongst several companies within India, it was discussed that beneficiary dietary diversity was reduced, due to limited availability of vegetables, increased pricing for essential food items and increased consumption of rice and grains. Additionally, the nutrition of migrant laborers, a prominent beneficiary population in India, also suffered since they were migrating from urban cities to rural villages looking for employment, but no jobs were available.

Social dynamics surrounding food consumption were also influenced by COVID-19 regulations and mandates. Company representatives from Pakistan discussed how workers and colleagues used to eat food together, but now eat separately in order to prevent the spread of COVID-19.

While some companies discussed how COVID-19 negatively influenced the diets of their beneficiaries, other companies discussed how they did not notice a change in their beneficiaries' diets. A company representative from Kenya mentioned that beneficiary diets remained the same, and that breakfast and lunch was still provided to their employees, regardless of COVID-19 related mandates. Similarly, company representatives in Bangladesh mentioned that beneficiary incomes remained the same as before and that their salaries were not affected because the factories remained open throughout all of the COVID-19 pandemic.

> *"During COVID-19 the salary of the workers was the same in our factory. If you want to find out the source of income or affordability of income it was the same before COVID-19 and after COVID-19. Maybe they could not buy their limitations it is another thing. If you say about the effect of income during the COVID-19, I will say there was no effect of COVID-19 in our factory." – Bangladesh Company Representative*

Food Selection Requirements by GAIN

During the application and food selection process for the KFMW grant, GAIN provided a list of nutritional requirements that companies were recommended to follow when considering which items to select for their food rations. As GAIN was in communication with the various different companies throughout all countries, companies could select items off of the recommendations provided by GAIN and communicate with GAIN if a preferred food ration were acceptable by GAIN's nutritional standards.

GAIN's requirements for the selection of food productions for the KFMW grant included food procurement requirements, food distribution requirements, beneficiary selection requirements, and nutritional requirements.

Designated food procurement requirements were that foods must be procured locally, the procured items must be nutritious, and the selected food items must contain dietary elements that may have been hard to access due to COVID related food market challenges. GAIN also required that selected food items must be distributed through the measures of cooked meals, take home food items, coupons or food vouchers. If cooked meals were the decided distribution method of choice, then the cooked meals could consist of complete meals or snacks. The beneficiary selection requirement was that the selected food items must be targeted for food system or essential workers and their households, but could not be given to children under the age of six months.

GAIN's overall nutritional requirement was that in order for food items to be considered nutritious, the selected food items must contribute to the overall improvement of nutritional status amongst targeted beneficiaries. GAIN's inclusion of nutritious food items included dark green or orange vegetables, yellow and orange fruits, animal source foods, such as eggs, yogurt, fish or meat, plant-based proteins, such as pulses, legumes, seeds and nuts, and lastly, and fortified food products, such as fortified cooking oil, fortified wheat flour, fortified rice, and fortified salt. Fruit and vegetable provisions could be provided fresh, dried, frozen or canned. GAIN also considered the requirements of macronutrients, such as protein, and micronutrients, such as iron, calcium and other vitamins and minerals, within the food selection. GAIN suggested that in order for a food item to be considered as a good source of protein, at least 12% of an individual's total energy must be provided by the protein. Additionally, in order for a food

product to be considered as a good source of micronutrients, the food item must provide at least 15% of the Recommended Dietary Allowance for at least two micronutrients per serving.

GAIN also provided a list of food items that would not meet the nutritional requirements for food item distribution. These food items included unfortified staples, sweetened foods, highly salted foods, foods with added oils, foods with added preservatives, sweeteners, or flavorings, and milk or milk powders.

In consideration of GAIN's nutritional requirements and preferred distribution methods, companies were prompted to select their specific food items based on their perspectives, food availability, food affordability and beneficiary preferences.

Food Item Selection

In the selection of food provisions for the KFMW grant, there were various different considerations at play. Food provision selection varied from country to country based on availability, nutritional considerations, cultural considerations, and general convenience or logistics for food ration distribution. Reasons for including nutritious food items amongst company representatives was the consideration of how beneficiaries do not typically have adequate access to highly nutritious food items, and that the KFMW grant allows companies to supply nutritious foods to their workers. Company representatives considered how beneficiaries will get both physical and mental relief from knowing they will be provided nutritious food. Additionally, the finalization of food provision selection depended on food provision recommendations from country level GAIN representatives or were prioritized through beneficiary preference.

Within Kenya, all of the selected food provisions were distributed as food ration packets consisting of common household staples and specific fruits and vegetables. Food rations were

prioritized due to the fact that providing food rations to a selected beneficiary would provide complete meals for the whole family. Food vouchers were discounted as being a possibility for this grant since it would be unclear to the company whether the beneficiary purchased an appropriate amount of nutritious food items. The options of cooked meals for food ration distribution was not discussed amongst the interviews.

The selected food provisions throughout Kenya included a variation of up to four kilograms of fortified maize flour, up to three liters of fortified cooking oil, up to three kilos of beans, a crate of eggs, and seasonal fruits and vegetables such as spinach, canned corn, carrots and potatoes, oranges, or kale. Within certain companies in Kenya, fortified porridge flour was provided depending on whether the family had a child under five (CU5) residing in the household. However, if a household did not contain a CU5, the provided food ration packet contained rice. Selected companies that were awarded the KFMW grant were large supermarket retailers, food processing centers, and a non-profit wing of a tea factory. Among the supermarket retailers that were chosen for the KFMW grant, food provisions were provided to the beneficiaries through procuring the items from the supermarket themselves. In one company, branch managers would shop and prepare the food provisions packet that would be supplied to the beneficiaries. The finalization of the selected food provisions was determined based on nutritional content and community preference.

> *"Something like maize flour is the common staple food in Kenya…this can be shared by the whole family without necessarily causing any problem at all to anybody including the very young ones. Okay, so we thought this is something that is a meal that can be shared by everybody. And now this being the starch part of it, then we needed to give the protein part of it which are the vegetables, and the beans. Okay, so that way we thought this is going to be a complete meal. And of course, the vegetables and a request for some oil for frying. Yeah, so that combination we thought yes, this is the best for our families." – Kenya Company Representative*

Within Bangladesh, the distribution of selected food provisions all occurred within the workplace on a routine basis through the establishment of daily breakfast or lunch menu items. However, one company representative said that the KFMW grant food program would have been more beneficial to the beneficiaries if they had received take home food rations since they could have shared the food with family.

Throughout the five different companies chosen for the KFMW grant within Bangladesh, the common food provisions chosen were eggs, cakes or biscuits, banana or guava, seasonal jujube, a loaf of bread, and occasionally hotchpotch or rice. At most companies, eggs and banana were provided daily as an on-site snack. It was recommended by GAIN to certain companies that other menu items should be provided on an alternative basis, as to preserve taste and interests of the beneficiaries.

> *"They suggested that you should not provide the same food daily. Then they will not taste if you provide the same food daily. They told us you should provide egg and banana daily and you should provide other food alternatively. This way we provided food. They could not attend every day."- Bangladesh Company Representative*

Additionally, foods that were considered to be energy dense, such as bananas, eggs or pulses, were included as nutritious food provisions for the reason that if these foods are provided and consumed by beneficiaries, they will have increased energy during the workday and their outputs will improve.

> *"When they eat an egg, banana and bread they get more energy in the morning. So they could do more work and not feel weak. They got from breakfast vitamins and calcium." – Bangladesh Company Representative*

These food provisions were finalized through prioritizing GAIN recommendations and procuring the recommended food provision list provided by GAIN. At one company, GAIN recommended providing more fruit options, such as apple, oranges or plums, but it was mentioned that the budget would not allow for this. Consequently, the company owner bought

the food items on their own dime in order to increase nutritional food provisions for the company's workers.

Amongst the three selected companies in India, all food rations were distributed as food ration take home kits. Food vouchers were not considered a feasible food ration distribution method, and cooked meals were considered to be too inconvenient due to logistics, such as minimal proximity from the kitchens to the beneficiaries. Additional reasons for supplying food baskets were that a food basket could last for about two months, with one basket lasting 15-30 days, and could provide nutrition for the whole family, while cooked meals would only last 2-3 days and provide nutrition for a single individual.

> *"Dry ration distribution becomes easy and since it is packed, they can used that for days. If we gave cooked food, that would last just for a day. So we thought about it in these lines. Moreover, distributing cooked foods would have been difficult – having to cook the food, finding an appropriate location to distribute etc., whereas dry food ration just needed to be packed once and distribution was convenient." – India Company Representative*

The comprehensive food baskets included a variety of nutritious fruits and vegetables as well as basic amenities, such as household staples, oils, and spices. The commonly selected food items included lentils, rice, oils, chickpeas, a variety of groundnuts, like almonds and peanuts, and a variety of peas, such as red grams and green grams. At one company, dried fruits were provided as means of supplementing the diet with vitamins and minerals, while at another company, beetroot was provided "to increase blood levels." Food provisions throughout these companies were selected on the basis of nutritional content, choosing food items that were both nutritious and non-perishable.

> *"…we selected on the basis of high nutrition level. So that people's immunity can be increased. So we decided to give chana grams, almonds, groundnuts, and masoor pulses because masoor pulses help in increasing the immunity level. Apart from this we also*

thought to give some fruits so we included beetroot and guava in it."- India Company Representative

Several company representatives mentioned that they were not involved in the decisions of which food items would be included in the food rations, and that they simply followed GAIN's guideline on food provision recommendations. However, one company had a nutritionist on board that designed the food baskets in order to cover a balanced diet, including proteins, carbohydrates and fat. This approach included using linear programming models to identify the current nutrition gaps and which foods could be provided in order to fulfill micronutrient requirements. Additionally, the same company considered that addressing nutritional deficiency requires consuming small amounts of nutritious food over a period of time, which is why these food baskets were designed to last for about two months. These food baskets consisted of proteins, fats, carbohydrates, and micronutrients. Company representatives addressed protein requirements through the inclusion of pulses, green gram and Bengal gram. Fat requirements were addressed through the inclusion of sunflower oil and groundnuts, such as cashews and pistachios, and the carbohydrate requirement was addressed through the inclusion of fortified wheat flour. According to company representatives, the micronutrients were addressed through the inclusion of dried fruits, nuts, and spices.

Amongst the three companies selected for the KFMW grant in Pakistan, the food ration distribution was varied. Two of the three companies chose to distribute foods through dry food ration take home kits, while one company provided food rations on-site through a daily breakfast and on-site lunch or dinner provisions.

For the companies that selected take home food baskets, the common selected dry food items included up to 20 kilograms of fortified flour, five liters of fortified oil, and up to six kilograms of assorted lentils and beans. For the company that provided daily meals, it was

mentioned that the following food provisions were additional to their normal workforce nutrition programming. The additional food provisions provided by the KFMW grant, were partha [flatbread], egg and chai tea which were provided in the morning, and an alternating lunch or dinner menu consisting of roti, some kind of meat, salan [gravy], yogurt, season fruits such as apples, bananas, pomegranates, and oranges, an arrangement of nuts, such as almonds or pistachios, and milk, through either a milk pack or a 250-ml box of milk. The mentioned items were said to switch throughout the months, but the provision of fruit and yogurt was constant. The finalization of the selected food items throughout these companies were prioritized by community preference and the common usage of food items, as well as the preference of incorporating all the food groups such as carbohydrates, dairy, protein, and fats. The carbohydrates were covered using fortified wheat flour, dairy was covered by providing milk, proteins were covered by providing lentils and kidney beans, and fats were covered through fortified oil provisions.

> *"During data collection in the village, we saw that wheat and rice are part of people's daily routine. This is why we added those items…GAIN's project is directed towards providing nutritious items… We were also instructed that the oil and wheat have to particularly be fortified." – Pakistan Company Representative*

Additionally, companies followed the nutritional requirements listed by GAIN where items were prioritized and selected if they were fortified, nutritious, and not processed, canned or packaged.

> *"I incorporated all the food groups. For carbs, I included fortified flour. For dairy, milk. For proteins, lentils, and kidney beans. For fats, there was oil. I wanted them to have all the food groups in their daily diet." - Pakistan Company Representative*

Food Availability

In addition to nutritional content, the availability of food provisions on a local level was also deemed as an important consideration when finalizing selected nutritious food items. For certain countries, such as Kenya, purchasing the nutritious food items through local vendors was prioritized due to the fact that it would keep the money circulating within the local economy. Another reason for the prioritization of locally sourced goods was that food items that could not be sourced locally were more expensive as a consequence of supply chain restrains. Examples of food items that were both locally available and nutritious within Kenya were indigenous vegetables and green leafy vegetables, as well as staple foods such as ugali. Fortified flour and fortified oil were also able to be sourced through local vendors. For some companies however, purchasing them straight from the manufacturer instead of local supermarkets seemed to be a cheaper alternative.

All countries mentioned that common staples were available locally within the community and could be easily sourced. While staples were readily available within every country, certain countries, such as India, mentioned that nutritious food provisions such as certain fruits and vegetables were not as readily available within local markets. It was additionally mentioned that if they were available, the food items became very costly at the time of implementation, due to inflation and food supply restrains, which reduced beneficiary access to nutritious foods and influenced companies' abilities to readily procure certain food items. For example, guava was said to be readily available during proposal development but experienced price inflation and became expensive at time of implementation – However, due to the fact that this product was considered to be highly nutritious, negotiations for pricing on this product were

conducted and it was able to be purchased while remaining in budget. Similarly, due to cost inflation of food items, the quantity of food rations was at risk for being reduced. In certain companies however, effective negotiations resulted in fulfilling the desired amount of nutritious food rations. Additionally, as a consequence of highly priced food items, one company representative from Bangladesh sought out nutritious fruits for their beneficiaries using their own funds in order to adequately address the nutritional needs of their beneficiaries.

> *"The delegate of GAIN suggested giving apple, orange and plum to the workers. I have given food according to the organization suggestion. Sometimes I have given money to buy something if needed from my pocket. Because they are my workers." – Bangladesh Company Representative*

Cultural Considerations

In considering food rations for the KFMW grant, cultural norms were indicators on which foods would be chosen dependent upon community preferences, familial priorities, and religious practices.

Firstly, certain foods, like maize flour, were chosen as part of the dry food ration kit in Kenya due to the fact that it is a common staple and it can be shared with the whole family, including children. According to a company representative from Kenya, an important priority for food selection was to provide a combination of foods that would be best for the whole family, including children under the age of five. Similarly, company representatives from India and Pakistan mentioned that community preference was integral to the selection of food items, and that careful attention was paid to the which foods the local community tend to prefer to commonly eat. In India, rice and lentils were provided since these were common community staples. In Pakistan, wheat and rice were part of beneficiaries' daily routine and that is a main reason as to why it was selected as food item.

"…we knew the situation well because of our connections in community. It was easy for us to understand the needs and what daily intake they had which we mentioned" – Pakistan Company Representative

However, in certain instances, beneficiary preference could not be supported due to the nutritious guidelines of GAIN. For example, a company representative from Pakistan discussed how beneficiaries requested for sugar and tea leaves to be added to the food ration menu, but since it was not qualified as a nutritious food item, it could not be added.

Additional cultural considerations were religious practices that influenced the selection and distribution of food items. Within one company in Pakistan, Ramadan rituals were honored by not providing egg during the celebration of Ramadan. Instead, other proteins such as chicken or other forms of meat were provided. Similarly, in Bangladesh, company representatives discussed how if it was a holy day, food rations would not be distributed, even if the factory remained open.

Nutritional Trainings

While nutritional training or nutritional education was not a required component for the KFMW grant, it was within company discretion on whether they wanted to use the KFMW grant funds to provide nutritional messaging to their targeted beneficiaries, in addition to nutritious food distribution.

Amongst all of the selected companies within the four target countries, only one company used KFMW grant funds to provide nutritional education to their beneficiaries. One company in India brought a nutritionist to each distribution site in order to provide nutritional education about the food ration kits, and provided awareness about the nutrition they were getting from the distributed items. The nutritionist would additionally explain the reason and thought process about the inclusion of each food item, and discussed the importance of having a nutritious diet.

"In most locations, we also tied up with a nutritionist…trying to explain to these beneficiaries as to why balanced diet and a nutritious diet is important and more so important in the current situation." – India Company Representative

One company in Kenya mentioned that they previously provided workforce nutrition trainings, but that the KFMW grant only covered the costs of food procurement and distribution. However, due to previous nutritional trainings done at some of the factories, the company representative mentioned that farmers had more nutritional knowledge. One company in Bangladesh mentioned that there also was no nutritional training during the KFMW grant but preferred there was. The company representative from Bangladesh mentioned that if they are being given foods, but are not given education about the nutrition within the foods, that their dietary patterns will not change and may not increase the likelihood of consuming healthier food.

"It's my personal opinion that only if they are being provided foods, they won't be concerned about eating healthy food. There should be some training sessions like 'These foods are good for health.'" – Bangladesh Company Representative

Impact of the KFMW Program

Perceived impacts from the KFMW grant were documented from both company and beneficiary perspectives. Amongst the selected companies within the four target countries, perceived impacts from company representatives demonstrated that there were positive impacts associated with the KFMW programming. Notable positive impacts according to companies included enhanced productivity levels from beneficiaries, increased company profits, improved physical and mental health from beneficiaries, and increased company loyalty from beneficiaries.

Companies from Bangladesh mentioned that the KFMW grant improved both physical and mental well-being amongst their workers, which enhanced productivity levels and increased company profits. Similarly, within Pakistan, there was a positive impact on the selected companies that were awarded the KFMW grant. Selected companies in Pakistan were small-to-

medium enterprises (SME), which were strained during the COVID-19 pandemic – company leaders within these companies also suffered from financial lacking and were therefore eligible for receiving the food rations themselves, which benefited the company and company leaders.

> *"In this matter, I can say you form three angles. Maybe they have got benefit one of them is health. They have got the better benefit of their health than production or company profit. If the health is good then the production will increase automatically."- Bangladesh Company Representative*

In addition to enhanced health and productivity levels amongst beneficiaries, company representatives in India mentioned that the inclusion of nutritious foods was distributed in hopes to reduce employee absenteeism. Similarly, company representatives in India and Kenya communicated that the extended support to beneficiaries enhanced worker loyalty to the company and that the KFMW grant helped establish community engagement with their beneficiaries.

> *"…there was a positive response, really from the beneficiaries themselves. People are now happy that the company…was taking care of them or aware of them at this time." – Kenya Company Representative*

One company in India mentioned that the implementation of the KFMW grant reinforced centering food and nutrition security as part of their companies' priority. Company representatives from Pakistan also discussed how the KFMW program improved bonding and confidence amongst workers, volunteers and organizational leaders.

> *"For our organization, it has improved our bonding with those people who had lost interest. The bonding and trust level of people has increased with our organization, and they are of the view that organization and government are doing something for them together. It has boosted the confidence level of workers and volunteers as well." – Pakistan Company Representative*

The impact of KFMW from the perspective of beneficiaries were also mostly positive throughout the four countries. On some occasions and within some companies, there were indirect impacts and benefits to beneficiary households. Positive impacts to beneficiaries

included increased food security, increased access to nutritious foods, and enhanced dietary diversity. Perceived limitations of the KFMW program was the program's short-duration and limited quantities of nutritious food provisions.

In India, beneficiaries found the take home food provisions as a form significant relief from the consequences of COVID-19, especially for beneficiaries who were excluded from national safety net food programs. Within India, women beneficiaries also experienced positive impacts, since pregnant and lactating women were prioritized as the target beneficiaries.

> *"We also feel satisfied to help these kinds of beneficiaries as they don't receive any benefit from government public distribution system."- India Company Representative*

Within Bangladesh, there was a diversity of beneficiary impact due to the varied methods of food distribution to designated beneficiaries. Two out of the three selected companies chose to provide take home rations, which targeted the benefit of both beneficiaries and their respective households. Amongst the beneficiaries of these two companies, the KFMW program was very impactful and reduced food insecurity amongst vulnerable populations, such as food system workers, farmers and food delivery drivers. However, the impact within the company in Bangladesh that chose to distribute food at the workplace, was more oriented towards enhancing dietary diversity through the provision of cooked meals, rather than focusing on the reduction of food insecurity amongst the beneficiaries.

"…the beneficiaries were very happy. It was an unexpected support for them, and at least two to three months of their food needs were fulfilled."- Bangladesh Company Representative

In Kenya, beneficiaries found the KFMW grant as a supportive program for themselves and their households. Beneficiaries' positive impact was enhanced through the ability to feed themselves and their families through the elected take home food provisions, especially during

the challenging times of COVID-19 where beneficiaries and beneficiary families were struggling with food security.

> *"The beneficiaries are very happy about the project. And I remember one of them saying that this particular time COVID has hit them hard, because some of them are unable to actually get regular meals." – Kenya Company Representative*

In Pakistan, beneficiary impact was varied in accordance to household dynamics. Amongst the beneficiaries, there were young adults, who would consume the food provisions themselves, and there were parents who would sacrifice their own food security in order to preserve the food provisions for their children. Most of the parents that adopted this behavior were reported to be mothers. Additionally, a company representative discussed that 99% of the beneficiary population live in the factories and are separated from their partners, parents and children, so impact of beneficiary household was limited for this reason. An additional reason for limited beneficiary household impact in Pakistan was due to the fact that KFMW food provisions were distributed in the workplace in the form of on-site cooked meals and on-site snacks, limiting the amount of food that could be provided to beneficiary families.

While there were perceived positive impact amongst beneficiaries and companies' due to KFMW programming, company representatives did mention that impacts of KFMW programming were constrained by the short-term length of the program. It was mentioned that beneficiary and company impacts would be more significant if food provisions were provided for a minimum of six months. One company representative from Bangladesh discussed how previous food provision programming would last 6-18 months in order to allow vulnerable populations to recover from economic or physical shocks, and that this time extension should apply to KFMW programming. Similarly, it was mentioned that beneficiaries could not afford the food that was provided within the take home rations, which would limit beneficiary

nutritional status upon the completion of the KFMW grant. In addition, a company representative from India mentioned that the quantity of some take home food rations was not adequate in order to feed a whole family.

Quantitative Data

Data from beneficiary surveys consisted of a category regarding beneficiary impact indicators. These impact variables addressed beneficiary perceptions on how the KFMW program impacted food diversity and food security, beneficiary health, work motivation, work productivity, food aid satisfaction, and food aid's effect on women's household status. Additional impact indicators addressed the quantity of food aid for households, the affordability and availability of nutritious foods, and financial status.

Impact of Beneficiaries: Bangladesh

Within Bangladesh, there were a total of 277 beneficiary respondents. Amongst beneficiaries in Bangladesh, 96.75% of beneficiaries reported that KFMW food aid increased their food diversity, 98.56% reported that food aid improved their health, 98.56% reported that food aid enhanced their work motivation and 99.64% reported that food aid enhanced their work productivity. However, 99.28% of beneficiaries reported that the provisions of food aid had no effect on food security. Regarding women's household status, only 37.96% of beneficiaries reported an increased effect on women's household status, with 80.60% of responses indicating an increased effect on women's household status coming from one company. The majority of beneficiaries were either satisfied or very satisfied with the food aid, with most beneficiaries reporting a preference for food snacks as the form of food aid throughout all selected companies within Bangladesh. However, 20.58% of beneficiaries reported preferring cooked meals as the form of food aid, and 15.88% would have preferred take home rations. In terms of the duration

of the program, 88.95% of beneficiaries recommended to extend the program beyond the 50-day period. In addition, 21.05% of beneficiaries would have recommended changing the menu. Some write-in suggestions included the inclusion of dairy and seasonal fruit.

Table 1. Beneficiary Impacts: Bangladesh						
Variable	**Company 1 (N=7)**	**Company 2 (N=170)**	**Company 3 (N=46)**	**Company 4 (N=33)**	**Company 5 (N=21)**	**Total (N=277)**
Food Aid Effect on Dietary Diversity						
Increased	7 (100)	167 (98.24)	42 (91.30)	32 (96.97)	20 (95.24)	268 (96.75)
Decreased	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No Effect	0 (0)	3 (1.76)	4 (8.70)	1 (3.03)	1 (4.76)	9 (3.25)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Food Aid Effect on Food Security						
Increased	0 (0)	1 (0.59)	0 (0)	0 (0)	0 (0)	1 (0.36)
Decreased	0 (0)	1 (0.59)	0 (0)	0 (0)	0 (0)	1 (0.36)
No Effect	7 (100)	168 (98.82)	46 (100)	33 (100)	21 (100)	275 (99.28)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Food Aid Effect on Health						
Increased	7 (100)	169 (99.41)	46 (100)	32 (96.97)	19 (90.48)	273 (98.56)
Decreased	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No Effect	0 (0)	1 (0.59)	0 (0)	1 (3.03)	2 (9.52)	4 (1.44)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Food Aid Effect on Work Motivation						
Increased	7 (100)	169 (99.41)	46 (100)	32 (96.97)	19 (90.48)	273 (98.56)
Decreased	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No Effect	0 (0)	1 (0.59)	0 (0)	1 (3.03)	2 (9.52)	4 (1.44)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Food Aid Effect on Work Productivity						
Increased	7 (100)	169 (99.41)	46 (100)	33 (100)	21 (100)	276 (99.64)
Decreased	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No Effect	0 (0)	1 (0.59)	0 (0)	0 (0)	0 (0)	1 (0.36)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Food Aid Effect on Women's Household Status						
Increased	0 (0)	108 (63.53)	9 (19.57)	10 (30.30)	7 (33.33)	134 (37.96)
Decreased	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No Effect	7 (100)	61 (35.88)	37 (80.43)	23 (69.70)	14 (66.67)	142 (40.23)
Other	0 (0)	1 (0.59)	0 (0)	0 (0)	0 (0)	77 (21.81)
Food Aid Satisfaction						
Very Satisfied	5 (71.43)	151 (88.82)	31 (67.39)	24 (75.00)	18 (85.71)	229 (82.67)

Satisfied	2 (28.57)	18 (10.59)	14 (30.43)	8 (25.0)	3 (14.29)	45 (16.25)
Somewhat Satisfied	0 (0)	1 (0.59)	0 (0)	0 (0) (0)	0 (0)	2 (0.72)
Not Satisfied	0 (0)	0 (0)	1 (2.17)	0 (0)	0 (0)	1 (0.36)
Aid Type Preference						
Cooked Meal	1 (14.29)	34 (20.00)	6 (13.04)	14 (42.42)	2 (9.52)	57 (20.58)
Snack	6 (85.71)	99 (58.24)	28 (60.87)	15 (45.45)	6 (28.57)	154 (55.60)
Take Home Rations	0 (0)	24 (14.12)	7 (15.22)	3 (9.09)	10 (47.62)	44 (15.88)
Coupon/Voucher	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Cash	0 (0)	13 (7.65)	5 (10.87)	1 (3.03)	3 (14.29)	22 (7.94)
Program Feedback (N = 190) **Not Mutually Exclusive*						
Continue program	2	123	18	18	8	169 (88.95)
Change menu	0	27	5	5	3	40 (21.05)
Change aid type	0	42	3	8	9	62 (32.63)
Increase frequency	0	1	1	1	0	3 (1.58)
Increase quantity	0	5	4	0	2	12 (6.32)
Expand coverage	0	6	2	0	2	10 (5.27)
Other	0	13	5	6	3	27 (14.21)
Food Program was Good	0	1	2	1	0	4
Company & Workers Benefitted	0	0	0	2	0	2
Spoiled Food	0	1	0	0	0	1
Provide Seasonal Fruit	0	1	0	1	0	2
Provide Dairy	0	3	0	1	0	4
Provide Cooked Dish	0	0	2	0	0	2
Give in Morning	0	6	0	0	0	6
Better to Give Lunch	0	1	0	0	0	1
Direct Supervision Needed	0	0	0	1	0	1
Corrupt Administration	0	0	1	0	0	1
Increase Quality of Food	0	0	0	0	3	3
The "other" section of Program Feedback was broken down into categories based on common themes from respondents.						

Impact of Beneficiaries: Pakistan

Within Pakistan, there were a total of 249 beneficiary respondents. Amongst beneficiary respondents, 67.07% of beneficiaries reported that food aid increased dietary diversity, and 71.49% reported that food aid increased beneficiary health. Regarding food security, 69.48%

reported that food aid increased food security – however, 29.3% reported that food aid had no effect on food security, which mainly came from beneficiaries at one company who already had a workforce nutrition program in place. Additionally, 79% of beneficiary respondents reported that food aid increased their work motivation and 77% reported that food aid enhanced their work productivity. Regarding program satisfaction, 48% of respondents reported being very satisfied with the food aid, and 41% of respondents were very satisfied with the food aid.

Table 2. Beneficiary Impacts: Pakistan				
Variable	**Total (N=249) N(%)**	**Company 1 (N=116) N(%)**	**Company 2 (N=127) N(%)**	**COMPANY 3 (N=6) N(%)**
Food Aid Effect on Dietary Diversity				
Increased	167 (67.07)	69 (58.97)	97 (76.38)	1 (14.29)
Decreased	0	0	0	0
No Effect	77 (30.92)	47 (40.17)	27 (21.26)	3 (42.86)
Other	5 (2.05)	1 (0.85)	3 (2.36)	2 (28.57)
Inappropriate food	"Useless to give oil because community uses ghee. Respondent also said they were given red kidney beans and the program told them to boil for use but they could not do this"			
Financial benefits	1."Normally, where we spent 5000 on ration, now through this program we saved 3000 so we had to only purchase ration worth 2000" 2."saved for dowry" 3."donated further"			
Food Aid Effect on Food Security				
Increased	173 (69.48)	68 (58.62)	99 (77.95)	6 (100)
Decreased	1 (0.40)	0	1 (0.79)	0
No Effect	73 (29.32)	48 (41.38)	25 (19.69)	0
Other	2 (0.80)	0	2 (1.57)	0
Saved money	1."Expenses were saved, everything was great. The money that we saved from this, we used it to buy fruits" 2."The one that we got for the second time was not of great quality. We have money when we get this ration"			
Food Aid Effect on Health				
Increased	178 (71.49)	83 (71.55)	89 (70.08)	6 (100)
Decreased	3 (1.20)	0	3 (2.36)	0
No Effect	66 (26.51)	32 (27.59)	34 (26.77)	0
Other	2 (0.80)	1 (0.86)	1 (0.79)	0
Food Aid Effect on Work Motivation				

Increased	196 (78.71)	94 (81.03)	96 (75.59)	6 (100)
Decreased	2 (0.80)	0	2 (1.57)	0
No Effect	51 (20.48)	22 (18.97)	29 (22.83)	0
Other	0	0	0	0
Food Aid Effect on Work Productivity				
Increased	189 (76.52)	91 (79.13)	92 (73.02)	6 (100)
Decreased	2 (0.81)	0	2 (1.59)	0
No Effect	55 (22.27)	24 (20.87)	31 (24.60)	0
Other	1 (0.40)	0	1 (0.79)	0
Give aid regularly	"They should give it regularly, every month"			
Food Aid Effect on Women's Household Status				
Increased	96 (38.55)	14 (12.07)	76 (59.84)	6 (100)
Decreased	1 (0.40)	0	1 (0.79)	0
No Effect	151 (60.64)	102 (87.93)	49 (38.58)	0
Other	1 (0.40)	0	1 (0.79)	0
Food Aid Satisfaction				
Very Satisfied	120 (48.19)	51 (43.97)	63 (49.61)	6 (100)
Satisfied	103 (41.37)	50 (43.10)	53 (41.73)	0
Neutral	21 (8.43)	13 (11.21)	8 (6.30)	0
Dissatisfied	5 (2.01)	2 (1.72)	3 (2.36)	0
Very Dissatisfied	0	0	0	0
Aid Type Preference				
Cooked Meal	61 (24.50)	60 (51.72)	1 (0.79)	0
Snack	17 (6.83)	17 (14.66)	0	0
Take Home Rations	130 (52.21)	26 (22.41)	98 (77.17)	6 (100)
Coupon/Voucher	1 (0.4)	0	1 (0.79)	0
Cash	40 (16.06)	13 (11.21)	27 (21.26)	0
Program Feedback (N=113 Yes responses to giving feedback)* not mutually exclusive				
Continue program	49 (43.36)	15 (12.37)	30 (26.55)	4 (3.54)
Change menu	4 (3.54)	0	4 (3.54)	0
Change aid type	10 (8.85)	1 (0.88)	9 (7.96)	0
Increase frequency	9 (7.96)	0	8 (7.08)	1 (0.88)
Increase quantity	6 (5.31)	0	6 (5.31)	0
Expand coverage for families	5 (4.42)	1 (0.88)	3 (2.65)	1 (0.88)
Other	29 (25.66)	13 (11.50)	16 (14.16)	0
Change food items	"Add Masalas and tea. I also request that they increase the frequency of giving the ration			
Good program	1."During unemployment and inflation, this is a very great initiative" 2."Everything was fine, nothing went to waste" 3. "I am very grateful to the company"			

	4. “It is great for the workers here” “Very thankful. My husband does not do anything now and I am very grateful to you people”
Food quality concerns	1.”Flour quality was not good” 2.“Food quality/food system for employees should be improved” “Should improve quality of food”
Give cash instead	1.“If instead of ration, they could give cash, that would be good so that we can buy according to our needs. This is a great program and I am very grateful” 2.“Money etc. or if we get something else, that would be good” 3.“They should give cash. And they should give this monthly, there should not be so much gap, for example now we got it after 6 months”
Help find work	“I am very grateful. If you could find a way to get me employed, then it would be great. I am diabetic but if I could get some work from the company, that I could do from home, then I could earn some money”
Increase frequency	“If this is given on a monthly basis, it would be good”
Change aid type	“To get ration for home”
Corruption concerns	“They were giving it to their own people; the good things were taken out and the leftover products were given to us. The deserving/needy are not getting it; they are giving it to the people who they know”
Expand program	“They should give these facilities in all other factories as well”
This table summarizes key impact variables collected on beneficiaries who received food assistance from the KFMW from three different countries in Pakistan between September 2020 and March 2021. Note: Particularly key concepts mentioned in the “other” categories have been added with appropriate quotes. The broken down categories will not necessarily sum to equal the “other” total, as not all respondents who chose to respond “other” actually elaborated on their response.	

Impact of Beneficiaries: India

Within India, there was a total 235 beneficiary respondents. Amongst beneficiaries in India, 63.9% of beneficiaries reported that the KFMW food aid increased household nutritious food consumptions, and 56.1% of beneficiaries reported that KFMW food aid increased availability and affordability of nutritious foods. However, one beneficiary mentioned that although they were “eating the dry fruits provided, they are too expensive to continue eating them otherwise.” Regarding mental and physical health, 64.3% of beneficiary respondents reported that food aid improved the overall health of self and of their families. Beneficiary respondents reported that 39.1% of beneficiaries had improved work motivation, while 42.2% of

beneficiaries had improved work productivity. Regarding food distribution satisfaction, 57.0 % of respondents reported they were satisfied and 37.0% reported they were very satisfied. The majority of beneficiaries (83%) reported that they preferred take home rations as the food aid distribution of choice. Regarding the duration of the KFMW program, 85.6% of beneficiary respondents reported that the KFMW program should be extended. A write in suggestion from a beneficiary suggested:

> *"It wouldn't be fair to expect the donor to give another time but during the nutrition awareness session, they advised us to consume dry fruits like cashews and badam, but we won't be able to afford that. It would be good if the donor provides those kinds of things."*

Table 3: Beneficiary Impacts: India					
Variable	**Total (%)**	**Company 1 (%)**	**Company 2 (%)**	**Company 3 (%)**	**Quotes**
Overall	235 (100)	96 (40.9)	38 (16.2)	101 (43)	
Perceived program effects on beneficiaries					
Increased number of foods for self/family consumption	147 (63.9)	71 (74)	17 (44.7)	59 (61.5)	We didn't eat a lot of it and we cannot see any difference in such a small time. Besides, the children eat the dry fruits more.
Better availability and increased affordability of nutritious foods	129 (56.1)	74 (77.1)	19 (50)	36 (37.5)	We are eating the dry fruits that you gave now, but it is expensive for us to buy them otherwise.
Improved mental and physical health of self/family	148 (64.3)	47 (49)	36 (94.7)	65 (67.7)	How can it make a difference in one month or two months, if we consume such food for good time, then there would be a difference and the health would be good.
Improved worker motivation	90 (39.1)	17 (17.7)	21 (55.3)	52 (54.2)	I go to my farm and work no matter what, I need the company and the company needs us is what I feel.
Improved worker productivity	97 (42.2)	24 (25)	17 (44.7)	56 (58.3)	Always been into agriculture. This is the only thing I know. So not much change

Improved status of women in the household	99 (43)	21 (21.9)	36 (94.7)	42 (43.8)	I heard from many women that they face a lot of issues because of their husbands and this kind of food helps them in staying healthy and going to work regularly and be independent.
Food distribution satisfaction					
Very Satisfied	85 (37)	23 (24)	7 (18.4)	55 (57.3)	
Satisfied	133 (57.8)	68 (70.8)	26 (68.4)	39 (40.6)	
Neutral	11 (4.8)	4 (4.2)	5 (13.2)	2 (2.1)	
Dissatisfied	1 (0.4)	1 (1)	0 (0)	0 (0)	
Very dissatisfied	0 (0)	0 (0)	0 (0)	0 (0)	
Food support type preference					
Cooked meal	3 (1.3)	0 (0)	0 (0)	3 (3.1)	
Snack	3 (1.3)	0 (0)	1 (2.6)	2 (2.1)	
Take home rations	191 (83)	72 (75)	33 (86.8)	86 (89.6)	
Coupon or vouchers	5 (2.2)	2 (2.1)	0 (0)	3 (3.1)	
Cash	29 (12.6)	22 (22.9)	4 (10.5)	3 (3.1)	
Program feedback* (N=153)					
Continuation of program	131 (85.6)	68 (88.3)	6 (46.2)	57 (90.5)	It wouldn't be fair to expect the donor to give another time but during the nutrition awareness session, they advised us to consume dry fruits like cashews and badam, but we won't be able to afford that. It would be good if the donor provides those kind of things.
Changes in menu/types of food provided	4 (2.6)	0 (0)	0 (0)	4 (6.3)	If dates are added in the menu, it would be great for the workers.

Changes in type of food assistance	1 (0.7)	1 (1.3)	0 (0)	0 (0)	Cash leads to misuse so ration is better
Increase frequency of food assistance	18 (11.8)	14 (18.2)	0 (0)	4 (6.3)	Getting ration for 2 months did not have much effect, if at least 6 months were distributed, there would have been some effect.
Increase quantity of food assistance	20 (13.1)	12 (15.6)	1 (7.7)	7 (11.1)	it would have been better if ration was given in this way for 6 months, then there would have been a difference in health. Given only 2 times. So what difference will it make? Whenever it is given dry ration should be given. Since money is spent, ration is fine for us.
Expand coverage to include workers' family	30 (19.6)	24 (31.2)	6 (46.2)	0 (0)	Ration should be given every month. Because I got ration only once and my family is big. So the ration lasted only for 3 to 4 days. So it had no effect.

Impact of Beneficiaries: Kenya

Within Kenya, there were a total of 276 beneficiary respondents. Amongst beneficiaries in Kenya, 97% of beneficiary respondents reported that were either satisfied or very satisfied with KFMW programming, and some beneficiaries reported that food aid improved access to nutritious food (22.8%), improved their ability to save money (32.2%), and decreased food expenses (37.3%). Beneficiary comments regarding financial status included:

> *"The food assistance came in handy at the time because I was low on cash due to the COVID-19 pandemic and hence I was able to save the cash that I would have spent on buying the food stuff"*

Most beneficiaries in Kenya preferred take home rations as the form of food aid distribution, with cash and food vouchers reporting at 31.1%, due to the fact that they would be able to make their own decisions on how to use the cash or vouchers. Similar to the other countries, most beneficiaries (51.1%) recommended continuing the program beyond the two-month period.

Additional feedback included recommendations to expand access of food aid to non-worker family members and other members of the community.

Table 4. Beneficiary Impacts: Kenya				
Variable	**Total (n)**	**Company 4 (n)**	**Company 2 (n)**	**Company 1 (n)**
Overall	276	191	35 (12.7)	50 (18.1)
Perceived program effects as reported by employee beneficiaries*				
Improved access/availability of adequate food	63 (22.8)	39 (20.4)	4 (11.4)	20 (40.0)
Improved savings	89 (32.2)	67 (35.1)	9 (25.7)	13 (26.0)
Ability to afford household/business expenses	51 (18.5)	34 (17.8)	6 (17.1)	11 (22.0)
Ease financial burden	18 (6.5)	11 (5.8)	5 (14.3)	2 (4.0)
Food expenses decreased	103 (37.3)	68 (35.6)	20 (57.1)	15 (30.0)
Nutrition improved	13 (4.7)	13 (6.8)	0 (0.0)	0 (0.0)
Improved worker motivation	1 (0.4)	1 (0.5)	0 (0.0)	0 (0.0)
Other	4 (1.4)	4 (2.1)	0 (0.0)	0 (0.0)
Food distribution satisfaction				
Very Satisfied	195 (70.7)	135 (70.7)	29 (82.9)	31 (62.0)
Satisfied	73 (26.4)	49 (25.7)	6 (17.1)	18 (36.0)
Neutral	6 (2.2)	5 (2.6)	0 (0.0)	1 (2.0)
Dissatisfied	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Very dissatisfied	1 (0.4)	1 (0.5)	0 (0.0)	0 (0.0)
I don’t know	1 (0.4)	1 (0.5)	0 (0.0)	0 (0.0)
Food support type preference				
Cooked meal or snack	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Take home rations	182 (65.9)	119 (62.3)	25 (71.4)	38 (76.0)
Coupon/vouchers	42 (15.2)	37 (19.4)	5 (14.3)	0 (0.0)
Cash	44 (15.9)	30 (15.7)	5 (14.3)	9 (18.0)
Other	5 (1.8)	3 (1.6)	0 (0.0)	2 (4.0)
I don't know	2 (0.7)	1 (0.5)	0 (0.0)	1 (2.0)
Recommendations and program feedback*				

Continuation of program	141 (51.1)	104 (54.5)	16 (45.7)	20 (40.0)
Changes in menu/types of food provided	2 (0.7)	1 (0.5)	1 (2.9)	0 (0.0)
Changes in type of food assistance	6 (2.2)	6 (3.1)	0 (0.0)	0 (0.0)
Increase frequency of food assistance	24 (8.7)	15 (7.9)	5 (14.3)	4 (8.0)
Increase quantity of food assistance	18 (6.5)	11 (5.8)	3 (8.6)	4 (8.0)
Expand coverage to include workers' family	4 (1.4)	3 (1.6)	0 (0.0)	1 (2.0)
Appreciation	68 (24.6)	50 (26.2)	7 (20.0)	11 (22.0)
Expand variety of food assistance provided	13 (4.7)	9 (4.7)	3 (8.6)	1 (2.0)
Expand coverage to include non-workers households	23 (8.3)	14 (7.3)	6 (17.1)	3 (6.0)
Conduct post-project follow-up	1 (0.4)	1 (0.5)	0 (0.0)	0 (0.0)
Equal distribution across branches	3 (1.1)	3 (1.6)	0 (0.0)	0 (0.0)
Provide other assistance (school fees, medical aid)	3 (1.1)	0 (0.0)	1 (2.9)	2 (4.0)
No suggestion	54 (19.6)	34 (17.8)	7 (20.0)	13 (26.0)
*Respondents could select more than one response.				

CHAPTER 5: DISCUSSION

The main factors that influenced companies during the food item selection process included following GAIN's nutritious food item recommendations, considering food availability on a local level, food affordability, perspectives on nutritional content within food items, cultural considerations and beneficiary preferences, and company perspectives on how nutritious foods will impact beneficiary health and productivity. Additionally, the consideration of implementing

nutritional trainings as a component of the KFMW programming was only actualized through one company in India but was desired amongst different companies in the targeted countries.

Through careful deliberation on food item selection and food item distribution, the implementation of the KFMW program resulted in mostly positive impacts for both companies and beneficiaries. Amongst certain companies within specific countries, food security indicators improved as a result of KFMW food aid, including the increase of both food accessibility and food affordability. Beneficiaries were also mostly satisfied with KFMW programming, including the ways in which food was distributed through either take home rations or on-site snacks or meals. However, gaps remained within KFMW programming that could be addressed in future workforce nutrition interventions, especially regarding the nutritional security and food security of designated beneficiaries and their respective households.

One limitation to the KFMW program was duration of the food aid, which only lasted 2-3 months depending on the company and the country. The majority of beneficiaries reported that they would recommend extending the program duration beyond the 2-3 month timeline due to a variety of factors. One factor considers that COVID-19 created nutritional and economic repercussions that cannot be fully addressed by a food aid dispersal program that lasts for a short duration. Due to the fact that KFMW was created in response to worsening food insecurity and/or malnutrition due to the COVID-19 pandemic, KFMW food aid would be categorized as an emergency program which are designed to provide food rations that meet a significant proportion of nutritional needs for beneficiaries, for a fixed period of time (36). However, the determination of a ‘fixed period of time’ remains ambiguous and needs to be further addressed in order to account for food insecurity and malnutrition rates within the target population. Furthermore, within the design of an international food aid program, the duration of the program

must account for the time that is required for beneficiaries to recalibrate their nutritional requirements, in order to prevent increasing prevalence of acute malnutrition and/or non-communicable diseases. One paper from Webb et al (2017) discussed different recommendations that address a 'fit-for-purpose' design of U.S international food aid programs, where programming achieves the improvement of nutritional outcomes related to undernutrition and food insecurity. Authors proposed five main recommendations relating to macronutrient and micronutrient specifications, adopting lipid based food products, harmonizing food aid requirements amongst various major food aid implementers, and strengthening the evidence base for cost-effective product use and program impacts (36). However, there was no mentioning on how the timeliness and duration of a project or program influences the achievement of addressing nutritional outcomes across a targeted beneficiary population. Therefore, future emergency food aid interventions should consider how duration of programming may impact nutritional outcomes, even when other nutritional factors are adequately addressed.

Similarly, affordability of nutritious foods within the KFMW was addressed and was reported to be impactful amongst beneficiaries, as indicated from the beneficiary surveys. However, qualitative data revealed that while affordability of nutritious foods may have been improved during the KFMW implementation, the sustainability of beneficiaries remaining able to afford and consume nutritious foods remains in question. One beneficiary mentioned that although the presence of dried fruits within food ration kits were consumed and were beneficial in enhancing nutrition, once the KFMW program ended, their family would not be able to consume dried fruits for nutritional purpose anymore due to the fact that they are too expensive and most beneficiary families are unable to afford such a food item. This relates to the importance of considering how affordability and availability of food items affects beneficiary's

ability to purchase and consume nutritious food products even after KFMW grant implementation. One study unraveled affordability and accessibility of nutritious food items for populations living within Bangladesh and Pakistan by considering the Cost of a Recommended Diet (CoRD) which is a metric that calculates the minimum cost of meeting food-based dietary guidelines (FBDGs) using food price data and national FBDGs [28]. Data from this study revealed that 83% of people living in Pakistan spend less money on food than the CoRD, and 53% of the population in Bangladesh spend less on food than the CoRD. This study also demonstrated that a household spends more on starchy and grain staples than on dairy and nutritious fruits and vegetables. Variability in prices for food fluctuated amongst countries the most when considering vegetables, while the prices for staples, such as grains, starches and oils, remained fairly consistent throughout countries. This information regarding food prices for vegetables within areas of a specific country could be relevant when deciding on which foods to select, and how attainable the selection of designated food items may be for beneficiaries beyond the implementation of an international emergency food grant. Additionally, affordability of food for beneficiaries and recommended dietary guidelines within a country may be mismatched, which may influence overall perceptions of nutrition and health within certain communities. While addressing the issue of affordability of food on a national level scales beyond the scope of most international food aid organizations, shifting agricultural and food policy requires efforts on multiple sectors, including the assistance of global food security non-profits that understand the scale of undernutrition, food security, and chronic disease.

An additional component that must be addressed within future food aid implementation is the beneficial nature of pairing nutritional trainings with nutritious food dispersal. Qualitative interviews revealed that only one company in India implemented a nutritional training program

in unison with food distribution, but other companies in Pakistan and Bangladesh mentioned an interest in wanting to implement a nutrition education component in conjunction with food distribution. One company in Kenya discussed how they previously ran a workforce nutritional education program while also distributing food rations, but that they could not budget for nutrition education with the KFMW grant funds. A company representative from Kenya also mentioned that although they did not implement a nutrition education component during the KFMW grant, they did have previous nutritional education partnering with other organizations and that their beneficiaries retained the knowledge from those trainings, which enhanced their understanding for the nutritious food items within the food ration kits. Evidence demonstrates that nutrition education interventions when combined with food baskets can increase nutritional knowledge and vegetable consumption (37). However, the literature only demonstrates this effect when a nutrition education intervention occurs for more than one isolated event. This information is valuable because it suggests that simply "educating" beneficiaries about nutrition when they receive the food ration may not be enough to significantly increase nutritional knowledge or to change behavior. Although some literature states that nutritional knowledge is not necessarily attributed to increased nutritional status, one paper suggests that introducing a nutritional education intervention could prevent a worsening rate of undernutrition with the increasing age of children (38). Therefore, a recommendation for future food aid programming would be to maximize priority for budgeting nutritional trainings as a component of the food aid program, with the inclusion of several rounds of nutrition education as a means of incorporating nutritional knowledge on a consistent basis.

Saturation

Saturation of data for this project was reached within the themes of understanding company representative perspectives about nutritional content within selected food items, cultural considerations for the selection of food items, how availability and affordability of foods influenced the selection of food items, the influence of COVID-19 on companies and beneficiaries, and the impact of KFMW programming on both companies and beneficiaries.

However, this project could have considered other perspectives using GAIN country representative qualitative interviews in order to fully capture the various considerations that went into maximizing nutritional attainment for beneficiaries.

Limitations

Limitations within this project occurred in both the qualitative and quantitative data collection. Regarding the qualitative data, all of the interviews were conducted remotely and some of the interviews were conducted using country partner research organizations. With that being said, having an impersonal and indirect approach to analyzing qualitative transcripts may assist in removing a level of subjectivity, but can also create separation between the participants and the research question at hand. Additionally, some of the qualitative interviews were conducted in different languages. Therefore, there may have been loss of information due to translation. Regarding the quantitative data, due to the fact that the survey tools functioned on a self-report basis, there may have been personal bias on behalf of the beneficiary.

CHAPTER 6: CONCLUSION

Nutrition related diseases plague a significant part of the world, affecting LMIC countries disproportionately. The Keeping Food Markets Working (KFMW) grant was implemented as a response to COVID-19 for companies to provide nutritious food to their beneficiaries in order to

prevent worsening rates of food insecurity, acute malnutrition, and/or chronic disease. Within the implementation of the KFMW program, there were different considerations that determined which food items would be selected and distributed to the target beneficiaries. There were variations in selected food items and similarly, variations in the ways in which food items were distributed to the beneficiaries. Variations in food items depended on local availability and affordability of food items, cultural circumstances and beneficiary preferences, following the recommended dietary guidelines proposed by GAIN, and the inclusion of nutritional content within certain foods. Variations in food distribution depended on company logistics and preference, as well as whether or not there was current workforce nutritional programming in place.

While factors for improving nutritional outcomes was addressed within the KFMW program, there are still gaps that limit efficacy of enhancing nutritional outcomes that must be addressed when considering and designing future food aid programming. To address this gap, I recommend considering extended duration of food aid programming to further support the nutritional and financial needs of beneficiaries as they recover from unpredictable changes and losses, due to the repercussions of COVID-19. Additionally, I promote the inclusion of consistent nutritional trainings to be paired with nutritional food distribution, in order to enhance nutritional knowledge and potentially improve nutritional outcomes amongst women and children. And lastly, I encourage the investigation on how workplace interventions may take place to increase affordability and accessibly of nutritious foods, beyond the duration of a temporary food aid program. Currently, there is a mismatched relationship between the recommended diet for people to consume in order to be nourished and healthy, and the affordability of foods that are considered nutritious and vital for proper functioning of an

individual. This relationship must be addressed in order to reduce nutrition related disorders amongst men, women and children.

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