LIVING INCOME REPORT (WITH LIVING WAGE ANNEX)

RURAL LAMPUNG PROVINCE, INDONESIA

(with focus on coffee producing areas)

STUDY DATE: July 2023

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ABSTRACT

The report on estimating a living income for coffee farmers in Lampung, Indonesia, was commissioned by the International Coffee Organization (ICO), under the aegis of its larger work with the Ministry of Agriculture, the Ministry of Trade, Indonesia Coffee and Cocoa Research Institute (ICCRI) and Sustainable Coffee Platform of Indonesia (SCOPI). Indonesia is the third largest producer and exporter of coffee in the world producing, in the main, the Robusta variety. Lampung was selected as the target research area because the province is the second largest producer among provinces in Indonesia and it was also prioritized as a target area for research by both the Government and the other main stakeholders. The living income is defined as is an income required by a household -in this case for a family of 4 (2 adults and 2 children)- to attain a decent standard of living. The estimation process utilized the Anker Methodology, and determined the basic costs of the necessary items required for decent living, i.e., food for a nutritious and balanced diet, healthy and safe housing, non-food-non-housing (NFNH) items, and contingency expenses. The findings of the report suggest an estimate of living income for rural Lampung of IDR 5,187,843 (USD 346) per month (IDR 62,254,116 or USD 4,150 per year) for the reference family size. The Living Income was found to be more than double the family income at the Lampung poverty line, 19% higher than the income that a typical family with 1.65 workers would earn at Lampung's minimum wage, and 27% higher than the World Bank's 6.85 PPP per day poverty line for an upper-middle income country which Indonesia has recently become (and 127% higher than the World Banks's 3.65 PPP poverty line for lower-middle income countries which Indonesia just graduated from).

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Any questions, comments, or observations about this study and the results it reports should be directed to the Anker Research Institute leadership: marthaandrichard@ankerinstitute.org

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Richard Anker holds a Ph.D. in Economics from the University of Michigan. He is retired from the International Labor Organization (ILO), where he was a senior economist. He has published books and articles on a wide range of topics such as decent work indicators, poverty, labor markets, gender, child labor, and social dimensions of globalization.

Martha Anker holds an MSc in Mathematics from the University of Michigan. She is retired from the World Health Organization (WHO), where she was an epidemiologist and statistician. She has published books and articles on a wide range of topics such as on gender and health, rapid assessment methodologies, and epidemic prone diseases.

Martha Anker and Richard Anker are founding partners of the Global Living Wage Coalition (GLWC) and founders of the Anker Research Institute. They developed the Anker Methodology for measuring living wages and co-authored the book Living Wages Around the World. A Manual for Measurement.

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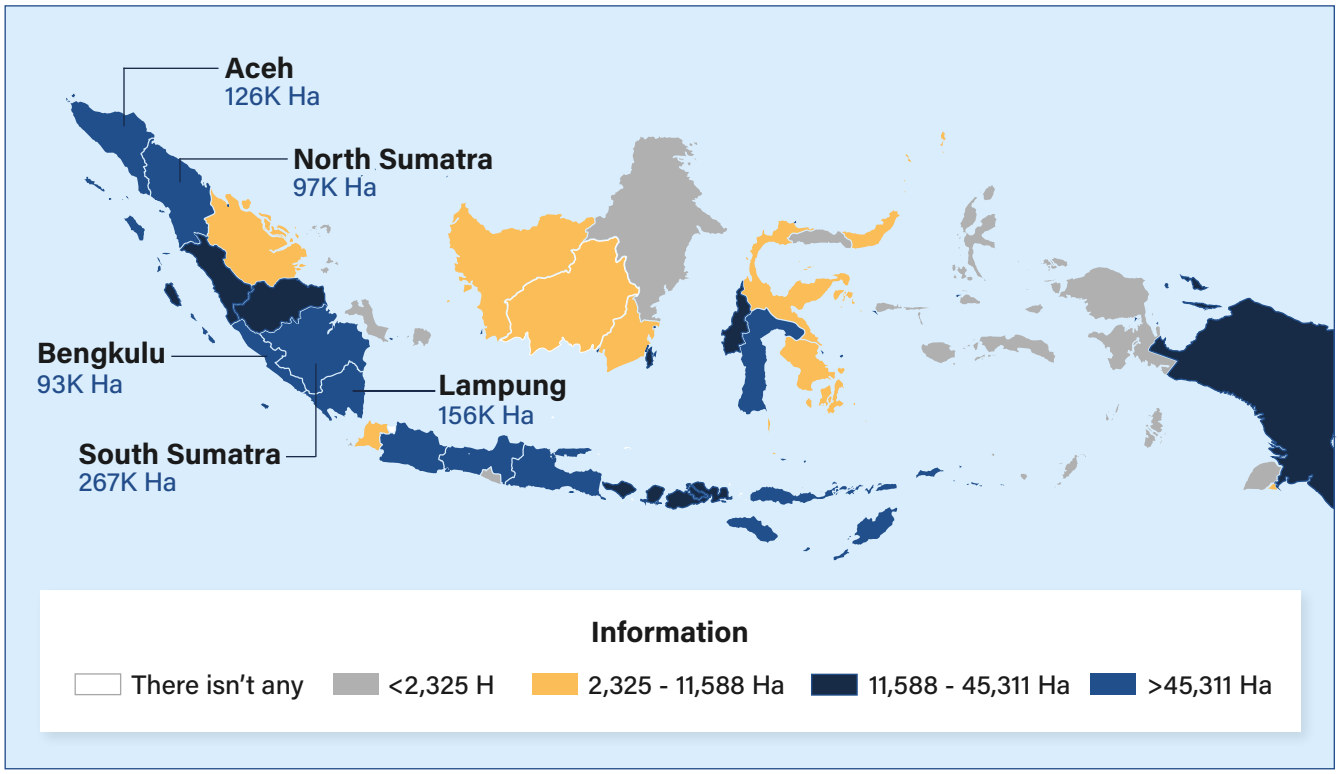
SECTION I.
INTRODUCTION

Coffee is one of the most important commercial products in Indonesia. According to the latest data from USDA Foreign Agricultural Service, Indonesia is the third largest coffee producing country in the world, after Brazil and Vietnam, contributing 7% of the global coffee production.[1] Coffee plantations in Indonesia are located across Sumatra, Java, Sulawesi, Bali, Flores and Papua Islands (Figure 1). Sumatra is the island with the highest coffee production in the country.

Figure 1. Map of coffee growing areas by size and distribution across Indonesia



Notes: Figures are in thousand hectares.
Source: Indonesia Coffee Statistics 2021.

In the context of the coffee farming community in Indonesia, estimating living income of coffee producers is highly relevant, as no study of such note has been carried out thus far. It is hoped that the results of the present study will be useful in informing policy makers and commercial partners in creating policies, programs and business decisions that ensure the farming communities' welfare within the global supply chain. The duality of coffee production is recognised between the producers, mainly to be found in lower and upper

1 USDA -FAS Database: Production -Coffee 2023. https://fas.usda.gov/data/production/commodity/0711100

middle-income countries, and consumers that reside in developed market economies. It has been noted that: *"The lowest value captured is in the production stage of the chain; the highest is in the marketing stage of the chain, concentrated in developed countries. Risks, market price fluctuations, socioeconomic shocks, health pandemics and climate change phenomena cause the greatest disruption at the bottom of the value chain, as producing countries typically are more vulnerable and less resilient" (International Trade Center, 2022, p:4).*

This living income study is sponsored and supported by the International Coffee Organization (ICO) and companies in the Coffee Public Private Task Force, in cooperation with the Government of Indonesia (GoI) Ministry of Trade, Ministry of Agriculture, Indonesian Coffee and Cocoa Research Institute (ICCRI), and the Indonesian Sustainable Coffee Platform (SCOPI). The stakeholders proposed Lampung Province as the location for the study, which was further refined to a focus on West Lampung District, to be representative of Indonesian farmers producing robusta coffee. This study was carried out by the Aceh Hijau Foundation (www.yayasanacehhijau.org) under supervision of the Anker Research Institute, during the period of June-September 2023.

1. LIVING INCOME ESTIMATE

This living income study employs the Anker Methodology developed by Richard and Martha Anker which is widely recognized as the gold standard for measuring living wages (LW) and living incomes (LI). To date, the application of the Anker Methodology has produced over 100 internationally comparable LW and LI estimates in a host of sectors in developing countries. The major objective of the Anker Methodology is to estimate the cost of decent standard of living for workers and producers/farmers and their families.

Living income denotes a "decent" remuneration that enables the self-employed, such as farmers, a net income (i.e., sales revenue minus production costs and statutory deductions) that provides a decent standard of living for themselves and their families. According to the Living Income Community of Practice, living income is defined as:

> *"The net annual income required for a household in a particular place to afford a decent standard of living for all members of that household. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing, and other essential needs including provision for unexpected events".*[2]

2 https://www.living-income.com/the-concept

The Anker Methodology estimates living income for a basic but decent standard of living guided by international standards, through which people can access the basic necessities of life. Among others, these necessities include having nutritious foods, being able to live in healthy housing conditions, have access to basic health care and education, meet transportation needs, be able to clothe themselves adequately and enjoy a basic degree of leisure. The necessities and minimum standards have been specified by governments and different international organisations such as the World Health Organization (WHO), the International Labour Organization, the Food and Agriculture Organization, the United Nations Habitat Programme, and are grounded in the different articles of the Universal Declaration of Human Rights (Anker and Anker, 2017).

The Anker Methodology does not measure prevailing income received farmers, or how farmers obtain their incomes, but instead it estimates the value or cost of a decent standard of living to access the necessities with no lower than the minimum standard. The estimated cost of a decent standard of living provides information on incomes that constitutes benchmark earnings of farmers to meet the decency standards criterion. The cost of a decent standard of living (i.e., 'living income') can subsequently be compared with other welfare measures (e.g. prevailing income level, minimum wage level, poverty line) to assess gaps that impede the realization of a desired state of existence.

The living income for the whole of rural Lampung Province was determined to be **IDR 5,187,843 (USD 346)** per month (IDR 62,254,116 or USD 4,150 per year) for the reference size farming household.

1.1 Field work and data source

This research was conducted in rural West Lampung District. This study used a mixed-method approach.

This included:

a. Desk review of secondary data

   Desk review of secondary data was conducted on data and publications of the Indonesian Statistics Bureau to determine household reference size, to assess housing characteristics, to calculate non-food and non-housing (NFNH) costs, and to calculate the number of full-time equivalent workers per family. The household reference size was calculated based on the total fertility rate, under five mortality rate, and the distribution of households by size in the 2022 Socio-Economic Survey (Survei Sosial Ekonomi Nasional – SUSENAS) and 2010 census for Lampung Province and West Lampung District. The estimation of NFNH costs was based on March 2022 SUSENAS data. The number of full-time equivalent workers per family was estimated based on the August 2022 National Labor Force Survey. In addition to the national statistics bureau data and publications, the research team also reviewed national and international standards for housing and publications on coffee production and producers in West Lampung District and Lampung Province. The reviewed documents are listed in the References section at the end of this report.

b. Focus group discussions

Focus group discussions (FGDs) with women and men coffee farmers were facilitated to discuss family size, dietary patterns, housing conditions and utilities, and health care and education access and costs.

c. Key informant interviews

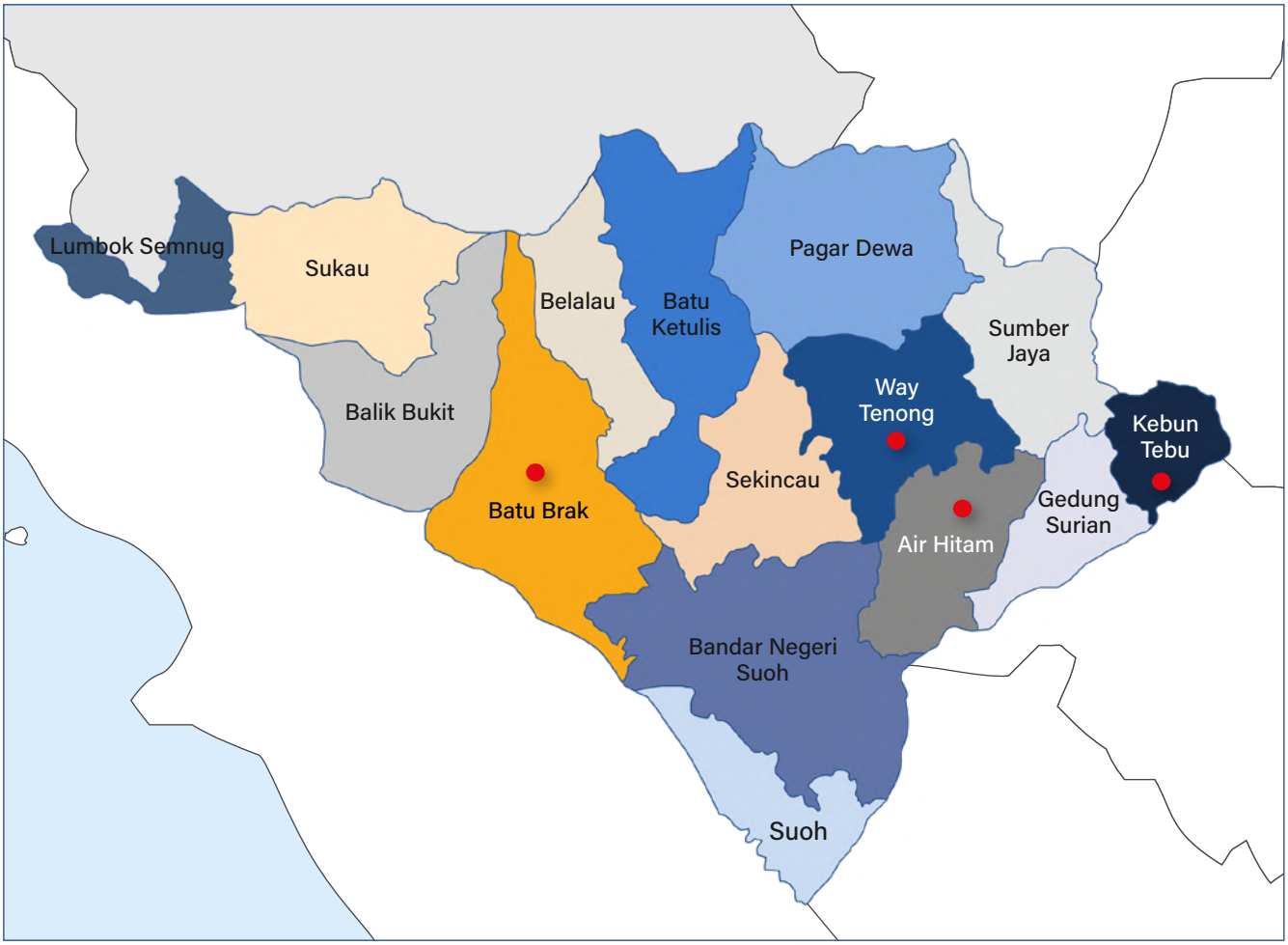
The survey team interviewed: community health center personnel to get information on health services and costs; school principals and teachers to get information on access to education, quality, and costs; West Lampung Plantation and Husbandry Office and agriculture extension personnel to get information on coffee farming in West Lampung; community health centers and schools to assess their facilities and service; and West Lampung District Public Work and Housing Office, local carpenters and suppliers of construction materials to gather information on: materials needed to build a typical house in West Lampung and the associated costs of construction; and local civil society activists on the coffee farming and education access. Finally, the team visited and interviewed food sellers in local markets, kiosk owners, and mobile food vendors to collect information on local food prices.

d. Observation

Observation was conducted on the state of coffee farmers' houses in selected sub-districts and pictures were taken of those houses for reference. Salient observations were made with regard to living space, number of rooms, and availability and standards of necessary amenities such as latrines, kitchen facilities, materials used for the building construction/structure, and condition of the building.

West Lampung District was selected as the study area for living income study on coffee farming communities given its pre-eminence being a district with the highest coffee production in Lampung. In West Lampung, four main coffee producing sub-districts (Kebun Tebu, Air Hitam, Batu Brak and Way Tenong) were selected through purposive technique as primary data collection sites to represent diverse characteristics of coffee farmers. This was done to ensure the presence of maximum variability within primary data. The research team consulted Sustainable Coffee Platform Indonesia (SCOPI) and West Lampung Plantation and Husbandry Office to determine target subdistricts for the study. They considered that the four sub-districts represent coffee production areas in West Lampung. The following map shows the location of the selected studied sub-districts.

Figure 2. Map of study areas in West Lampung District



Source: Lampung Barat dalam Angka 2023 (BPS Lampung Barat, 2023).

The primary data was collected on dietary patterns and food prices, housing conditions and costs, health care and education costs, and other living expenses. To collect these data in the four sample sub-districts, the research team facilitated four FGDs attended by 41 coffee farmers (21 women, 20 men) and interviewed two personnel officers of District Plantation and Husbandry Office, one personnel officer of District Public Work and Housing Office, two civil society activists, and nine carpenters and one housing material supplier. In addition, the research team visited four community health centers and interviewed seven heads of community health centers and nurses (6 women, 1 man). The research team also visited seven schools (2 elementary schools, 2 junior high schools, 2 senior high schools, and 1 vocational high school) and interviewed 13 school principals and teachers (8 women, 5 men). To collect data on food prices, in each sub district, the research team collected food prices from a total of 12 market vendors, 8 kiosks and 8 mobile vendors.

Although the rural areas of West Lampung district were the focus of the fieldwork -primarily because of their primacy in coffee production- the determined living income estimate holds for the rural areas of Lampung province as a whole. It was inferred from official sta-

tistics that food prices and housing conditions did not vary significantly across other rural districts of Lampung province, and as such these affirmations lend credence to the extrapolation of the findings of primary data collected in West Lampung across other rural districts of the province. Moreover, the non-food non-housing costs used in the calculation were for rural Lampung and not just for rural West Lampung. The exercise undertaken was designed with the specific purpose of giving a wider representation to the determined estimate.

1.2 Data collection

Primary data collection process was carried out in two stages, as follows:

1. Scoping Visit

   A scoping visit prior to the main fieldwork data collection was done with the aim to: (i) discuss the planned research with local government offices and relevant stakeholders and secure their support; (ii) get information on living conditions and needs of coffee farmers; and (iii) visit localities and houses where farmers live, places where farmers shop for food, and places where farmers access health care and schools to help guide the fieldwork. The scoping visit was conducted on June 18–23, 2023. During the scoping visit, the research team met the West Lampung Plantation and Husbandry Office, conducted FGDs with coffee farmers, visited and interviewed community health center and school personnel, observed the coffee farmers' houses and visited markets, kiosks and mobile vendors.

2. Field Data Collection

   The field data collection was conducted by visiting and interviewing food sellers in the market, kiosk owners, and mobile food vendors to get information on local food prices. In addition, the team also interviewed the District Public Work and Housing Office and local carpenters to get information on building materials for typical houses and their costs. The team also visited a number of health care facilities and schools and interviewed a number of health care personnel and school officials. The field data collection was conducted on August 26–31, 2023.

The research team was supported by one local data collection coordinator and four local enumerators during the field data collection. The data collection techniques and participants are summarized in the following Table 1.

Table 1. Summary of data collection techniques and respondents

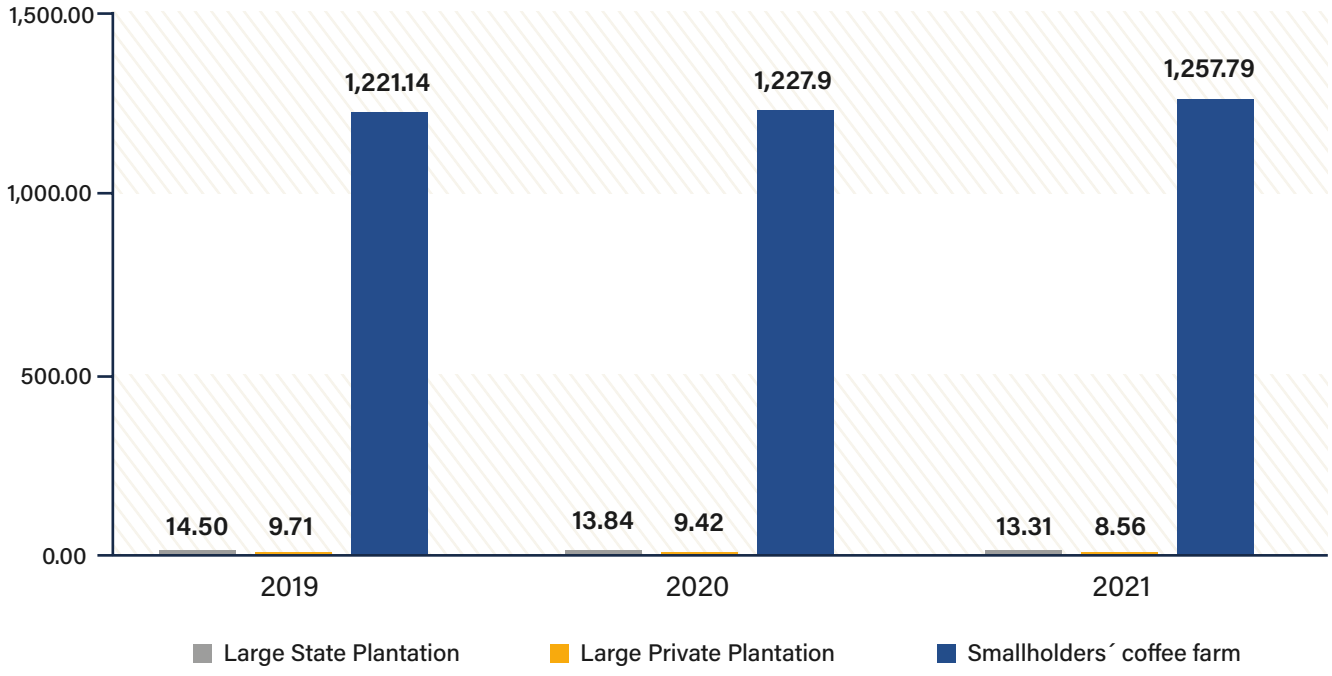
Component	Data Collection Techniques	Participants	Remarks
Household consumption, diet pattern and access to market	FGD	41 participants	One FGD with 10–11 participants in each sub-district
	Observation and interviews of market, kiosk, and mobile vendors	12 market vendors, 8 kiosk vendors, 8 mobile vendors	
Housing	FGD	41 participants	
	Interviews	9 carpenters, 1 house material supplier, 1 district public work and housing staff	
	House observation		
	Desk review of national and international standards on housing		
Household access to education	FGD	41 participants	
	Interviews	13 school principals and teachers, 2 civil society activists	
	Observation of school	6 schools	
Household access to health service	FGD	41 participants	
	Interviews	7 community health center personnel	
	Observation of com-munity health center	4 community health centers	
Transportation and other important needs	FGD	41 participants	

2. CONTEXT

2.1 Coffee smallholders in Indonesia

Based on the farm operation model, coffee farming in Indonesia is differentiated into two categories: (1) Perkebunan Besar/PB (Large Plantations) and (2) Perkebunan Rakyat/PR (People's Plantations or smallholder coffee farming). The large plantations consist of Large State Plantations (Perkebunan Besar Negara-PBN), and Large Private Plantations (Perkebunan Besar Swasta-PBS). Perkebunan Rakyat is a term for coffee farms owned by smallholder coffee farmers. This group covers 99.32% of total coffee farming in Indonesia and the rest is large plantations (BPS, 2021). The data from BPS showed that the smallholder coffee farming (PR) has gradually increased, while large coffee plantations are declining. Figure 3 below presents the changes in 2019-2021.

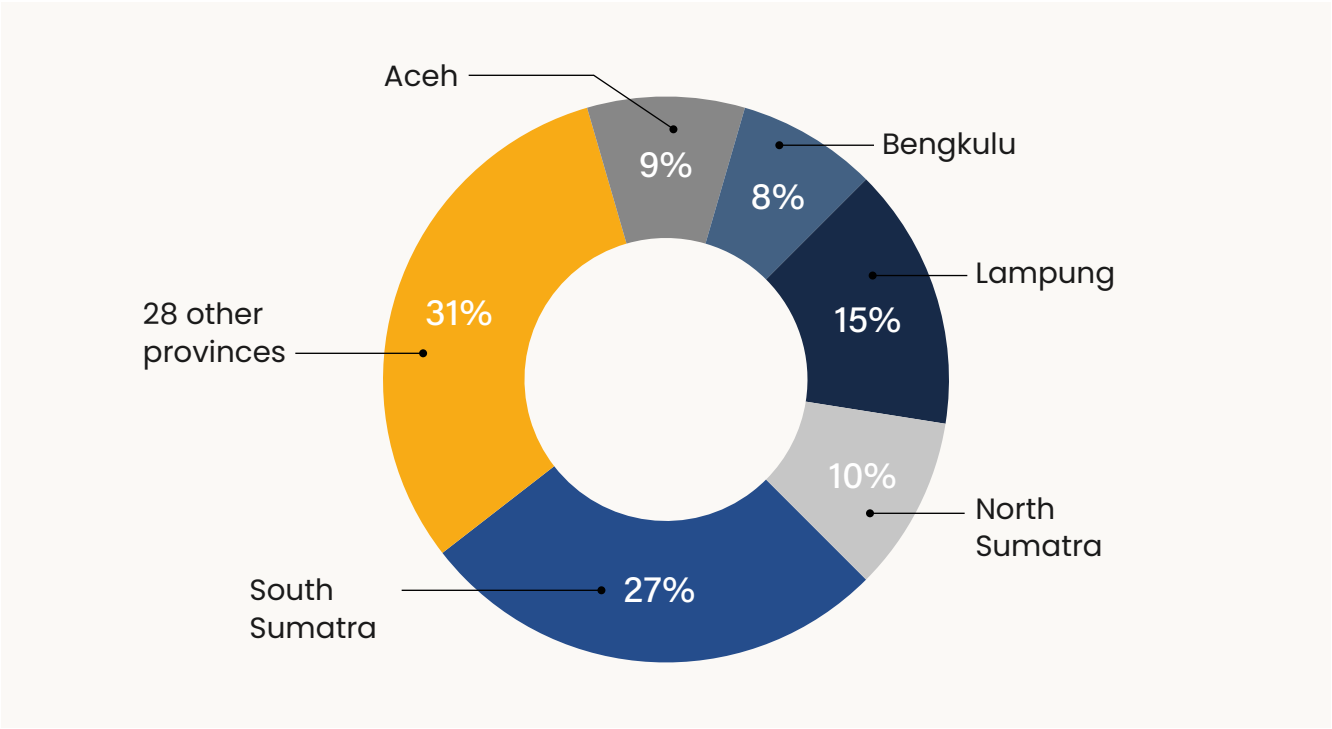
Figure 3. Changes of coffee farming based on farm ownership in Indonesia, 2019-2021 (in thousands of producers)



Source: Indonesia Coffee Statistics 2012.

Coffee production by province in 2021 in Indonesia is presented in Figure 4 below.

Figure 4. Coffee production by province, 2021



Source: Indonesia Coffee Statistics 2022.

As shown in Figure 4, one of the major coffee production areas in Indonesia is Lampung Province in Sumatra Island. Here, Robusta coffee is the leading commercial commodity managed by smallholders, on top of pepper, clove and other spices.

The central areas for coffee farming in Lampung Province are West Lampung, Tanggamus, North Lampung and Way Kanan districts. Table 2 below presents the total farm size (2021) and total coffee production (2022) in these main coffee production districts; approximately 156,395 hectares belong to smallholders.

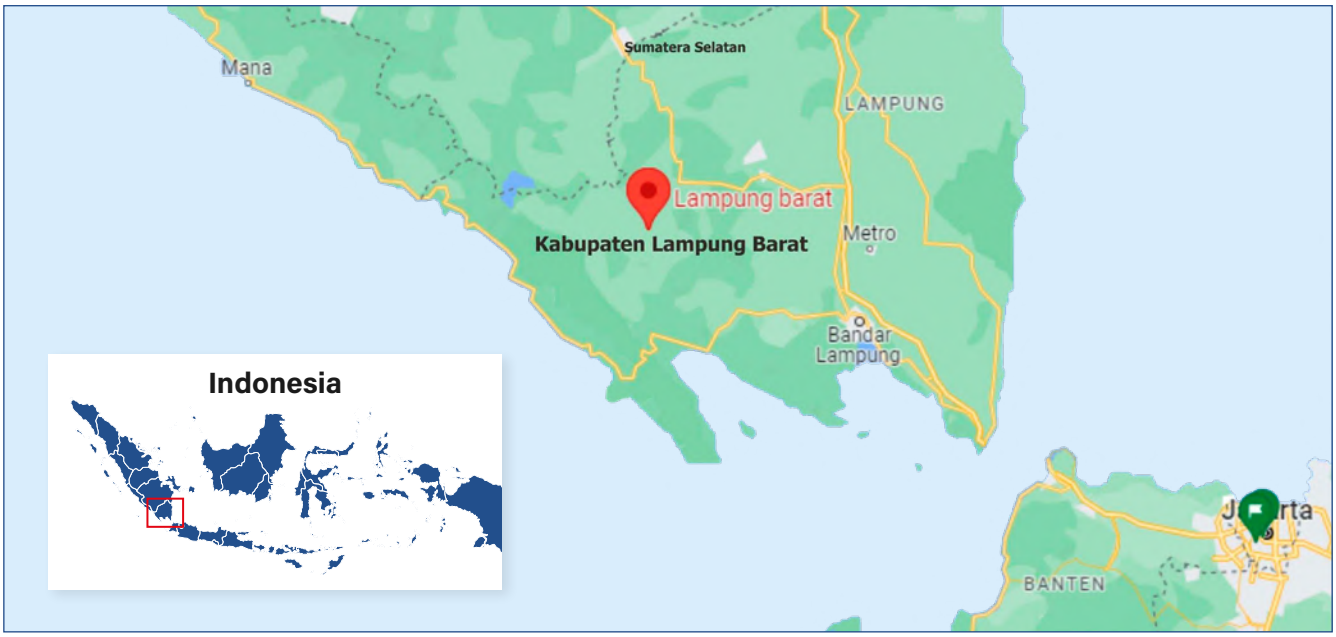
Table 2. Total farm size and coffee production in the major coffee producing districts of Lampung Province, 2022

District	Total farm size in 2021 (Ha)	Total production in 2022 (Ton)	% of total provincial production
Lampung Province	156,395	118,139	100%
Lampung Barat (West Lampung)	54,101	56,054	48%
Tanggamus	41,508	36,908	31%
Lampung Utara (North Lampung)	25,674	10,120	9%
Way Kanan	21,650	8,664	7%
Other	13,462	6,393	5%

Source: BPS Lampung Province 2022.

The table above shows that West Lampung District is the area harbouring the largest community coffee plantations, with the total farm size over 54,000 ha or 34.6% of the smallholders' coffee plantations in Lampung Province, and all grow Robusta Coffee.

Figure 5. Map of Lampung Barat (West Lampung)

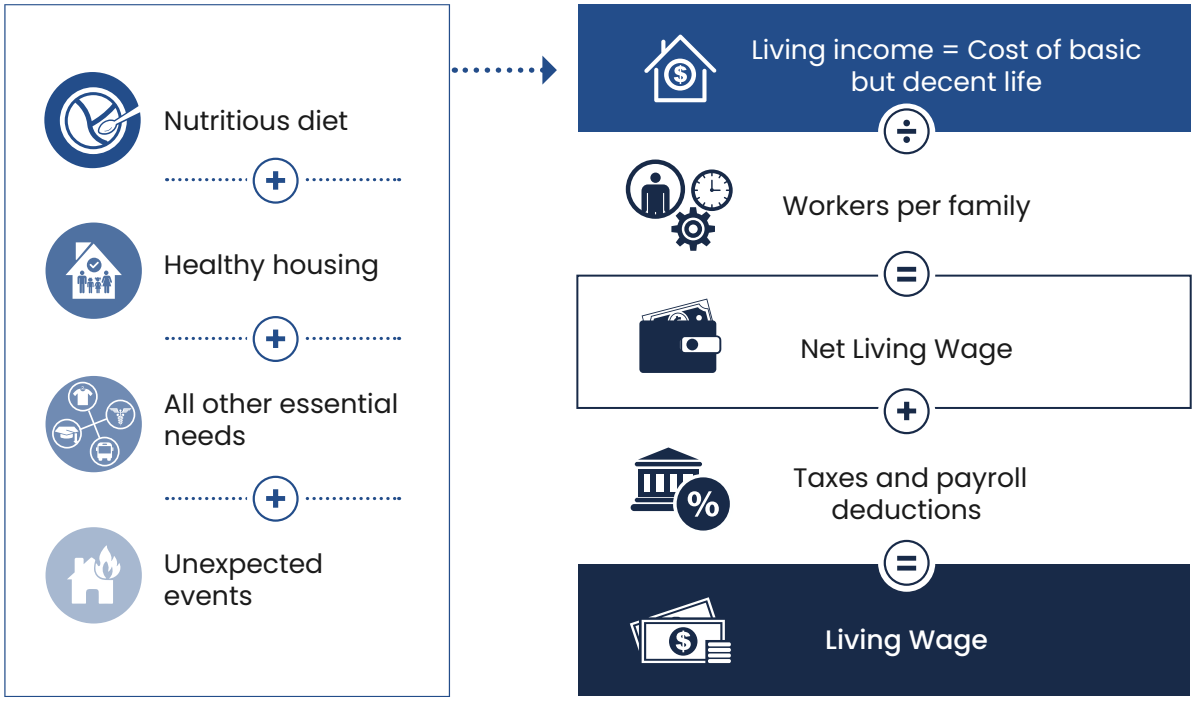


SECTION II.
ESTIMATING LIVING INCOME FOR FARMING COMMUNITIES IN LAMPUNG

The estimation of living income, based on the Anker Methodology, considers four elements that are of primary concerns in attaining a decent standard of living: (i) cost of a basic but nutritious diet; (ii) cost of a basic but adequate and healthy - according to specified standards - housing; (iii) costs of all other essential items, such as procurement of health care, education, clothing, etc., which are referred to in this report as Non-Food and Non-Housing (NFNH) expenses; and (iv) a marginal supplement as a buffer to allow farmers and their families to tackle their vulnerability to contingencies. See Figure 6.

The costs of food and housing were determined based on primary data on food prices gathered during fieldwork, whereas the valuation of NFNH costs is based mainly on secondary data; although three expense items (i.e., health, education and transport) are subjected to "post-checks" based on the data collected during fieldwork to ensure that the costs arrived at in the analysis of the secondary data sources had not been underestimated. These costs were then aggregated to yield an estimate of the living expense for a basic but decent living standard, a graphical representation of which is presented in Figure 6. This living income is then divided by the number of full-time equivalent workers per family, which is obtained from the analysis of labor statistics in the study areas, to obtain net (take-home) living wage. Finally, the gross living wage (a.k.a. the living wage) is the net living wage plus payroll deductions and taxes (Figure 6).

Figure 6. Estimation of living income



3. ESTIMATING FOOD COSTS

3.1 Standard for adequate food and nutrition

General principles of model diet

The following general principles were used to establish the model diet in order to estimate food costs for living income for rural areas of West Lampung, where coffee farming families live. Our model diet needs to be:

1. Nutritious (i.e., meets WHO recommendations to ensure not only sufficient calories but also acceptable quantities of proteins, fats, carbohydrates, and fruits and vegetables) to ensure that farmers and their families have sufficient energy enabling them to work productively and be healthy.

2. Relatively low in cost for a nutritious diet. This means that relatively inexpensive palatable foods are included in the model diet in order to reflect the cost consciousness of farmers in purchasing food while maintaining nutritional standards.

3. Relatively low (but nutritionally acceptable) percentage of calories from proteins since proteins are more expensive calories. At the same time, we ensure that the percentage of calories from proteins meets WHO/FAO minimum requirements.

4. Based on local food preferences, local food availability and local food costs. This, at times, means that the choice of specific food items included in the model diet to represent each major food group is not always the least expensive food item.

3.2 Model diet

The following methodology was employed in creating the model diet.

- The model diet we used contains 2,353 calories per person. This was determined by using Schofield equations that are widely used to estimate calorie needs based on age, sex, average height, and activity level (WHO/FAO 2003).[3] We used the following information to determine the amount of calories required: (i) average height of adults in Indonesia; (ii) typical healthy body mass index (BMI) of 21; (iii) size and composition of the reference family (i.e., 2 adults and 2 children); and (iv) assumption that one adult performs vigorous physical activity in farming activities, while the other adult and children are characterised by moderate physical activity levels.

  This figure of 2,353 calories is reasonably consistent with the 2,100 calories per equivalent adult used to estimate the official food poverty line for Indonesia. The total calories used

3 The values for average height of adult men and women used in the Schofield equations were obtained from Wikipedia and World Population Review data.

in this study are also close to the result of SUSENAS 2022 which indicates that people in rural Lampung consumed about 2,033 calories per person per day.

- Second, a preliminary 'model diet' was developed in a three-step process.
  - In step 1, information was obtained from the 2022 SUSENAS survey on food and nutrition. In the case of West Lampung District, information on edible grams of different foodstuffs were also obtained. This diet was then adjusted so that it contains the required number of calories indicated above by adjusting the quantity of each food item in the model diet by the ratio of calories required to the number of calories in the SUSENAS specified diet.

  - In step 2, the model diet was made nutritionally acceptable in terms of macronutrients composition (proteins, fats, carbohydrates), number of grams of vegetables and fruits, number of grams of sugar, and number of grams of oils.

  - In step 3, the model diet was adjusted so that it was relatively low-cost for such a diet. Throughout this process in steps 2 and 3, the model diet was constructed by keeping in mind the traditional and cultural proclivities of the population at large. These were established in the FGDs with coffee farmers carried out and in individual household interviews.

Main food items included in the model diet are summarised under each category below:

Cereals: Rice is the staple food in every household menu. Farming families consume rice 3 times a day. In the open markets, rice is sold in the form of sealed packages, of 5 kg or 10 kg. These, according to the seller, are local rice that are packed by the local rice processing units and are branded by local businesses. There is also local rice with no brand sold in the open markets and kiosks, which people can purchase in any quantity they choose.

Instant noodles are the other important cereal. However, the frequency of consumption of noodles is much less than the major staple.

Fish and Meat (Protein): Fish is the favoured animal protein food by far. Freshwater fish and different types of sea fish are common in the area, but the freshwater varieties, like tilapia and catfish, are more readily available. There is less sea fish being sold, and often they are sold either half-frozen and/or are of poor quality. The majority of people (as revealed in FGDs) indicated that their preference was for Ikan Nila (local type of tilapia) and catfish. Besides fresh fish, the residents of the district regularly consume different types of dried salted fish. The dried fish is very popular and sold everywhere, including by mobile vendors and in kiosks.

Chicken is the next favored animal protein though its consumption is periodic. Beef is rarely consumed, primarily because of its very high price. It was determined that beef was purchased for the family twice a year for the day before Ramadan and the ensuing festivities of Eid Fitr. On another festive season of Eid Adha, almost all households, particularly the poorer

ones, get free meat from *Qurbany* (animal sacrifice performed in honoring the Abrahamic tradition related to Eid Al-Adha festivities) as a donation.

Tubers: Among starchy food items, cassava is commonly consumed as it is relatively cheap. Another staple of note is sweet potato.

Legumes, lentils, beans and pulses: In this category, tempe and tofu are generally to be found in the diet and are consumed daily. They are an affordable source of protein and can substitute expensive meats.

Green leafy vegetables: Consumption of green leafy vegetables is also common, and they are usually included in the daily diet. Among these, spinach, water spinach (Morning Glory), pumpkin leaves and mustard greens are the preferred choices.

Other vegetables: The usually consumed other vegetables are cabbage, eggplant, tomato and carrot. The households in the district also consume copious amounts of chillies, onion and garlic. However, their inclusion is rightfully in the category of spices.

Fruits: Among fruits, papaya, banana and watermelon are included in our model diet as they are not only preferred but are also readily available and quite affordable. Papaya and banana are also commonly grown by the farmers in their house yard. There are other fruits that are also popular such as oranges and mangos but given their relatively higher price are not included in our model diet. However, given the supplement added to our diet for variety, they may occasionally be purchased.

Eggs are desired as a quality food and are a good source of proteins.

Milk, particularly for children in their growing phase, has many beneficial effects. It aids in the physiological development and strengthens the bone structure. However, fresh milk is not available in the area. The only option available is processed powdered milk, yet this is also rarely consumed by farming families. This may be due to economic and accessibility reasons, in addition to the lack of knowledge on the importance of milk for health and nutritional status.

Tea and coffee without milk but with sugar, are widely consumed.

Palm oil is a commonly used cooking oil in the preparation of meals.

3.3 Determining the cost of the model diet

The food prices and thus food cost estimation was determined based on a series of data collection and data analysis procedures, including:

1. **Focus Group Discussions (FGDs):** FGDs were carried out with farming households in the study area. The FGDs were wide ranging but for the purpose of developing a model diet the intent was to, among other, identify: (i) the food items commonly consumed by farming households; and (ii) places where they normally purchase these items from.

2. **Collecting data on local food prices:** After the identification of the essential food items, data on food prices was collected through a survey conducted in four sub-districts of West Lampung, i.e., Way Tenong, Air Hitam, Batu Brak and Kebun Tebu. The survey was conducted in 4 open markets that operate one or twice a week in each location (12 vendors, 3 from each market were surveyed). Additionally, the survey also canvassed 8 kiosks that were to be found in each sub-district and 8 mobile vendors selling food items on vehicles (motorcycles and vans) moving between 2-4 villages in the area. For this survey, the research team employed one local enumerator in each district and one local enumerator coordinator.

   Most families in the study area purchase food Items from open markets, once or twice a week. Here they shop for food items which can stay for a few days or a week. While for more perishable food items such as vegetables, they often purchase it from Kiosks in their village and from mobile vendors on a daily basis.

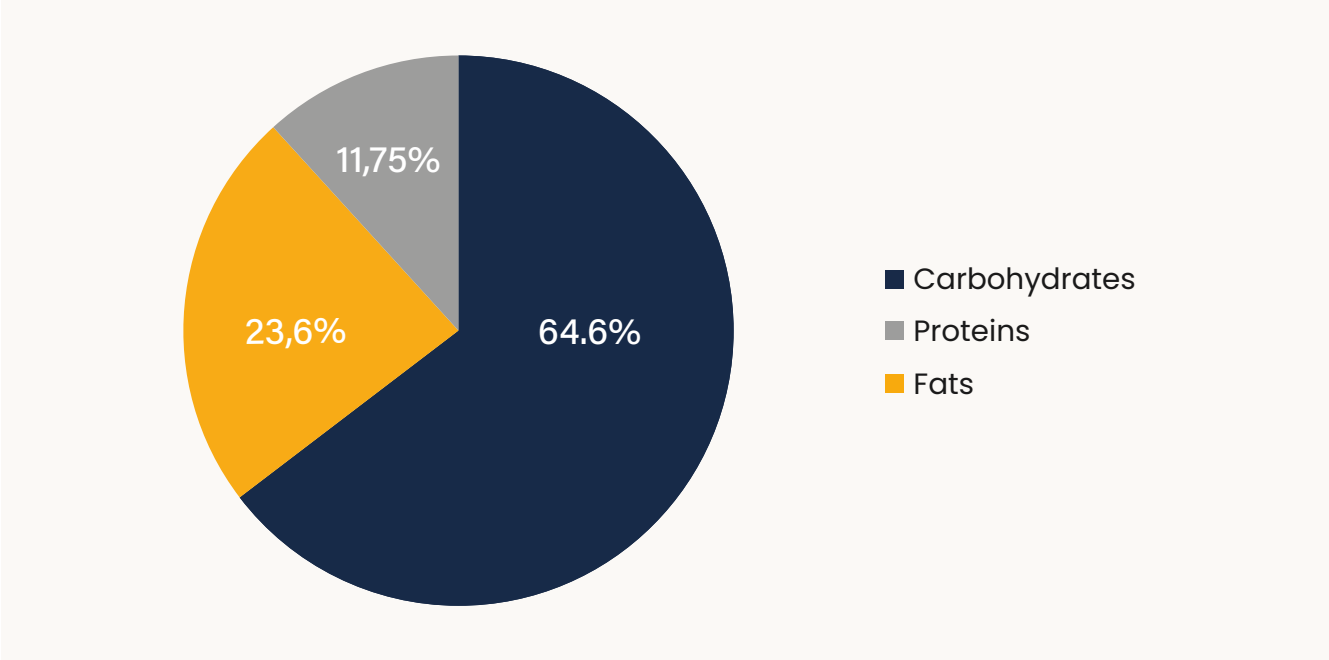
   In the *Pasars* (open markets), we collected the prices of almost all food items identified from households during the FGDs as commonly eaten. In almost all Pasar (market) we conducted the survey in, we found a similar pattern of food items being sold.

3. **Analysis of food price data:** The price data collected was analysed to determine the average price of each food item. The relatively inexpensive but acceptable quality of each food item was selected to be included in the model diet that is consistent with local food preferences, food availability and relative food prices.

4. **Model diet and its cost.** This was obtained by multiplying the number of purchased grams of each food item in the model diet by the local price per kilo of each food item.

Consequently, the cost of the model diet was obtained by using the prices of the selected food items with the quantities in the model diet. For West Lampung District, the cost of the model diet is estimated at **IDR 22,264** per person per day as presented in the Table 3. The proportion of calories in the model diet are all within WHO recommended ranges at 11.75 % from proteins, 23.6 % from fats and 64.6 % from carbohydrates, as presented on Figure 7.

Figure 7. Distribution of macronutrients in model diet



3.4 Food prices

To estimate the cost of the model diet, the research team collected local food prices supported by one field coordinator and four local enumerators. The local enumerators collected food prices at three price types of venues in each of 4 sub-districts, including: market (Pasar), kiosks and mobile vendors (*pedagang keliling*). These are places from where farmers and their families typically purchase their food items.

In the 4 sub-districts surveyed, we observed a similar pattern of market/pasar where the Pasars operate once a week only in particular locations. The community members have access to one pasar a week. Additionally, they may have access to a second pasar - if they are located at a reasonable distance, in a different location, on a different day. The sellers are sometimes the same persons who travel from one pasar to another on different days within the district. Most food items are purchased from pasars, while a few are supplied by kiosks and mobile vendors. Another reason to shop at the market are the prices; prices of many food items in pasar are usually lower than what is charged by kiosks and mobile vendors.

Besides food, the weekly open markets offer a wide range of other household needs, including clothing, toiletries, school bags and different household utilities.

For this study, food prices were collected from 3 sellers for each food item in each market. In total, the price of each food item was collected from 12 sellers from 4 markets.

Figure 8. People purchase wide variety of food and household items at open markets

As markets are not operating every day, the mobile vendors play an important role in bringing food items for daily consumption to farming families in the area. They sell mostly perishable items, such as vegetables, fish, tofu, tempeh, and fruits. The prices of food items sold by mobile vendors are notably the highest, compared to similar items sold in the market or at the Kiosks. This is understandable as the mobile vendors invest more on their motorbike, fuel, and time to deliver their service from village to village within the area, and sometimes they accept payment on credit. Meanwhile, kiosks also sell vegetables daily and additional household needs that can be kept for longer periods, including toiletries, ready-made seasonings, salt, sugar, egg, etc.

We collected prices of food items from 2 mobile vendors and 2 kiosks in each sub-district. In total, we covered 8 mobile vendors and 8 kiosks.

To determine food prices, we used the median price for each food item from prices of the 3 price references explained above. For some food groups, less costly items were used to keep the living income model diet at relatively low cost, but with a provision that this did not affect the balanced nutritional intake of farmers and their families. However, in certain cases where local food preferences are strong, a preferred food variety was taken in place

of a lower cost variety. For example, in West Lampung, freshwater fish is widely consumed at an affordable price. Here, people seem to prefer freshwater fish more and sea fish less. This is also consistent with the lack of fresh sea-fish in the market, because West Lampung is located at a distance from the coastal area. From the market survey FGDs, we found that people also consumed dried fish that consisted mainly of sea fish preserved with salt and then dried. In this way, while local food preferences are not ignored, the cost of the model diet is kept low, and estimated by using the prices that farmers and their families pay for different foods.

Figure 9. Kiosks and mobile vendors in the study area

Figure 10. Dried salted fish, freshwater fish and chicken sold in the market

Some vegetables and fruits consumed by farmers and their families are from the gardens surrounding their homes. For these, we used the prices from the markets, mobile vendors and kiosk. This is because they have a monetary value, and the market price is reasonable to use as the imputed price of self-produced and consumed food items.

Figure 11. Some fruits and vegetables are grown in coffee farms surrounding the houses

Based on the local prices of food items collected, the cost of the model diet used in this study with a total of 2,353 calories/day/person is presented in Table 3.

Table 3. Model diet and food cost (in IDR) per person per day using food prices observed in markets, peddlers and local small shops in West Lampung, August 2023

Food Item	Edible Grams	Purchased Grams	Cost Per Kilo	Cost	Notes
Rice, white medium	364	364	12,562	4,569	Rice is the main staple in Indonesia. It provides 55.6% of calories in our model diet.
Instant noodles	9	9	18,864	162	One packet for family 3 times per week.
Cassava	36	42	6,083	258	
Tempe	42	42	13,358	561	Fermented soybean
Tofu, regular	42	42	13,813	580	
Milk, powdered	11	11	87,179	969	½ cup of liquid milk per day for children ages 2-5
Chicken egg	25	29	31,811	909	4 eggs per week
Fresh fish	49	81	28,628	2,318	Variety of inexpensive freshwater fishes
Dried fish	18	18	41,821	762	Variety of dried fish
Chicken broiler (no giblets or neck)	36	54	41,083	2,201	Chicken is least expensive meat

Food Item	Edible Grams	Purchased Grams	Cost Per Kilo	Cost	Notes
Spinach	33	46	7,661	354	Inexpensive Green Leafy Vegetables
Water spinach	33	37	5,424	200	
Cabbage	33	42	8,273	344	Inexpensive other vegetables
Eggplant	33	41	7,333	301	
Tomato	33	37	9,682	354	
Papaya	33	54	9,189	493	Inexpensive fruits
Banana	33	52	6,213	323	
Watermelon	33	64	8,580	549	
Oil	34	34	16,111	548	Palm oil
White sugar	30	30	14,567	437	
Tea	2,0	2,00	86,944	174	
Cayenne pepper	10	11,11	50,361	560	
Chillies	10	11,11	27,478	305	
Coconut	17,85	34,34	5,000	172	
Total cost of model diet excluding additional costs indicated below				18,400	
Total cost of model diet including additional costs indicated below				**22,264**	
Percentage added for salt, spices, sauces, and condiments				4%	
Percentage for spoilage & waste				4%	
Percentage added for variety				13%	

The cost per person of our model diet is **IDR 22,264.** This implies an expenditure of **IDR 2,708,787** per month for the reference size family of 4 persons. This figure is higher than the actual average monthly household expenditure for food in Lampung province according to the 2022 SUSENAS.

4. HOUSING COSTS

4.1 Local healthy housing standard

Housing costs for living income and living wage are estimated by either determining rent for an acceptable healthy house plus utility costs (water, electricity, and cooking fuel) or the user cost value of an owned house conforming to our local healthy housing specified standards in locations where there are not many rentals. Adequate housing is recognized as part of the right to an adequate standard of living in the 1948 Universal Declaration of Human Rights and in the 1966 International Covenant on Economic, Social and Cultural Rights. It is also recognized in the ILO Recommendation No. 115 concerning Workers' Housing (1961), World Health Organization Principles of Healthy Housing (1989), and UN-Habitat (2009, 2013).

Furthermore, Sustainable Development Goals (SDGs) also has the following goal 11 related housing, "make cities and human settlements inclusive, safe, resilient and sustainable" with a specific target of "by 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums" (United Nations, 2015). Some salient aspects of standards covered in the different international instruments are presented in Table 4.

Table 4. Housing standards principles in international conventions and recommendations

Principles			
Standard	**International Covenant on Economic, Social and Cultural Rights**	**ILO recommendation No. 115 concerning workers' housing**	**WHO health housing**
Safe water (a)			
Sanitation/toilet & sewage disposal	✓	✓	✓
Sufficient living space	✓	Persons per room and/or floor area	Persons per room
Durable structure (protection against elements) (b)	✓	✓	✓
Good condition and state of repair	✓ (e)	✓ (f)	✓
Physical safety	✓	✓	
Adequate ventilation	✓	✓	
Adequate lighting	✓	✓	✓
Safe food storage	✓	✓	
Washing facilities	✓	✓	✓

Principles			
Standard	International Covenant on Economic, Social and Cultural Rights	ILO recommendation No. 115 concerning workers' housing	WHO health housing
Separation from animals	✓	✓	
No site hazards [b, c]	Drainage pollution	Earthquake	Several categories [d]
Refuse/solid waste disposal	✓	✓	✓
Emergency services	✓	✓	
Protection from elements	✓ (e)	✓ (f)	✓

Notes:
(a) The UN-Habitat urban slum housing definition is not included in this table, because it includes only five elements: 'inadequate access to safe water; inadequate access to sanitation and other infrastructure; poor structural quality of housing; overcrowding; insecure residential statuses in addition to security of tenure'. (b) Element included in UN-Habitat definition of urban slum housing. (c) According to UN-Habitat, the following locations should be considered as hazardous 'housing in geologically hazardous zones (landslide/earthquake and flood areas); housing on or under garbage mountains; housing around high-industrial pollution areas; housing around other unprotected high-risk zones (e.g., railroads, airports, energy transmission lines)' (UN-Habitat, 2003, p. 12). (d) WHO indicates the following site hazards: earthquakes, hurricanes, wind, noise, pollution, floods, and landslides. (e) Implied by 'protection from cold, damp, heat, rain, wind or other threats to health, structural hazards, and disease vectors' (International Covenant on Economic, Social, and Cultural Rights, 1966). (f) Implied by 'protection against heat, cold, damp' (ILO Recommendation No. 155).

In addition to the international standard guidelines, the Government of Indonesia established national guidelines for basic healthy house construction under the auspices of the Ministry of Resettlement and Regional Infrastructure (Menkimpraswil, 2002). The Ministry defined acceptable healthy houses as structures that meet the minimum requirements from the health, safety, and convenience perspectives, taking into account aspects such as living space, building materials, geology, local climate and local architecture, and local ways of life. The guideline recommended between 7.2-9 sq. m. of living space per individual and ceiling height of 2.8 metres. This implies a minimum of between 28.8 sq. m. and 36.0 sq. m. of living space for a family of 4 persons. Table 5 below describes what these houses would look like.

Table 5. Healthy house construction, size and characteristics of government standard

House size	Rooms[4]	Building construction[5]	Minimum water and sanitation access[6]
28.8 sq. m.	2 bedrooms @ 3.00 m x 3.00 m	Roof: corrugated zinc, roof tile, concrete, wood Roof frame: wood. Floor: cement, ceramic, granite, wood	Access to safe water.
	Multipurpose room 2.50 m x 3.00 m.	Wall material: half concrete & wood; concrete (brick); elevated wood; non-elevated wood	Sources of safe water: individual tap piped water, communal tap piped water, water terminal, retail seller, rainwater storage, bore hole, protected well, protected spring.
	Bathroom + toilet 1.50 m x 1.20 m.	Window/door/roof frame: wood	Individual sanitation facility with gooseneck closet and land pit.
36 sq. m.	2 bedrooms @ 3.00 m x 3.00 m.		
	Children's bedroom 3.00 m x 3.00 m.		
	Living room 2.50 m x 3.00 m.		
	Multipurpose room 3.00 m x 3.00 m.		
	Bathroom + toilet 1.50 m x 1.20 m		

The health, safety, and convenience of a house is influenced by lighting, ventilation, temperature and humidity in the room. Government requirements are shown in Table 6.

4 Minister of Resettlement and Regional Infrastructure Decree Number 403/KPTS/M/2002 on technical guideline on the construction of healthy small house.

5 Minister of Resettlement and Regional Infrastructure Decree Number 403/KPTS/M/2002 on technical guideline on the construction of healthy small house.

6 Minister of Health Decree Number 492/Menkes/IV/2010 on drinking water quality requirements and Housing, Settlement, Water and Sanitation Working Group (2020).

Table 6. Requirement of lighting, ventilation, room temperature and humidity of healthy house

Aspect	Requirements
Lighting	Direct sunlight can enter the room at least 1 (one) hour every day. Effective light can be obtained from 08.00 to 16.00.
Ventilation	Minimum ventilation 5% (five percent) of the floor area room.
Room temperature and humidity	Temperature and humidity of the room is normal for the human body.

The safety and security of a building depends on its foundation, walls (and building frame), roof and floor; while other parts such as the ceiling, gutters and other, constitute the aesthetics of the building structure.

The above international and national standards of healthy housing can be used to estimate the cost of local healthy housing. However, the common standards, even in terms of national standards, cannot establish what would pass as a norm in diverse conditions – particularly the rural-urban divide - that is ubiquitous in Indonesia. The ministerial regulation acknowledges the diverse local conditions; thus, the regulation also provides for alternative types of housing that can be chosen for particular provinces. For instance, alternative types of houses in Lampung are brick house, half wood-half brick house, stilt wood house, and wood house.

Table 7 below indicates current housing conditions in rural and urban Lampung based on the BPS's national socio-economic survey. The last column in Table 7 indicates the specific aspects of our local healthy housing standard that meets national and international standards.

Table 7. Housing characteristics in Lampung 2022

	Urban %	Rural %	Acceptable Rural Living Income Housing Standard
Size			
< 7.2 sq. m. per person	2.50	2.07	Average is above 10 sq. m. per person (equal to > 40 sq. m. for family of 4). 48 sq. m. is used as standard as it is smallest in Anker Methodology for upper-middle income country such as Indonesia.
7.2 - 9.9 sq. m. per person	8.07	6.91	
≥ 10 sq. m. per person	89.43	91.93	
Roof			
Concrete	0.97	0.71	Corrugated zinc or better.
Roof tile	80.80	86.43	Asbestos, bamboo/straw not acceptable.
Zinc	4.18	4.66	
Wood	0.00	0.07	

	Urban %	Rural %	Acceptable Rural Living Income Housing Standard
Asbestos	13.45	7.67	
Bamboo/straw/others	0.60	0.47	
Floor			
Marble/granite	3.65	1.50	Cement, ceramic, tiles, wood, marble.
Ceramic	52.51	32.13	Earthen or dirt floor not acceptable.
Parquet/vinyl/carpet	0.00	0.09	
Tiles/terrazzo	2.52	1.50	
Wood plank	1.44	2.78	
Cement/brick	38.94	57.95	
Bamboo	0.05	0.30	
Earth	0.89	3.52	
Other	0.00	0.23	
Wall			
Cement/stone/brick	90.67	80.39	Cement/stone/brick and wood plank.
Plastering bamboo/wire	0.32	0.22	Webbing bamboo and bamboo are not acceptable.
Wood plank	6.96	15.47	
Webbing bamboo	1.76	2.21	
Wood stem	0.04	0.14	
Bamboo stem	0.10	0.38	
Other	0.15	1.19	
Lighting source			
Electricity-PLN	99.94	98.07	Electricity
Electricity-non-PLN (e.g. solar energy)	0.06	1.59	
Non electricity	0.00	0.34	
Water source			
Branded bottled/ gallon water	9.47	0.79	Bottled water, piping water, protected well and, protected spring, rainwater storage.
Non branded bottled water	29.93	12.84	
Piped into dwelling or yard	3.75	1.50	Surface water and unprotected source not acceptable

	Urban %	Rural %	Acceptable Rural Living Income Housing Standard
Borehole/pumped well	17.57	18.20	
Protected well	27.07	42.81	
Unprotected well	8.81	14.22	
Protected spring	2.84	4.26	
Unprotected spring	0.36	4.05	
Surface water	0.21	0.94	
Rainwater	0.00	0.15	
Other	0.00	0.23	
Distance to water source <30 minutes	92.04	92.28	
Toilet facility			
Gooseneck toilet	94.85	92.87	Gooseneck toilet is acceptable.
Pit latrine with slab	0.66	0.76	Pit latrine and open pit are not acceptable.
Pit latrine without slab	2.45	1.35	
Open pit	2.05	5.02	
Cooking fuel			
Electricity	0.64	0.66	Gas, electricity and wood fuel acceptable.
Gas	95.11	89.11	
Wood fuel	3.88	10.18	
Kerosene	0.13	0.00	
Others	0.03	0.00	
Not cooking at home	0.20	0.05	
Slum area	**6.76**	**6.82**	Not located in slum area
Households with adequate housing	58.11	62.67	

Source: Synthesised from Indonesia Statistics, 2022 and Center of Statistic of Lampung 2023.

We spoke to 8 carpenters and 19 FGD participants in four sub-districts who mentioned that a standard house size in West Lampung is around 6 x 9 meter (54 sq. m.), excluding a separate kitchen. This is equivalent to around 48 sq. m. of living space excluding inner and outer walls, and the kitchen (Anker and Anker 2017). The kitchen size mentioned by the respondents ranged from 6 x 3 meter (18 sq. m.) to 5 x 8 meter (40 sq. m.). The Lampung Statistics Office (2023) found that the distribution of plinth area (i.e., area of house from outer walls)

per capita in West Lampung is ≤ 7.2 sq. m. (6.25%), 7.3–9.9 sq. m. (5.23%), and ≥ 10 sq. m. (88.52%) which implies a house size for a family with four members of ≤28.8 sq. m. (6.25%), 29.2–39.6 sq. m. (5.23%), and ≥ 40 sq. m. (88.52%). Thus, the majority of households with four members have houses with more than 40 sq. m. plinth area (equivalent to around 35 sq. m. of living space).

The Anker Methodology requires a minimum of 48-60 sq. m. of living space for an upper-middle income country such as Indonesia. Therefore, we used 48 sq. m. as our minimum housing living space standard considering the aforementioned Lampung Statistical Office data and minimum required house size for upper-middle income countries in the Anker Methodology of 48 sq. m.

4.2 Observations on local housing based on visits to local farmers and rural local housing

Most of the coffee farmers we visited lived along the access road to the villages, while their coffee farms were often located at some distance from their homes. The farmers relied mainly on motorbikes to travel from their homes to their farms, given the unavailability of public transport. All of the farming families attending FGD sessions live in owned houses, and this was typical for the study area as it was difficult to find rented accommodation around the villages. Figure 12 shows the house construction observed during the fieldwork.

Figure 12. Different housing construction

The fieldwork found that a typical farmer's house, on average, encompassed an area of 54 sq. m. with 3 bedrooms, living room, and multipurpose room and a separate kitchen and bathroom with a squat gooseneck toilet. The separate kitchen area is around 18 sq. m. Materials used for the building construction varied between houses, i.e., with walls being made of brick, wood or half wood-half brick while the floor was either cement or ceramic. In Figure 12, the left picture is an elevated traditional Lampung house made of wood. The house owner added some rooms in the house basement using concrete material. A traditional wood house is more expensive now therefore people prefer to build concrete houses. The house

in the center is made of brick for its lower part and wood for its upper part. The house on the right is made of concrete. For the roofs, the left and center houses use corrugated zinc while the right house uses roof tile. Some houses use asbestos which is considered as inadequate material due to its carcinogenic status.

Figure 13. Living rooms

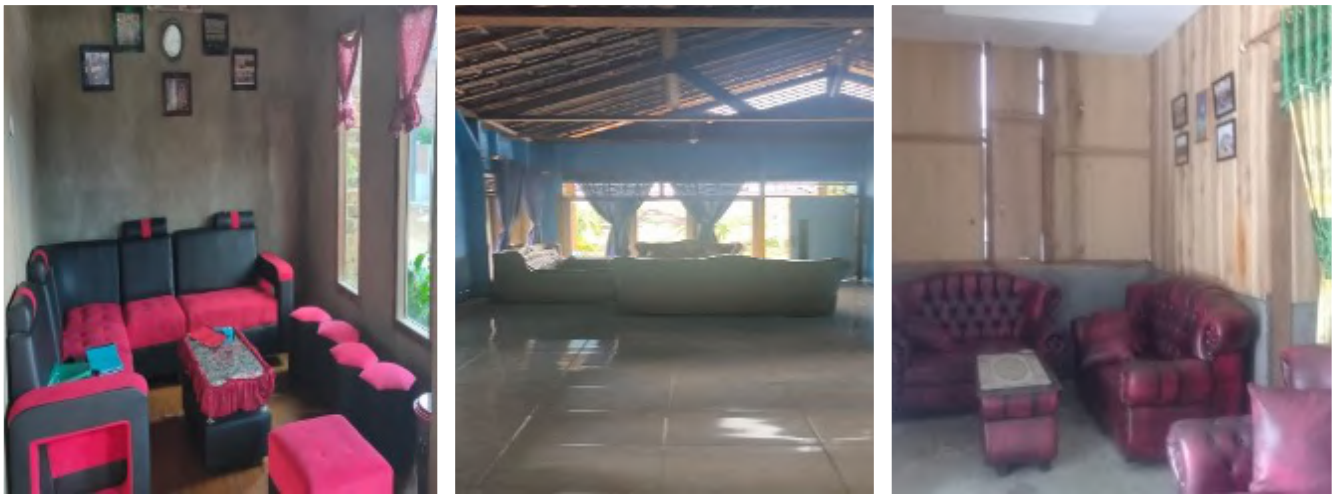


Figure 13 shows the living room in a wood house (left), half wood and half concrete house (center) and concrete house (right). Non-elevated houses in West Lampung usually have cement floor (center), cement floor covered with plastic carpet (right) or ceramic (left) while elevated houses have wood floor as shown in the Figure 14 (left).

Figure 14. Multipurpose rooms

The traditional wood house usually has a large, connected living room and multipurpose room that can accommodate extended family gatherings (left). A multipurpose room can be used to watch television (center) or store coffee harvest and motorcycle (right).

Figure 15 shows kitchens that use gas to cook (left and center). In addition to a kitchen with a cooking stove, some houses also have additional kitchens to allow cooking with wood (right). The left picture also shows a bathroom located close to the kitchen.

Figure 15. Kitchens

Houses usually have a gooseneck toilet as shown in Figure 16.

Figure 16. Gooseneck toilet

Based on our observation, most of the houses we visited were of acceptable standard and only a few were found to be unsatisfactorily constructed. For example, Figure 17 below shows unacceptable standards due to low quality wood house construction and dirt floor in the house kitchen. This unacceptable standard was acknowledged by the house-owning farmer.

Figure 17. Unacceptable housing standard

4.3 Rent for basic acceptable housing

The rental cost of an acceptable house is used to estimate housing cost whenever it is possible to determine typical rents for such houses. When it is not possible to establish a rental cost, because almost all families such as in rural West Lampung reside in a self-owned house, the Anker Methodology employs the user cost approach for owned housing. The 2022 national socio-economic survey found that only 0.71% rural households in Lampung province rented houses while 94.85% lived in their own houses, 4.09% lived in other people's houses without paying cost, and 0.26% lived in houses provided by their employers (National Statistical Bureau, 2022).

Two FGD participants in Way Tenong and Kebun Tebu lived in rented houses. The respondent in Way Tenong rented a 72 sq.m. house made of fibre cement board wall with cement floor for IDR 2.5 million per year. The house has two bedrooms, kitchen, and bathroom with piped water, gooseneck toilet and septic tank. The respondent in Kebun Tebu rented a 148 sq. m. house made of brick and cement wall with cement floor for IDR 5 million per year. The house has four bedrooms, kitchen, and bathroom with piped water, gooseneck toilet and septic tank. The house was leased because its owner had moved to another house while the renter just moved to the village in the past few years. These renters considered their rented houses as adequate houses for their families. The size of the first rented house is similar to typical housing in the area but it has fewer bedrooms (i.e., 72 sq. m. with three bedrooms). On the other hand, the size of the second house is significantly larger than a typical house of farming families. Extrapolating from this observation, the estimated monthly housing cost was calculated at IDR 2.5 million divided by 12 for the first rented house (i.e., IDR 208,333) and 48% (i.e., 72 sq. m. /148 sq. m.) of IDR 5 million per year or IDR 200,000 per month. The costs of monthly rent per meter for the two houses were quite similar.

Since rented houses are in limited availability in the study area, we used the user cost approach to estimate the rental equivalent value of owner-occupied housing. This approach

is used by government statistical offices and is recommended by the Anker Methodology for these circumstances. This approach uses the: (i) construction cost of a house built to our local healthy housing standard, (ii) expected service life expectancy of the house, and (iii) annual maintenance and repair costs as a percent of construction cost.

To get reliable and objective estimates for these three factors, we solicited information from one District Public Work, one building material supplier, and eight carpenters. We visited houses under construction to get a better understanding on the house building process and materials as shown in the following pictures.

We asked our ten sources to submit estimates for constructing a house which conforms to the national healthy housing standard. We also asked them about the expected service life and typical annual maintenance and repair costs for such a house. Their responses are presented below in Table 8. below.

Figure 18: Houses under construction

Table 8. Cost of house construction in West Lampung District

No	Respondent	House size (sq. m.)	Cost of Construction (IDR)	Cost per sq. m. (IDR)	Durability (years)	Percentage for maintenance and repairs
1	Carpenter in Way Tenong	94	114,656,000	1,219,745	25	0.5%
2	Carpenter in Way Tenong	94	118,791,000	1,263,734	25	0.5%
3	Carpenter in Batu Brak	84	151,200,000	1,800,000	50	0.3%
4	Carpenter in Kebun Tebu	82	156,740,000	1,911,463	50	1.0%

No	Respondent	House size (sq. m.)	Cost of Construction (IDR)	Cost per sq. m. (IDR)	Durability (years)	Percentage for maintenance and repairs
5	Carpenter in Air Hitam	75	146,010,000	1,946,800	50	0.3%
6	Carpenter in Kebun Tebu	78	154,795,000	1,984,551	50	1.4%
7	Carpenter in Air Hitam	75	150,900,000	2,012,000	50	No information
8	Government official in Liwa	69	143,784,960	2,083,840	15	No information
9	House material supplier in Liwa	78	196,210,000	2,515,513	No information	No information
10	Carpenter in Batu Brak	72	183,650,000	2,550,694	45	0.3%

All of the houses in Table 8 above are constructed with brick, have cement or ceramic floor with corrugated zinc or roof tile roof. These houses have three bedrooms, one living room and one multipurpose or family room with a plinth total living area of 54 sq. m. (6 m x 9 m). These houses also have kitchens with different sizes ranging from 15 sq. m. (2.5 m x 6 m) to 40 sq. m. (5 m x 8 m). The range of total house size is 69 sq. m. to 94 sq. m. The difference sizes of houses in the table are mainly due to different kitchen areas. Since those houses have different sizes, we calculated construction cost per sq. m., which resulted in a range of IDR 1,219,745 to IDR 2,550,694 per sq. m. The government official resource person mentioned that the national government standard cost to build a house is IDR 2,200,000 per sq. m. West Lampung's construction cost index is 94.72% of national standard cost. Therefore, according to the government standard cost standard, the cost to build a house in West Lampung is IDR 2,083,840 per sq. m. Based on data in Table 8, the median cost per sq. m. for plinth area/ from outer walls area is IDR 1,998,276 which is very similar to cost according to government. Using this average cost per square meter times our housing size standard of 48 square meters of living space (equivalent to around 54 square meters of plinth area), a minimum acceptable standard house with this space is IDR 119,896,560 (i.e., IDR 1,998,276 x 54).

Respondents provided varied lengths of house durability. While half of respondents mentioned 50 years of durability, a respondent in Liwa mentioned 10–15 years for low quality houses and 15–20 years for high quality houses. Of note, Liwa sub-district area has less stable land that leads to shorter period of construction durability. The median and mode of house durability in Table 8 is 50 years. It implies a monthly depreciation cost of IDR 199,828 (i.e., IDR 119,896,560/50/12).

To estimate the user cost value of a house, it is necessary to also estimate monthly maintenance and repair costs. This varied from 0.3% to 1.40% according to the resource persons. Anker and Anker (2017) indicate that 1-2% of annual house maintenance cost is typical. This study uses 2% annual maintenance cost. It results in IDR 2,397,931 annual maintenance and

repair costs or IDR 199,828 per month. Taking depreciation costs and maintenance costs together, we estimate the user cost of acceptable healthy housing as IDR 399,656 per month.

4.4 Estimating costs of utilities

The housing costs need to take into account not only monthly expenditures on housing but also costs of essential utilities like electricity, cooking fuel, and drinking water. Based on interviews and observations during fieldwork, it was established that normally the farming families had access to electricity and piped clean water. For this reason, the cost of utilities is included in housing costs.

On average, we found that farmers spend around IDR 100,000 per month for electricity. For clean water, most interviewed farmers in Batu Brak, Kebun Tebu and Way Tenong have access to piped water while farmers in Air Itam use protected wells. Those who have piped water provided by their village do not pay or only pay around IDR 10,000–25,000 per month.[7] The median of water bills paid by respondents is IDR 10,000. For cooking, rural residents use a mix of liquid petroleum gas (LPG) and firewood. Firewood is collected from the garden and forest, and it is mostly used to cook food that requires a large amount of time and boiling water for drinking. We learned that farmers typically use a 3 kg LPG gas canister. Most of the farmers we spoke to needed 2 LPG canisters per month and this implies a cost of around IDR 50,000 (i.e., 2 x IDR 25,000 per LPG canister) per month for LPG. We increased this value to IDR 70,000 to consider the time invested to collect firewood in the forests. With the above, in total a farmer household spent around IDR 180,000 per month for utilities.

Note that the utility costs per month of IDR 180,000 based on our rapid assessment is only slightly higher than average (mean) utility cost per capita for rural areas in Lampung according to 2022 SUSENAS which is IDR 24,009 for electricity, IDR 777 for water, and IDR 11,120 for gas or IDR 35,906 per capita per month. This is IDR 143,824 on average for households with four members. The 2022 SUSENAS household expenditure data of rural Lampung for households at the 40th percentile of the household expenditure distribution indicates utility costs per month per capita of IDR 15,018 for electricity, IDR 2,283 for water, and IDR 9,005 for gas. Which implies total utility cost per capita of IDR 26,306 or IDR 105,224 for a household with four members.

4.5 Summary of housing costs

Our estimate of the housing costs for households in West Lampung is IDR 579,656 (IDR 399,656 for rental equivalent plus IDR 180,000 for utilities) per month as summarised in the following table.

7 Those who access piped water provided by the district water company in Batu Brak pay around IDR 60,000–80,000 per month.

Table 9. Estimated costs of housing (IDR)

House	399,656
Cooking fuel	70,000
Electricity	100,000
Water	10,000
Total	**579,656**

5. NON-FOOD AND NON-HOUSING COSTS

Non-food and non-housing (NFNH) items are basic household needs for clothing and footwear, health care, education, transport, household furnishings and equipment, recreation, alcohol, communications, insurance, service part of eating out, etc. These are important in enabling a decent standard of life.

The NFNH costs are estimated by first determining the ratio between NFNH expenditures and food expenditures and then multiplying this ratio by the cost of the model diet for the reference family. To estimate the NFNH/Food ratio, we used recent household expenditure data for rural Lampung from the 2022 Indonesia National Socio-Economic Survey (SUSENAS) conducted by the Government of Indonesia's Bureau of Statistics (BPS). This was done for households at the 40th percentile of the rural Lampung household expenditure distribution because such households should be out of poverty but also far from being high income.

Table 10 indicates the distribution of household expenditures for 2022 more or less according to the international classification of household expenditure for households at the 40th percentile of the household expenditure distribution in rural Lampung – after excluding expenditure for tobacco which is deemed to be unnecessary for decent living. Tobacco is excluded in Table 10, because the Anker Methodology does not consider tobacco to be necessary for decency, and the WHO does not include its use in its specified standards for a healthy life. However, it is worth noting that this causes a dilemma because tobacco is such an important expenditure in Indonesia with 9.3% of all household expenditures in rural Lampung being for tobacco. Indeed, Indonesia has the second highest prevalence rate of cigarette consumption (and by far the highest prevalence rate for men) among 43 countries according to OECD[8]. This means that since tobacco is addictive and common, it is likely that tobacco consumption will continue regardless of its negative health, and as a result it is possible, and even likely, that too little will be left over from our living income estimate for decency.

Using the SUSENAS classification of household expenditures, such households spent 55.9% on food, 15.3% on housing, and 28.8% on NFNH. The ratio of NFNH to Food expense is thus 0.65.

8 OECD Library. OECD indicators. Health at a glance: Smoking among adults. Accessed November 20, 2023.

To estimate a final NFNH to Food ratio, we moved from food to NFNH that portion of food eaten away from home that is attributable to the profit, services and other expenses in these meals. We assume that 30% of the cost of meals away from home is for services, profit and other expenses in rural Lampung. Subsequently, the NFNH to Food ratio is established at 0.61. Initial NFNH costs are then estimated by multiplying this NFNH/Food ratio of 0.61 by the cost of the model diet estimated above. **Accordingly, NFNH costs are estimated to be IDR 1,652,360 (i.e., 0.61 x IDR 2,708,787).**

Table 10. Percentage distribution of household expenditures for households at 40th percentile of the household expenditure distribution for rural Lampung in 2022

Major expenditure group	Sub major expenditure group	% total exp. in secondary data	Adjustment explanation	% After adjustment
	Total	**55.9**		**52.5**
FOOD	Food and non - alcoholic beverages	44.4		44.4
	Restaurants and food away from home	11.5	30% transferred to NFNH	8.1
HOUSING		**15.3**		**15.3**
NON-FOOD & NON- HOUSING (NFNH)	Alcohol	0.0	No adjustment	0.0
	Clothing & footwear	3.3	No adjustment	3.3
	Household furnishings	0.9	No adjustment	0.9
	Education	2.6	No adjustment	2.6
	Healthcare	2.5	No adjustment	2.5
	Transportation	6.7	No adjustment	6.7
	Communication	3.4	No adjustment	3.4
	Recreation & culture	0.5	No adjustment	0.5
	Restaurants and food away from home	0	30% transferred from food	3.5
	Ceremonies	0.5	No adjustment	0.5
	Miscellaneous goods and services	8.4	No adjustment	8.4
TOTAL NFNH		**28.8**		**32.2**
NFNH/Food ratio		**0.65**		**0.61**

Note: According to SUSSENAS 2022 data, 9.3% of all household expenditures in rural Lampung is for tobacco. Tobacco expenditure is excluded in this table, as it is not considered a necessary expense in the Anker Methodology.

5.1 Post checks on education and health care

Post checks for education and health care are conducted to determine whether sufficient funds are included in the preliminary NFNH estimate or whether additional funds are required for these necessary expenditures in line with the aegis of human rights in order to achieve a decent standard of living. Adjustments would then be made, if necessary, to the preliminary NFNH estimate to ensure that the SUSENAS secondary data does not underestimate these expenditures. There are other items included in the NFNH – such as clothing and footwear, communications and recreation, and furniture and household appliances - which are not included in a possible post check adjustment. The underlying assumption being that these items of expenditure, though important, are not as crucial for a basic and decent life and therefore, we hold that the information on household expenditures on these items provided in the SUSENAS 2022 data suggests a reasonable representation of their costs.

Thus, the post checks were started by estimating the amounts for the education and health care human rights included in the preliminary NFNH estimate. These amounts are calculated and indicated in Table 11 below.

Table 11. Health care and education expenditures included in preliminary NFNH estimate

	% of all household expenditures	% of NFNH expenditure	Amount (IDR/month) in preliminary NFNH (IDR 1,652,360)
Health care	2.5	2.5/32.2 = 7.7	127,231
Education	2.6	2.6/32.2 = 8.0	132,189

In conducting the following post-checks, we compared the amounts included in the preliminary NFNH in Table 11 above against the amounts required for these based on information collected from the households during our fieldwork to determine if any adjustment is needed.

5.1.1 Health care post check

Context of health system in Indonesia

Since 2014, the Government of Indonesia has adopted a universal health coverage through its National Health Insurance scheme (Jaminan Kesehatan Nasional - JKN) managed by the Social Security Administering Body for Healthcare (Badan Penyelenggara Jaminan Sosial Kesehatan - BPJS-K). In this regard, the Law No. 40/2004 on the National Social Security System mandated that every resident of Indonesia participate in the BPJS-K and pay contributions that secure eligibility, irrespective of income or employment status.

There are two categories of BPJS-K's participants: 1) The Subsidised Contribution Recipient or Penerima Bantuan Iuran (PBI) who represent the poor and near-poor groups receiving assistance from the government (including people with disability), and to whom health

care services are provided free of charge; and 2) The Non-subsidized Contribution Recipient or Bukan Penerima Bantuan Iuran (BPBI) who represent residents who do not receive any assistance and are required to pay a monthly fee to be covered for the health care services in the BPJS-K. The BPBI includes those working in the informal sector and self-employed persons (including farmers) who can select a class of health care services (class 1, class 2, and class 3). The monthly fee for Class 1 is IDR 150,000 per person per month, for Class 2 is IDR 100,000 per person per month, and for Class 3 is IDR 42,000 per person per month. The monthly fee per person for Class 3 is equal to IDR 35,000 per person per month (USD 2.33) after deducting the government subsidy of IDR 7,000 per person per month. The majority of farmers and their families fall outside of the PBI category and are therefore obliged to pay for the health care insurance. Likewise, this would also apply for families earning a living income (Table 12).

Table 12. Monthly subscription fee of the national health insurance scheme (BPJS)

Class	Fees	Inpatient Facilities
I	IDR 150,000/person/month	2 persons in a room during inpatient treatment
II	IDR 100,000/person/month	5 persons in a room during inpatient treatment
III	IDR 42,000/person/month	Inpatient ward

We believe that for a decent life families should be able to have national health coverage benefits emanating from subscription to Tier 3 insurance. Commensurately, for a family of four the costs of this insurance - after government subsidy - is IDR 140,000 per month (i.e., IDR 35,000 per person times 4). This represents around 2.7% of our living income. Since this percentage is very similar to the 2.4% for health care insurance included in the miscellaneous expenditure group for households at the 40th percentile according to 2022 SUSENAS household expenditure data, the cost of health insurance is already covered in NFNH.

To understand the availability of health services and costs to access such services in West Lampung District, we visited the public health centers (Puskesmas) of Batu Brak, Air Itam, Kebun Tebu, and Way Teunong Sub-Districts, interviewed the health personnel around the health services provided by the Puskesmas, typical services accessed by the community members and costs for the services, the BPJSK subscription among the households, the referral mechanism for more serious illness along with the costs incurred, and other alternative health service providers in the area. We also observed the facilities, equipment, and the services provided in the Puskesmas. Further, we consulted community members through Focus Group Discussions in four sampled villages in the four aforementioned sub-districts to determine typical health services accessed by the households and the associated expenditures.

Our interviews and discussions with key informants at Puskesmas and FGDs with farmers indicated that diarrhoea, pneumonia, and flu are the most common illness in the areas. The cost of each treatment at Puskesmas in Lampung Barat is regulated by the local government (Lampung Barat local Government regulation no 74/2020). The regulation is published openly in each health center, as can be seen in Figure 19.

Figure 19. Cost of each treatment at the health center based on local government regulation is presented in the reception of the health center

UPT. PUSKESMAS BATU BRAK

Alamat : Jl. P. Maulana Baiyan No. 02 Pekon Balak Kec. Batu Brak Kab. Lampung Barat

Berdasarkan Peraturan Bupati Kabupaten Lampung barat No. 74 Tahun 2020

TARIF PELAYANAN UPT PUSKESMAS BATU BRAK

No.	JENIS PELAYANAN	TARIF (Rp)
A.	RAWAT JALAN	
1	Poliklinik Umum / Balai Pengobatan Puskesmas	10.000
2	Rawat Jalan di Puskesmas Pembantu dan Puskesmas Keliling	10.000
3	Paket Keur / Pemeriksaan Kesehatan Haji	195.000
4	Home Visite (Perkunjungan)	25.000
5	Konsultasi Kesehatan di Puskesmas, Puskesmas Pembantu dan Pusling	10.000
6	Visum et repertum :	
	- Korban Hidup	100.000
	- Korban Mati	150.000
7	KIR Pemeriksaan Umum	15.000
8	KIR Pemeriksaan USG	75.000
9	EKG	50.000
10	Pemeriksaan IVA	25.000
B.	RAWAT INAP	
1	Rawat Inap	200.000
2	Pemasangan Kateter	25.000
3	Pemasangan Naso Gastric Tube	50.000
4	Bilas / Kumbah Lambung	100.000
C.	GAWAT DARURAT	
1	Tindakan Kegawatdaruratan / emergency / Kecelakaan	15.000
2	Persalinan Normal	1.000.000
3	Persalinan Dengan Penyulit	1.100.000
4	Insisi Abses	60.000
5	Insisi Hordielum	35.000
6	Sirkumsisi	225.000
7	Penjahitan Luka / heacting	
	- Luka Ringan (<10 cm)	30.000
	- Luka Sedang (10-20 cm)	50.000
	- Luka Berat (>20 cm)	75.000
8	Lepas Jahitan atau Perawatan Luka	15.000

Even with government health insurance, families have health care costs. There are government co-pays, and it is reasonable for people to visit private providers once a year for convenience and emergencies or other reasons as well as see specialists sometimes. In Table 13, we estimate how much health care expenses could be for our reference family with Class 3 national health insurance (BPJS). We assume 4 visits per year to a health care facility (once every 3 months on average) as suggested in Anker and Anker (2017) with 1 visit to a private provider and 3 visits to a public provider. We also assume 1 visit per year to a dentist and once every two years to an ophthalmologist for glasses for half of family members.

Table 13. Estimating costs for health care services in West Lampung District for the reference family of 4 with Class 3 national health insurance (BPJS)

Type of provider	Cost per visit for typical illness (IDR) (1)	Number of visits per year per person (2)	Total cost per year for family (3) = (1) x (2) x 4 reference family size
Public medical provider			
Consultation fee or co-pay	10,000	3.00	120,000
Medicine co-pay	0	2.00	0
Medicine cost when must be purchased	10,000	1.00	40,000

Type of provider	Cost per visit for typical illness (IDR) (1)	Number of visits per year per person (2)	Total cost per year for family (3) = (1) x (2) x 4 reference family size
Lab test cost or co-pay	30,000	1.00	120,000
Private medical provider			
Consultation fee	40,000	1.00	160,000
Medicine	10,000	1.00	40,000
Dentist			
Visit	100,000	1.00	400,000
Ophthalmologist			
Visit and glasses for 2 of 4 family members every other year	300,000	0.25	300,000
Total cost per person per year			**1,180,000**
Total cost per family per month			**1,180,000/12= 98,333**

This rapid health care assessment indicates IDR 98,333 costs per month for the reference family. This is less than the IDR 127,231 already included in the preliminary NFNH for health care, and therefore there is no need for a post check adjustment.

5.1.2 Education post check

In Indonesia, education falls under the responsibility of the Ministry of Education, Culture, Research, and Technology (*Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi* or *Kemdikbudristek*) and the Ministry of Religious Affairs (*Kementerian Agama* or *Kemenag*).

All Indonesian citizens are required to undertake twelve years of compulsory education, starting from the age of six. This consists of 6 years in elementary school (*Sekolah Dasar*; *SD*), 3 years in lower secondary school (*Sekolah Menengah Pertama*; *SMP*), and 3 years in upper secondary school. Some schools offer an accelerated learning program in which students who perform well can complete the primary level in 5 years and lower secondary level in two years. At the upper secondary school level, families may opt to send their children to vocational schools which specialise in either technology and engineering, health, arts, crafts and tourism, information and communication technologies, agro-business and agro-technology, or business management. Another track is to choose religious schools (*madrasah*), which not only includes general knowledge such as natural and social sciences, but also Islamic studies. Prior to elementary education, children can attend non-compulsory preschools offered by private kindergartens and day care centers, as well as public early childhood education providers.

Schools are run either by government (*negeri*) or private sector (*swasta*). The majority of elementary schools — nearly 90 percent in 2022 — are public. However, private institutions play a more prominent role in Indonesia's school system at the secondary level: 43% of schools at the lower-secondary level and 62% at the upper-secondary level were private in 2022, even though a majority of secondary students were enrolled in public institutions.

Education is provided free of charge at public schools. Interviews with farmers indicated that their children are largely going to public primary and lower secondary schools around the villages and senior secondary school in the sub-district. Families do not have to pay for tuition fees, but some paid for POMG (parent and teachers' association fund) fee in particular schools, which was around IDR 10,000 per child per month or IDR 20,000 per month for a reference family of 2 school age children. In addition, farmer households reported that they typically spent around IDR 150,000 on notebooks and stationery and between IDR 200,000 - IDR 320,000 on photocopy and students' worksheet per child per year.

The district government provides standard uniforms for free at primary and lower secondary schools, yet families need to pay for sports uniforms, shoes, and a school bag. Meanwhile for senior secondary school, the families need to pay school fee, school uniforms, as well as shoes and bags. Because free meals are not provided at schools, families also provide pocket money for children to buy prepared foods and beverages (e.g., snacks and drinks) sold around the schools, which is typically between IDR 2,000-3,000 per child per day for primary school, IDR 5,000 per child per day for lower secondary school, and IDR 10,000 per child per day for upper secondary school. These costs are equal to IDR 120,000 per month per child in school. Some families provide a lunch box for their children and reduce the pocket money. For secondary school students, families need at least IDR 10,000 per day which is equal to around IDR 150,000 per month for transportation (assuming there are around 180 school days per year) either for motorcycle use and fuel or families arranging for school pick up. Note that we do not consider here school related costs for (i) school meals or pocket money for snacks since they are in a sense substituting for home cooked meals included in our model diet, (ii) school transport costs since they are covered under transportation costs in NFNH, (iii) school uniforms and shoes since they are covered under cloths and footwear in NFNH, and (iv) mobile phone credit and internet costs, especially for secondary school children, as they are covered under communications in NFNH.

Based on the interviews with farmers, we learned that although not obligated, almost all families send their children below school age to a preschool for 1-2 years, mostly operated by the village government and or private owners. Families need to budget about IDR 2,000,000 per child per year for this. As calculated in Table 14, our estimate of education costs for comparison to what is included for education in NFNH for our reference family is IDR 128,056 per month, inclusive of 2 years of pre-school and 12 years of primary and secondary schools. This amount is very similar to the amount included for education in our preliminary NFNH estimate of IDR 132,189. Therefore, the amount included for education in the preliminary NFNH estimate is sufficient, and so we did not add a post check adjustment for education.

Table 14. Estimating costs for education for rural households in West Lampung (in IDR)

Type of expense (per year)	Pre-primary	Primary	Lower Secondary	Upper Secondary	TOTAL
Registration fee	25,000				
School fees	2,000,000			1,200,000	
School funds-e.g. building funds	0	120,000	120,000	120,000	
Fees for typical extra activities and materials (e.g. art supplies, physical education equipment)	0	120,000	120,000	120,000	
Supplemental tutoring	N/A	N/A	N/A	N/A	
Examination fees	N/A	N/A	N/A	N/A	
Learning materials (e.g. books)	N/A	0	300,000	300,000	
School supplies (e.g. notebook, pencils)	N/A	100,000	150,000	150,000	
Total of yearly expenses (1)	2,025,000	340,000	690,000	1,890,000	4,945,000
Number of years in each level (2)	2	6	3	3	
Total cost x number of year in each level (3) = (1) x (2)	**4,050,000**	**2,040,000**	**2,070,000**	**5,670,000**	**13,830,000**
Average cost per child per year (4) = (3)/18 years of childhood					**768,338**
Average cost for reference family per month (5) = (4) x number of children in reference family/12					(768,333 x 2)/12 = **128,056**

Note: NA indicates not applicable.

6. PROVISION FOR UNEXPECTED EVENTS TO ENSURE SUSTAINABILITY

Since large unforeseen expense and events can quickly throw farmers and others living at a decent standard into poverty and debt from which they may not be able to recover, it is important when estimating a living income to add a small margin to cover for contingencies. There are many unexpected events faced by rural families such as illnesses, accidents, natural disasters, etc. The Anker Methodology recommends a 5% margin for emergencies and sustainability and this percentage has been used in many living wage and living income studies in other countries. This percentage implies **IDR 247,040 (USD 16)** per month for emergencies and sustainability.

SECTION III.
LIVING INCOME FOR FARMERS IN LAMPUNG

7. FAMILY SIZE NEEDING TO BE SUPPORTED BY LIVING INCOME

Since living income is a family concept, income received should cover basic needs of all members of the family. It is therefore necessary to determine an appropriate family size for the study area to estimate a living income.

To determine the reference family size, that is, a typical family size for the study area, we adjusted the total fertility rate (TFR) in Lampung province of 2.33 by the mortality rate for children under 5 years, which was 34 per 1000 live births as indicated in the Population Census 2020. The subsequent child mortality adjusted TFR for Lampung was calculated to be 2.25. This implied a reference family size of slightly above 4.

In the second stage, we estimated average household size from the distribution of households by the number of members for Lampung Province and West Lampung District, using data from the National Socio-Economic Survey of 2022. The findings were the following: 3.84 people per household on average in Lampung Province, 3.72 people in West Lampung District, 3.70 in rural West Lampung, and 4.08 for urban West Lampung. We also calculated average household size for households with 2-6 members (i.e., excluding one person households that definitely do not include children and households with 7+ members[9] which are likely to be extended family households with more than 2 earners). Data from the Population Census 2010 and Indonesia Population Projection calculations undertaken by the Federal Bureau of Statistics (BPS) in 2019 showed that the average household size for households with 2-6 members was 3.9 in West Lampung and 4.0 in Lampung Province.

In keeping with the above calculations and inferences, we chose a reference family size for Lampung of 4 (with 2 adults and 2 children) as most appropriate. This is consistent with the adjusted and unadjusted total fertility rate and average household size of around four indicated above.

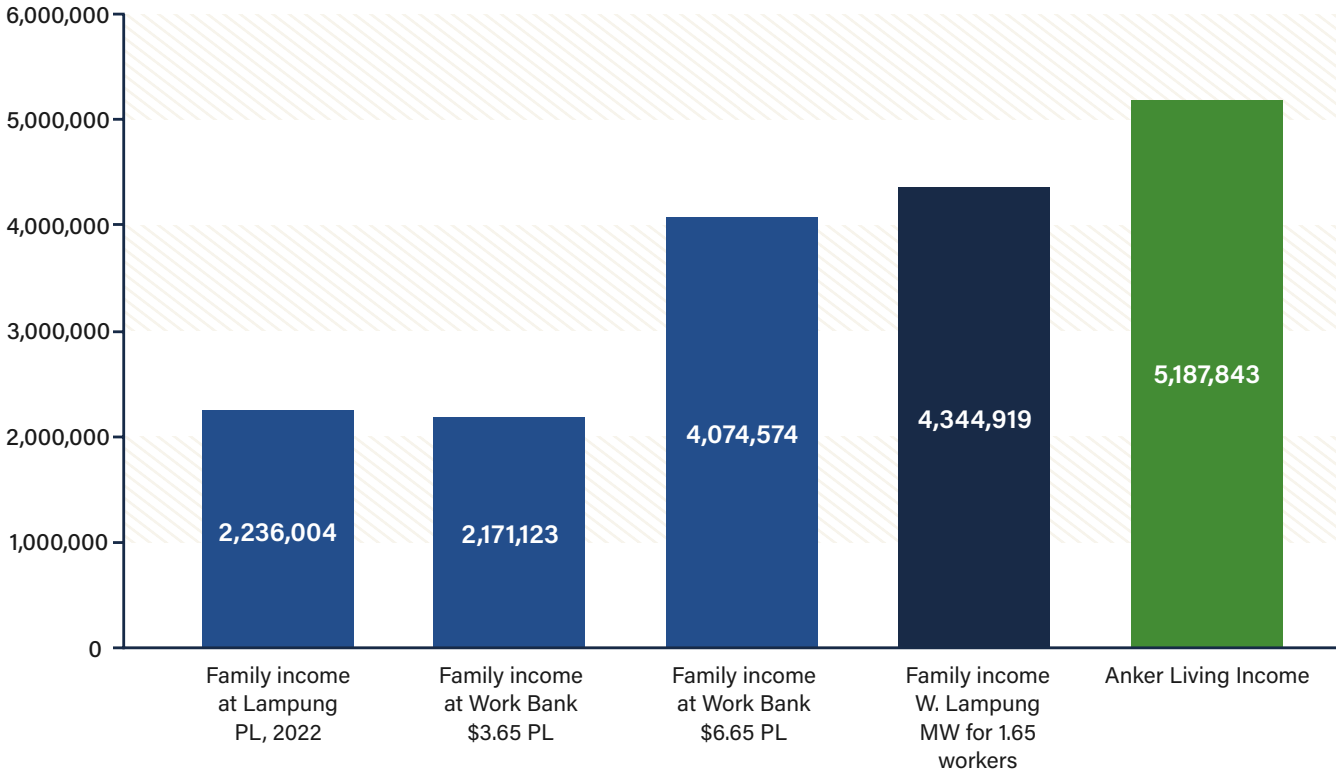
8. FAMILY INCOME LADDER

This section indicates how our estimated living income compares with other important comparators such as the Indonesia poverty line, the World Bank poverty for lower-middle income and upper middle-income countries, and what family income would be if working family members earned the provincial minimum wage. In 2023, the poverty line for Lampung was IDR 559,011 per person per month or IDR 2,236,044 for a family of 4 persons. Indonesia was categorised as an upper-middle income country in 2020 but its status was

9 Note that 6+ members is the largest household size reported.

lowered to lower-middle income country in 2021-2022. In July 2023, Indonesia returned to the upper-middle income category.[10] Using the World Bank 3.65 PPP poverty line of internationally comparable purchasing power parity dollars of IDR 4,889, this is IDR 2,171,123 for a lower-middle income country, and IDR 4,074,574 using the World Bank 6.85 PPP poverty line for an upper-middle income country for a typical family with four members. Meanwhile, the minimum wage in 2023 in Lampung Province is IDR 2,633,284 which implies a family income of IDR 4,344,919 when 1.65 family members earn the minimum wage.

Figure 20. Rural Lampung Province living income ladder 2023



These comparisons are captured in Figure 20 that graphically compares our estimated living income to other family income benchmarks. It shows that our living income is higher than all of the other comparators. It is more than double the family income at the Lampung poverty line, 19% higher than the income that a typical family with 1.65 workers would earn at Lampung's minimum wage, and 27% higher than the World Bank's 6.85 PPP per day poverty line for an upper-middle income country which Indonesia has recently become (and 127% higher than the World Banks's 3.65 PPP poverty line for lower-middle income countries which Indonesia just graduated from). These differences are despite the conservative way in which we have the estimation of a living income for rural Lampung.

10 World Bank. Poverty & Equity Brief Indonesia October 2023 available at https://pip.worldbank.org/country-profiles/IDN

The stakeholders have raised the issue of the Farmer's Exchange Rate (FER) as a measure of well-being that needs to be explained in the context of the living income estimate. The FER Index is essentially a ratio of index of income received by families over index of expenditure incurred - based on Consumer Price Indices (CPI) in these regions- that is calculated and presented periodically by the Federal Bureau of Statistics (BPS) for the different regions of the country. Of course, if income earned/received is higher than payout/expenditure it is a positive position. Any movement up or down in the FER would suggest either an improvement over the previous period or a deterioration. As an index it only measures the relative position of farmers from one period to the next, but it does not say if the farmers are receiving a living income or that the income received is adequate to meet the essential needs of families. Improvements and/or deterioration of the economic position can happen at levels of income that are lower than the living income. On the other hand, living income is an absolute measure for a specific location at a particular point in time. The living income does not propose anything about how good, or bad, the "conditions" are for farmers and their families. Irrespective of what the FER is -and irrespective of production costs- this is the income that is required by a reference family (not just farming families but all families living in the specific location) to live a "decent" life.

SECTION IV.
CONCLUSION

This report has estimated a living income for rural Lampung province of IDR 5,187,843 (USD 346) for a typical size family of 4 (two adults and 2 children). This was estimated using conservative assumptions to estimate the living income that would none-the-less allow people of rural Lampung – especially coffee farmers and their families - to attain a basic but decent standard of living. This living income allows for a low-cost nutritious diet that meets WHO and FAO recommendations, healthy housing that meets minimum international and national principles and standards, adequate health care, and education of children through secondary school as well and all other needs at an adequate and decent level of existence.

Details of the living income estimates for rural Lampung are provided in the Summary Table 15. Table 16 provides some of the key assumptions used. These tables provide a synopsis of the estimation process. How the cost of each of these costs was estimated has been explained in the relevant sections of the paper. Thus, for example, the model diet is estimated by including acceptable cheaper and nutritious food items, such as medium quality of white rice instead of premium or specialty rice; spinach, water spinach, cabbage, eggplant and tomato for vegetables; and banana, papaya and watermelon for fruits. We were also sensitive to the idea of only including food items that are generally consumed by and palatable to the inhabitants of the area (e.g., dried fish). Similarly, the estimation of housing costs was done by taking a lead from recommendations of international organisations and the ministerial regulation (i.e., Keputusan Menteri Permukiman dan Prasarana Wilayah No. 403/KPTS/M/2002) to ensure that dwellings and associated necessities of life conform to a prescribed basic quality standard.

The living income being estimated in this study is 19% higher than the family income if its members earned the minimum wage, 27% higher than family income at the World Bank poverty line for an upper-middle income country such as Indonesia recently became, and 132% high than family income at Lampung's poverty line.

It is clear that bridging the gap to the living income, such as for coffee farmers, is a matter to be taken up by all of the actors in the value chain, procurement and retail. Government too, has a certain responsibility in this matter through the provision of necessary and adequate social policies to reduce the cost of living as well as providing technical assistance to farmers. As a starter, the government could consider supporting farmers in replanting the aged coffee trees by providing quality seeds and building farmers capacity in implementing good agricultural practices (GAP). We believe that any effort in this direction is better than no effort at all. Any effort – or efforts - that work toward creating a good agriculture business would be advantageous for farmers and families because this is required as a basic feature of well-being.

Table 15. Summary calculations of Living income for rural Lampung Province, 2023

FAMILY EXPENSES	IDR	USD
Food cost per month for family of 4	**2,708,787**	**181**
• Food cost per person per day	22,264	1.48
Total housing costs per month	**579,656**	**39**
• User cost per month for basic healthy housing	399,656	27
• Utility costs and minor repairs per month	180,000	12
Non-food non-housing (NFNH) costs per month	**1,652,360**	**110**
• Preliminary NFNH	1,652,360	110
Post-check for health care	0	0
Post-check for education	0	0
Additional amount (5%) for sustainability and emergencies	**247,040**	**16**
Total costs per month for basic but decent living standard for reference family (living income per month)	**5,187,843**	**346**
Living income per year	**62,254,116**	**4,150**

Table 16. Key values and assumptions

Study date	July 2023
Exchange rate of Indonesian Rupiah to USD (USD)	15,000
Number of full-time workers per couple	1.65
Reference family size	4
NFNH to Food ratio	0.61

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ANNEX.
ESTIMATING LIVING WAGE FOR RURAL LAMPUNG PROVINCE

To reiterate, living income -being a family concept- is the amount needed to allow a household to procure for itself the basic necessities of life that would allow all family members within it to have a 'decent' existence. As indicated in this study, this decent existence is constituted of a multitude of factors ranging from adequacy of nutritious food, healthy housing, access to proper health care, education for children and other items that would allow a functionality reflecting principles of human rights that should be accorded to all citizens.

The living income in rural Lampung was estimated to be **IDR 5,187,843 (equivalent to USD 346)** per month for a reference family size of 4 persons. The reference family size was established through an analysis of data on fertility rates, under-5 child mortality rate, and average household size. The main sources of this information were the Demographic Health Survey (DHS) of 2017, and the Population Census: Lampung Supplement (Sensus Penduduk 2020; Provinsi Lampung).

Although it is accepted that a vast majority of households rely on farming pursuits for their livelihoods, it cannot be taken for granted that farming is the only source of income. Social differentiation in the rural areas would suggest that farms differ by size and it will be that some farms fall below a size threshold of landholding that would allow them to generate a living income. Under these circumstances, some farm families may have to rely on wage income, either to supplement earnings from farm produce or as a principal source of remuneration. The living income estimate allows us to determine a living wage. However, to do this we first calculate the number of full-time working members of the reference family.

A.1 NUMBER OF FULL-TIME EQUIVALENT WORKERS IN THE REFERENCE FAMILY PROVIDING SUPPORT

It is appropriate to expect that more than one adult in a family provides financial support through work. The number of full-time working adults in our reference family is calculated using the following formula:

Probability of full-time equivalent work per person ages 25-59
=(LFPR for ages 25-59) × (1.0-Unemployment rate for ages 25-59) × (1.0-(Part-Time employment rate/2))

This can be explained as follows. The number of full-time equivalent workers per household is based on age and sex specific data for Lampung province on: (i) labor force participation rates (LFPR); (ii) unemployment rates; and (iii) number of hours worked to determine the extent of part-time employment. This information is gleaned from the Indonesian Bureau

of Statistics (BPS) publications *Keadaan Pekerja Provinsi Lampung 2022* (Worker Conditions Lampung Province) and is provided in the table below. The labor force participation rates for men and women aged 25 to 59 years for Lampung province was determined to be 79.80%. Similarly, the open unemployment rate in the rural areas of the province for age group 25-59 years old was 2.85% in 2020 and the part-time employment rate (less than 35 hours per week) was 33.04%. Using the rates noted above and indicated in the table below, we estimated that the full-time equivalent workers in a household in Lampung is 1.65, where one adult in the family is a full-time year around worker.

Table A1. Estimate of percentage of adults who are full-time equivalent workers in rural Lampung Province

Variable	Total
LFPR	79.80%
Open unemployment rate	2.85%
Part-time employment rate (% of employed working less than 35 hours per week)	33.04%
Estimated percentage of persons working full-time = LFPR × (1-Unemployment rate/100) × (1- (Part-time employment rate/100/2))	0.798 x (1 - 0.0285) x (1 - [0.330 x 0.5]) = 0.647
Number of full-time equivalent workers per family	**1 + 0.65= 1.65**

Source: Badan Pusat Statistik (BPS) Labor force situation of Lampung Province,2022.

Thus, we use 1.65 full-time equivalent workers per household to estimate our living wage for Lampung. The net living wage, for a basic but decent existence for a family, is then estimated by dividing the estimated living income by the number of full-time equivalent workers in the family. ***The net living wage per worker in Lampung is thus estimated as IDR 3,144,147 ($210).*** This should be understood as the necessary take-home pay for a worker and less than the gross wage necessary, which includes income taxes and other mandatory payroll deductions.

A.2 MANDATORY PAYROLL DEDUCTIONS AND INCOME TAX ON A LIVING WAGE

There are five elements of mandatory deductions[11] for payroll processing, which are delineated below:

11 Payroll in Indonesia https://www.usemultiplier.com/indonesia/payroll. Also see: Payroll and Benefits Guide: Indonesia, https://www.papayaglobal.com/countrypedia/country/indonesia/

(i) *Income tax* is levied at a progressive rate and is 5% of gross wage starting from salaried income of IDR 60 million per month;
(ii) *Pension fund* annuity contributions by employees is 1% of gross wage;
(iii) *Social security* contributions are deducted at 2% of gross wage;
(iv) *Health insurance* is levied at 1% of gross wage; and
(v) *Housing fund* is levied at 2.5% of gross wage.

Given that no income tax is levied as our gross wage which is below the IDR 60 million threshold and the taking into account other mandatory payroll deductions, mandatory deductions on our living wage are IDR 218,577. Thus, ***the gross living wage (aka living wage) is IDR 3,362,274 ($224)***.

Counterposed to our living wage, the minimum wage for Lampung[12] was IDR 2,633,284 ($176), which reveals our estimated living wage (gross) to be approximately double the minimum wage.

12 Guide to Indonesia's minimum wage by region https://www.humanresourcesonline.net/guide-to-indonesia-s-minimum-wage-by-region-2022