

Report

Living Wage for Kenya with Focus on Fresh Flower Farm area near Lake Naivasha

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1. BACKGROUND

This report estimates a living wage for Kenya for March 2014 with a focus on fresh cut flower area near Lake Naivasha. It uses a new methodology developed by the authors that builds and improves on their earlier work on living wages published by ILO (see Anker, 2006a, 2006b, 2011). This new methodology has been used so far to estimate a living wage for urban areas in ten countries for a multi-national corporation, as well as for rural Western Cape Province South Africa with focus on wine grape growing areas for Fairtrade International, for rural Northern Dominican Republic with focus on banana growing areas for Fairtrade International and Social Accountability (SAI), and for rural Southern Malawi with focus on tea growing areas for Fairtrade, Rainforest Alliance/SAN, and UTZ Certified.¹

2. LIVING WAGE ESTIMATE

Our estimate of a living wage for Kenya flower farms for March 2014 in Lake Naivasha area is KSh17,276 (\$201) per month before consideration of taxes and KSh18,542 (\$216) after consideration of taxes to get gross pay needed.² It is important to point out that the living standard we used to estimate our living wage is decent but basic for Kenya. It is also important to point out that two unusual reasons for the large gap between our living wage and prevailing wages are that real wages of flower farm workers have fallen significantly in recent years and almost all flower farm workers in the Lake Naivasha area live in urban townships near flower farms and this increased our estimate of a living wage compared to what it would have been if workers had lived in a rural area.

The remainder of this report provides a detailed explanation of how our living wage was estimated. This report is detailed, because we feel that transparency is essential. We feel that workers, employers, government, value chain and NGOs should be able to understand the basis for a living wage estimate. We feel that our estimate is credible and representative of the cost of a basic but decent living standard for the area near flower farms in Kenya's Lake Naivasha area, regardless of whether or not employers and/or value chain are able or willing to pay this wage in the near future. Transparency is also important because one tenet of this report is that stakeholders and others should be able to query assumptions and calculations that went into making a living wage estimate for Kenya in part to help ensure that our estimate is as reasonable as possible and receives as wide an

¹ The present study was commissioned by Fairtrade International, Sustainable Agriculture Network/Rainforest Alliance and UTZ Certified. This study for Kenya was the fourth pilot study done as part of the "Shared Approach to Living Wage" memorandum of understanding Fairtrade International, Sustainable Agriculture Network/Rainforest Alliance and UTZ Certified have with ISEAL and three other certifying or standard setting organizations (Forestry Stewardship Council (FSC), Goodweave, and Social Accountability International (SAI)). This memorandum of understanding commits these organizations to "adopt a common definition of living wage and apply a common methodology to estimating living wage levels ... with long term goal and shared mission of these seven organizations to see improvements in workers' conditions, including wage levels, in the farms, factories and supply chains ... by seeking support from brands, buyers, and retailers to make wage growth possible at the primary production level possible and ... working together with the relevant stakeholders."

² This living wage would typically be composed of around KSh14,168 basic wage, KSh1,908 common cash allowances, KSh2,432 value of common in-kind benefits, and KSh1,266 taxes. Note that these estimates for common cash allowances (housing and leave travel) and common in-kind benefits (lunch, health clinic, transportation to work, school, death allowance, and crèche) are used for expositional purposes. Their basis is discussed in detail in this report. The actual value of cash allowances and in-kind benefits vary from farm to farm.

acceptance as possible. Finally, it is hoped that transparency will help improve the ongoing process of stakeholder dialogue; dialogue of stakeholders with Fairtrade International, Rainforest Alliance/SAN and UTZ Certified; and dialogue between these organizations, stakeholders and the value chain.

Considerable thought and effort went into estimating our living wage for Kenya. We took this study very seriously in recognition of the importance of wages to workers and employers. This effort included visits to flower farms; visits to houses in nearby townships and city where workers live to find local housing costs; visits to markets and shops where workers buy food to find local food prices; discussions with key informants in the area; discussions with key members of civil society such as government, NGOs, trade unions, and researchers; and digesting and using statistics, papers and reports from researchers, NGOs, government and international organizations. It is worth noting that we benefited from earlier reports and studies concerned with flower farms, as well as with availability of statistics on household expenditure and living conditions for Kenya (see list of References at the end of this report). We also benefitted from cooperation from four large flower farms, Kenya Plantation and Agricultural Workers' Union, and employer's association as this allowed us to freely visit flower farms, talk to workers and managers, and gain access to information on current wages and benefits for flower farm workers.

3. KENYA CONTEXT

3.1 FLOWER FARM WORKERS LIVING IN MAKESHIFT URBAN AREAS WITHOUT MUNICIPAL FACILITIES

The most striking aspect of living conditions of workers in the Lake Naivasha area is that most workers live in unplanned makeshift urban areas that lack basic amenities. And these communities are definitely urban areas³ - which is surprising since they are located near flower farms whereas it is natural to assume that farm workers live in rural areas. Indeed, we had expected to find most flower farm workers living in a rural area. However, we found that Karagita, which is the largest township near Lake Naivasha flower farms, had a population of 47,000 in 2009 according to the local chief we spoke to (and Karagita's population probably increased significantly since 2009). What happened is the area around Lake Naivasha was relatively sparsely populated before the explosive growth of flower farms beginning in the 1990s (Becht, Odada and Higgins, 2005). This meant that the surge of labor demand of flower farms could only be met by migration of large numbers of people to the Lake Naivasha area.⁴ It is estimated that there are now over 90,000 flower farm employees in Kenya with Lake Naivasha area its main center (Kenya Flower Council, 2014).

New housing therefore had to be built for the large number of migrants to the Naivasha area. Unfortunately, this was done in a totally unplanned manner. There are no paved roads in townships near flower farms – there are only deeply rutted dirt roads. This means that roads in townships are difficult to pass in a vehicle; they are dusty when it is dry and quagmires when it rains. There are no street lights. This means that it is dangerous to

³ KNBS (2010) defines urban areas as places with 2,000 or higher population.

⁴ The increased need for labor by flower farms is shown by the explosive growth of the floriculture industry which went from 10,946 tons of cut flowers in 1988 to 86,480 tons in 2006 and 121,891 tons in 2011 (Kenya Flower Council, 2014). The extent of migration into Lake Naivasha area is shown by growth of the core urban population of Naivasha - which went from 6,900 in 1969 to 32,000 in 1999 (Becht, Odada and Higgins, 2005) and then to 91,931 in 2009 (with an additional 77,000 in peri-urban areas and 13,000 in rural areas around Naivasha) (Kenya Open Data Survey, 2009).

walk from the main road to one's house at night which is one reason why housing nearer the main road that runs along the side of Lake Naivasha is more expensive. The area lacks sustainable and affordable water supply and sanitation infrastructure. Most households buy water from vendors who generally deliver using donkey drawn carts and store this water in 20 liter jerry cans in their house. There is no waste collection. This means that litter and plastic bags are all over. There is no sewage system and almost everyone has to rely on shared pit toilets. On a positive note, almost all houses have electricity and all of the shared pit toilets we saw had cement slabs and were clean.

Housing in townships in the Lake Naivasha area consists mainly of one room rental units. There are many long one story buildings located helter-skelter in each township. Each of these buildings is divided into a number of one room rental units with each room roughly 10 foot by 10 foot in size (or around 9.3 square meters). Almost all of these buildings have zinc iron roofs in various states of repair. Virtually none have indoor piped water, indoor toilet, or separate kitchen with chimney. This means that people cook on small open charcoal stoves (called jikkos) in the same room that they live and sleep. The consequences are made worse by the fact that ventilation is usually very poor and therefore there is little or no evacuation of smoke. This aspect of housing in the townships near flower farms (i.e. cooking is done on the floor in small living/sleeping rooms without ventilation) is very troublesome for health and safety. All of this means that it is difficult for a worker with a family to live decently in townships near flower farms. Because of the poor availability of decent housing in townships near flower farms at affordable rents, many flower farm workers leave their family behind in their home area while some workers with the financial wherewithal, possibly because of a spouse's earnings, often live in Naivasha city where housing units with two or more rooms are available.

The fact that Naivasha flower farm workers live in an urban setting has important implications for estimation of living wage. It significantly increases living costs and therefore living wage compared to what they would be if workers lived in a rural area (as one would expect for farm employment). Housing costs are much higher compared to rural areas. Transportation expenses are much higher than in rural areas because of commute costs. Food prices, and therefore food costs, are generally higher than in rural areas. In addition to differences in cost of living, expenditure patterns differ for rural and urban households. For example according to 2005/06 HIES data, urban households spend 20.3% of all expenditures for housing compared to 11.4% for rural households. Urban households spend 8.7% of all expenditure for transportation compared to 3.4% for rural households.

3.2 COLLECTIVE BARGAINING AGREEMENTS FOR FLOWER FARMS AND BETTER WORKING CONDITIONS THAN TYPICAL FOR AGRICULTURAL PRODUCTS IN THE WORLD

A striking feature of working conditions on flower farms is that there are collective bargaining agreements (CBAs). Kenya Plantation and Agricultural Workers' Union and Agricultural Employers' Association negotiate two year collective bargaining agreements for flower farms. There is currently a 2013-2015 CBA that 59 flower farms have signed (Collective Bargaining Agreement between Agricultural Employers' Association and Kenya Plantation and Agricultural Workers' Union 2013-2015) out of around 170 flower farms (Risisgaard and Gibbon, 2014). Also, three very large farms have separate CBAs.

The flower industry in Kenya is unusual for an agricultural product. Because prices and demand are reasonably predictable and production is needed throughout the year, "production can be routinized and variations in labor

requirements controlled” (Riisgaard and Gibbon, 2014). It also means that “scientific planning of work has become not only desirable but also feasible” (Riisgaard and Gibbon, 2014). As a result, it is in the interest of flower farms to have a stable long term workforce. Trade unions and CBAs help in this.

CBAs specify basic wage rates – which are higher than statutory agricultural minimum wage (see later section on wages and wage ladder). CBAs also specify a number of cash allowances and in-kind benefits such as: (i) cash housing allowance of KSh1,700 when housing is not provided;⁵ (ii) annual cash leave travel allowance of KSh2,500 per year; (iii) payment in case of redundancy of 21 days of pay for each year of service; (iv) gratuity of 23 days of basic pay for each year of service for workers with more than 5 years of continuous service; and (v) funeral expenses if worker dies (KSh27,000). Some separate CBAs specify a transportation allowance or free transportation to work. See Annex C for details on various benefits included in the general flower farm CBA. Some flower farms provide free meals, school, and crèche that are not specified in the general CBA.

Other benefits in the general flower farm CBA include: (i) paid sick leave of 53 days at full basic pay and 55 days at one-half pay in a 12 month period; (ii) 9 paid public holidays per year; (iii) paid annual leave of 24 working days (26 working days for workers with more than 5 years of service); (iv) paid maternity leave of 3 months; (v) one hour per day to breastfeed child less than 10 months of age; (vi) medical treatment at farm clinic including transportation to hospital when necessary for serious illnesses and injuries; (vii) 2 days with pay for union officials to attend to union duties and up to 15 days for four union officials to attend courses and seminars; and (viii) overtime paid at 1.5 times rate (after 46 hours in a week) and work on public holidays paid at 2 times rate.

Various protections for workers are also included in the general CBA: (i) workers have to be confirmed as a permanent worker after a probation period of at most 2 calendar months; (ii) dispute and grievance procedure; (iii) warning system whereby workers have a right of appeal; (iv) three warnings in 12 month period required before workers are liable to dismissal unless there is gross misconduct; (v) warnings are removed from worker’s record when there are no other warnings in a 12 month period; (vi) workers suspended for offences receive half pay while their case is under investigation; (vii) in case of redundancy, workers receive 21 days of pay for each year of completed service; (viii) termination notice is 30 days for workers with less than 6 years of service (45 days for workers with 6-10 years of service and 60 days for workers with over 10 years of service); and (ix) seasonal workers can be employed for a minimum of 3 months and a maximum of 6 months.

The above description of benefits in general flower farm CBA indicates that workers on flower farms in Kenya have a number of protections and benefits. It is fair to say that many of these are uncommon for agricultural products around the world. This makes flower farm jobs in Kenya relatively good jobs.

3.3 UNFAVORABLE TRENDS: DECLINING REAL WAGES FOR FLOWER FARM WORKERS AND INCREASING COST PRESSURES FOR FLOWER FARMS

Flower farms are an important source of jobs, especially in light of high unemployment rates in Kenya. Flower farm jobs are also relatively well paying and have relatively good working conditions for agriculture in part because of collective bargaining agreements.

⁵ Housing allowance in general flower farm CBA is KSh2,400 in cities, KSh2,000 in municipalities, and KSh1,700 in other areas. Flower farms in Lake Naivasha area are considered as being in “other areas”.

However, real wages of flower farm workers have decreased over the past 10 years. Furthermore, the advantage of flower farm wages over minimum agricultural wage has decreased over the past 10 years. As shown in section 14 (prevailing wages and wage ladder), flower farm basic wage plus cash allowances for a newly hired worker all corrected for inflation fell by about 40% in the past 10 years. Furthermore whereas flower farm basic wage for a newly hired worker exceeded the statutory minimum agricultural wage by 73% in 2004, this premium fell to 24% in 2014. These trends are obviously putting considerable strain on flower farm workers. This is an important context for this report, since part of the gap between current flower farm wages and living wage found by this report is partly due to deterioration in flower farm wages in recent years.

At the same time, flower farms are also facing increasing difficulty due to significant increases in labor costs in USD. CBA base wage plus cash allowances expressed in USD probably doubled between 2004 and 2014 (see section 14). Cost in foreign currency is an important metric for flower farms because they are exporters. Non-labor costs of production expressed in USD are likely to also have increased, since prices in Kenya have around doubled in the past 10 years whereas the Kenya shilling has only depreciated against the USD by around 15% in the past 10 years. Of course, Kenya has unique advantages for supplying fresh cut flowers to Europe that limit competition from other countries such as an able and experienced labor force, heavy investments and new technologies, excellent climate, and water availability near to a major international airport with substantial cargo capacity. For this reason, the Kenyan flower industry continues to do well enough to employ tens of thousands of workers despite large cost increases – although competition from neighboring countries such as Ethiopia is now important. Despite these enviable advantages for the flower farm industry in Kenya, flower farms are facing increasing cost pressure. Indeed, flower farm managers repeatedly mentioned to us that their survival is increasingly dependent on higher volumes.

4. INTRODUCTION TO LIVING WAGE

The idea of a living wage is that workers and their family should not have to live in poverty. But a living wage should do more than simply keep workers and their families out of poverty. It should also allow them to participate in social and cultural life. In other words, wages should be sufficient to ensure that workers and their families are able to afford a basic life style considered decent by society at its current level of development. Workers should receive a living wage in normal work hours without having to work overtime. The following definition of a living wage (which is consistent with findings in the comprehensive review of living wages in Anker, 2011) was agreed to by 7 standard setting/certifying organizations: Fairtrade International, Rainforest Alliance/SAN, UTZ Certified, Social Accountability International (SAI), Forest Stewardship Council (FSC), Goodweave, and ISEAL.

Remuneration received for a standard work week by a worker in a particular [time and] place sufficient to afford a decent standard of living for the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing and other essential needs including provision for unexpected events.

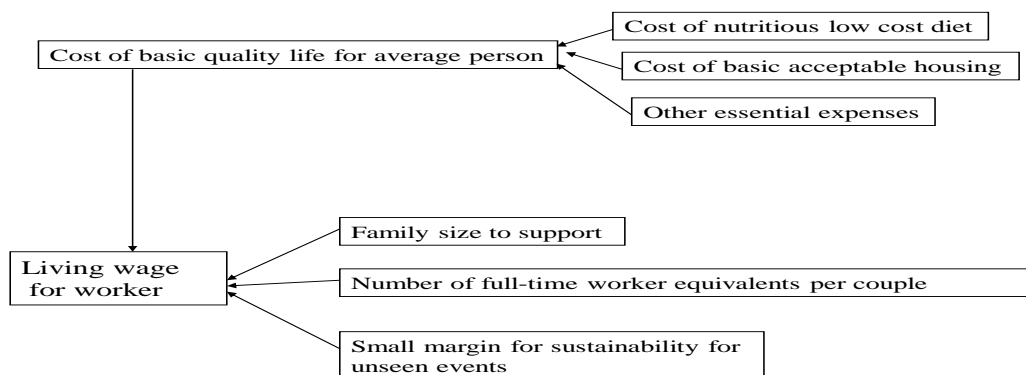
The idea of a living wage is not new (see Anker 2011 for following and other quotes). Nor is it a radical idea. Adam Smith (1776) wrote that “No society can surely be flourishing and happy, of which far greater part of the

members are poor and miserable. It is equity besides that they who feed, clothe and lodge the whole body of the people should have such a share of the produce of their own labor as to be themselves well fed, clothed and lodged.” Pope Leo XIII (1891) in a Papal encyclical *Rerum Novarum* stated that “Remuneration must be enough to support the wage earner in reasonable and frugal comfort. If through necessity, or fear of worse evil, the workman accepts harder conditions because an employer or contractor will give no better, he is the victim of fraud and injustice.” American President Franklin D. Roosevelt (1933) wrote that “Liberty requires opportunity to make a living – a living decent according to the standard of the time, a living which gives men not only enough to live on but something to live for.” International Labor Organization Constitution (1919) states that “Peace and harmony in the world requires provision of an adequate living wage”, and United Nations’ Universal Declaration of Human Rights (1948) states that “Everyone who works has the right to just and favorable remuneration ensuring for himself and his family an existence worthy of human dignity.” See Anker (2011) for descriptions of living wage by other prominent individuals, international organizations, NGOs, companies, and governments.

5. HOW OUR LIVING WAGE FOR KENYA WAS ESTIMATED

The following flow chart indicates how our living wage for Kenya was estimated. We started by estimating cost of a basic living standard that would be considered decent for present day non-metropolitan urban Kenya (first left hand box). This was done by summing up separate estimates for cost for a low cost nutritious diet, basic decent housing, and all other needs at a decent level (first three right hand boxes). Before accepting our preliminary estimate of cost for all non-food non-housing items, we make sure that sufficient funds are provided for at least health care and education as these are considered human rights around the world. A small margin above this total cost of a basic but decent life style was then added to help provide for unforeseen events such as illnesses and accidents to help ensure that common unplanned events do not easily throw workers into poverty. This new total cost of a basic but decent quality life, that up to now was mostly expressed in per capita terms, was then scaled up to arrive at cost for a typical family size in the area and defrayed over a typical number of full-time equivalent workers per family in the area.

Figure 1: Flow chart on how to estimate a living wage



6. FOOD COSTS

Food cost for a living wage for Kenya was estimated using local food prices and a low cost nutritious model diet for an average person in a family of 5 persons (2 adults and 3 children).

6.1 GENERAL PRINCIPLES FOR MODEL DIET USED TO ESTIMATE LIVING WAGE

The following general principles were used to establish the model diet we used to estimate food costs for our living wage for Kenya. Our model diet needed to be:

1. Nutritious (i.e. have sufficient calories as well as acceptable quantities of proteins, fats, carbohydrates, minerals and vitamins) to help ensure that workers and their families have enough to eat and can be healthy. Our model diet has a sufficient number of calories based on WHO recommendations and meets other World Health Organization (WHO/FAO, 2003) nutritional recommendations of: minimum of 10 percent of calories from proteins (with a reasonable proportion of proteins coming from “higher quality” sources such as legumes and animal-origin foods, see WHO/FAO/UNU 2007); 15-30 percent of calories from fats; and 50-75 percent of calories from carbohydrates.⁶
2. Relatively low in cost for a nutritious diet. For this reason, our model diet includes less expensive types of cereals, beans, meats/fish, fruits and vegetables, etc. to keep down total food cost. This approach mimics how cost conscious workers shop for food while maintaining nutritional standards.
3. Consistent with Kenya’s development level. For this reason, our model diet includes relatively low percentage of calories from proteins from animal-origin foods since these are expensive per calorie. At the same time, percent of calories from proteins is above minimum WHO requirements since Kenya is not a least developed country.
4. Consistent with local food preferences, local food availability and local food costs. For this reason, our model diet includes considerable amounts of maize meal, beans, and green vegetables.

6.2 MODEL DIET USED TO ESTIMATE LIVING WAGE FOR RURAL KENYA

The model diet we used to estimate a living wage for Kenya is shown below in Table 1. Annex A discusses in detail how our model diet compares with other diets for Kenya as well as how the distribution of food expenditure in our model diet compares to actual distribution of food expenditure of households in Kenya.

⁶ Note that our model diet deviates somewhat from WHO/FAO (2003) recommendation of 400 grams of vegetables and fruits per day (including legumes). WHO/FAO (2003) acknowledges that it is rare for countries to meet this recommendation in full.

There are 2288 calories in our model diet. This is very similar to the 2250 calories used to estimate the government poverty line (KNBS, Basic Report on Well-being, 2007).⁷ Note that we assume that one adult (person working in flower farm) has heavy physical activity level while children and second adult and in our model family have moderate physical activity level.⁸ Percentages of calories from proteins (10.8%), fats (22.7%) and carbohydrates (66.5%) meet minimum WHO/FAO standards for a nutritious diet (>10%, 15-30%, and less than 75% respectively). The 252 edible grams of fruits and vegetables included in our model diet helps to provide a variety of micronutrients and minerals. Note that vegetables and fruits are especially important when consumption of animal-based foods is low (Ecker and Quaim, 2008).

Our model diet shown in Table 1 includes:

- lots of maize (over one-third kilo per day)
- 2 slices of bread per day for children and 1 slice per day for adults
- 56 grams (2 ounces) of beans per day
- 100 grams of potato per day
- 25 grams of beef per day on average (roughly equivalent to 2 meals per week with 85 edible grams of beef or 3.5 meals per week with ¼ kg of purchased beef for entire family)
- 1 egg per week
- 1 cup of milk per day for children and 1/2 cup per day for adults to add to tea
- 63 grams of fruit per day
- 188 grams of vegetables per day (with 2/3 from inexpensive green vegetables)
- 30 grams of brown sugar per day (7 teaspoons)
- 30 grams of cooking oil per day (2.5 tablespoons)
- 2 cups of tea per day for adults

Our model diet is consistent with local food preferences and relative prices in Kenya.

- Maize is central to our model diet and the Kenyan diet. It is an inexpensive source of calories, and it provides 54% of all calories in our model diet.
- Amount of meat (beef) is relatively small in our model diet in order to keep the diet relatively low in cost. Note that we do not include small dried fish in our model diet even though they are available in local markets and eaten by people from Western Kenya, because we felt that beef more representative of widely consumed and relatively inexpensive animal foods for Kenya.

⁷ The 2288 calories we used was determined based on Schofield equations (WHO/FAO, 2003) that are widely used to estimate calorie needs. These equations are based on age, sex, average height, and activity level. Information on average height for women is from 2008/09 DHS based on data from Subramanian et al (2011). Average height for men was assumed to be 10 centimeters (about 4 inches) higher. Calories required by adult males, adult females and children were calculated using Schofield equations. Then, average number of calories required per person for our reference family of 5 was calculated which turned out to be 2288.

⁸ Note that assumptions on physical activity levels might be different for families living in rural areas (e.g. second adult might be assumed to have heavy physical activity).

- Considerable amount of beans (56 grams) are included in our model diet. This helps ensure there is a sufficient number of proteins at relatively low cost because beans are relatively inexpensive relative to beef since they are grown by Kenyan farmers.
- Reasonably large amount of potato is included in the model diet because it is the lowest cost and most commonly eaten root and tuber in Kenya.
- Vegetables are represented by green vegetables such as cabbage, kale and spinach and carrots. They are plentiful and inexpensive in local markets. This helps reduce food costs. It also helps increase calcium and iron as green leafy vegetables, such as kale, are high in these.
- Quantity of milk is 1 cup per day for children. Quantity for adults is 1/2 cup per day mainly to add to tea.⁹

The reason that we use a model diet to estimate food costs is to ensure that a worker and his or her family is able to afford a nutritious diet on a living wage, because this is required for decent living. This does not mean that people are expected to eat exactly the same foods in exactly the same quantities as in the model diet every day – but rather that they should have sufficient income to be able to afford a nutritious diet. It is for this reason that cost of model diet shown in Table 1 is increased by 10 percent to allow for some variety, by 1 percent to allow for salt, spices, and condiments,¹⁰ and by 3 percent to take into consideration minimal spoilage and wastage.¹¹ Variety is important to ensure that a diet is nutritious. This is especially important for vegetables, fruits and meats. And it needs to be kept in mind that food items included in our model diet are the lowest cost food items for that food group. This is reflected in typical recommendations of nutritionists and government departments (e.g. see Republic of Kenya, 2006 Kenya National Guidelines on Nutrition and HIV/AIDS).

TABLE 1. OUR MODEL DIET AND FOOD COST PER PERSON PER DAY USING FOOD PRICES OBSERVED IN MARKETS WHERE WORKERS SHOP, KENYA MARCH 2014

Food items ^c	Grams edible ^{a, b, j}	Cost per kg ^e	Cost ^f	Comments (Diet is for average person in family of 5. Portions for adults are bigger than for children) ^w
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⁹ We include only 1/2 cup of milk per day for adults (to add to tea) in our model diet. In contrast, national recommendations for developing countries on milk consumption generally call for 1 cup of milk per day for adults (same as for children). 12 of 13 developing countries in FAO (2013) publication on milk and dairy products in human nutrition recommend at least 1 cup of milk per day for adults and children (exception being Oman that recommends around 1/2 cup per day). All 24 developed and European countries cited in a FAO (2013), in contrast, recommend at least 2 cups of milk per day for children and adults. The reason we included less milk in our model diet is that milk is already responsible for 18% of total food cost and we felt that it would have been impractical to increase this much further.

¹⁰ Households actually spend approximately 1% of their food expenditure for salt, spices and condiments according to data from both 2005/06 household income and expenditure survey and 2010 urban CPI expenditure weights.

¹¹ “A significant proportion of the food produced [in Kenya] is lost due to post-harvest spoilage and wastage, including in some cases from toxin causing micro-organisms. Losses are often substantial for grain and produce (fruits and vegetables) along with spoilage of animal products including milk, meat and fish. Losses of stored maize are estimated to be a staggering 30-40% per annum.” (Republic of Kenya, Agricultural Sector Coordination Unit, 2011 National food and nutritional security policy)

Food items ^c	Grams edible ^{a, b, j}	Cost per kg ^e	Cost ^f	Comments (Diet is for average person in family of 5. Portions for adults are bigger than for children) ^w
Maize	340	36.5	12.41	Maize provides 54% of all calories. Rice more expensive. Rice possible sometimes using miscellaneous funds for variety.
Bread	43	124.0	5.29	Equivalent to 2 slices for child & 1 slice for adults.
Potato	100	24.0	3.20	Potato. Least expensive root and tuber.
Beans	56	75.0	4.20	Average of wariumu (kidney bean) and next least expensive bean.
Milk	196	60.0	11.76	Fresh unpackaged milk. Usually boiled. Pasteurized prepackaged milk more expensive. 1 cup for children; and 1/2 cup for adults to add to tea.
Egg	7	240.0	1.91	1 egg per week.
Meat/poultry/fish	25	330.0	9.48	Beef with bone (with offal once per 10 beef meals). Beef less expensive than other meats. Allows for ¼ kg purchased beef for family 3.5 times per week.
Vegetable 1	63	11.5	1.07	188 edible grams vegetables. Cabbage least expensive vegetable
Vegetable 2	63	17.3	1.35	Kale & spinach least expensive green leafy vegetables.
Vegetable 3	63	29.6	2.08	Carrot least expensive non-green vegetable.
Fruit	63	39.8	3.43	Average of mango (least expensive fruit in March) & banana (least expensive fruit available year round).
Cooking oil	25	138.0	4.14	Vegetable oil sold by block. Much less expensive than liquid veg oil sold in bottle.
Tea	0.8	450.0	0.36	Loose Eden tea. 2 cups per day for adults.
Sugar	30	83.0	2.49	Brown sugar in plastic bag packed by local seller. Much less expensive vs pre-packed branded sugar. 7 teaspoons per day.
Total ^u			63.18 (\$0.73)	
Total with 14% misc food costs ^d			72.02 (\$0.84)	

Notes: pd indicates per day. pw indicates per week. ^a Edible (consumed) quantity differs from purchased quantity for foods with inedible parts such as fruits and vegetables with inedible skin or stem; beef with bone; and egg with shell. Percentage inedible is drawn from United States Department of Agriculture (USDA) web site (www.ndb.nal.usda.gov/ndb/foods) except for mango since people in Kenya eat skin of mango. ^b Number of calories, proteins and fats are estimated using USDA reported values per 100 grams for each food item. ^c Specific

food items used to cost our model diet are foods that are low cost for each major food group.^d Additional miscellaneous food costs are assumed to be 14 percent. This consists of: (i) 1% for miscellaneous foods not listed in our model diet such as salt, spices, chicken stock cubes and condiments (with soft drinks, cakes and sweets excluded); (ii) plus 10% to allow for some variety (e.g. fish or chicken sometimes; rice sometimes; more expensive vegetables and fruits sometimes; holiday meals sometimes; etc.); (iii) plus 3% for minimal waste and spoilage. Assumed 1% for salt, spices and condiments is similar to approximately 1% according to 2005/06 household income and expenditure survey data and 2010 urban CPI weights. Assumed 10% for variety is a conservative assumption. Assumed 3% for spoilage and waste is a conservative assumption.^e Cost per kilo is based on prices observed in food markets in townships in Lake Naivasha area near flower farms in March 2014. Food prices for each food item included in model diet were collected from approximately 9 sellers. Median of observed prices was used. Observed prices of kale/spinach and potato were reduced to take into consideration that their prices in March (month of our local food market survey) are typically higher than average for the year.^f Cost for each food item was calculated by multiplying quantity purchased by cost per kg.^j In addition to having a sufficient number of calories (2288), our model diet meets WHO recommendations for proteins (10-15% of all calories), fats (15-30% of all calories) and carbohydrates (less than 75% of all calories). 10.8% of calories in the model diet are from proteins, 22.7% are from fats and oils, and 66.5% are from carbohydrates.^u Water generally needs to be purchased from vendors who often sell water from old oil drums. This water needs to be boiled for drinking. Cost of purchasing and boiling water is included in utility costs for housing rather than in food costs.^w Calories required by adult males, adult females and children were calculated using Schofield equations. Then, average number of calories required per person for our reference family of 5 was calculated which turned out to be 2288.

6.3 FOOD PRICES

6.3.1 Collecting local food prices

To estimate cost of our model diet, the research team collected food prices from places where workers typically shop. In this way, we were able to estimate the cost of our model diet using prices that workers actually pay.

Local researchers visited markets in the four townships near fresh cut flower farms in Lake Naivasha area. As these are in essence small towns, everything was sold in these townships. There were many small fixed shops that sold food staples. There were many fixed shops that sold only milk, or only fruits and vegetables, or only beans, pulses and maize. There were also many small itinerate sellers, especially in the afternoon, who sold only one or a few foods (e.g. perhaps only small dried fish, or only greens, or only mangos, or only fruits or vegetables). Note that workers need to shop daily as very few workers have a refrigerator. The research team also visited two supermarkets in Naivasha city to get an idea if prices for staples that store well (such as maize meal, beans, oil, and sugar) are much less expensive in Naivasha supermarkets than in local townships even though it is not common for workers to frequent Naivasha supermarkets. They are not.

Several aspects of how food is sold in the townships near flower farms are worth noting. Vegetables, potatoes and fruits are typically sold by the piece or bucket or bunch. This means that the cost per kilo of these foods varies by seller and piece, bunch, or bucket even when they are sold at the same price per piece, bunch, or bucket. This is because weight of each piece or bunch or bucket is somewhat random. This situation required

researchers to weigh several pieces, bunches and buckets of each food in each market on our own scale in order to be in a position to determine cost per kilo.

Also worth noting are aspects of how we estimated food prices that reduced cost of our model diet. To cost our model diet, we used for example:

- maize flour for cereals as it is inexpensive and mainstay of Kenyan diet
- least expensive vegetable per edible gram (cabbage)
- least expensive green leafy vegetable per edible gram in each market visited (mainly kale and spinach)
- least expensive non-green vegetable (carrot)
- average of most common bean (red kidney) and other least expensive bean in each market visited
- least expensive and root and tuber (potato)
- average of least expensive fruit per edible gram in March (mango) and least expensive fruit throughout the year (banana)
- offal once every 10 meat meals to reduce cost of meats
- unpackaged milk sold by local vendors (that is typically boiled) rather than pasteurized prepackaged milk because unpackaged milk is less expensive
- vegetable oil sold in solid block because it is much less expensive than liquid vegetable oil sold in prepackaged plastic bottles
- brown sugar sold in plastic bag packaged by local shop because it is much less expensive than prepackaged sugar; also brown sugar is more widely available and slightly less expensive than white sugar

6.3.2 Analysis of food prices collected by local researchers

A local researcher team collected prices for a wide range of foods that workers often buy.¹² Prices were collected for different quantities for most foods (e.g. for 1 kilo and 5 kilos; 1 small bucket and 1 large bucket) and from several sellers in each market visited. On average, food price data were collected from 9 sellers for each food item. The food price data collected were entered into Excel and lowest price per kilo for different

¹² Note that authors of this paper did not personally collect the food price data, because this might have affected reported prices. Food price data were collected by local researchers.

foods in each food group for each market was determined.¹³ In Excel, median of the lowest price per kilo observed in each shop and market for each food item was then identified. The idea behind this approach was to try and mimic the way in which cost conscious workers in Kenya typically buy food as they typically buy foods that are low in cost per kilo, including seasonal foods.

6.3.3 Adjustment of food prices for seasonality

Since we collected food prices in March, there is an implicit assumption that these prices are representative of food prices throughout the year. Even though the way we choose food items to include in our model diet (lowest cost food items for each food group) should help take into consideration seasonality in food prices, it is still possible that the food prices we collected in March overestimated or underestimated typical food prices over the year. This is especially possible for vegetables and fruits that are often seasonal.

To determine if March food prices are reasonably representative of prices throughout the year, we put together monthly food price data for latest three years (2011-2013) reported by Kenya National Bureau of Statistics (KNBS) on its web site, although it is worth noting that the list of foods items on which KNBS reported food prices varied each month. We used the data for 2012-2013 because very few food prices were reported for 2011. These are the food prices that KNBS used to estimate urban CPI. We also used results from an article that looked at seasonality of wholesale fruit and vegetable prices in Nairobi, Mombasa and Kisumu for 1994-2003 (Mathenge and Tschirley, 2006).

We were interested in how food prices change over the year and in particular whether March prices tend to be relatively high or relatively low compared to prices in other months. We graphed KNBS reported food prices for 2012-13 and calculated for each food for each year the ratio of March price to average price for the year.¹⁴ To extent to which these incomplete KNBS data allow conclusions, we found March prices similar to average price throughout the year for beef, offal, milk, maize flour, sugar, tomato, and cabbage. There were too few months of data to draw conclusions for mango, carrot, spinach, and kale. Price of potato appeared to be slightly higher in March than average for the year (by about 5%) although it was difficult to draw conclusions on this because KNBS did not report prices for October-January for either 2012 or 2013.¹⁵

Partly because of the incomplete nature of KNBS price data for fruits and vegetables, we also relied on Mathenge and Tschirley (2006) who analyzed food price data for 7 foods (banana, orange, kale, tomato, onion, cabbage, and potato) for 10 years from 3 cities (Nairobi, Mombasa, and Kisumu). They found consistent seasonality in prices for all five vegetables but not for either fruit. March prices were higher for kale by about 48% on average for Nairobi (about 28% higher for Kisumu and 30% higher for Mombasa), but it is worth noting

¹³ For each major food group (e.g. meats/fish/poultry, vegetables, oils, fruits, pulses, etc.), we identified lowest cost item(s) per edible gram for inclusion in our model diet to represent the major group. For example, fruits are represented in our model diet by banana and mango; vegetables by cabbage, least expensive green leafy vegetable (kale and spinach), and carrot; milk by unpackaged unpasteurized milk that is typically boiled before being sold; meats/fish/poultry by beef with bone and offal; roots and tubers by potato; oils by oil sold in solid block in local markets; and sugar by brown sugar packed by local shop in plastic bag.

¹⁴ There was the following number of months of data for 2012-13: sugar (14), maize flour (13), milk (23), kale (17), cabbage (12), spinach (5), tomato (15), offal (6), beef (17), potato (13), carrot (6), mango (3), bread (8), and egg (3).

¹⁵ Potato prices in Kenya are known to be seasonal with lower prices around harvest periods especially July-August and to a lesser extent January-February. The issue for us is whether March prices are average for the year.

that there was considerable variation from year to year in the extent of seasonality of kale prices. For cabbage, March prices were about 18% higher on average in Nairobi (about 18% higher for Mombasa and 8% higher for Kisumu). For onion, there was consistent seasonality in prices, but March prices were average for the year for all three cities. For tomato, prices in March were higher by around 15% than average for Nairobi (about 16% higher for Mombasa and 1% lower for Kisumu). For potato, there was strong and consistent seasonality in prices but March prices were only slightly above average for the year (about 5% higher for Nairobi and Mombasa and about average for Kisumu).

Based on the above analysis of seasonality in food prices, we decided to reduce the prices we observed in March by 1/3rd for kale/spinach and by 5% for potato. We decided not to adjust other observed prices.¹⁶

7. COST OF HOUSING FOR WORKERS IN LAKE NAIVASHA AREA

Housing costs for our living wage were estimated by summing the cost of: (i) rent for an acceptable dwelling and (ii) utility costs (water, electricity, and cooking fuel).¹⁷ Note that cost of routine minor maintenance is usually paid by the landlord.

We estimated KSh5,000 (\$58.1) as rent per month for acceptable housing for a family in areas surrounding Lake Naivasha flower farms. Utility costs per month were estimated to be KSh900 (\$10.5) for water, KSh600 (\$7.0) for electricity, and KSh1,200 (\$14.0) for cooking fuel. See discussion below. While KSh5,000 for rent is much more than what most workers currently pay, it is realistic for acceptable housing for a family in the area. Workers currently pay much lower rent than this in part because they currently live in substandard housing and in part because they live alone without family because of high cost of housing in the Lake Naivasha area.

7.1 HOUSING CONDITIONS IN AREAS SURROUNDING LAKE NAIVASHA

As mentioned earlier in section 3, new urban settlements have grown up in the Lake Naivasha area to house workers who have come from all around Kenya to work on flower farms. These new townships are quite large with for example one of them with around 50,000 people.

These townships are unplanned and could be considered slums. Streets are deeply rutted and unpaved, and cars have difficulty navigating the streets (transport within the settlements is by foot, bike or motorbike, and by donkey cart for carrying water drums). Services such as garbage removal, sewage system, street lights, and piped water are lacking. Streets are full of garbage and plastic bags, and are muddy during rainy seasons. Safety is a big issue, particularly for workers who need to walk home after dark since there are no streetlights.

¹⁶ We did not reduce the March price we observed for cabbage despite the clear seasonality found by Mathenge and Tschirley (2006), because we found a very low price for cabbage in our local market survey (only KSh11.5 per kilo, about \$0.06 per pound).

¹⁷ We assume that there is no need for fuel for heating.

Almost all housing for workers are one room units. When workers want to rent more than one room, they often have to rent several separate single rooms that are often not next to one another. Toilets are pit latrines shared by many families.

7.1.1 Standard for basic acceptable housing

In order to estimate cost for basic acceptable housing, we set minimum standards for housing for our family size of 5 persons. We mainly relied on the Rainforest Alliance standard for building characteristics and Fairtrade hired labor standard for maximum number of persons per latrine (15 persons that is equivalent to 3 families with 5 persons). Since neither Rainforest Alliance nor Fairtrade standards specify amount of living space for families, we relied on several sources to set a standard of 30-35 square meters for living space. Kenya Ministry of Housing (2004) considers low cost urban housing as “comprising a minimum of two habitable rooms, cooking area and sanitary facilities, covering a minimum gross floor area of 40 square meters for each household”. In India, Maharashtra Housing Development Association, Uttar Pradesh Housing and Development Board and India’s Ministry of Housing and Urban Poverty Alleviation all use around 30 square meters as their standard for government supported housing for the poor and around 30-48 square meters for low income families (Government of India, 2009). South African law for worker’s accommodation on large farms requires a minimum of 30 square meters of living space South African law for worker’s accommodation on large farms (South African Ministry of Labour, 1997). Note that we found in speaking with workers that there is a strong norm in Kenya for parents to sleep separately from their children and for children of different sexes to sleep separately. Therefore, for a house to be considered decent for a family, it is preferable to have 2 and possibly 3 separate sleeping areas (which could include the living room). If the dwelling is large enough (e.g. 30-40 square meters), we assume that larger rooms can be separated by curtains for minimal privacy if necessary.

Our housing standard is then:

- durable floor such as cement
- durable walls such as stone or cement
- durable roof of zinc or cement without leaks
- sufficient number of windows for adequate lighting and ventilation (preferably 2 windows per room)
- pit latrine in good condition in close proximity to house and used by at most 15 persons
- electricity
- safe water source
- kitchen area separate from sleeping quarters

- around 30-40 square meters of floor space¹⁸
- building in reasonable condition
- safe outside environment

Data from 2005/06 HIES and 2007 Health Expenditure Survey indicate that our housing standard is consistent with current urban housing conditions in Kenya.¹⁹ For example, 73%, 59%, and 80% of urban households had iron roofs, concrete/stone/cement walls, and cement floors respectively. Electricity was available in 65% of urban homes according to 2008/09 DHS. Our standard is above current situation in urban areas in terms of the number of rooms and more in line with rural conditions. Only 41% of urban households had more than 1 room, while 73% of rural households had at least 2 rooms. The prevalence of 1 room dwellings in urban areas is due to large numbers of unmarried workers and married workers who live apart from their families because they cannot afford to pay for urban housing that would be appropriate for a family.

Our housing standard is basic. Acceptable houses in our standard are not required to have an indoor toilet or indoor running water. In the townships near Naivasha flower farms, water is usually purchased from vendors who often deliver water in old oil drums drawn by donkey cart. Workers subsequently store this water in jerry cans. This water needs to be boiled before drinking (which is one reason that cooking fuel costs are high). Absence of basic community services such as municipal sewage system or regular garbage collection in townships near flower farms also makes life difficult for workers.

7.2 RENT FOR BASIC ACCEPTABLE HOUSE

To determine rent of an acceptable house, we visited 19 houses in areas surrounding flower farms; we also visited real-estate brokers. In addition, we spoke to workers in focus group discussions and were fortunate to have results from a recent market survey of 77 housing units in the area undertaken by a workers' welfare committee from a large flower farm to help workers relocating to Naivasha area from Nairobi area.

Most workers living in areas surrounding flower farms live in a 10 feet by 10 feet room. In the vast majority of cases, pit latrines are located outside (which we found almost always to be clean, with a proper slab, and in good condition). Very few dwellings have a separate room or space for cooking so that cooking is almost always done on a small jiko stove in the same room where the worker and family sleep. Therefore, most workers and their families are now currently exposed to high levels of indoor air pollution and risk of burns. In most cases, water is purchased and stored in jerry cans. This water is not safe to drink unless it is boiled.

¹⁸ Note that the Kenyan government requirement of two rooms with 40 square meters of gross floor space would be large enough to create separate sleeping areas for adults and children of different sexes and a separate kitchen area.

¹⁹ Housing conditions in urban areas differ significantly from those in rural areas. One major difference is location of the kitchen. While in rural areas, cooking is usually done outside the house often in a separate enclosed structure, cooking in urban areas is done inside the house. This makes it important in urban areas to have a separate ventilated area for cooking (preferably with a chimney) to avoid serious indoor air pollution.

Table 2 provides a summary of housing costs and conditions that we found in areas surrounding flower farms based on visits where we could verify housing conditions. We made a special effort to see acceptable basic housing as we were interested in rent for acceptable housing. Single rooms we visited with electricity and without mud walls rented for around KSh1,700 per month, ranging from KSh1,500 to KSh2,000.²⁰ This is the same as the KSh1,700 median rent according to the WWC 2013 survey of the same type of housing (1 room with electricity). Single rooms were very small, generally measuring approximately 10 feet by 10 feet. They had electricity, but they did not have indoor water or indoor toilet. People needed to use a shared pit latrine and buy water from a vendor and store this in jerry cans.

Median rent for the 5 two room dwellings we visited (again without indoor water or indoor toilet but with electricity) was KSh3,500 per month (KSh2,500-4,000). Median rent for 13 two room units in 2013 according to WWC was KSh4,000. Two room dwellings were around 20 square meters in size on average. Thus, there appears to be close relationship between size of dwelling and rent for 1 and 2 room dwellings. It is worth noting that very few homes in the townships around Lake Naivasha flower farms rented by workers have 3 rooms or at least 30 square meters of floor space. Most of the housing in the area consists of single rooms, with two room dwellings often consisting of two single room units.

The least expensive acceptable rental unit we visited rented for KSh8,000 per month, although this unit clearly exceeded our minimum acceptable standard as it had 4 rooms and 46 square meters of living space. Another acceptable home we visited had 96 square meters (around three times our minimum acceptable standard in terms of space) and rented for KSh15,000 per month. WWC 2013 housing survey included a 3 bedroom (4 room) unit that rented for KSh10,000.

This means that houses we visited as well as houses listed by WWC were either unacceptably small for a family or were above our housing standard. For this reason, we used regressions to estimate the relationship between rent and living space for housing we visited with electricity and permanent walls, so that we would be able to extrapolate to rent for 30 square meters. The regression indicated that 10 square meters increased rent by KSh1,630. This implies that 30 square meters would cost KSh4,890. We also used regressions to estimate the relationship between rent and number of rooms (again for dwellings with electricity and permanent walls) using both houses we visited and the WWC houses as WWC indicated number of rooms but not floor space. This regression indicated that an additional room costs KSh1,877 and so implies that rent for three rooms would be KSh5,631. An alternative way of extrapolating to rent for three rooms would be to multiply average rent for one room by 3. This yielded an estimate of KSh5,100 for three rooms with around 30 square meters of space (i.e. 3 times KSh1,700 median rent for one room according to both our data and WWC data). We have then three estimates of rent for around 30 square meters of living space in a dwelling with electricity and permanent walls – KSh4,890, KSh5,100 and KSh5,631. To be conservative, we decided and use KSh5,000 for rent for acceptable housing in the area.

²⁰ Rent was lower for single small rooms without electricity (around KSh1,100 per month according to a workers' welfare committee). We purposely did not visit many of these because our decency housing standard for urban Kenya includes electricity.

TABLE 2: RENT IN AREA NEAR LAKE NAIVASHA FRESH FLOWER FARMS ^a

Acceptable standard?	Source	No. rooms	Size (sq mt)	Rent per month	Comments ^a
No	Visited	1	9	400	Small. Mud walls. Leaky roof. No electricity. Poor ventilation.
No	WWC ^b (24 units)	1		Median 1,100	Single room. No electricity. Rents from Feb 2013.
No	Visited	1	14	1,400	Small. Mud walls. Leaky roof. Poor ventilation.
No	Visited	1	9	1,500	Small. In modern building.
No	Visited	1	9	1,500	Small. 1 room only.
No	Visited	1	9	1,600	Small. Electricity included in rent, but not allowed to use electric iron.
No	WWC ^b (39 units)	1		Median 1,700	Small. 1 room only. Rents from Feb 2013.
No	Visited	1	11	2,000	Small. 1 room only.
No	Visited	2	16	2,500	Small. 2 rooms only. In Naivasha.
No	Visited	2	21	2,500	Mud walls. Poor ventilation. No electricity.
No	Visited	3	29	3,000	No ventilation. Roof leaked. In Naivasha.
No	Visited	2	19	3,500	18 people use 1 toilet. ½ hour walk to bus – dangerous at night to walk to home. Poor ventilation for cooking. In Naivasha.
No	Visited	2	21	4,000	Poor ventilation for cooking. Small.
No	WWC ^b (13 units)	2		Median 4,000	2 rooms only. 10 units were KSh4,000. Rents from Feb 2013.
No	Visited	2	19	4,000	Rooms not connected. To get to children's room need to go through street. Poor ventilation for cooking.
Yes	Visited	4	46	8,000	In Naivasha. Separate kitchen with chimney.
	WWC (1 unit) ^b	3 bed rooms		10,000	In Naivasha (Site). Rent from Feb 2013.
Yes	Visited	4	96	15,000	In Naivasha. Separate kitchen with chimney.

Notes: ^a Unless otherwise indicated, dwellings were located in townships around Lake Naivasha. Dwellings did not have indoor water. Water was generally bought from vendors who delivered water using old oil drums on donkey drawn carts; this water needed to be boiled for drinking. Cooking was done using a jiko (small charcoal stove) in living room or bedroom that did not have a chimney. Toilet was shared pit toilet outside house; all toilets were clean and had concrete slab. ^b WWC indicates Workers' Welfare Committee on one large farm that did a search of available housing in February 2013 because a number of workers were going to transfer to Naivasha from a farm in Nairobi.

Before completing this section, it is worth noting that most workers come from other areas of Kenya and many have left their families behind in part because they cannot afford in Lake Naivasha flower farm area that would be acceptable for a family. Small size of dwelling units as well as the lack of separate sleeping rooms for male and female children and for parents is a large deterrent to having one's family in Lake Naivasha area. The lack of separate kitchen facilities also means that small children especially can easily be burned and that there is increased indoor air pollution.

7.3 UTILITIES AND OTHER HOUSING COSTS

Utility and other housing costs also need to be estimated. This includes cost of cooking fuel, water, and electricity, plus costs for minor maintenance and other services. It is unusual for utility costs to be included in rent in Lake Naivasha area – although one worker we spoke to had the cost of water and electricity included in rent, and another worker had the cost of electric lights included but she did not have an electric outlet and so could not use electrical appliances such as an electric iron because the landlord felt that appliances use too much electricity. We base our estimates of utility costs on costs reported by local workers and then cross-checked these estimates against government urban CPI expenditure weights to see if our estimates were reasonable.

7.3.1 Cooking fuel

Charcoal is the most common fuel used for cooking in the area, but charcoal is slow to heat, and so most workers also use paraffin (kerosene) to start to heat up foods quickly as well as often exclusively in the morning when they are in a hurry and have small quantities to heat. Median cost for cooking fuel for the 15 workers that provided this information was KSh1,200 per household and KSh275 per person (which implies KSh1,375 for our reference family of 5 persons if there are no economies of scale which of course there are). This means that according to the workers we spoke to, cooking fuel costs around KSh1,200 per month. This represents around 4% of living costs for a living wage (note that only one worker who did not live alone reported spending less than KSh1,000 - she spent KSh9,333). This 4% is not much different than the 5.6% for all fuels for other urban areas (that includes lighting) according to 2005/06 household income and expenditure survey.

7.3.2 Electricity

Electricity is considered necessary for decency in urban Kenya, because 66% of urban households have electricity according to 2008/09 DHS. This contrasts to only 8% of rural households having electricity.

Median electricity cost per month for the homes we visited that had electricity was KSh600 (with mean of KSh675). There was a wide range of reported costs, going from KSh200 to KSh1,000. Differences were mainly due to types of electrical items used. For example, the two households with a refrigerator spent KSh900 per month on average, while the other households we spoke to spent KSh500 on average.²¹ It is worth noting that workers we spoke to typically only had 1 or 2 light bulbs. KSh600 per month represents a conservative estimate

²¹ The lack of a refrigerator for flower farm workers is consistent with 2008/09 DHS that indicates that 21% of urban households and 1% of rural households have a refrigerator.

of electricity costs because workers who earn a living wage would be likely to have more electrical appliances than at present. KSh600 represents around 2% of living cost for living wage. This is greater than the 1.0% CPI expenditure weight for urban Kenya and urban Rift Valley but similar to the 2.2% expenditure weight for middle income Nairobi (note that this data was not reported for 2005/06 household income and expenditure survey). This implies that KSh600 estimate of electricity costs for households with electricity is reasonable, since CPI expenditure weights for urban Kenya and urban Rift Valley are biased downward by the many urban households without electricity and it is similar to expenditure weight for middle income Nairobi households that are all likely to have electricity.

Note that the Kenya Revenue Authority assigns a monetary value to certain free goods and services for calculating income tax. For electricity, Kenya Revenue Authority assigns a value of KSh900 for electricity for agriculture employment and KSh1,500 for urban areas (Kenya Revenue Authority, 2009). This confirms that our estimate of electricity costs of KSh600 is conservative.

7.3.3 Water

With one exception, all of the workers we spoke to who rented their home purchased water either directly from a distribution center or from a vendor who delivered water to their homes often using a donkey drawn cart.²² Water was then stored in 20 liter jerry cans in the home.

Median reported cost for water was KSh900 per month for houses we visited. This was also the cost when we used median cost per person and multiplied this by number of persons (5) in our reference family. This cost represents around 3% of living costs for living wage.

We also estimated the cost of water using WHO recommendations on minimum amount of water required per day. "Research indicates that 20 liters per capita per day is the minimum quantity of safe water required to realize minimum essential needs for health and hygiene (WHO WEDC, 2013)." As this does not include water for personal washing or washing clothes, 30-40 liters is required according to WHO (2013). This is more the one jerry can (20 liters) of water per person per day that we often heard from workers. 30 liters of water per day implies a cost of around KSh900 per month for our reference family of 5 persons using the lower end of the KSh4-6 reported cost for 20 liters of water per day. This estimate of KSh900 confirms the reasonableness of the reported KSh900 per month cost of water.

The estimate of KSh900 per month for water (around 3% of living wage expenditures) is quite a bit higher than the 1.2% for spent for water for other urban areas according to 2005/06 household income and expenditure survey. It is also much higher than the KSh200 Kenya tax authority uses to value provision of water for agricultural employees and the KSh500 it uses for other employees (Kenya Revenue Authority, 2009). A higher cost for water in the Lake Naivasha area is to be expected, because water is relatively expensive in the Lake Naivasha area. Most of the water for household use is obtained from privately drilled wells, as water from the lake is too expensive to pump and treat (Mugo, 2011). Vendors need to transport this water to homes and this

²² Although water distribution centers that are free or subsidized are around, most workers we spoke to did not use these centers partly because they would have to pay to have this water transported to their homes, and so it did not work out to be much cheaper for them. Also, distribution centers were only open at certain times. Note that purchased water needs to be boiled before drinking which helps explain why cost of cooking fuel is high.

adds to its cost. Since both surface and underground water in the area contain too much fluoride and this can cause skeletal deformations over time, water is passed through a de-fluoridation process before it is safe to drink (Mugo, 2011). This process also adds to the cost of local water.

7.4 SUMMARY OF HOUSING COSTS

Our estimate of housing costs per month is KSh5,000 (\$58.1) for rent, KSh1,200 (\$14.0) for cooking fuel, KSh600 (\$7.0) for electricity, and KSh900 (\$10.5) for water. We did not add additional costs for maintenance and minor repairs, since this is usually paid for by the landlord. Although this estimate for rent is much more than how much workers currently spend as well as the KSh1,700 housing allowance given to workers by flower farms, our estimate of rent is a conservative estimate. For example, living space is at the low end of Government's living space standard for low cost urban housing; adequate ventilation for cooking is far from assured; people need to use shared pit latrines; and water needs to be purchased from vendors and stored in jerry cans.

8. NON-FOOD AND NON-HOUSING COSTS

Non-food non-housing costs were estimated in three steps. In step 1, non-food non-housing costs were estimated based on current expenditure patterns in Kenya using 2005/06 HIES (household income and expenditure survey) data.²³ This approach, which relies on a variant of Engels's law,²⁴ is simple and provides a first ballpark estimate of the cost of nonfood and non-housing needs. It avoids having to make a long list of needs and then finding the cost for each of these. It is worth noting that such a simple approach where cost of all non-food needs are estimated in one go is often used to estimate living wages (see Anker 2011 review) and poverty lines (Anker, 2006b), including Kenya's poverty line (Republic of Kenya, 2007 Well-being report). Step 2 removes expenditures that are felt to be unnecessary for a decent living standard (tobacco and private motor vehicle). Step 3 takes into consideration that the available household expenditure data for other urban areas indicate average household expenditure and not expenditure for median household in the income distribution. Step 4 looks more carefully at health care and education to determine if funds estimated in steps 1 and 2 for these are sufficient for decency - and then adds additional funds if required to ensure adequate funds for these are available.

All non-food non-housing costs for decency for our living wage were estimated at KSh9,830 (\$114) per month for our family of 5 persons. This covers clothing and footwear; household furniture, contents and appliances; health care; education; transportation; communications; recreation and culture; eating away from home; and miscellaneous goods and services such as insurance, bank services, and personal care. How we arrived at this estimate of all non-food non-housing costs for our living wage is explained below.

²³ Two recent sources indicate the distribution of household expenditure in Kenya – 2005/06 household income and expenditure survey and 2010 urban CPI expenditure weights. We used 2005/06 HIES mainly because expenditures are reported separately for rural areas, urban areas, and other urban areas since this provides data for “other urban” areas that represent reasonably well area near Lake Naivasha flower farms where workers live. Note that Kenya National Bureau of Statistics defines “other urban areas” as urban areas (i.e. areas with more than 2,000 population) other than Nairobi, Mombasa, Nakuru, and Kisumu (KNBS, 2010). Urban CPI expenditure weights, in contrast, are for all urban areas together or by Province (KNBS, 2010). In any case, 2010 urban CPI expenditure weights are based on the same 2005/06 HIES data.

²⁴ Engel's law is from 1857 and states that the percentage of total expenditure that households spend for food decreases as household income increases (see Anker 2011).

For step 1, we deviated from usual approach used to estimate poverty lines and living wages that estimates all non-food costs in one go (Anker, 2006a, 2006b, and 2011). Non-food needs and costs were divided into two components: housing whose cost is based on normative standards for decent housing (see previous section) and all other non-food non-housing needs. Only the latter was estimated using a variant of Engel's law. This was done using household expenditure data for "other urban areas" from 2005/06 HIES.²⁵

According to 2005/06 HIES, 38.5% of "other urban" household expenditure in Kenya is for food, 16.1% is for housing, and 45.4% is for all other expenditures. This means that the ratio of non-food non-housing expenditure to food expenditure at this point is 1.18 for other urban areas.

In step 2, we made the same three small adjustments we have made in other countries before using the ratio indicated in previous paragraph. We: (i) excluded funds for tobacco because we do not feel tobacco is necessary for decency, (ii) excluded additional costs associated with owning and operating a private vehicle compared to using "public" passenger transport because we feel it is reasonable to expect workers to use less expensive "public" passenger transportation, bicycle, or walk for a living wage in Kenya; and (iii) took into consideration that meals away from home reduce the need to prepare food at home.²⁶ Taking these three adjustments into consideration reduced the ratio of non-food non-housing expenditure to food expenditure for other urban areas from 1.18 to 0.97.

In step 3, we took into consideration the fact that published data on household expenditure for "other urban" Kenya are based on average expenditure (note that expenditure by income decile are only available for all Kenya). Since average household expenditure data are heavily influenced by spending of high income households, we reduced the non-food non-housing ratio from step 2 by 10% (from 0.97 to 0.87) based on unpublished analysis of data from other developing countries. This ratio of 0.87 was used to make a preliminary estimate of non-food non-housing costs for our living wage.^{27 28}

Because blind use of the typical extrapolation method in steps 1 to 3 (even after separately estimating food and housing costs using normative standards) has the possibility of replicating the high level of poverty found in Kenya, we introduce a step 4 where in subsequent sections we look at whether funds preliminarily included for health care and education are indeed sufficient because these are considered rights in almost all countries.

²⁵ Our approach has several advantages over the usual approach. First and most importantly, our approach uses a normative standard for decent housing which is very important because many workers in Kenya live in substandard housing and this is reflected in household expenditure statistics. Second, use of Engel's law to estimate all non-food costs including housing in one go means that this estimate becomes somewhat akin to a large black box. Our methodology substantially reduces the size of this black box. Third, since housing cost is the most important determinant of differences in living costs between areas within countries, it becomes easier to estimate separate living wages for different areas within countries.

²⁶ We assumed that one-half of the cost of meals away from home in household expenditure data is for the food in these meals and one-half is for services such as food preparation, cooking, serving and cleaning. This assumption is based on unpublished analysis by the authors of contents of meals in Dominican Republic, India, China and United States.

²⁷ It is also worth noting that 2005/06 HIES includes alcohol and restaurants in food expenditure even though they are included in other major expenditure groups in the internationally accepted COICOP classification where alcohol and tobacco is a separate major expenditure group as is restaurants and hotels (ILO, 2014). While percent food is 46.2% according to 2007 Well-being Report, percent food is 38.5% after alcohol, tobacco, restaurant and hotel expenditures are excluded.

²⁸ This ratio is similar to the ratio we used to estimate living wage for rural Dominican Republic (0.86) and lower than for rural South Africa (1.03).

Based on the following in-depth examinations of health care and education, we increased funds for non-food non-housing needs by KSh300 (\$3.5) per month (see following sections).

8.1 WHETHER FUNDS INCLUDED IN NON-FOOD NON-HOUSING COSTS ARE SUFFICIENT FOR HEALTH CARE AND EDUCATION

8.1.1 Health care

Kenya faces a number of health care challenges, which include high rates of HIV/AIDS. In urban areas, infant mortality rate is 6.3%, and 26.2% of children less than 5 years of age are stunted according to 2007 Health Expenditure Survey (Republic of Kenya, 2009).²⁹

Although health care in Kenya is free at government facilities, medicines are often unavailable. As noted in a recent government report based on 2008 Health Facility Survey data (Republic of Kenya, 2009), “frequent stock outs [of medicines] are a major barrier to access”. This problem was often mentioned by flower farm workers in our focus group discussions with workers as well as by key informants we spoke to. In addition, government facilities are not, of course, always nearby.

The fact is that people in Kenya rely on a variety of health care providers. According to 2007 Health Expenditure Survey, only 45.6% of outpatient visits to a health provider in urban Kenya are to a government hospital, health center or dispensary.³⁰ And according to World Bank’s World Development Indicators (2014), 46.4% of all health expenditures by households in Kenya are out of pocket expenditures. Given this situation, it is clear that funds are needed to enable workers to access private health services at least sometimes.³¹

The preliminary estimate of funds for health care needs from steps 1-3 was KSh157 (\$2) per month per family. This low preliminary estimate was expected, because it is based on 2005/2006 HIES data which only consider expenditure for medicines as health care expenditure.³²

²⁹ Malaria and respiratory problems are the two most important reasons for visiting a health care provider, although it is worth noting that malaria is not very common at higher altitudes in Kenya such as around Lake Naivasha (2007 Health Expenditure Survey).

³⁰ 28.0% of outpatient visits in urban areas are to a private hospital or clinic, 4.8% to a mission hospital, health center or dispensary, and 18.7% to a pharmacy.

³¹ Note that if a flower farm has a health clinic that provides free care to workers (and possibly their families), this would be considered an in-kind benefit that the flower farms would receive “credit” for as partial payment of our living wage. See discussion below on in-kind benefits.

³² In a strange bit of logic, KNBS (2007) Basic Report on Well-being in Kenya excludes health expenditure other than for medication because it feels that “such expenditure reflects a regrettable necessity that does not increase welfare. By including health expenditures for someone who has fallen sick, we register an increase in welfare when, in fact, the opposite has occurred. The fundamental problem is that it is not possible to measure the loss of welfare associated with being sick, and which is (presumably) ameliorated to some extent by health expenditures. Including the latter without allowing for the former would be incorrect (Deaton and Zaidi, 2002).”

To estimate how much our preliminary estimate of KSh157 per month for health care needs to be increased, we looked at data on frequency of illnesses from the 2007 Health Expenditure Survey and collected information on costs of consultancies, medicine and lab tests from private clinics and pharmacies in Naivasha. According to a private clinic we visited in Naivasha, consultations typically cost KSh200; typical medicines cost KSh100 for malaria, KSh200 for dysentery and KSh300 for upper respiratory illness; and typical lab tests cost KSh150 for blood slab tests and stool tests and KSh300 for blood count tests. Data on frequency of visits to a health care facility from 2007 Health Expenditure Survey indicate that there are approximately 3.2 visits to health care providers per person per year on average in urban areas and therefore approximately 16 visits per year for a family of 5.³³ This in turn implies a cost of around KSh880 per person per year for visits to private health care facilities in urban areas if people go to private clinics half the time as they actually do (i.e. 3 visits per year in total * 1/2 of visits to private * KSh200 for consultancy + KSh200 for medicine + KSh150 for lab tests). This estimate of KSh880 per person per year is equivalent to KSh367 per month for a family of 5 persons (i.e. KSh880 per person per year * 5 persons / 12 months). However since medicine is often out of stock in government health facilities, patients often need to purchase medicines from a pharmacy after they visit a government facility. This means that some funds need to be added to the above KSh367 per month estimate of out-of-pocket health care expenses to cover expenses for medicines required to be purchased after visits to a theoretically free government facility.

We also looked at health expenditure statistics from 2007 Health Expenditure Survey. According to this survey, health care expenditure for outpatient visits for urban areas was KSh699 per person per year in 2007. This is equivalent to approximately KSh588 (\$6.8) per month for a family of 5 persons updated by inflation to March 2014. Note that this estimate is probably too high for our purposes, because it is for all urban areas including large cities where costs are higher.

In summary, our preliminary estimate of KSh157 for health care included in our preliminary estimate of non-food non-housing costs using extrapolation method is much too low because of how KNBS collects household health care expenditure data. With this in mind, we made two separate estimates above of how much is needed for health care for a family of 5 persons – KSh367 per month based on information on number and cost of visits to private health providers (that we know is too low) and KSh588 based on health care expenditure of urban households (that we know is too high). We decided to roughly split the difference between these two estimates and therefore increase funds for non-food non-housing by KSh300 (\$3.5) per month.

8.1.2 Education

Desire for education is very strong in Kenya. Parents want their children to go to school in order to help prepare them for a better life. This desire was clearly reflected in discussions we had with workers and others. This is also reflected by fact that 17.2% of government budget and 6.7% of GDP is spent on education (World Bank's World Development Indicators).

³³ 18.4% of persons in urban areas reported being sick in the 4 weeks preceding the survey with 87.5% of them seeking health care.

Kenya's educational system has 8 years of primary school (beginning at age 6) and 4 years of secondary school. There are no user fees for public primary school, but parents still have expenses for school such as for books, school uniforms, stationary, transport, and end or term exams.

School enrolment rates are high in Kenya. Almost all children attend primary school. Primary school net enrolment rate was 82% in 2009 and primary school completion rate was 91% in 2006 (World Bank's World Development Indicators). Secondary school net enrolment rate is also high at 50% in 2009 (World Bank's World Development Indicators).

In order to satisfy the grassroots demand for education, government abolished user fees for public primary school in 2003. While this quickly increasing enrollment in primary school from 6,000,000 to approximately 7,200,000 just in the first year (Riddell, 2003), quality of education deteriorated. One indication of educational quality is the pupil-teacher ratio. Average student to teacher ratio in primary school was 32 in 1999; it rose to 47 in 2010. In addition to large class sizes, UNICEF (2014) reports that school facilities often lack desks and have inadequate latrines, and insufficient water and meal services. According to UNESCO (2012), many primary school children do not learn the basics. In 2008 for example, about 6% (9%) of male (female) school leavers with 6 years of school were illiterate, and 26% (30%) were semi-literate. The situation has become worse in recent years. For instance, 39% of female school leavers were illiterate or semi-literate after 6 years of school in 2008 compared to 24% in 2003 (UNESCO, 2012).

Almost all students in Kenya go to a public school.³⁴ It is therefore reasonable to expect children of workers earning a living wage to attend a public school and not a private school. For our living wage, we assume that our reference family of 5 with three children includes one child who attends public primary school, another child who attends public secondary school, and third child who is too young to yet attend school. We feel that children of workers earning a living wage should be able to afford to send their children to secondary school.

We discussed school costs with workers in focused group discussions. School costs are of great concern to workers and there are many different types of costs and these costs vary by school. Workers mentioned having to pay sometimes or always for: school uniforms, sweaters, socks and shoes; exercise books and text books; exam fees; activity fees; meals and snacks; teacher motivation fee; district education fee. Newspaper articles mention that parents are paying fees for public secondary school, even though secondary school fees were formally abolished in 2009 (Howden, 2014). There are also often transport costs and cost of supporting children who live away from home. Information on school costs indicated by workers in focus group discussions ranged from around KSh3,000 to KSh7,500 per year for primary school per year and from around KSh10,000 to KSh24,000 per year for secondary school. Although these are only a few approximate estimates, they are consistent with amounts mentioned in recent newspaper articles.³⁵ They indicate costs of roughly KSh5,000 per year for primary school and KSh15,000 per year for secondary school, or around KSh10,000 per year on average for one child in primary school and one child in secondary school.

³⁴ Only 10.6% of primary school students attend a private school and only 12.7% of secondary school children attend a private school according to World Bank's World Development Indicators.

³⁵ Howden (2014) mentions a monthly fee £42 for secondary school in Nairobi (where costs are likely to be relatively high), which is around KSh59,000 per calendar year or KSh5,000 per month. Economist (2014) mentions that "Bridge International a chain of local low-cost private schools puts its cost per child in primary school at one-fifth of the \$350 it estimates as the total real combined cost to parents and the state of the public system."

Our preliminary of non-food non-housing costs included KSh1,466 per month for education excluding nursery school.³⁶ This works out to be KSh8,769 (\$102) per student per year assuming 2 children are in school in the reference family (i.e. KSh1,466 per month * 12 months / 2 students). This is similar enough to estimates of education costs in the previous paragraph that we decided not to make any adjustments to our preliminary estimate of education costs for estimating our living wage.

9. MARGIN ABOVE COST OF A BASIC QUALITY LIFE TO HELP ENABLE SUSTAINABILITY

Since large unforeseen expenses can quickly throw workers living at a basic life style into poverty and debt from which they may not be able to recover, such as illnesses, HIV/AIDS, accidents, funerals, etc., it is common when estimating a living wage to add a small margin above the cost of a basic quality life to allow for unexpected events. Margins of 5 and 10 percent are the most common.

In other countries, we have used a 5 percent margin to allow for unforeseen emergencies. For Kenya, we decided to reduce this by one-half to 2.5%, because flower farm CBA in Kenya provides a number of nonmonetary protections and benefits that are not considered when estimating living wage or prevailing wage. CBAs include generous paid sick leave and annual leave, paid maternity leave, redundancy pay, and gratuity. Although such benefits do not increase current disposable income available to support a decent living standard, they do reduce the need for contingency funds. Using a 2.5% margin, funds for emergencies and discretionary spending work out to be KSh712 (\$8) per month. Note that interest and debt payments are ignored in our calculations. It is assumed that a living wage would enable workers to stay out of crippling debt.

10. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Living wage is a family concept. This is clearly shown by our comprehensive review of living wages for ILO (Anker, 2011). The need for a living wage to support a family is also included in the living wage definition agreed to by Fairtrade International, Rainforest Alliance/SAN, UTZ Certified, Social Accountability International, Forestry Stewardship Council, Goodweave and ISEAL (see beginning of this report). It is, therefore, necessary to determine an appropriate family size for estimating a living wage for Kenya.

We use a family size of 5 persons (two adults and 3 children) to estimate our living wage for Kenya. This family size is consistent with: (i) number of children women in Kenya typically have and (ii) average household size in urban areas. It is worth noting that almost all women in Kenya get married as only 4.7% of women ages 45-49

³⁶ One reason our preliminary estimate of education costs is reasonable is due to fact that KNBS uses a broad definition of education expenditure as it includes expenditures for school uniforms, school transportation, and school books in household education expenditures. Although logical, this classification differs from the internationally accepted COICOP classification that includes these under other major expenditure groups of clothing, transportation, and recreation and culture respectively. As a result, reported percentage households in Kenya spend for education in its HIES is relatively high from a world perspective at 5.6% of all household expenditures in other urban areas according to 2005/06 HIES data.

have never been married according to the 2008/09 DHS. See Annex B for a detailed discussion of how we arrived at a reference family size of 5 persons.

11. NUMBER OF FULL-TIME WORKERS PER COUPLE PROVIDING SUPPORT

As living wage is a family concept, it is appropriate to expect more than one adult in a family to provide support through work in typical families that include two adults. The most common assumptions used for this in previous living wage studies are 1 worker or 2 workers per family (see Anker, 2011 review). In other words, it is usually assumed that either both spouses/partners work full-time or that only one spouse/partner works full-time.³⁷ The assumption of 1 full-time worker is based on the male breadwinner model of the household that was the accepted norm 50 to 100 years ago in Western countries as well as in some parts of the world today. The 2 full-time workers assumption is based on the idea that all adults work full-time year round. Neither assumption is realistic for Kenya. The 1 worker assumption is not realistic for Kenya, because almost all adult men and women are in the labor force in Kenya in both rural and urban areas. Nor is the assumption that all adults work full-time realistic for Kenya. Unemployment is high, especially in urban Kenya; some adults cannot find full-time work around the year, especially in rural Kenya; and some adults are full-time care givers for children or parents.³⁸

We use 1.69 full-time equivalent workers per couple to estimate our living wage for flower farms in Kenya. How we arrived at this figure is explained in the remainder of this section.

To help determine a reasonable estimate for the number of full-time equivalent workers per couple to estimate a living wage for Lake Naivasha area, we gathered available data on: (i) age and sex specific labor force participation rates, (ii) unemployment rates, and (iii) number of hours worked and extent of part-time employment. To extent possible, we used information for urban Kenya. This information is indicated in Table 3.

Labor force participation rates in Kenya are very high. Latest available estimate for urban areas and our preferred 25-59 year old age group that we could find is 98.4% from 1998/99 labor force survey (Central Bureau of Statistics, 2003). This rate is higher than in other sources. ILO (2014) reports 90.2% for ages 25-59 although this is for Kenya as a whole based on 1999 population census data, and so probably somewhat of an underestimate for urban areas since participation rates in Kenya appear to be higher in urban areas than in rural areas.³⁹ KNBS (2009) reports 73.7% for ages 15-64 for urban areas, although this estimate is a large underestimate for ages 25-59, because it includes ages 15-24 and 59-64 that have much lower participation rates.⁴⁰ When we adjusted this reported 73.7% rate by the difference between rates for ages 25-59 and 15-64 according to the 1998/99 labor force survey, we got an estimated rate of 85.7% for ages 25-59.

³⁷ Although it is never stated explicitly in living wage methodologies, an implicit assumption is that children do not work to help provide support for the family. This implicit assumption is consistent with the decency concept of a living wage.

³⁸ In addition when both parents/partners work full-time year round, expenses for child care, transportation, and clothing typically increase and these possible additional expenses are not fully considered in our living wage calculation.

³⁹ According to the 1998/99 labor force survey, labor force participation rate for ages 25-59 is 98.4% for urban areas compared to 90.5% for rural areas.

⁴⁰ Ages 25-59 is used because those younger than age 25 may still be in school and in any case are less likely to have families of their own; and many persons over age 59 are retired and/or have older children.

In summary, we found three relevant urban labor force participation rates for ages 25-59 to estimate our living wage (98.4%, 90.2% and 85.7%). We decided to split the difference between lowest and highest rates, and thus arrived at 92.1%. This is a very high rate for the world, and it indicates that almost all adults in urban Kenya are in the labor force.

Open unemployment is very high in Kenya. Unfortunately, we could only find old and rough estimates of unemployment rates for Kenya (although it is clear that unemployment rates are higher in urban areas than in rural areas as well as for youth). Latest estimates we found were 23% and 40% - although both of these are from questionable sources, especially the latter. We also found a 17.3% estimate from the 1998/99 labor force survey and a 19.9% estimate from 2005/06 HIES. These are reasonably solid estimates, but they are old and probably underestimate current unemployment in Kenya because the Kenyan economy deteriorated after the 2008 world financial crisis. Given these imprecise data, we decided to use the unemployment rate of 23% reported for 2010, as this is a recent estimate and it is sensibly higher than the old relatively solid estimates of 17.3% and 19.9% from 1998/99 labor force survey and 2005/06 HIES that were from before the 2008 financial crisis.

Underemployment and less than full-time work does not appear to be very important in urban Kenya according to available data. Average number of hours worked per week was 49 hours in urban areas for persons 25-59 according to the 1998/99 labor force survey. For this reason, we used a conservative assumption of a 5% part-time employment rate for urban Kenya to estimate our living wage. It is worth noting that part-time work is common in rural Kenya, as number of hours worked per week was 37 on average in rural areas according to the 1998/99 labor force survey. 21.4% of employed persons worked less than 30 hours per week for Kenya as a whole according to 2005/06 HIES data.

Using the figures noted above, we estimated that there are .69 full-time equivalent workers per adult 25-59 (i.e. .921 labor force participation rate x 1.0-.23 unemployment rate x 1.0-.05/2 part-time employment rate). This implied 1.69 full-time equivalent workers per couple for urban Kenya when one adult in a family is a permanent flower farm worker who works full-time year around.

TABLE 3. INFORMATION USED TO ESTIMATE NUMBER OF FULL-TIME EQUIVALENT WORKERS PER COUPLE FOR LIVING WAGE

Source	Value ^a	Comments
Labor force participation rate ^b		
1998/99 Labor force survey	98.4% (urban, ages 25-59)	Old. Only available estimate for urban and ages 25-59.
2005/06 Household income and expenditure survey	73.7% (urban, ages 15-64) [85.7% adjusted to ages 25-59, see comment]	Old. Rate for ages 15-64 lower than for ages 25-59 (12% lower in 1998/99 LFS).
ILO 2014 (based on 1999 population census)	90.2% (national, ages 25-59)	Old. Underestimate as urban>rural (e.g. 98.4% vs 90.5% in 1998/99 LFS).
Unemployment rate		
1998/99 Labor force survey	17.3% (urban, ages 25-59)	Rate for 15-64: 25.1% (urban) & 7.3% (rural).

2005/06 Household income and expenditure survey	19.9% (urban, ages 15-64)	Overestimate for 25-59 as 15-64 includes young & old.
Institute of Economic Affairs, 2010	>23% (national, ages 15+)	Recent estimate. Economic conditions worsened >2008 world financial crisis. Underestimate for urban. Overestimate for 25-59.
Krishnamurthy and Verčič (2009)	40% (national, ages 15+)	Recent estimate. Cited on many websites (e.g. tradingeconomics, indexmundi, Wikipedia). Questionable source.
Part-time work		
1998/99 Labor force survey	49 average # hours per week (urban)	37 average # hours (rural)

Notes: ^a Ages 25-59 is preferred age group for estimating living wage, because it excludes younger persons who may be in school and/or not yet joined the labor force and so inappropriately reduce average participation rate. ^b 2008/09 DHS estimated a participation rate of 85.7% for ages 25-49 for all Kenya.

Sources: For labor force participation rates: Central Bureau of Statistics (2003) for 1998/99 labor force survey; KNBS (2009) for 2005/06 household income and expenditure survey; ILO (2014) for ILO based on 1999 population census. For unemployment rates: Central Bureau of Statistics (2003) for 1998/99 labor force survey; KNBS (2009) for 2005/06 household income and expenditure survey; Krishnamurthy and Verčič (2009) for 40% estimate. For hours of work, Central Bureau of Statistics (2003) for 1998/99 labor force survey.

12. IN-KIND BENEFITS AND CASH ALLOWANCES AS PARTIAL PAYMENT OF LIVING WAGE

In-kind benefits and cash allowances provided by employers reduce the amount of monthly wages that workers require to ensure that they receive a living wage. For this reason, they need to be taken into consideration when determining whether or not workers receive a living wage. At the same time, it is necessary to be careful in valuing in-kind benefits as partial payment of a living wage to ensure that this is not abused or result in a dependency wage. See Annex C for a list of benefits included in flower farm general CBA agreed to by 59 flower farms.

Cash allowances and in-kind benefits in CBA that could be considered as partial payment of living wage include the following - although it is important to keep in mind that there are differences between flower farms in the cash allowances and in-kind benefits each provides.

- Housing allowance of KSh1,700 for Lake Naivasha area when housing is not provided (in general CBA)
- Leave travel allowance of KSh2,500 per year (equivalent to KSh208 per month on prorated basis) intended to help pay for cost of visits to “home” area (in general CBA)

- Funeral allowance of K27,000 if worker dies (equivalent to around KSh7 per month on prorated basis given current adult mortality rates). This can be thought of as similar to insurance (in general CBA).
- Transportation to and from work is encouraged. General CBA says: “It is recognized that most companies are providing transport to its employees at agreed stop/drop points. ... It is agreed that those who do not provide transport shall provide transport or other means of transport.” We found that some large farms provide transport and some large farms provide cash transport allowance.
- Health clinic for worker and sometimes for workers’ families as well (in Employment Act)
- Free or subsidized meals at work
- Creche for preschool children
- School

Additional benefits provided by flower farms that we do not consider as partial payment of living wage include the following. These benefits are not considered as partial payment of living wage, because they do not increase current income or reduce current living expenses and wages need to be sufficient for a decent standard of living.

- Paid maternity leave – 3 months (in general CBA)
- Time to breastfeed very young children – 1 hour per day for children less than 10 months (in general CBA)
- Additional days of paid annual leave compared to Employment Act - 24 days per year (in general CBA)
- Additional days of paid sick leave compared to Employment Act - 53 days at full pay and 55 days at half pay (in general CBA)
- Gratuity payment for workers with more than 5 years continuous service - 23 days of basic pay for each completed year of service when work ends for any reason except for summary dismissal (in general CBA)
- Redundancy payment when employment is terminated on account of redundancy - 21 days of basic pay for each completed year of service (in general CBA)

We estimate in remainder of section 12 how we valued in-kind benefits as partial payment of living wage so that they are fair and reasonable to both workers and employers. We first discuss principles and guidelines on which our estimates are based and then apply these principles and guidelines to common in-kind benefits provided by flower farms in Kenya. For future audits of living wage, valuations of in-kind benefits would need to be done on a farm by farm basis because in-kind benefits are farm specific to a substantial extent. Note that we consider the full amount of cash allowances as partial payment of living wage.

12.1 ILO WAGES CONVENTIONS AND NATIONAL PRACTICES ON ACCEPTABILITY AND VALUE OF IN-KIND BENEFITS AS PARTIAL PAYMENT OF WAGES

ILO conventions as well as national practices provide useful guidance on whether and how to value in-kind benefits as partial payment of living wage. ILO Conventions 95 and 99 allow for in-kind benefits to be considered partial payment of wages if they are “authorized by national laws or collective agreements or arbitration”, and if they “are either customary or desirable because of the nature of the work”, and if they are “appropriate for the personal use and benefit of the worker and his family”. There is also considerable national law and practice on acceptability and value of in-kind benefits as partial payment of wages, especially minimum wage. Particularly relevant for Kenya is its tax law that values some in-kind benefits for tax purpose, such as 15% of pay for housing and fixed amounts for water and electricity. Also, particularly relevant for Kenya in our opinion is South Africa’s minimum wage law for farm sector as this is for farm sector in an African country. This law requires that minimum standards for housing and housing amenities be met before free accommodation can be considered as partial payment of minimum wage. When valuing in-kind benefits as partial payment of minimum wage in South Africa, no more than 10% can be deducted from a worker’s pay for free housing and no more than 10% for free food. An amount deducted from wages cannot exceed cost to the employer of supplying accommodation or food.

12.2 HOW WE VALUE IN-KIND BENEFITS AS PARTIAL PAYMENT OF LIVING WAGE

12.2.1 *Criteria for in-kind benefit to be considered as partial payment of living wage:*⁴¹

To be considered as partial payment of living wage, in-kind benefits need to be:

- **regular** so that worker can count on receiving the benefit;
- **benefit and value to worker** for themselves or their family’s personal use;
- **customary** in that a reasonable number and percentage of flower farms provide the benefit;
- **meet minimum standard** because of the decency concept of a living wage;⁴²
- **received within 12 months** because sufficient current income is required for a living wage.

⁴¹ Note that some governments require that workers agree to in-kind benefits before they can be considered as partial payment of wages (e.g. Swaziland, Guiana, California, United Kingdom). We follow the majority interpretation of the American Fair Labor Standards Act that considers acceptance of employment as constituting agreement to in-kind benefits provided by an employer (Luers, 1998).

⁴² Some countries (including South Africa) specify that minimum conditions for free accommodation have to be met (e.g. for sanitation, lighting, cooking facilities and water supply) before this benefit can be considered as partial payment of minimum wage (South Africa Ministry of Labour, 1997). Connecticut law specifies that free meals need to be nutritionally balanced (and include adequate portions from four major food groups: egg, meat or fish; cereals, bread or potato; fruits or vegetables; and coffee, tea or milk) before free meals can be considered as partial payment of wages (ILO, 2003). It is worth noting that the need for in-kind benefits to meet minimum acceptable standards before they can be considered as partial payment of wages is consistent with the use of normative standards to estimate a living wage.

In-kind benefits that we do not consider as partial payment of living wage are benefits that: (i) do not increase current disposable income such as paid annual leave, gratuity and redundancy pay; (ii) protective clothing and equipment required for work that is universally considered an obligation of employers to provide; and (iii) mandatory payments by employer to government such as for social security.

12.2.2 General guidelines used to value acceptable in-kind benefits as partial payment of living wage

The following guidelines were used to estimate the value of acceptable in-kind benefits as partial payment of living wage provided by flower farms in Kenya. They balance the interests and views of workers and employers so that the values we estimate and assign are fair and reasonable to both stakeholders.

- Value of in-kind benefit with cash allowance or cash allowance option should not be lower than value of cash allowance. This is equivalent to cash income.
- Value of an in-kind benefit should not exceed cost to employer. This prevents employers from “profiting” on providing in-kind benefits. This is a common principle in national law.⁴³
- Value of an in-kind benefit should not exceed replacement cost to worker if s/he had to purchase it. This is a common principle in national laws⁴⁴ and helps ensure that the value used is felt to be “fair and reasonable” to workers.
- Values for in-kind benefits should not exceed certain maximum percentage(s). Reason for setting limits when valuing in-kind benefits as partial payment of living wage is to ensure that cash payment of living wage remains high and so workers are able to choose how to spend most of their wage. The principles of choice and self-determination are important. Note that it is common for national minimum wage laws to set such limits.⁴⁵ We use a 15% limit for housing, because this is the figure used in Kenyan income tax law to value free housing (Kenya Revenue Authority, 2009). We use a 10% limit for any other in-kind benefit, and a 30% maximum limit for all in-kind benefits in total.

12.3 VALUE OF SPECIFIC IN-KIND BENEFITS AS PARTIAL PAYMENT OF LIVING WAGE FOR FLOWER FARMS IN LAKE NAIVASHA AREA

12.3.1 Housing

Flower farm CBAs indicate that farms must provide housing or pay a cash housing allowance when housing is not provided. We consider this cash housing allowance as partial payment of living wage for flower farms that do not offer on-farm housing, because it increases disposable income. The cash housing allowance in latest flower

⁴³ For example, value cannot exceed cost to employer in Guatemala, Uganda, and Ukraine (ILO, 2003).

⁴⁴ For example, Oregon uses fair market value; India uses retail prices at nearest markets; Mozambique uses current prices in the region; Czech Republic, Israel, and Slovakia specify that value cannot exceed ordinary market value (ILO, 2003).

⁴⁵ This is common in many countries including South Africa.

farm general CBA is KSh1,700 per month for “other areas” that Naivasha flower farms are considered (note with this allowance is KSh2,400 for cities and KSh2,000 for municipalities). For three large flower farms with a separate CBA, housing allowance is: KSh1,909, 15% of basic pay, and higher of KSh1,612 or 15% of basic pay). Note that we use for expositional purposes the cash housing allowance of KSh1,700 in general flower farm CBA to estimate prevailing wages in section 14 below, because a minority of flower farm workers receive free on-farm housing and not all housing of workers with on-farm houses meets our housing decency standard for a family in large part because many on-farm housing units are single room units.

For flower farms that provide housing, our estimate of the value of housing as partial payment of living wage is contingent on two factors (although value of housing for partial payment of living wage is not allowed to be less than the KSh1,700 cash housing allowance option). First, on-farm housing needs to be decent (i.e. meet our housing standard for a family of 5) before it can be considered as partial payment of living wage.⁴⁶ Second, a sufficient number of housing units on a farm need to be available so that the possibility of on-farm housing is operative in practice as well as in theory for the farm. When both of the above conditions are met, we would value on-farm housing as partial payment of living wage as lesser of: cost to the farm of the housing it provides (to avoid farms profiting on free housing), replacement cost to workers of a basic decent house (i.e. KSh5,000 without utilities that we estimated above for a family of 5 persons in Lake Naivasha area), and 15% of living wage maximum amount allowed for in our guidelines for valuing housing in-kind benefit.⁴⁷ According to one large flower farm that provided us with information, their (generally decent) on-farm housing costs them KSh2,474 per month on average (KSh987 plus KSh1,487 for depreciation). Value of a free house on this flower farm as partial payment of living wage would be KSh2,474, as this is less than replacement cost to workers of KSh5,000 rent and our allowed maximum of 15% of living wage and higher than possible CBA housing allowance of KSh1,700.

We value utilities for on-farm housing as partial payment of living wage as lesser of: cost to farm and replacement value to workers. As indicated in section 7 on housing costs, around KSh600 is required for electricity and around KSh900 for water. One large flower farm indicated to us that it spent KSh405 per month for electricity and KSh206 per month for water for each on-farm house. In this case, we would value these utilities as partial payment of living wage at their cost to farms of around KSh600 per month, since this cost is lower than replacement cost to workers of around KSh1,500.

In summary, when free on-farm housing is not provided, or on-farm housing does not meet our housing decency standard for a family of 5, or there is insufficient decent housing available for workers, the general CBA cash housing allowance of KSh1,700 would be considered as partial payment of living wage. This applies to most flower farm workers. When decent on-farm housing is provided, we would consider the value of decent on-farm housing with utilities as partial payment of living wage at the actual cost to the farm.⁴⁸

⁴⁶ Flower farms differ in extent to which their on-farm housing is decent for a family. While most housing on some flower farms are one room units that are too small to be considered decent for a family, most housing on one large flower farm we visited are large enough and decent enough in other aspects to be considered decent for a family.

⁴⁷ Note that value of free on-farm housing as partial payment of living wage cannot be less than a cash housing allowance option because this amount was agreed to by workers in a CBA.

⁴⁸ When a husband and wife are both permanent workers on a flower farm and they are provided free acceptable house, value of this house should be only counted as partial payment for one worker (not both workers).

12.3.2 Leave travel allowance

General flower farm CBA includes a leave travel allowance of KSh2,500 per year that is equivalent to KSh208 per month on a prorated basis.⁴⁹ This amount is considered as partial payment of living wage, since it increases disposable income of workers.

12.3.3 Death allowance

When a worker dies, his or her flower farm helps the family with funeral expenses by paying a cash allowance (KSh27,000 in general flower farm CBA).⁵⁰ Although cost of transportation and coffin are mentioned, no proof is required of how this cash allowance is used. This benefit is of value to workers and is similar to insurance with a low premium and high value when required. To estimate the value of this benefit, we used annual mortality rates from UN model life tables for persons 30-39 at Kenya's life expectancy at birth of 63. This calculation indicated a value of only KSh7 per month.

12.3.4 Transportation to and from work

Flower farms generally provide either transportation to work or a cash transportation allowance. The general flower farm CBA does not specify what must be done as regards transport to work but points out that most flower farms provide transportation to work at present. "It is recognized that most companies are providing transport to its employees. It is agreed that companies shall continue with this arrangement. It is agreed that those who do not provide transport shall provide transport or means of transport." For flower farms that give a cash transportation allowance instead of providing transport (and we know of one large farm that gives a KSh750 per month transportation allowance), we would consider their cash transportation allowance as partial payment of living wage. For flower farms that provide transportation, we would use as partial payment of living wage the lesser of cost of this service to the farm (so that farms do not profit on this service) and cost of commuting to work by matatu which is the most common means of transport on the area (i.e. replacement cost to workers). Two large farms indicated to us that transportation for workers cost them KSh1,076 and KSh1,170 per month or around KSh1,125 per month on average for these two large farms. As this is much lower than cost of matatus (around KSh30-50 one way from nearby townships and KSh60-100 one way to Naivasha city), we use for expositional purposes KSh1,125 per month as partial payment of living wage based on what we know of transport costs for two large flower farms.

12.3.5 Health clinic

Larger flower farms have medical clinics for workers, although they differ in whether they allow immediate members of workers' families to use their health clinic. Only workers can use the clinic on some farms whereas

⁴⁹ Leave travel allowance is similar in three separate large flower farm CBAs (KSh2,200, KSh2,574, and varies with distance from KSh150-1750 in a 2010-2011 CBA).

⁵⁰ Death allowance is similar in three separate large flower farm CBAs (KSh23,000, KSh25,000, and KSh27,500).

spouse and children of worker can use the clinic on other farms. Also, a number of flower farms set a maximum number of children of a worker that are allowed to use the farm health clinic. Transportation to a local hospital when needed is also often provided.

Farm health clinics are of significant value to workers despite the fact that government clinics and hospitals are free in Kenya, because government medical facilities are not always nearby. Government clinics and hospitals also often run out of medicines (see earlier discussion in section on health care costs).

We obtained information on clinic costs from four large flower farms. Three of these large farms allowed workers, their spouse, and some children below age 18 to use the clinic. The other large farm allowed only workers to use their clinic. Two of these large flower farms reported costs for their clinics of around KSh950 per worker per month (KSh954 and KSh978) while two other large flower farms reported clinic costs of KSh115 and KSh300 per worker per month. The reason for these large differences appears to be due to whether farms pay for outside medical claims.

We obtained detailed information on health clinic costs for one large farm by sitting with their health care professionals and going through clinic records for the previous 5 month period on: number of patient visits, staffing, cost of medicines and equipment, number of emergencies transported to local hospital, and cost of lab tests done elsewhere. Based on this information, we estimated that medical costs to this farm are around KSh300 per worker per month. This cost is roughly similar to the cost of healthcare we estimated in section 8 above.

Information provided by flower farms on cost of medical care indicates that there are major variations in healthcare costs to farms, and therefore that estimating a typical medical cost per worker for flower farms is difficult. This means that valuing farm provided healthcare as partial payment of living wage will need to be ascertained on a farm by farm basis during an audit. For expositional purpose in this report for estimating prevailing wages, we consider the value of this in-kind benefit to be KSh300 per month, because this amount is based on detailed information from one large farm and we feel likely to be reasonably representative of the situation for many flower farm workers.

12.3.6 Meals

Flower farms often provide lunch to workers. This is necessitated, because flower farms are sufficiently large and separated from markets and road side stands that might sell prepared food. Sometimes flower farm meals are free; sometimes meals are subsidized (i.e. provided below cost); and sometimes meals are provided at cost. Obviously the value of meals provided by a farm as partial payment of living wage is dependent on which approach a farm uses. When free, we would value lunch at the lesser of: (i) cost to farm of providing the lunch; (ii) replacement cost of buying lunch outside the farm from a vendor (although we did not see any private canteens or vendors near farm gates and so this way of valuing free meals is not relevant here); and (iii) cost to workers of a lunch prepared at home in our model diet.

Two large flower farms provided us with information on their cost for the lunch they provide to workers. One large farm indicated that lunch cost them around KSh18 per meal. This was, however, an underestimate, because it did not include costs for cooking fuel, labor, or vegetables grown on the farm. Using reasonable assumptions for these missing costs, we estimated that lunch for this farm was around KSh30. Lunch on this farm typically included maize meal, beans and green vegetables. Potato was provided 4 times per week, and rice was provided once per week. Meat, fish, egg and milk (which are expensive per calorie) were not provided. The other large farm that provided information to us indicated that lunch cost them around KSh33 per day (although since this farm charged workers KSh10 for lunch, cost of providing lunch to this farm was KSh23). According to above information from two large flower farms, cost of preparing a flower farm lunch appears to be around KSh30. To get an idea of replacement cost of lunch to workers, we calculated cost of a lunch prepared at home in our model diet for an adult doing heavy physical activity. This was KSh35.⁵¹ This is higher than the approximately KSh30 cost of lunch provided by flower farms, and is due to the fact that our model diet includes meat, egg and milk whereas farm lunches do not (even though our model diet does not include labor costs or cooking fuel costs whereas farm provided lunches do include these costs). KSh30 for lunch implies a cost of around KSh680 per month taking into account that flower farm workers do not work every day as there is annual leave, public holidays, sick leave, and Sunday. Based on this estimates, we decided for expositional purposes to value a free lunch as partial payment of living wage at KSh500 per month, since some flower farms ask workers to pay something for lunch.

12.3.7 School and crèche

Some flower farms provide a crèche for young children and/or a school for children of school going age. These services are of value to workers and so can be considered as partial payment of living wage. The value of a crèche or school to workers is of course reduced when a farm charges a fee and this appears to be common for crèche.

We were not able to systematically collect information on the availability and cost to flower farms of school and crèche. For this reason, we use in this report a very rough approximation for the values of these services. We use for expositional purposes a very rough value per month of KSh500 for crèche and school. While a farm school is of value it is not of such great value given that school fees have been eliminated in Kenya. Crèche on the other hand is expensive. Note that for a farm crèche to be considered as partial payment of living wage, the farm crèche would need to meet minimum standards of health, safety and care, and a flower farm crèche we visited was too overcrowded to be considered at an acceptable standard in our opinion as it had 120 beds for very young children cramped into two rooms. On the other hand, this crèche fed children well and had 5 attendants at all times.

⁵¹ This estimate is based on the following assumptions. Approximately 35% of the daily cost of food is for lunch, with breakfast and dinner making up 65% of food costs. Calories needed by an adult flower farm worker (who is assumed to have a heavy activity level) are 28.5% of total daily calories needed assuming a family of 5 with children and the other adult having moderate physical activity. Therefore, lunch at home for flower farm workers would be approximately 10% (i.e. 28.5% x 35%) of the total daily calories need of the family. This in turn implies KSh36.4 for lunch prepared at home for a flower farm worker (i.e. .10 x 350).

12.3.8 Summary on cash allowances and in-kind benefits as partial payment of living wage

Flower farms provide a wide range of cash allowances and in-kind benefits. This is traceable in part in our opinion to the fact that there are collective bargaining agreements between a trade union and flower farms. There are cash allowances for: housing, leave travel, and death. There are in-kind benefits that reduce workers' need for cash income for: meals, transportation, school, crèche, and health clinic. There are in addition many other benefits that are valuable to workers but do not increase current disposable income or reduce expenses within the year such as: gratuity on termination after 5 years of continuous service, severance pay for redundancy, generous paid sick leave, generous paid annual leave, generous paid maternity leave, and termination notice. This section discussed which allowances and benefits could be considered as partial payment of living wage and how to estimate their value for this purpose.

Since flower farms differ in the amounts and types of cash allowances and in-kind benefits they provide to workers, future audits of living wage for flower farms in Kenya will need to be done on a farm by farm basis. For expositional purposes for this report, there are enough similarities that it is possible to indicate approximate values for typical cash allowances and typical in-kind benefits that reduce workers' need for wages. These are, for the most part, contained in the general flower farm CBA. We found that typical cash allowances are around KSh1,915 per month in total (consisting of KSh1,700 for housing, KSh207 for leave travel), and fair and reasonable values for typical in-kind benefits are around KSh2,432 per month in total (consisting of estimates of KSh1,125 for transportation to work, KSh500 for meals, KSh300 for health care, KSh500 for school and crèche, and KSh 7 for death benefit). It is not common for flower farms to provide decent housing for families. Taken together, this means that it is typical for flower farm workers to receive around KSh4,340 per month in cash allowances and common in-kind benefits that reduce their need for basic wage. It is again important to emphasize that since flower farms differ in the cash allowances and in-kind benefits they provide, determining the value of in-kind benefits as partial payment of a living wage would need to be done on a farm by farm basis in future audits against living wage.

13. DEDUCTIONS FROM PAY

Employees in Kenya have mandatory tax deductions from pay. These deductions have to be taken into consideration when estimating a living wage for Kenya, because workers need sufficient disposable income to be able afford a decent basic life for themselves and their immediate family.

Employees must contribute to NHIF and NSSF. This amounts to KSh520 (\$6) per month. Workers in Kenya also have to pay income tax with the rates in the Pay As You Earn (PAYE) system used in Kenya: 10% from KSh1,016-10,164, 15% from KSh10,165-19,740, and 20% from KSh19,741-29,316. But there is a tax relief of KSh1,162 which means that effectively income taxes are paid only on cash incomes above around KSh11,000.⁵² We estimate that workers would have to pay KSh746 (\$9) per month in income tax at our living wage.

⁵² Noncash benefits here are not relevant for calculating income tax for our living wage, because the aggregate value of all other noncash benefits for flower farm workers is less than the KSh3,000 per month specified in Kenya income tax code, especially since the value of free or subsidized meals and medical services are tax exempt for low income workers who are defined as workers with income below KSh19,741 per month.

14. COMPARING OUR LIVING WAGE ESTIMATES TO MINIMUM WAGES, PREVAILING WAGES IN FRESH CUT FLOWER SECTOR AND OTHER WAGE INDICATORS USING A WAGE LADDER

It is useful to compare our living wage to other wage indicators (including prevailing wages on flower farms) to get an idea of the extent to which our living wage is relatively high or low.

14.1 PREVAILING WAGES ON FLOWER FARMS

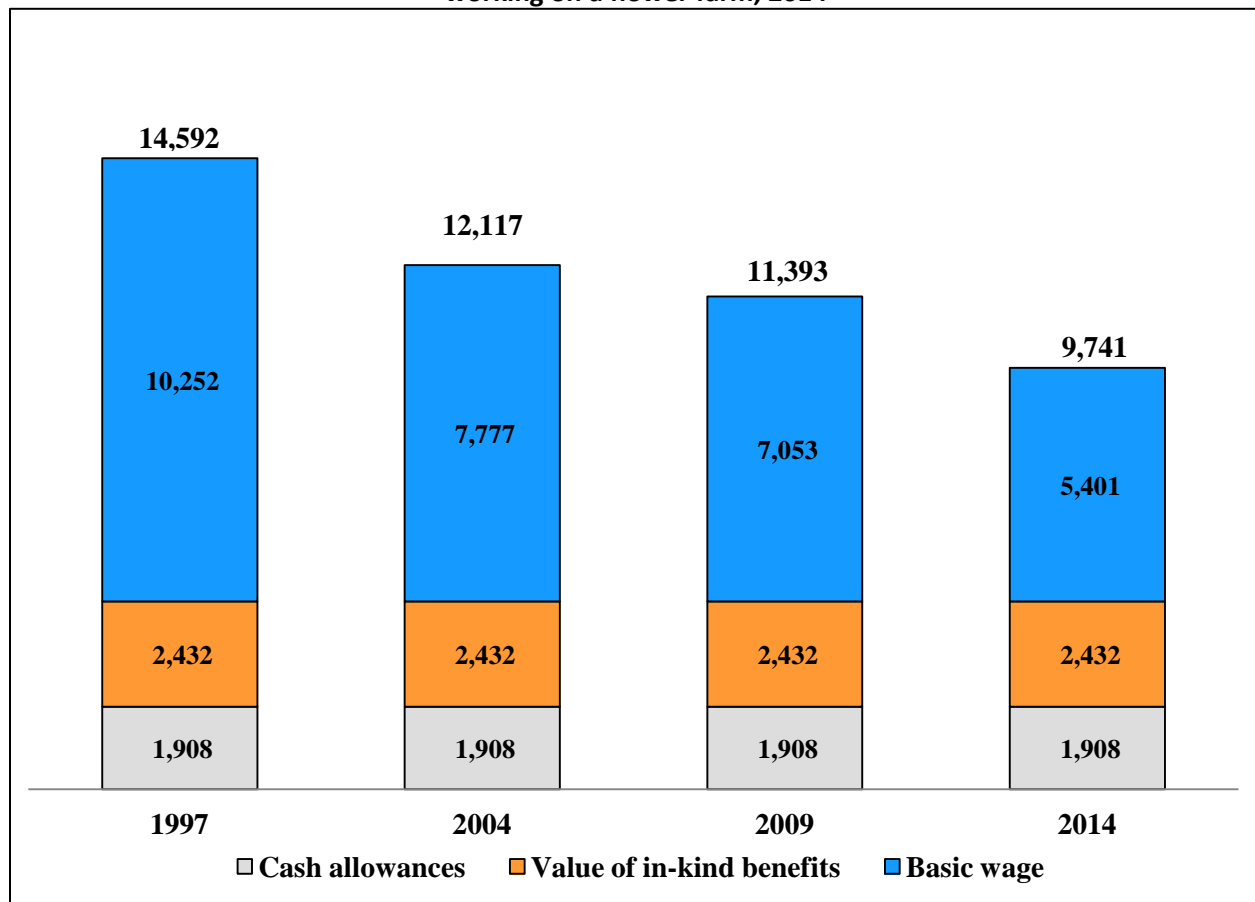
To put our living wage estimate in context, it is necessary to know prevailing wages on flower farms. Despite the fact that monthly basic wage and benefits are set in flower farm CBAs, income of flower farm workers differs by farm, by type of worker, and most importantly by number of years of continuous service of workers. These differences are discussed below in this section. It is important to note that almost all flower farm workers are permanent and have employment throughout the year so that it is not necessary to take into consideration shortage of workdays during the year.

14.1.1 Basic flower farm wage depends on number of years of continuous service

Flower farm CBAs are valid for two years. They specify a basic wage for newly hired workers as well as percentage increases in basic wage for continuing workers (see Annex C). As a result, basic wage is affected by number of years of continuous service of a worker. For example, a typical flower farm worker (category 2 which includes the bulk of flower farm workers) hired in 1997 (first CBA) has a basic wage in 2014 of KSh10,252 compared to KSh7,777 for a worker hired in 2004, KSh7,053 for a worker hired in 2009, and KSh5,401 for a worker hired in 2014 (Figure 2).

Figure 2 shows how a typical worker's pay package is divided into basic wage, common cash allowances and value of common in-kind benefits. This is presented separately for workers who began work in 1997 (first CBA), 2004 (10 years ago), 2009 (5 years ago), and 2014 (this year). All of the difference in the total value of their pay is due to differences in basic wage, since all workers regardless of tenure receive the same cash allowances and in-kind benefits. As a result, while basic wage makes up only 55% of the pay of workers who were hired in 2014, it made up 70% of the pay of workers hired in 1997.

Figure 2: Basic wage, common cash allowances, and typical value of common in-kind benefits by year started working on a flower farm, 2014



14.1.2 Bonuses and overtime pay vary by type of worker

It is common for flower farm workers to receive bonuses and work overtime depending to a good extent on Europe holidays such as Mother’s Day, Christmas, and Valentine’s Day. Flower farm CBA stipulates that overtime is paid at 1.5 times normal rate (after 46 hour work week), and work on rest days and public holidays are paid at 2 times normal rate. According to data provided to us by two large flower farms, workers received KSh370 and KSh395 above basic wage on average in the previous month.

Bonuses are quite important for pack house workers who comprise around 20% of flower workers. As a result, pack house workers earn more than other flower farm workers. Pack house workers have production targets and receive bonuses after they exceed their target. A visit to a pack house reveals why it is common for pack house workers to exceed their target. Work in pack houses is done at an elevated pace. According to data provided to us by two large flower farms, pack house workers received KSh3,921 in bonuses/overtime in the previous month on one large flower farm (around 50% of basic wage) and KSh1,545 in bonuses/overtime on another large flower farm.

14.2 PREVAILING WAGE ESTIMATES

Given the above discussion, it is clear that it is difficult to talk about a single prevailing wage for all flower farm workers. For example, pack house workers (who are around 20% of all flower farm workers) earn considerably more than other flower farm workers. Workers with years of continuous service earn considerably more than newly hired workers. And while cash allowances and in-kind benefits are an important part of the pay package for all workers, they vary somewhat by flower farm.

For expositional purposes, we cut through this variation by making what we feel are reasonable assumptions in order to estimate typical prevailing wages for most flower farm workers. We use basic wage plus common cash allowances and reasonable values for common in-kind benefits included in general CBA (see section 12 and Annex C). We do this for workers with 0, 5, 10 and 17 years of continuous service (see section 14.1.1). We do not consider overtime pay in our calculations because a living wage should be earned in normal work time. Nor do we consider bonuses that are so important for pack house workers, because they are important for a minority of workers. And we assume that flower farm workers are permanent and have full-time work throughout the year and therefore that it is not necessary to be concerned with non-availability of work during parts of the year since this reflects the situation on flower farms.

14.2.1 Cash allowances and in-kind benefits

Readers are referred to section 12 for detailed discussions on cash allowances and in-kind benefits. We concluded that common cash allowances are typically around KSh1,908 per month and common in-kind benefits are typically worth around KSh2,432 per month for flower farm workers. This implies that flower farm workers typically receive around KSh4,340 a month above their basic wage in cash allowances and in-kind benefits.

14.2.3 Estimated prevailing wage with common cash allowances and in-kind benefits

Adding common cash allowances and reasonable value for common in-kind benefits yields the following estimates of prevailing wages on flower farms: KSh14,592 for a worker who started in 1997, KSh12,117 for a worker who started in 2004, KSh11,393 for a worker who started in 2009, and KSh9,741 for a worker who started in 2014.

14.3 Changes over past 10 years in flower farm wages and statutory minimum wage for agriculture

This section looks at how flower farm wages and government minimum wage for agriculture have fared in the past 10 years. We look at whether the CBA basic wage plus cash allowances and the statutory minimum wage have kept up with inflation and so kept their purchasing power over time (value of in-kind benefits are not included in this trend analysis because we did not have information on in-kind benefits for previous years). We also look at how flower farm wages have changed over the past 10 years when expressed in USD, because flower farms are exporters and so sell their flowers in US dollars, British pounds, and Euros.

Figure 3 indicates how the real values of the statutory minimum wage for agriculture as well as flower farm wages (basic wage plus common cash allowances) have changed since 2004. Values are indexed to 2004 so that values indicate percentage change (e.g. 1.1 would indicate a 10% increase and 0.90 would indicate a 10% decrease in real wages since 2004). Both flower farm wages and minimum wage for agriculture have fallen relative to inflation in the past 10 years. The real value of the minimum wage for agriculture fell by around 15%, with two distinct periods. There was a sharp drop of around 25% in the real minimum wage for agriculture between 2004 and 2008 financial crisis with a recouping of around 15% between 2008 and 2014. The real value of flower farm wages, on the other hand, fell throughout the 2004 to 2014 period for new hires and fell until 2012 for a worker hired in 2004. By 2014, real wage for flower farm workers who joined in 2004 had fallen by around 20% and the real wage of new hires had fallen by around 40%. It is clear that CBAs have protected the basic wage of continuing workers relative to that of new hires. Regardless, wages have fallen in real terms for all flower farm workers.

Figure 3: Change in real flower farm CBA wage (basic wage plus cash allowances) and statutory minimum wage for agriculture indexed to 2004, 2004-2014

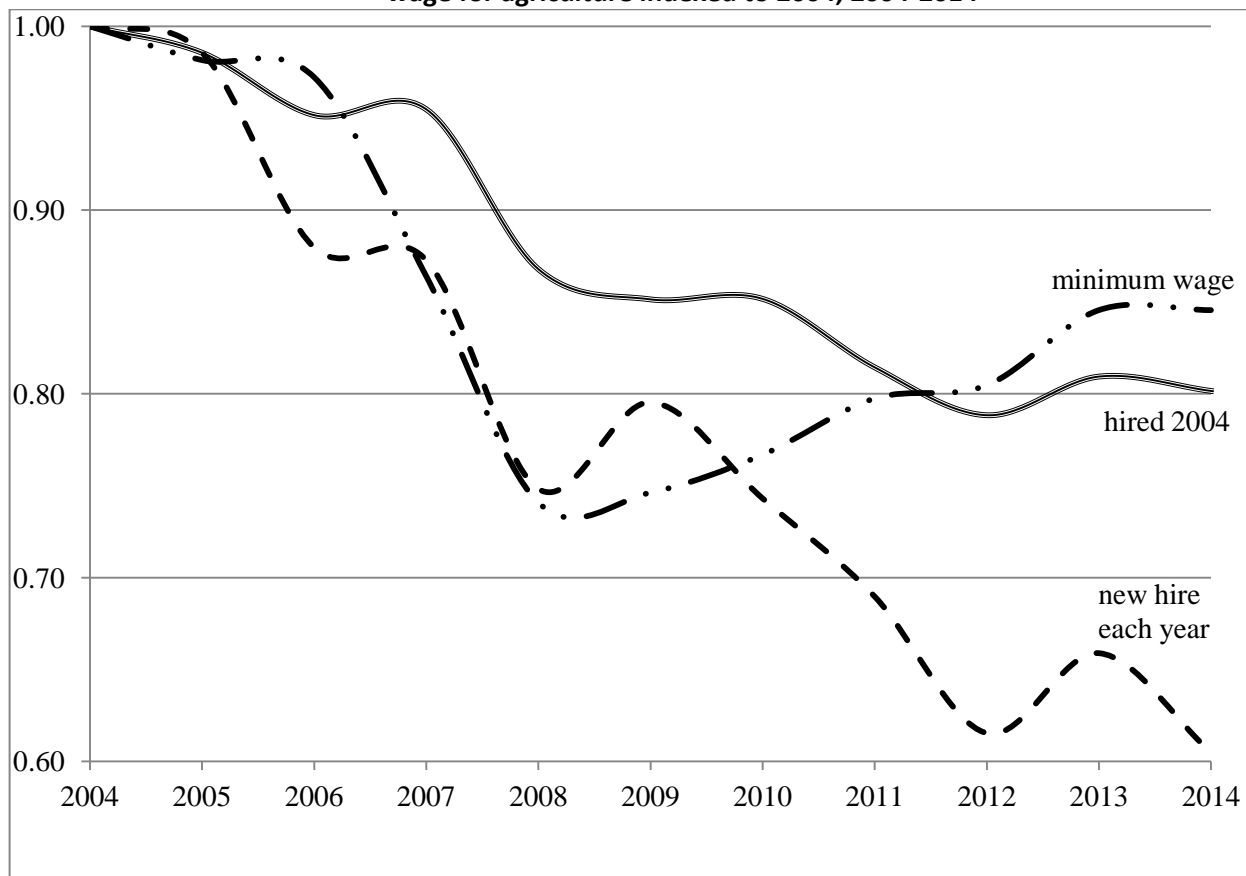
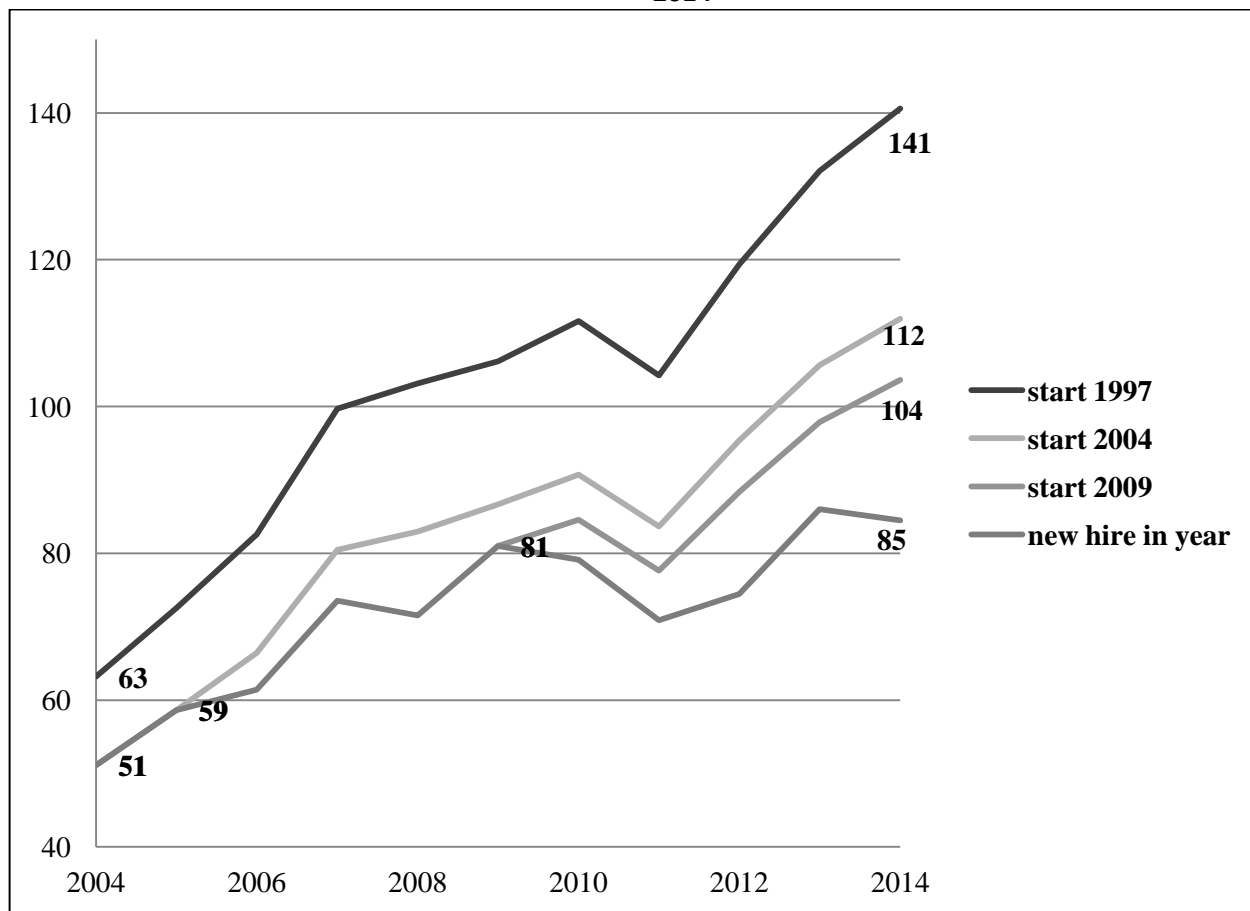


Figure 4 indicates how typical flower farm CBA basic wages plus common cash allowances have changed over the past 10 years when expressed in USD. This is an important metric for flower farms because flower prices are set in foreign currency. Wages expressed in USDs have steadily increased over the past 10 years. The extent of

this increase is positively related to the seniority of workers. For workers who started work in 1997 or 2004, wage per month in USD more than doubled (from \$63 to \$141 and \$51 to \$112 respectively). For new hires each year, monthly wage expressed in USD increased much less, going from \$51 to \$85. This large continuous increase in wages in USD clearly puts pressure on flower farms, since they are exporters. What has happened is that inflation in Kenya has been much greater than depreciation of the shilling between since 2004. This has caused the Kenya shilling to be significantly overvalued which puts pressure on flower farms.⁵³

Figure 4: Increase in flower farm wage (basic wage plus cash allowances) per month expressed in USD, 2004-2014



14.4 WAGE LADDER AND PREVAILING FLOWER FARM WAGES

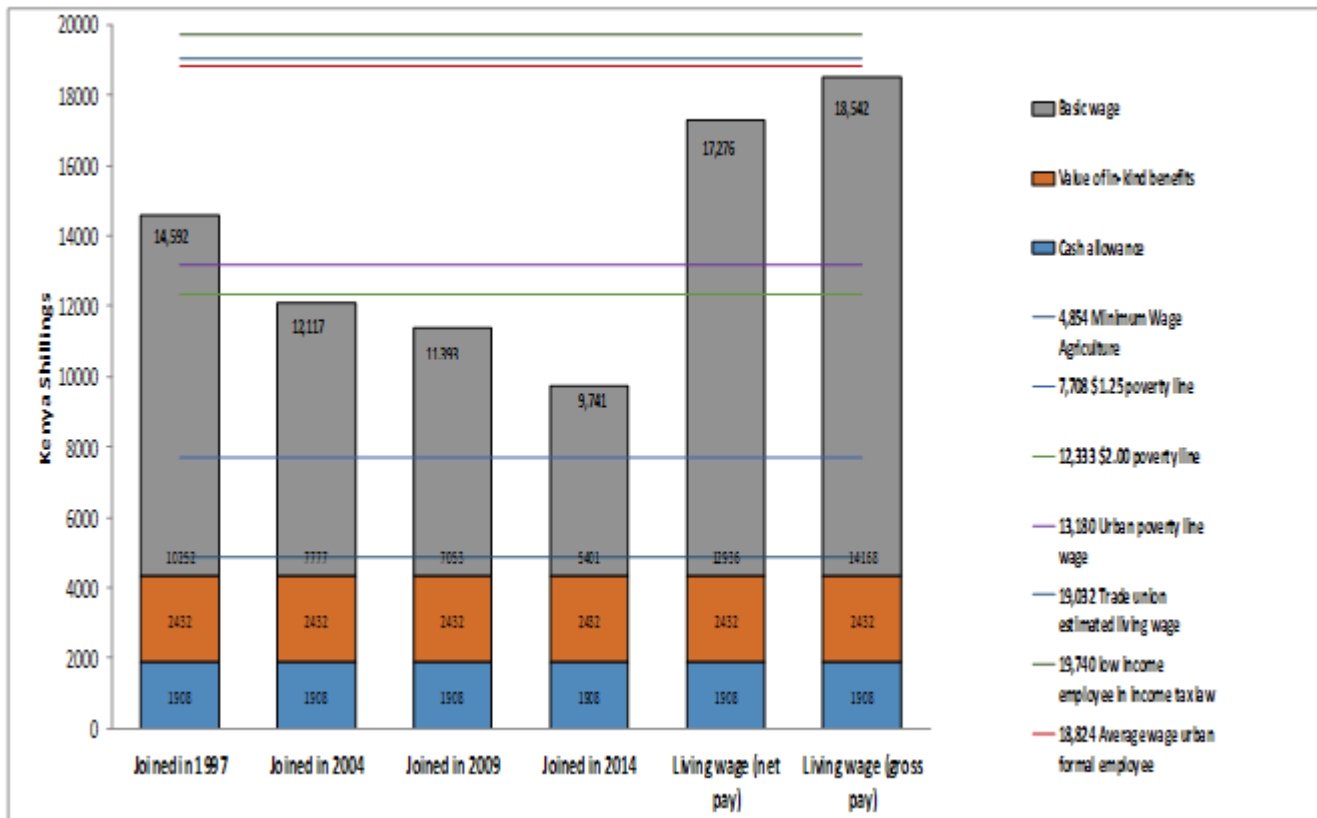
⁵³ Pollin et al (2007) estimated that the Kenya shilling was overvalued by about 25% in 2005. This overvaluation has greatly increased since then, because Kenya has had high inflation but its currency has depreciated only slightly. Whereas Kenyan prices have increased by around 160% since 2005 according to CPI, the Kenya shilling to USD exchange rate has only increased by around 14% since 2005.

This section compares our living wage to other wage benchmarks for Kenya. We also compare prevailing wages on flower farms to our living wage.

Figure 5 provides a wage ladder with comparisons of our living wage to other wage benchmark wages for Kenya. Our living wage (KSh17,276 net take home pay after taxes and KSh18,392 gross pay considering taxes) is much higher than the statutory minimum wage for agriculture (KSh4,854) although minimum wage workers sometimes receive in-kind benefits, the World Bank extreme poverty line implied wage (KSh7,708) and the wage of employees in the urban informal sector (KSh8,492). Our living wage is around 2-3 times higher than these low wage indicators. Our living wage is around 50% higher than World Bank's poverty line implied wage (KSh12,333) and around 40% higher than the government's urban poverty line implied wage (KSh13,180). These differences are not surprising given that the poverty rate in Kenya is 47% at government national poverty line according to World Bank (2009); 34% in urban areas at government urban poverty line according to World Bank World Development Indicators.

Our living wage (KSh18,542 after taxes) is similar to and slightly below urban formal sector wage (KSh18,824), income of a low income employee according to Kenya income tax law (KSh19,110), and living wage according to a trade union official (KSh19,032). Our living wage is much lower than wages of urban public sector workers (KSh33,742). These comparisons indicate, in our opinion, that our living wage is reasonable.

Figure 5: Wage ladder (in Kenya Shillings per month)



Notes: Note: Wage comparisons in figure are adjusted for inflation to 2014 values when they are for an earlier year than 2014.

To estimate implied wage for \$1.25PPP and \$2PPP World Bank poverty lines, we estimated PPP for Kenya using PPP to USD value for latest available year from World Bank’s World Development Indicators (2012) and adjusted this by taking into account inflation since 2012 in Kenya (which should increase PPP) and inflation since 2012 in comparator country USA (which should decrease PPP).

To calculate implied wage for national poverty line and World Bank international poverty lines for this figure, we multiplied poverty line by 30.42 days in a month and family size of 5 and divided this by 1.69 full-time equivalent workers per couple.

Another trade union living wage estimate we found was for rural Central Kenya in February 2010 (IUF et al, 2010). This was KSh10,000 which is equivalent to around KSh14,100 in March 2014 considering inflation since then. Keep in mind that this is for rural areas.

Sources: Kenya Government Supplement No 126 used for minimum wage. \$1.25PPP and \$2PPP per day poverty lines used 2012 PPP from World Bank’s World Development Indicators adjusted for inflation to March 2014 prices. KNBS (2007) Basic Report on Well-being in Kenya used for government urban poverty line that we adjusted to March 2014 for inflation. Parry (2014) used for trade union living wage for 2014. Kenya Revenue Authority (2009) used for definition of low income employee. Pollin (2007) used for other wages that were increased by inflation to 2014 values.

Table 4 (and figure 5) compares our living wage estimate to prevailing wages for typical flower farm workers taking into consideration common cash allowances and value of common in-kind benefits for expositional purposes. It is worth noting that prevailing wages in table 4 do not include bonuses or overtime pay. Bonuses are important for pack house workers (who comprise around 20% of flower farm workers) and overtime is important for other workers in certain peak periods such as Valentine’s Day and Mother’s Day. For example on one large flower farm where we looked at payroll records for the previous month that included Valentine’s Day, we found that bonuses for pack house workers were close to 50% of their basic wage.⁵⁴

There is a large gap between prevailing wage for most flower farm workers and our living wage. There is clearly a substantial way to go before flower farm workers earn a living wage even though we included the value of common cash allowances and estimated value for common in-kind benefits in our estimate of prevailing wages. Finding a large gap between a living wage and prevailing flower farm wages is not surprising given relatively poor living conditions of flower farm workers in the Lake Naivasha area at present. Much of this gap between our living wage and prevailing wages for flower farm workers can be traced to the large decline in real wages of flower farm workers in the past 10 years as indicated above. Wages on flower farms in the Lake Naivasha area were closer to a living wage 10 years ago.

TABLE 4: LIVING WAGE COMPARED TO PREVAILING WAGES ON FLOWER FARMS

	Cash allowances	Value of in-kind benefits	Basic wage	Gross pay	Taxes	Net pay	% Gross pay below Living Wage
Joined in 1997	1,908	2,432	10,252	14,592	674	13,918	21%
Joined in 2004	1,908	2,432	7,777	12,117	520	11,597	35%
Joined in 2009	1,908	2,432	7,053	11,393	520	10,873	39%
Joined in 2014	1,908	2,432	5,401	9,741	520	9,221	47%
Living wage	1,908	2,432	14,202	18,542	1,266	17,276	

Notes: For expositional purposes, wages are assumed to include value of common cash allowances and common in-kind benefits. Prevailing flower farm wages exclude bonuses and overtime. Bonuses are important for pack house workers who comprise around 20% of flower farm workers.

⁵⁴ In comparison green house workers on this large flower farm (around 40% of flower farm workers) received KSh561 in overtime pay in the previous month, which increased their basic wage in this month by 7%.



15. CONCLUSIONS

Our living wage estimates for Kenya flower farms for March 2014 in Lake Naivasha area is KSh17,276 (\$201) per month before taxes and KSh18,542 (\$216) considering taxes.⁵⁵ See table 5 for how our living wage was estimated. These living wage estimates are considerably higher than current wages of the bulk of flower farm workers in the Lake Naivasha area. We estimated that prevailing wage (full pay package that includes basic wage, common cash allowances and value of common in-kind benefits, and without consideration of bonuses) for typical flower farm workers ranges from around KSh9,700 per month for new hires to around KSh14,600 per month for workers with around 20 years of service.^{56 57} This means that there is a large gap between prevailing wages for most workers on flower farms and our estimate of a living wage.

In some way, it is a little surprising that there is a large gap between prevailing wages on Lake Naivasha flower farms and our living wage, partly because wages are set in collective bargaining agreements (CBA) with a strong trade union and partly because production of fresh flowers requires a skilled and stable workforce year round which puts workers in a better bargaining position than is typical for farm products. One unexpected reason for this gap is that flower farm workers live in urban areas and not in rural areas as one would expect for a farm industry. This greatly increases living costs. What happened is that the area around Lake Naivasha was more or less pristine before the growth of flower farms. Then, unplanned townships sprung up around flower farms to house flower farm workers. A second important reason for a large gap between prevailing flower farm wages and our living wage is that the real value of flower farm wages (base wage plus cash allowances) have fallen by around 20%-40% over the past 10 years depending on number of years of service of workers. Third, flower farm workers have to pay considerable amount of taxes (income tax and social security taxes) despite their low wages.

Our living wage is much higher than the statutory minimum wage for agriculture (KSh4,854) and the wage implied by the World Bank extreme poverty line (KSh7,708). These two comparators are clearly too low for anywhere near decency for a family.

Our living wage is around 40% higher than the wage implied by government's urban poverty line (KSh13,180) and 50% higher than the wage implied by the World Bank poverty line (KSh12,333). But these differences are not surprising given that Kenya's poverty rate is 47% at the government poverty line.

Our living wage estimate is below the average urban formal sector employee wage (KSh18,824), income of a low income employee according to Kenya income tax law (KSh19,110), and living wage according to a trade union official (KSh19,032). Our living wage is much lower than wages of urban public sector workers (KSh33,742). These comparisons indicate, in our opinion, that our living wage is reasonable.

⁵⁵ Kenya is somewhat unusual for a poor country in that all employees, as low income employees have taxes automatically taken out of their pay every month – PAYE (income tax), NSSF (social security tax), and NHIF (health insurance fund tax).

⁵⁶ It is important for comparison purposes, to use the full pay package of flower farm workers, because they receive a wide range of cash allowances and in-kind benefits.

⁵⁷ Bonuses are also important for pack house workers who comprise around 20% of flower farm workers. We found that and bonuses equaled around 50% of basic wage on one large flower farm and around 20% of basic wage on another large flower farm in the previous month to our visit. This means that pack house workers on some farms with considerable seniority could be earning a living wage in some peak demand months of the year.

It is difficult to get away from the fact that flower farm workers have to struggle on their current pay. Most flower farm workers currently live in substandard housing that does not come even close to basic decency for a family. Most live in a 10 feet by 10 feet room that is without water or toilet (although it usually has electricity). Cooking is done in this small room on a small charcoal stove and so workers and family members are subject to high risks of burns. They are also exposed to high levels of smoke inhalation, because ventilation is poor as there is no chimney or exhaust system. To make matters worse, the vast majority of houses of flower farm workers are located in unplanned urban townships that are slums by almost any metric. These communities do not have paved roads, piped water, sewage system, garbage collection, or street lights. Despite these poor housing conditions, housing is expensive for workers relative to their current pay.

As indicated throughout this report, conservative assumptions were used to estimate our living wage. This means that our living wage is a conservative estimate of what is needed for a modicum of decency in the Lake Naivasha area of Kenya. For example our model diet includes only one egg and 175 grams (6 ounces) of meat per week. Only less expensive food items are included in our model diet (e.g. maize meal rather than rice; brown sugar packed in plastic bags by local shopkeeper rather than prepackaged white sugar; less expensive cooking oil sold in solid blocks rather than liquid cooking oil sold in prepackaged bottles; and least expensive vegetables and fruits available in local markets). Our housing standard is basic, as it only includes around 30 square meters of living space for 5 persons, it does not include indoor water or indoor toilet, ventilation is poor, and housing is in locations that could be described as slum townships.

How quickly wages can be increased by flower farms in future needs to be carefully considered. On the one hand, it would be inadvisable to threaten the viability of the flower farm industry and the jobs it provides in Kenya with its very high unemployment rate. On the other hand, fresh cut flowers are often thought of as a luxury good and are bought by consumers in high income countries who expect workers to be able to live decently. But given that flower farms in Kenya have been facing growing cost pressure because of an increasingly overvalued Kenya shilling, it is clear to us that substantial increases in wages of flower farm workers will require involvement of actors up the value chain such as buyers, distributors and retailers. Those up the value chain have the ability to help and a moral obligation to help in our opinion in light of the poor living conditions of flower farm workers at present as documented in this report. It is hoped that this report will contribute to worker and management dialogue as well as contribute to dialogue between standard setting/certification organizations and the value chain to find ways to increase wages while maintaining a vibrant flower farm industry in Kenya.

Table 5. Calculation of living wage estimate for Kenya, March 2014

Expenses and calculations	KSh	USD ^a
Food cost per person per day ^b	72.03	0.84
Food cost per person per month for family of 5	10,954	127
Rent per month	5,000	58
Utilities per month ^c	2,700	31
Housing cost per month	7,700	90
Non-food non-housing cost per month ^d	9,830	114
Emergencies and unforeseen events per month	712	8
Total cost per month for decent living standard for family of 5	29,198	340
LW per month net pay (1.69 full-time workers in family)	17,276	201
Income tax ^e	746	9
NSSF and NHIF taxes	520	6
LW per month gross pay (1.69 full time workers in family)	18,542	216

Notes: ^a Exchange rate KSh86 to USD used to calculate USD values. This was approximately average March 2014 exchange rate. Shillings and USDs were rounded to nearest shilling and dollar for presentational purposes. ^b Model diet for the average person in the reference family used to estimate food cost is basic but nutritious. Inexpensive foods were used to estimate model diet cost. Food prices were based on survey of local markets. ^c Utility costs included KSh1,200 for cooking fuel, KSh600 for electricity, and KSh900 for water. ^d Non-food non-housing costs were estimated in 4 steps (see text). ^e We assume living wage includes common in-kind benefits worth KSh2,432 per month that these are not subject to income tax.

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flower industry. We were fortunate to be accompanied on our visit to Kenya by Wilbert Flinterman (Fairtrade International), whose support was essential not only to the current pilot study in Kenya, but to all four living wage pilot studies for agriculture we have done. We are extremely grateful for his encouragement and support.



ANNEX A. COMPARISON OF OUR MODEL DIET TO OTHER DIETS FOR KENYA AND COMPARISON OF DISTRIBUTION OF FOOD EXPENDITURE BY FOOD GROUP IN OUR MODEL DIET TO DISTRIBUTION OF FOOD EXPENDITURES IN KENYA HOUSEHOLD EXPENDITURE STATISTICS

A1. COMPARISON OF OUR MODEL DIET TO OTHER DIETS FOR KENYA

Table A1 provides examples of other diets for Kenya that we were able to find. These other diets are a diverse set. FAO diet (column 1) provides a rough estimate of food availability for Kenya as a whole. Ministry of Health diet (column 2) is a nutritious diet for persons with HIV/AIDS who have additional nutritional needs because of their illness. Oxfam diet (column 3) is based on nutritional needs for emergencies where food supplements are common. Workers Welfare Committee diet (column 4) is a diet suggested by a workers welfare committee on a large flower farm to meet basic needs. Kenya government urban and rural poverty line diets (columns 5 and 6) are based on observed food consumption of urban and rural households in 2005/06 Kenya and were used to estimate Kenya's urban and rural poverty lines.

Our model diet is consistent with these other diets when one considers how these other diets were set. It is particularly worth noting that our model diet is similar in many respects to the diet used to estimate Kenya's urban poverty line – while being considerably less expensive (KSh63.2 compared to KSh80.9). Our model diet is less expensive mainly because it includes fewer grams of meats/fish (25 grams compared to 62 grams for urban poverty line) as meat/fish is very expensive per edible gram. Despite this, our model diet is nutritious and has sufficient number of proteins including quality proteins. Also interesting is that cost of our model diet as well as quantities in our model diet are generally in between those for government's urban and rural poverty line diets, which is reassuring given that the townships near flower farms where workers live are urban but not a metropolitan area such as Nairobi, Mombasa, Kisumu and Nakuru. It should not be too surprising that our model diet and government poverty line diets are similar as these poverty line diets are based on observed food consumption of households at 25-45% of urban income distribution and 35-55% of rural income distribution. Our model diet is also similar to a diet based on food availability in Kenya in terms of quantities (see column 1), although again our model diet is less expensive (KSh63.2 compared to KSh74.1) mainly because it includes fewer grams of beef (25 grams compared to 56 grams).

Our feeling is that the other diets in Table A1 (columns 2-4) are as not as relevant as our model diet for estimating living wage. Ministry of Health diet for persons with HIV/AIDS is only a suggested diet. It is not a complete diet as it does not include bread, potato, egg or sugar. Also, it was clearly set without consideration of relative food costs (e.g. milk and meat are responsible for 49% of food costs in this suggested diet). The Oxfam diet is based on nutritional needs in emergencies and is unbalanced as it does not include egg, meat, fish or fruits. Also, it includes too many grams of potatoes and sugar. The Workers Welfare Committee diet does not meet minimum nutritional needs as only 8.8% of calories come from proteins – well below WHO recommendations for a nutritious diet. Also, it is not complete as it does not include egg, meat, fish, vegetables or fruit. In addition, this diet contains only 1344 calories in its unadjusted/reported form which is well short of need. The Workers Welfare Committee diet is an example of how asking workers to indicate their needs can lead to poor results. It is important to note in this regard that management was not responsible for developing this diet.

TABLE A1. EXAMPLES OF OTHER DIETS FOR KENYA, FOOD AVAILABILITY FOR KENYA, AND OUR MODEL DIET FOR COMPARISON (IN EDIBLE GRAMS PER PERSON PER DAY) ^y

Food group	FAO food availability / supply ^{a, f} (1)	Ministry Health report on HIV/AIDS (2)	Oxfam diet. Used to estimate their living wage. Based on needs in emergencies ^b (3)	Workers Welfare Committee diet. Used to estimate workers' basic needs ^c (4)	Diet used to estimate govt urban poverty line. Based on observed consumption ^a (5)	Diet used to estimate govt rural poverty line. Based on observed consumption ^a (6)	FOR COMPARISON Our model diet. Used to estimate our living wage (7)
Cereals (maize meal) ^q	332 ^h	363	336	513	285	355	340
Bread					67	12	43
Roots/tubers ⁱ	108		224		101	164	100
Beans ^m	47	82	56	19	45	66	56
Milk	276	255		69	167	181	196
Egg	4				9	3	7
Meats/fish ^j	56	52			62	28	25
Vegetables ^k	108	287	672		216	122	188
Fruits ^l	94 ^g	104			98	69	63
Oils and fats ^o	24	26	22	28	27	16	30
Sugar ^p	53		73	19	57	52	30
Tea	1.3	1.3	1.3		2.4	2.2	0.8
Calories total ^r	2288	2288	2288	2288	2288	2288	2288
% of calories from proteins	11.1%	12.7%	10.3%	8.8%	11.4%	11.1%	10.8%
KSh per day ^e	74.1	71.3	49.8	31.9 (water added 4.9)	80.9	60.9	63.2

Notes: Blank indicates not included. ^a Source indicates a wide variety of foods. For example, 2005 poverty line diet includes 40 food items for urban areas and 34 food items for rural areas. For this table and comparison purposes, food items were grouped into the major food groups included in this table. ^b Oxfam diet based on a system developed by the World Food Program and UNHCR and so mainly for emergencies, which helps explain

why there is no milk, egg or meat. ^c Workers Welfare Committee used this diet to estimate food costs to help estimate the cost of basic needs for workers. This diet is clearly not nutritious, as it contained far too few calories and proteins. ^e Cost of salt, spices, condiments and chicken stock cubes, minimal wastage and spoilage and variety are not included in diets in this table to improve comparability of total cost across diets. ^f FAO indicates food availability and therefore provides an estimate of purchased grams of foods. Number of edible grams for each food was estimated by taking into consideration inedible percentage of each food such as inedible skin. FAO recommends that their reported values be averaged over a three year period, and 2007-09 were latest available years we found. ^g Avocado is included in fruits. ^h FAO indicates quantities for different cereals and does not indicate quantity for bread. ⁱ Potatoes used for roots and tubers. ^j Beef with bone (90% of time) and offal (10% of time) used for meat/fish. ^k Vegetables assumed to be equally divided between kale/spinach, cabbage, and carrot as these were three least expensive vegetables observed in our local food market survey. ^l Fruits assumed to be equally divided between mango and banana as these were least expensive fruits observed in our local market survey. ^m Beans assumed to be average of wariumu (red kidney bean) and next least expensive bean as observed in our local food market survey. ^o Cooking oil assumed to be solid block of vegetable oil sold locally. ^p Sugar assumed to be brown sugar locally packed by shop keeper as this was less expensive than white sugar and sugar sold in prepackaged plastic bags. ^q Maize flour used for cereals. ^r To improve comparability across diets, quantities in all diets were proportionately scaled to 2288 calories (number of calories in our model diet) to ensure a total of 2288 calories in all diets. All diets are expressed in edible grams per person per day. All diets use United States Department of Agriculture NAL values for calories and proteins per 100 edible grams as well as for percentage inedible in all foods except for mango which uses percentage waste estimated by research team as Kenyans eat skin of mango and Americans do not.

Sources: FAO (2014) FAOSTAT online food availability database. Republic of Kenya, Ministry of Health (2006). Wilshaw (2013) for Oxfam. KNBS (2007) for poverty line diets. Workers Welfare Committee unpublished document.

A2. COMPARISON OF PERCENTAGE DISTRIBUTION OF FOOD COSTS BY FOOD GROUP IN OUR MODEL DIET TO PERCENTAGE DISTRIBUTION OF ACTUAL FOOD EXPENDITURE IN URBAN KENYA IN KENYAN HOUSEHOLD EXPENDITURE DATA

To further check reasonableness of our model diet, we compared the distribution of food costs by food group in our model diet to the distribution of actual average household expenditure in urban Kenya according to 2005/2006 Household Income and Expenditure Survey and 2010 urban CPI expenditure weights. This comparison is shown in Table A2.

Distribution of expenditure by food group is generally similar, and differences are explainable. While our model diet and actual household expenditure have similar percentages for animal-origin foods, our model diet has a higher percentage for milk because of the nutritional need for milk for children to provide calcium. Our model diet has a higher percentage for beans (6.6% compared to 5.0% and 4.1%), because beans are an inexpensive source of proteins. Our model diet has a lower percentage for vegetables (7.1% compared to 10.8% and 9.3%) and fruits (5.4% compared to 6.7% and 8.0%), because of how we cost our model diet by using only 3 inexpensive vegetables and 2 inexpensive fruits. Our model diet has a lower percentage for sugar (3.9% compared to 6.9% and 7.3%), because sugar provides empty calories and so is not required for good nutrition. Our model diet excludes soft drinks, which helps explain low percentage for non-alcoholic beverages in our model diet (only tea) compared to percentage of actual expenditures for non-alcoholic beverages (0.6% for tea in our model diet compared to 1.4% for non-alcoholic beverages in actual expenditures). Higher percentage for bread in our model diet (8.3% compared to 6.9% and 5.5%) is due to our including 2 slices of bread per day for children which is debatable.

TABLE A2. COMPARISON OF PERCENTAGE DISTRIBUTION OF FOOD EXPENDITURE BY FOOD GROUP IN OUR MODEL DIET USED TO ESTIMATE OUR LIVING WAGE AND ACTUAL AVERAGE PERCENTAGE DISTRIBUTION FOR URBAN HOUSEHOLDS IN KENYA ^b

Food ^a	Our model diet	Actual expenditure ^c HIES CPI wts	Comments
Cereals and grains	19.4%	18.2% 19.7%	Cereals inexpensive source of calories. Our model diet uses maize meal as it is preferred and least expensive cereal.
Bread	8.3	6.9 5.5	Bread often eaten for breakfast and school meals. Our diet includes 1 slice for adults and 2 slices for children.
Roots & tubers	5.0	5.3 4.9	Our model diet uses potato. Least expensive root and tuber.
Animal-origin	36.3	33.6 31.7	Similar %s. Distributions differ by type of food.
(Dairy: milk)	(18.4)	(13.6) (11.9)	Our model diet includes 1 cup for children and 1/2 cup for adults mostly for tea. Workers unable to afford much milk at present.
(Eggs)	(3.0)	(w/milk) (2.2)	

Food ^a	Our model diet	Actual expenditure ^c HIES CPI wts		Comments
(Beef/meats)	(14.9)	(16.9)	(15.0)	Workers mostly prefer beef.
(Fish)	(0)	(3.1)	(2.6)	People from Western Kenya eat small dried lake fish including bones and head.
Beans/pulses/nuts	5.8	5.0	4.1	Beans inexpensive source of proteins.
Vegetables	7.1	10.8	9.3	Variety of inexpensive green leafy vegetables available. Prices much lower than in supermarkets. Our % lower because our model diet includes only 3 inexpensive vegetables.
Fruits	5.4	6.7	8.0	Average of least expensive seasonal fruit (mango) and year round fruit (banana) included in our model diet. Prices much lower than in supermarkets. Our % lower because our model diet includes only 2 inexpensive fruits.
Oils and fats	6.5	5.0	4.1	Our model diet uses vegetable oil sold in solid block. Much less expensive than liquid oil sold in plastic bottle.
Sugar	3.9	6.9	7.3	Kenyans have sweet tooth as like 3 teaspoons in cup of tea. Sugar provides empty calories so fewer grams in our model diet.
Beverages nonalcoholic (tea)	0.6	X ^d	1.4 ^e	2 cups per day per adult in our model diet.
Salt, spices, sauces and condiments	1.0	1.1	1.1	1% for spices, etc. consistent with Kenya diet that does not use many spices. Cakes, chips and sweets excluded in our model diet.

Notes: ^a Specific food item(s) used to represent each food group in our model diet are lowest cost food items per edible gram in each food group in order to reduce food cost and mimic how workers typically shop. Food prices used to cost our model diet are based on market survey of local sellers where workers typically shop. For each food item, average of lowest cost item in each market was used. Observed price per kilo for potatoes and kale/spinach were reduced, because prices for these in March are relatively high for the year. ^b 10% is added to cost of our model diet to allow for some variety, which is important for good nutrition. ^c HIES indicates 2005/06 household income and expenditure survey for “other urban” areas (i.e. urban other than Nairobi, Mombasa, Kisumu, and Nakuru). CPI wts indicate CPI expenditure weights for urban Rift Valley. ^d HIES values were recalculated after excluding nonalcoholic beverages as they are mostly for soft drinks and mineral water. ^e CPI weights were recalculated after excluding cakes and non-alcoholic beverages other than tea.

Sources for actual expenditures: KNBS (2007) for 2005/06 Household Income and Expenditure Survey. KNBS (2010) for 2010 urban CPI expenditure weights.

ANNEX B: FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING WAGE

Annex B discusses in detail why we decided to use a family size of 5. This decision was based on information for Kenya on number of children women typically have, child mortality rates, and average household size.

B1. NUMBER OF CHILDREN WOMEN HAVE AND ADJUSTMENT FOR CHILD MORTALITY

Total fertility rate (TFR)⁵⁸ in Kenya is 2.9 in urban areas, 5.2 in rural areas and 4.6 for Kenya as a whole according to 2008/09 DHS - with TFR falling over time.⁵⁹ These TFRs imply a family size needing to be supported of around 5 persons in urban areas and around 7 persons in rural areas if there was no mortality (i.e. 2 parents + TFR). For those living in urban townships near Lake Naivasha flower farms, TFR implies a family size of somewhere around 6 persons assuming no mortality (2 parents + 4 children) since workers on flower farms are mainly migrants from rural areas and total fertility rate of migrants is typically lower than in originating area (5.2) and higher than in destination area (2.9). Given that Kenya has high infant and under 5 mortality rates of 4.9% and 7.3% respectively (World Bank's World Development Indicators), it is necessary to take child mortality into consideration when estimating family size. The Kenyan infant and child mortality rates imply that close to .3 out of every 4 births die on average before reaching age 5. Thus our estimate of 4 children per family based on fertility rates becomes 3.7 children per family (for a family size of 5.7) for the Lake Naivasha region after adjusting for child mortality.

B2. AVERAGE HOUSEHOLD SIZE

Average household size in Kenya differs greatly in rural and urban areas. It is 4.6 in urban areas and 5.9 in rural areas excluding single person households (that are not relevant for family-based living wage) according to 2005/06 HIES. This implies around 5 persons for the type of urban areas near Lake Naivasha flower farms that are demographically speaking in between major urban centers such as Nairobi, Kisumu, Mombasa and Nakuru and rural areas.

B3. SUMMARY FOR FAMILY SIZE FOR LIVING WAGE

To help determine an appropriate family size needing to be supported by a living wage for townships near Lake Naivasha flower farms, we looked at both average household size in Kenya as well as number of surviving children women in Kenya typically are having at present based on current fertility rates and current child mortality rates. Results from these two ways of measuring appropriate family size for living wage indicate a family size of somewhat above 5 persons. To be conservative, we decided to use a family size of 5 persons in our living wage estimate.

⁵⁸ Total fertility rate is “a basic indicator of the level of fertility, calculated by summing age-specific birth rates over all reproductive ages. It may be interpreted as the expected number of children a woman who survives to the end of the reproductive age span will have during her lifetime if she experiences the given age-specific rates.” (UNdata Glossary, 2014)

⁵⁹ TFR has fallen in recent years - - from 8.1 in 1975/78, to 6.7 in 1984/88, to 5.4 in 1990/92, to 4.7 in 1995/98, and to 4.6 in 2006/08 (2008/09 DHS).

Annex C. Benefits in collective bargaining agreement (CBA) between Agricultural Employers' Association and Kenya Plantation and Agricultural Workers' Union for 2013-2015

Table C1: Our synopsis of benefits in collective bargaining agreement (CBA) between Agricultural Employers' Association and Kenya Plantation and Agricultural Workers' Union for 2013-2015

Benefits	Description	Comments (including indication when benefit is also in Employment Act)
Cash allowances paid within each year		
Housing allowance	KSh1,700 per month. House on farm an option on some farms.	Some farms provide on-farm housing as alternative. Employment Act: "at employers own expense provide reasonable accommodation ... or pay ... sufficient sum, as rent, to ... obtain reasonable accommodation." Fairtrade flower standard: "ensure that workers receive housing or have access to transportation free where housing and infrastructure are not available in sufficient quantity and quality."
Transport (commute) allowance	Amount varies by farm. Bus provided as alternative on some farms.	Farms often provide bus as alternative to transport allowance
Leave travel allowance	KSh2,500 per year	For travel to home area. Receive whether or not travel.
Death allowance	KSh27,000 (equivalent to about KSh7 per month value)	Similar to insurance. Intended to pay for cost of coffin and transport for worker.
In-kind benefits received within year		
Meals	KSh30 per day our estimated cost of lunch to farms	
Paid annual leave	24 days	26 days if > 5 years of service. 21 days in Employment Act.
Health care	Medicines and medical treatment. Transport to hospital when necessary.	Same as in Employment Act. Must have nurse or other suitable person on site when >100 workers.
Housing	See above	Housing allowance more common than provision of housing.
Transportation to work	See above	Transportation allowance alternative sometimes available.
School		Provided by some farms
Crèche		Provided by some farms
In-kind benefits <u>not</u> received within last 1 year		
Gratuity	23 days at basic pay per year	Paid to workers leaving employment with

Benefits	Description	Comments (including indication when benefit is also in Employment Act)
	of service	6+ years of service for any reason except summary dismissal.
Redundancy/severance pay	21 days of pay for each year of service	Cannot collect both redundancy & gratuity. 2 month notice or 1 month pay in lieu of notice in Employment Act.
Other benefits		
Paid sick leave	53 days full pay; 55 days half pay	Requires incapacity certificate from medical practitioner & verification by company medical practitioner. Unusual in practice (e.g. only 35 of 637 workers from one large farm we visited received sick leave in past month). 7 days full pay & 7 days 1/2 pay in Employment Act.
Paid maternity leave	3 months	2 months in Employment Act
Breastfeeding	1 hour per day	For children < 10 months
Compassionate leave	“Should not be unreasonably refused”	Can be treated as paid annual leave
Limit on number of temporary workers	Probation period cannot exceed 2 months	Temporary workers must be confirmed as permanent worker after 2 months
Paid leave for union officials	2 days for union duties	Also 15 days per year for 4 employees for courses/seminars
Overtime pay	1.5 times rate for overtime	2 times rate for work rest days and holidays

Notes: CBAs also specify basic wage, which is higher than statutory minimum wage for agriculture (KSh4,854 currently). In 2013-2015 CBA agreement, basic wage is KSh5,401-5,900 for new workers with +11.5% in 2014 for new workers hired in 2013 (see next table).

Living Wage for Kenya with Focus on Fresh Flower Farm area near Lake Naivasha

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TABLE C2. FLORICULTURE CBA BASIC WAGE, CASH ALLOWANCES, AND SOME BENEFITS, 1997-2015

Years	Basic Wages (KSh) ^a	Housing Allowance	Work Hours	Annual Leave	Leave Travel Allowance	Sick Leave	Termination Notice	Redundancy/Severance Pay	Gratuity	Death of Employee
FGG 1997 - 1999	1,716, 1,959, 2,500, 3,000, 3,500 (14% - 9% on a sliding scale)	500/=	46 & 60	21 w. days	800/=	30 days & 30 days	One months' notice	15 days each yr.	15 days after 10 yrs.	7,000/= inclusive of transport and coffin
FGG 1999 - 2001	1,900, 2,180, 2,750, 3,300, 3,800, (11% % 11%)	750/=	46 & 58	22 w. days	1,200/=	35 days & 40 days	One months' notice	18 days each yr.	18 days	10,000/= inclusive of transport and coffin
FGG 2001 – 2003	2,400, 2,600, 3,200, 3,800, 4,400 (8% & 8%)	800/=	46 & 58	22 w. days	1,200/=	40 days & 45 days	One months' notice	18 days each yr.	19 days	12,000/= inclusive of transport and coffin
FGG 2003 – 2005	2,800, 3,000, 3,700, 4,400, 5,100 (11% & 10%)	950/=	46 & 56	22 w. days	1,200/=	40 days & 45 days	One months' notice	18 days each yr.	20 days	15,000/= inclusive of transport and coffin
FGG 2005 – 2007	3,100, 3,300, 3,900, 4,600, 5,300 (14% - 9% on a	1,200/= (cities) 1,000/= (other	46 & 56	22 w. days	1,600/=	45 days & 50 days	One months' notice	19 days	21 days	17,000/= inclusive of transport and coffin

Living Wage for Kenya with Focus on Fresh Flower Farm area near Lake Naivasha

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Years	Basic Wages (KSh) ^a	Housing Allowance	Work Hours	Annual Leave	Leave Travel Allowance	Sick Leave	Termination Notice	Redundancy/ Severance Pay	Gratuity	Death of Employee
	sliding scale)	areas)								
FGG 2007 – 2009	3,400, 3,600, 4,300, 4,900, 5,800 (10% - 8% on a sliding scale)	1,500/= (cities) 1,200/= (other areas)	46 & 56	Up to five yrs service – 22 work days. Over five yrs – 24 w. days.	1,800/=	50 days & 50 days	Up to 5 yrs – one month’s notice & over 5 yrs – 45 days or pay in lieu	20 days	21 days	19,000/= inclusive of transport and coffin
FGG 2009 - 2011	3,601 – 4,300 4,301 – 4,900 4,901 – 5,800 5,801 and above	1800 (cities) 1500 (other areas)	46 & 56	Up to five yrs service – 23 days. Over five yrs – 25 days.	2000/=	50 days & 52 days	Up to 5 yrs – one month’s notice & over 5 yrs – 45 days or pay in lieu	20 days	21 days	22500/= inclusive of transport and coffin
FGG 2011 – 2013	4,050 – 4,600 – 12.5 4,601 – 5,300 - 12% 5,301 – 6,300 – 11.5 6,301 – 6,500 – 11% 6,501 and above - 11%	2,000 (Cities) 1,800 (Muni) 1,500(Others)	46 & 56	24 workdays (up to 5 yrs). 26 workdays (over 5 yrs).	2,300/=	50 full pay 52 half pay	Up to 5yrs service - 30 days or pay in lieu; Between 5 – 10yrs -45 day or pay in lieu; 10 yrs and above – 60 days’ or pay in lieu.	21 days’ each yr	22 days	24,000/=inclusive of transport & coffin.
		2,400	46 &	24	2,500/	53 full pay	Up to 5 yrs -	21 days	23 days	

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REPORT

Years	Basic Wages (KSh) ^a	Housing Allowance	Work Hours	Annual Leave	Leave Travel Allowance	Sick Leave	Termination Notice	Redundancy/Severance Pay	Gratuity	Death of Employee
FGG 2013 – 2015	5,000 – 5,400 – 12% 5,401 – 5,900 – 11.5 5,901 – 6,900 – 11% 6,901 – 8,000 - 10.5% 8,001 – 9,300 – 10% 9,300 and above- 10%	(Cities) 2,000(Muni)) 1,700(Others)	56	workdays 26 workdays	=	55 half pay	30 days or pay in lieu; Between 5 – 10yrs – 45 days or pay in lieu; 10 yrs and above – 60 days	each yr	basic pay	27,000/= inclusive of transport and coffin.
<u>Separate farm</u> <u>1 CBA</u> 2010 - 2012	Nvs – min <u>1st Yr – 2nd Yr</u> 7,858 & 8,722= 9,817 & 10,897= 8,500 & 9,435= 8,904 & 9,883= 11,628 & 12,907= 14,783 & 16,409= 18,274 & 20,284= Nbi Min 7,878 & 8,744= 10,685 & 11860= 13,955 & 15490= 17,742 & 19694= 21,929 & 24,341=	<u>Nvs.</u> 2,903/= 2005/= 1809/= 1,809/= 1,451/= <u>Nbi</u> 6,170/= 4,174/= 4,174/= 3,508/= 3,508/= <u>Gen. worker</u> 1,451/= or 15% of basic	46 & 60	Up to 5 yrs – 24 days. 5 to 10 yrs – 26 days. 10 to 20 yrs -28 days. Over 20 yrs – 30 days.	<u>Graded employ</u> <u>ee</u> Grade 3 - 3,217/ = Grade 2-2a 2,574/ = Grade 1-1a 2,333/ =	51 & 51	Up to 5 yrs. – 1 month, Over 5 & up to 10 yrs – 1.5 months, Over 10 yrs – 2 months	24 days	24 days	Provide coffin & 21,000/= for funeral expenses and transport.

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Years	Basic Wages (KSh) ^a	Housing Allowance	Work Hours	Annual Leave	Leave Travel Allowance	Sick Leave	Termination Notice	Redundancy/Severance Pay	Gratuity	Death of Employee
Separate farm 1 CBA 2012 sept – 2014 Aug	<p>Naivasha 9,681 & 10,746/= 12,096 & 13,427/= 10,473 & 11,625/= 10,970 & 12,177/= 14,327 & 15,903/= 18,214 & 20,218/= 22,515 & 24,992/=</p> <p>Nairobi 9,706 & 10,774/= 13,165 & 14,613/= 17,197 & 19,085/= 21,860 & 24,265/= 27,019 & 29,991/=</p> <p>11% & 11%</p>	<p>Graded Nvs 3053/= 2,125/= 1,909/= 1,909/= 1,551/=</p> <p>Nbi 6,320/= 4,274/= 4,274/= 3,608/= 3,608/=</p> <p>General workers 1,451 or 15% of basic</p>	46 & 60	<p>Up to 5 yrs – 24 days. 5 to 10 yrs – 26 days. 10 to 20 yrs – 28 workdays . Over 20 yrs – 30 workdays .</p>	<p>Grade 3 3,217/=</p> <p>Grade 2 – 2a 2,574/=</p> <p>Grade 1 – 1a 2,333/=</p> <p>General worker 2,478 – 2,800</p>	51 days full pay & 51 days half pay.	<p>Up to 5 yrs. – 1 month, Over 5 & up to 10 yrs – 1.5 months, Over 10 yrs – 2 months</p>	24 days	24 day if terminated, retire or resign provided he/she has served a minimum of five (5) yrs continuous service.	Shs.25,000/= for funeral expenses and transportation plus coffin
Separate farm 2 CBA 2010 - 2011	<p>Gen. 7,776/= Watchmen – 8006/= 7,964/= 8,847/= 7,937=</p>	15 % of basic	46 & 48	<p>1- 5 yrs - 25 days. Over 5 yrs – 28 days.</p>	150/= - 1,750/= as per distance	50 & 62 subject to production of medical certificate	<p>Up to 3 yrs – 1 month, over 3 yrs – 2 months,</p>	20 days	21 days on retirement or resignation	Coffin & 27,500/= for transport of employee or spouse

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Years	Basic Wages (KSh) ^a	Housing Allowance	Work Hours	Annual Leave	Leave Travel Allowance	Sick Leave	Termination Notice	Redundancy/ Severance Pay	Gratuity	Death of Employee
Separate farm 3 CBA 2011 - 2013	5,890/= 10% & 10%	1,600/= per month or 15% of basic	46 & 48	30 consecutive days at one year in service	2,200/=	50 full days & 54 days at half pay	2 yrs – 1 month Over 2 yrs – 2 months	23 days each yr	5 yrs continuous service - 23 days each yr.	23,000/=

Notes: ^a Percentages indicate percentage increases for each year of CBA.

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