

LIVING INCOME AND LIVING WAGE REPORT

RURAL ANDHRA PRADESH, INDIA

DECEMBER 2022

KURIAKOSE MAMKOOTTAM • NIDHI KAICKER



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COALITION

ABSTRACT

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KURIAKOSE MAMKOOTTAM* • NIDHI KAICKER**

Living income should be sufficient for a family (of 4 persons in the case of Andhra Pradesh) to lead a decent life, while living wage received by a worker for normal working hours should be sufficient to support herself/himself and her/his dependents. Rs. 25,269 (\$316) per month has been estimated as living income and Rs. 16,077 (\$201) as living wage per month for rural Prakasam district. These estimates are considered applicable broadly to rural AP as a whole because of the similarities of agroclimatic conditions, cropping patterns, food habits, etc. This Benchmark report employs the Anker Methodology to determine the living wage and living income for rural Andhra Pradesh (Prakasam district, a leading area of tobacco cultivation in India). This study uses a combination of secondary data and primary data collected through field investigation. The living income estimated in this report is approximately 3.1 times that of the national poverty line family income, and 2.7 times the World Bank international poverty line family income.

Any questions, comments, or observations about this study and the results it reports should be directed to the Anker Research Institute leadership:
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Keywords: Living costs, living wages, Anker Methodology, India, tobacco

JEL Classification Code: J30, J50, J80.

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EXECUTIVE SUMMARY

This study was funded by Philip Morris International (PMI) and carried out under the auspices of Anker Research Institute (ARI). It employed the Anker Methodology to determine the living wage and living income for rural Andhra Pradesh (Prakasam district, a leading area of tobacco cultivation in India). As prescribed by the Anker Methodology, this study uses a combination of secondary data and primary data collected through field investigation.

Living income and living wages are estimated by assessing the cost of the constituents of decent living (nutritious and balanced diet, healthy and safe housing, non-food-non-housing (NFNH) items, and contingency expenses). Living income should be sufficient for a family (of 4 persons in the case of Andhra Pradesh) to lead a decent life, while living wage received by a worker for normal working hours should be sufficient to support herself/himself and her/his dependents. Rs. 25,269 (\$316) per month has been estimated as living income and Rs. 16,077 (\$201) as living wage per month for rural Prakasam district. These estimates are considered applicable broadly to rural AP as a whole because of the similarities of agroclimatic conditions, cropping patterns, food habits, etc.

The living income estimated in this report is approximately 3.1 times that of the national poverty line family income, and 2.7 times the World Bank international poverty line family income. The estimated living income is 1.8 times that of family income assuming that family members earn prevailing wages for agricultural laborers; 1.6 times of family income assuming family members earn minimum wage for agricultural laborers; and 59% higher than family income assuming family members earn the for non-agricultural unskilled laborers minimum wage. The living income estimate for rural AP is 44% higher than the estimated average monthly household consumption expenditure of rural AP.

The living wage estimated for rural Prakasam district is 3.3 times that of the national rural poverty line wage, and 2.8 times that of the international poverty line wage. It is 1.9 times the prevailing wages for agricultural laborers, 1.7 times that the minimum wages for agricultural laborers, and 68% higher than the minimum wages for non-agricultural unskilled laborers. It is 43% higher than minimum wage for semi-skilled manufacturing workers, 18% higher than the minimum wage for skilled manufacturing workers, and 5% lower than the minimum wage for highly skilled manufacturing workers. The wage implied by the average expenditures of households in rural Andhra Pradesh based on consumption expenditure survey data is higher than our living wage estimate by more than 50%.

ABOUT THE AUTHORS

Kuriakose Mamkoottam is a retired Professor of Management. He obtained his Postgraduate and Doctoral degrees in Sociology from the Delhi School of Economics, and was associated with the Faculty of Management Studies, University of Delhi, for more than 25 years teaching and engaged in research. His main areas of interest include Labor, Human Resource Management and Technological Change. Since 2015, he has been interested in living wage/ living income studies, when he was introduced to the Anker Methodology.

Nidhi Kaicker is an Assistant Professor of Management at Dr BR Ambedkar University, Delhi (AUD). She holds a bachelor's degree in Economics from St Stephens College and Post-Graduate and Doctoral degrees in Management from Faculty of Management Studies, University of Delhi. With more than 10 years of teaching and research experience, Nidhi's interests include managerial economics, food security and nutrition. She has been working on living wage and living income studies based on the Anker Methodology since 2016.

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This report on Living Wage and Living Income for rural Andhra Pradesh has been prepared under the auspices of the Anker Research Institute (ARI). Richard Anker and Martha Anker invented a unique methodology to assess the living wage and living income, which would be sufficient for people to lead a decent life. In the past several years, they have trained many scholars and researchers across many continents, including authors of this report, and have facilitated many studies in different parts of the world. We are grateful to Richard and Martha for organizing funds and guiding us through the present study, as in previous occasions. We place on record our deep gratitude to Richard and Martha.

There are many individuals and institutions behind this study. Philip Morris International (PMI) financially supported the study and its many officials have taken personal interest in getting it done as best and as quickly as possible. The research team is grateful to Mr. YS Patil and his team from Godfrey Philips India Ltd (GPI) and Mr. Basvaraj Kurabetand his team from Alliance One International (AOI) for their help and support for choosing the location of the field study and for extending support in carrying out the field investigation. Mr. KSR Murthy, Director of ASSIST India, and his senior colleagues Mr. D. Satyanarayana and Mr. Narayan Reddy helped us to identify suitable field investigators to collect primary data from the field.

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SECTION I. INTRODUCTION

1. BACKGROUND

The current study was undertaken to estimate the living income and living wage for rural areas of Prakasam district, Andhra Pradesh, India. The study was carried out employing the Anker Methodology, which uses a judicious combination of qualitative and quantitative data and techniques. The report is based on secondary data from reliable sources such as NSSO (2011-12), Census (2011), CMIE-CPHS (2020-21), and primary data gathered through field investigation. Intensive field investigations were carried out in rural areas of Prakasam district of Andhra Pradesh (AP) during August–September 2022. Prakasam district, AP, is a leading region in India for tobacco production.

2. CONCEPTS OF LIVING INCOME AND LIVING WAGE

The concepts of living income and living wage are related. Both refer to the quantum of income that is required by workers/farmers and their families to lead a decent life, to meet all necessary needs. In other words, workers/ farmers should earn sufficient income in normal working hours without having to work overtime, to be able to support themselves and their families to afford a basic lifestyle considered decent by society at its current level of development.

Anker and Anker (2017) define living wage as:

“The remuneration received by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, healthcare, transport, clothing and other essential needs including provision for unexpected events.”

The Living Income Community of Practice defines living income 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, transportation, clothing, and other essential needs including provisions for unexpected events.”¹

1 See: <https://www.living-income.com/the-concept>

3. LIVING INCOME/ LIVING WAGE FOR RURAL PRAKASAM, ANDHRA PRADESH

Based on our August-September 2022 study, we estimated Rs. 25,269 (\$321)² per month as living income for farmers and Rs. 16,077 (\$201) per month as living wage for workers of rural Prakasam district (AP). These estimates are applicable more broadly to rural AP as a whole because of the similarities of agroclimatic conditions, cropping patterns, and food habits. It may be mentioned here that these estimates are based on intensive coverage of villages, which are spread across four administrative blocks (mandals) of Prakasam district. The report below explains in detail how we estimated the living income and living wage for rural Andhra Pradesh.

4. CONTEXT

Prakasam district is located in south-central Andhra Pradesh (AP). The study was sponsored by Philip Morris International (PMI), as they desired to get an estimate of the income that is required by of the area in rural Andhra Pradesh for farmers to lead a basic but decent life.

4.1 TOBACCO IN INDIA

India is the second largest tobacco growing country in the world after China, followed by Brazil and the United States of America. India's annual tobacco production is estimated³ to be around 800 million kgs, although it occupies a meagre 0.24% of the country's total arable land area. It is grown largely in semi-arid and rain-fed areas where the cultivation of alternative crops is difficult.

According to studies conducted by the Central Tobacco Research Institute (CTRI)⁴, no other single crop is more remunerative than Flue Cured Virginia (FCV) tobacco. Moreover, tobacco-based cropping systems are more remunerative than any non-tobacco cropping systems. FCV tobacco is grown on different types of soils ranging from sands to sandy loams of East Godavari, West Godavari and Khammam districts, the red loams of Prakasam and Nellore districts and heavy black cotton soils of Guntur, Krishna, Prakasam and East Godavari districts.⁵ Figure 1 below shows the major tobacco growing areas of Andhra Pradesh.

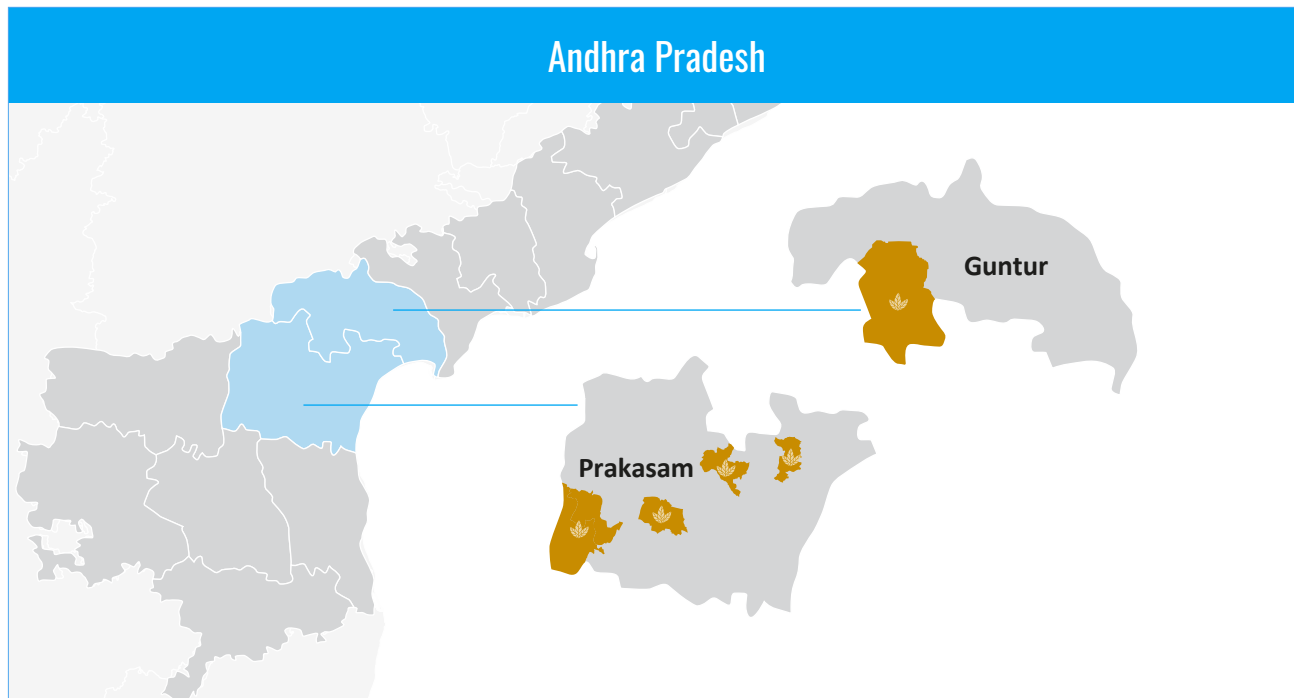
2 USD has been converted @ Rs. 79.92.

3 Times of India: 15 January 2022.

4 Tobacco Board, Ministry of Commerce, Government of India.

5 Tobacco: climate and soils. <https://www.ikisan.com/ap-tobacco-soils-and-climate.html>

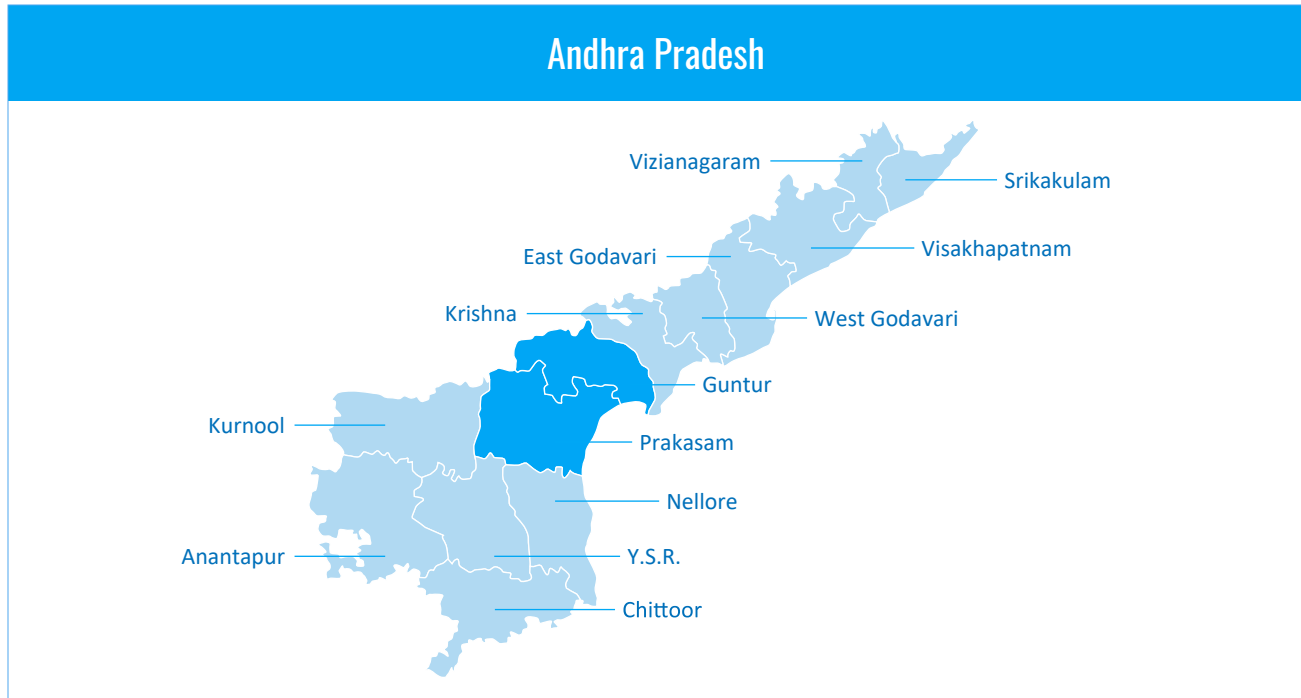
Figure 1. Tobacco growing areas of Andhra Pradesh



4.2 SOCIO-ECONOMIC CONTEXT OF ANDHRA PRADESH

Andhra Pradesh is located on the southeastern coast of India. It is geographically the 8th largest state in India with second longest coastline of 974 km. According to Census 2011, the state has a total population of 40.94 million, of which 70.4% is rural and 29.6% is urban. Undivided Andhra Pradesh had 23 districts. In June 2014, the state was divided into Telangana and Andhra Pradesh. Since 2014, Andhra Pradesh has 13 districts (Srikakulam, Anantapur, Chittoor, East Godavari, Guntur, Krishna, Kurnool, Prakasam, Sri Potti Sriramulu Nellore, Visakhapatnam, Vizianagaram, West Godavari and YSR Kadapa). Figure 2 shows the district-wide Map of Andhra Pradesh.

Figure 2. District map



Andhra Pradesh (undivided) in 2011 had a literacy rate of 60.30% (Census 2011) and its population consisted of 17.1% of Scheduled Castes and 5.3% of Scheduled Tribes. Based on Census 2011, Table 1 shows a summary of the main demographic characteristics of its population.

Table 1. Andhra Pradesh Demographics (as per Census 2011)

Total Population	49.4 million
Percentage of Males	50.1%
Rural Population (%)	34.77 million (70.4%)
Scheduled Castes (% of Population)	17.1%
Scheduled Tribes (% of Population)	5.3%
Literate Population (% of Population)	60.30%
Number of Workers (% of Population)	22.96 million (46.5%)
Number of Male Workers (% of Male Pop)	14.45 million (58.4%)
Number of Female Workers (% of Female Pop)	8.52 million (34.6%)

According to Department of Agriculture, Andhra Pradesh can be divided into six agroclimatic zones – North coastal, Godavari zone, Krishna, Southern zone, Scarce rainfall zone, and High Altitude Tribal zone (see Table 2).

The Krishna zone consists of the districts of Krishna, Guntur and Prakasam. This zone receives an annual normal rainfall of 800-1100mm. The maximum temperature during southwest monsoons range from 32°C to 36°C, respectively. The important soil groups are deltaic alluvium, red soils with clay base, black cotton soils, red loamy, coastal sands and saline soils. Red Gram, chilies, sugarcane, tobacco and cotton are the important crops grown in this region.

Table 2. Agroclimatic Zone and Districts of Andhra Pradesh

S.No.	Name of the Zone	Districts
1	North coastal zone	Srikakulam, Vizianagaram, Visakhapatnam
2	Godavari zone	East Godavari, West Godavari
3	Krishna zone	Krishna, Guntur, Prakasam
4	Southern zone	Chittoor, YSR, SPS Nellore
5	Scarce rainfall zone	Kurnool, Anantapuramu
6	High altitude & tribal areas zone	High Altitude & Tribal areas of Srikakulam, Visakhapatnam, East Godavari districts

Source: Socio-Economic Survey, Andhra Pradesh, 2020-21.

A detailed district-wide ethnic composition of the population of the state is shown in Table 3. Prakasam district covers 7% of the total population of the state, and 8% of the rural population. The literacy rate in rural areas of Prakasam are slightly lower than the state average. It is among the top three districts with highest proportion of population belonging to socially deprived groups in rural areas, namely the schedule castes. However, the proportion of tribal population in rural areas is lower than most other districts.

According to Census 2011, Andhra Pradesh had a working population of 22,969,906, 46.5% of the state's total population. More than 83 percent (83.7%) of the working population belongs to the category of main workers with 16.3% marginal workers. The corresponding numbers are 82.4% and 17.6% for rural areas. The workers can be classified into cultivators, agricultural labor, household industry workers and other workers. Main workers are those who work for more than 6 months during the year, while marginal workers are those who worked for less than 6 months during the year. They fall into two categories: (i) those who worked for less than 3 months and (ii) those who worked between 3 to 6 months.

A detailed district-wide worker composition in Andhra Pradesh is given in Table 4. Table 5 details the worker composition for rural areas only. Prakasam district comprises 7% of the total workers of the state, and 8% of the total workers in rural areas. The proportion of main workers (86%, overall and 85% in rural areas) is higher than the state average.

Among the main workers in Andhra Pradesh, 16% are cultivators, 44.5% are agricultural laborers, 2.7% are household industry workers and 36.8% are other main workers. Of the marginal workers in Andhra Pradesh, 6.6% are cultivators, 64.7% are agricultural laborers, 3.6% are household industry workers and the remaining 25.1% are other marginal workers. In Prakasam district, the proportion of agricultural laborers in both main category (49%) and marginal category (71%) is also higher than the state average. Yet, if we compare the statistics for rural areas only, the differences are small. The proportion of agricultural laborers in main category is 56% in both rural Andhra Pradesh and rural Prakasam district.

Table 3. District-wide composition of Andhra Pradesh for population, literacy rate, and percentage scheduled castes and scheduled tribes

Name of District	Total				Rural				Urban						
	Pop (mn)	No. of HHs (000s)	Literacy Rate (%)	% of SC Pop ST Pop	Pop (mn)	No. of HHs (000s)	Literacy Rate (%)	% of SC Pop ST Pop	Pop (mn)	No. of HHs (000s)	Literacy Rate (%)	% of SC Pop ST Pop			
Anantapur	4.1	968.2	63.6	14.3	3.8	2.9	700.4	52.7	16.2	4.3	1.2	267.8	66.7	9.4	2.4
Chittoor	4.2	1,040.0	71.5	18.8	3.8	2.9	737.3	59.7	22.0	4.4	1.2	302.6	74.0	11.2	2.5
East Godavari	5.2	1,428.5	70.5	18.3	4.1	3.8	1,073.8	60.7	20.5	5.2	1.3	354.8	73.0	12.1	1.1
Guntur	4.9	1,296.6	67.4	19.6	5.1	3.2	877.5	55.6	22.9	5.9	1.7	419.2	70.3	13.1	3.4
Krishna	4.5	1,243.3	73.7	19.3	2.9	2.7	753.9	62.0	24.9	3.5	1.8	489.4	73.3	11.1	2.1
Kurnool	4.1	887.7	60.0	18.2	2.0	2.9	639.1	47.9	19.6	2.2	1.2	248.5	64.1	14.7	1.6
Prakasam	3.4	860.5	63.1	23.2	4.4	2.7	691.8	52.5	25.5	4.6	0.7	168.7	70.5	13.5	4.0
Srikakulam	2.7	681.3	61.7	9.5	6.1	2.3	572.4	52.4	9.5	7.1	0.4	109.0	70.7	9.4	1.3
SPS Nellore	3.0	776.9	68.9	22.5	9.7	2.1	567.1	56.9	25.9	11.4	0.9	209.7	74.0	14.2	5.2
Visakhapatnam	4.3	1,097.0	66.9	7.7	14.4	2.3	579.4	47.6	6.7	25.7	2.0	517.6	73.5	8.7	1.9
Vizianagaram	2.3	587.2	58.9	10.6	10.0	1.9	463.6	48.1	10.3	12.2	0.5	123.6	70.6	11.7	1.9
West Godavari	3.9	1,091.5	74.3	20.6	2.8	3.1	877.2	65.1	22.7	3.2	0.8	214.3	76.3	12.5	1.2
YSR Kadapa	2.9	706.2	67.3	16.2	2.6	1.9	477.7	55.8	18.7	3.1	1.0	228.5	66.8	11.3	1.8
Andhra Pradesh	49.4	12,664.8	60.3	17.1	5.3	34.8	9,011.1	55.7	19.4	6.6	14.6	3,653.6	71.3	11.6	2.3

Source: Census, 2011.

Table 4. District-wide worker composition in Andhra Pradesh

Name of District	Total Worker Population (mn)	Main Workers					Marginal Workers				
		Total Main Workers (%)	Cultivators (%)	Agricultural Labor (%)	HH Industry Workers (%)	Other Workers (%)	Total Marginal Workers (%)	Cultivators (%)	Agricultural Labor (%)	HH Industry Workers (%)	Other Workers (%)
Anantapur	2.03	82.5	22.5	38.9	5.2	33.5	17.5	10.1	63.5	5.1	21.3
Chittoor	1.93	86.4	24.2	36.2	2.8	36.8	13.6	11.4	54.3	4.2	30.1
East Godavari	2.09	83.5	8.7	50.2	2.7	38.4	16.5	2.3	70.6	3.3	23.8
Guntur	2.38	88.4	13.8	49.2	1.9	35.2	11.6	4.5	69.9	2.7	22.9
Krishna	2.05	85.2	8.0	46.6	2.3	43.1	14.8	3.3	63.8	2.8	30.2
Kurnool	2.03	86.6	16.7	49.4	2.8	31.1	13.4	6.3	61.9	4.6	27.3
Prakasam	1.70	86.1	18.1	49.3	2.5	30.1	13.9	6.4	70.7	2.7	20.2
Sri Potti											
Sriramulu Nellore	1.29	81.9	14.2	42.4	2.6	40.7	18.1	5.2	70.9	3.0	20.9
Srikakulam	1.31	72.6	15.5	47.2	2.7	34.5	27.4	5.6	73.0	2.7	18.7
Visakhapatnam	1.89	78.4	19.2	25.4	2.5	52.8	21.6	9.2	49.5	4.1	37.2
Vizianagaram	1.15	82.3	20.7	44.0	2.3	33.0	17.7	7.5	67.4	2.7	22.5
West Godavari	1.77	86.5	9.7	57.9	1.7	30.7	13.5	2.5	72.4	3.4	21.7
YSR Kadapa	1.32	81.8	20.2	36.9	4.1	38.8	18.2	10.8	59.9	4.6	24.7
Andhra Pradesh	22.9	83.7	16.0	44.5	2.7	36.8	16.3	6.6	64.7	3.6	25.1

Source: Census, 2011.

Table 5. District-wide worker composition in Andhra Pradesh (rural areas only)

Name of District	Total Worker Population (mn)	Main Workers					Marginal Workers				
		Total Main Workers (%)	Cultivators Agricultural Labor (%)	HH Industry Workers (%)	Other Workers (%)	Total Marginal Workers (%)	Cultivators Agricultural Labor (%)	HH Industry Workers (%)	Other Workers (%)		
Anantapur	1.60	80.9	28.5	48.6	3.2	19.7	19.1	11.4	71.1	3.6	13.9
Chittoor	1.49	85.5	31.1	45.8	1.8	21.4	14.5	13.4	63.4	3.1	20.0
East Godavari	1.64	82.0	10.9	62.1	2.6	24.4	18.0	2.5	79.2	3.0	15.2
Guntur	1.74	87.6	18.3	62.3	1.3	18.2	12.4	5.4	80.5	2.0	12.1
Krishna	1.36	83.7	11.6	66.0	1.6	20.8	16.3	3.7	81.3	1.8	13.1
Kurnool	1.58	86.7	20.8	60.1	2.0	17.1	13.3	7.6	74.5	3.1	14.8
Prakasam	1.45	85.4	20.8	56.1	1.7	21.3	14.6	7.1	75.9	1.9	15.1
Sri Potti											
Sriramulu Nellore	1.02	79.7	18.0	53.7	2.1	26.2	20.3	5.6	78.8	2.0	13.6
Srikulam	1.13	70.6	17.7	53.6	2.4	26.3	29.4	5.8	75.7	2.4	16.1
Visakhapatnam	1.16	74.1	32.1	41.4	2.4	24.1	25.9	11.4	64.7	3.6	20.3
Vizianagaram	0.98	81.1	24.2	51.3	2.2	22.3	18.9	8.0	72.0	2.4	17.5
West Godavari	1.49	85.8	11.3	66.3	1.6	20.9	14.2	2.6	77.7	3.2	16.4
YSR Kadapa	0.96	79.9	26.7	47.7	3.2	22.4	20.1	12.7	68.8	3.3	15.2
Andhra Pradesh	17.61	82.4	20.5	55.9	2.1	21.5	17.6	7.5	74.0	2.8	15.7

Source, Census, 2011

The net sown area in Andhra Pradesh is 6.05 million hectares, comprising 8.5 million landholdings. 88.6% belong to small (1-2 hectares of land) and marginal farmers (less than 1 hectare of land). Ninety percent of landholdings in 8 out of 13 districts in Andhra Pradesh belong to small and marginal farmers. The Prakasam district occupies 9% of the net sown area of the state, and 8% of the total landholdings. The share of landholdings among small and marginal farmers is lower than the state average. Medium (2-10 hectares of land) and large (more than 10 hectares of land) farmers hold around 16% of the landholdings in this district. Table 6 displays a district-wide land use pattern and landholding pattern.

Table 6. District-wide land use pattern and land shareholding pattern in Andhra Pradesh

Name of District	Total Geographical Area (in million Hectares)	Net Sown Area (in million Hectares)	Total No. of Landholdings (in millions)	Share of Marginal & Small Holdings	Share of Medium Holdings	Share of Large Holdings
Anantapur	1.91	0.83	0.77	71.9%	27.7%	0.4%
Chittoor	1.52	0.35	0.71	91.6%	8.1%	0.1%
East Godavari	1.28	0.42	0.77	94.9%	5.0%	0.1%
Guntur	1.14	0.59	0.84	92.4%	7.5%	0.0%
Krishna	0.87	0.49	0.63	91.4%	8.4%	0.2%
Kurnool	1.77	0.86	0.73	79.2%	20.4%	0.3%
Prakasam	1.76	0.56	0.72	84.5%	15.3%	0.3%
Srikakulam	0.58	0.31	0.65	96.8%	3.2%	0.0%
SPS Nellore	1.31	0.36	0.55	89.3%	10.4%	0.3%
Visakhapatnam	1.12	0.26	0.55	92.5%	7.3%	0.2%
Vizianagaram	0.65	0.26	0.50	93.5%	6.3%	0.2%
West Godavari	0.85	0.46	0.61	91.8%	7.9%	0.2%
YSR Kadapa	1.54	0.31	0.49	84.8%	15.0%	0.2%
Andhra Pradesh	16.30	6.05	8.52	88.6%	11.2%	0.2%

Source: Agricultural Statistics at a Glance (2019-20). The landholding data is for 2015-16, and the Geographical and Net Sown Area is for 2019-20.

4.3 ECONOMY OF ANDHRA PRADESH

The services sector contributes 41% of the state's gross value added at constant prices in 2020-21, followed by the agricultural sector at 33%. The broad GSDP estimates at constant prices are given in Table 7 below. The Gross State Domestic Products (GSDP) at constant prices of Andhra Pradesh has increased from Rs. 5,402 billion in 2016-17 to Rs. 6,516 billion in 2020-21(AE). This amounts to about 5% CAGR (compound annual growth rate). The all-India GDP at constant prices increased from Rs. 123,081 billion in 2015-16 to Rs. 134,089 billion in 2020-21, amounting to a CAGR of 2%. The per capita income of the state in 2020-21 is Rs. 170,215, compared to Rs. 127,768 for all of India.

Table 7. Sector-wise Gross State Domestic Product (GSDP) at constant prices for Andhra Pradesh (Rs. in crore*)

Broad Sector/ Growth Rate	Andhra Pradesh (Rs. in crore)				
	2016-17	2017-18 (TRE)	2018-19 (SRE)	2019-20 (FRE)	2020-21 (AE)
Agriculture & Allied	139,717	165,192	171,096	184,627	192,308
Growth rate (%)	14.98	18.23	3.57	7.91	4.16
Industry	139,316	147,328	147,045	162,103	156,816
Growth rate (%)	12.48	5.75	-0.19	10.24	-3.26
Services	208,694	225,349	243,914	259,042	241,664
Growth rate (%)	1.76	7.98	8.24	6.20	-6.71
GSDP	540,212	594,737	623,732	668,848	651,624
Growth rate (%)	8.34	10.09	4.88	7.23	-2.58

*Note: Crore is 10 million.

Source: Socio-Economic Survey 2020-21, Planning Department, Government of Andhra Pradesh.

5. THE ANKER METHODOLOGY

This report is based on the living income and living wage methodology developed by Richard Anker and Martha Anker (Anker and Anker, 2017). The Anker Methodology uses a detailed process to ascertain the living income and living wage for families in local conditions. This process takes into account the cost of nutritious food, safe and healthy housing, adequate health care, children's education through secondary school, transport and other costs including those for unforeseen events.

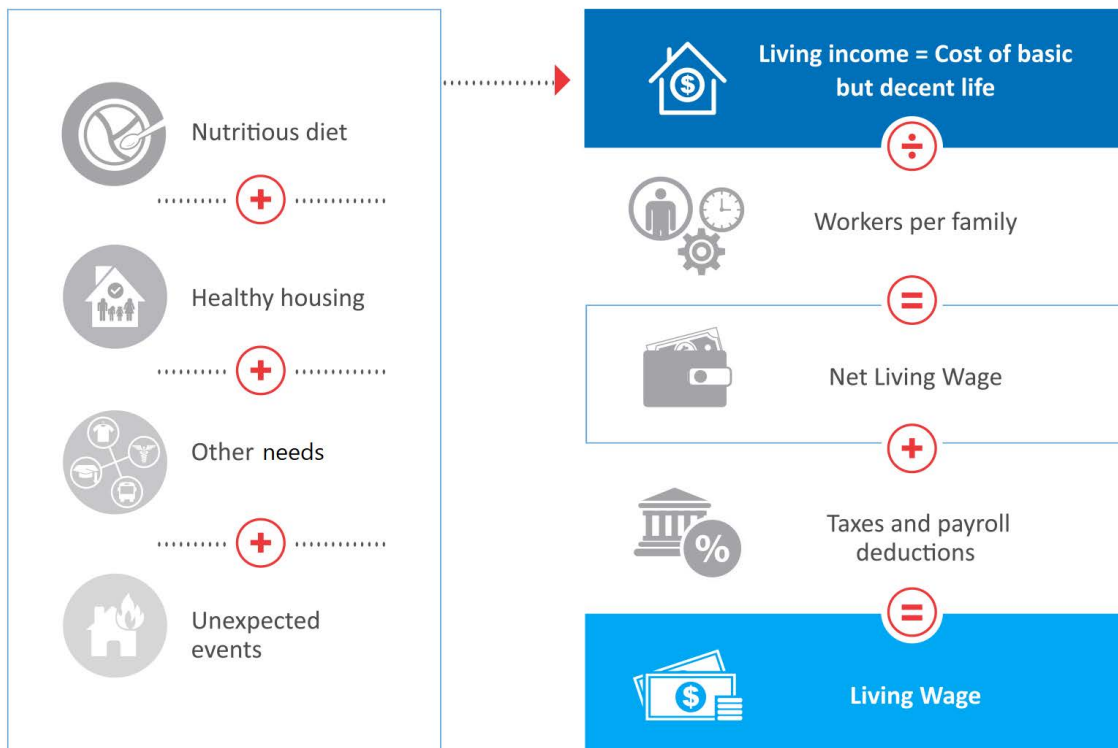
The principles and innovative aspects of Anker Methodology include:

- Assumptions used to estimate a living income and living wage are clearly stated, so that all the stakeholders understand how an Anker living wage Benchmark was estimated, and what farmers and workers and their families would be able to afford if they earned a living wage and living income.
- The living incomes and living wages estimated are based on normative standards such as a nutritious and palatable diet, safe healthy housing, adequate health care, education for children through secondary school, costs of transportation, and unexpected events.
- The living wage and living income is based on a realistic estimation of costs calculated specifically for a given time and place. Therefore, living income and living wage increase with economic development and rising living standards.
- Separate living income and living wage benchmark estimates are necessary for rural and urban areas because living costs and expectations are so different in rural and urban areas.
- Wages paid and income earned should include all forms of remuneration including cash allowances and fair and reasonable value of benefits paid in-kind, but should exclude overtime.

The living income and living wage Anker Methodology is internationally comparable as the estimates are based on the same principles everywhere. The Anker Methodology is practical and relatively inexpensive, as it uses a judicious mix of critical analyses of secondary data and rapid assessment methods for collection of primary data.

Figure 3 explains how the living income and living wage were estimated in this report for rural Andhra Pradesh. It shows the components of a basic but decent life for a typical (size) family, moving from cost of a basic but decent life to net living income and living wage and moving from net living wage to gross living wage.

Figure 3. Estimation of Living Income and Living Wage



Source: Adapted from Anker and Anker (2017)

5.1 FAMILY SIZE TO BE SUPPORTED

The cost of a basic but decent living for a typical family, including in the chosen areas of our study in rural AP, depends in part on the family size, as the cost of living naturally increases with the size of the family. A typical or reference family size of four is used for this report.

5.2 DETERMINING REFERENCE FAMILY SIZE

The appropriate family size for a living wage is decided by considering: 1) the average household size (excluding single person households, which do not have children, and very large households that are probably extended family households with more than two adult workers); and 2) the typical number of children per woman (born and surviving) as measured by the total fertility rate adjusted for under five mortality rate.

One way to assess an appropriate reference family size is to add two adults (the parents) to the typical number of surviving children per woman in the study area. The number of surviving children per woman is calculated on the basis of total fertility rate (i.e., number of children born per woman) and the child mortality rate. The total fertility rate in rural AP is 1.7 (SRS Bulletin, 2019), which is much lower than the all-India rural estimate (2.4 as per SRS Bulletin, 2019). When adjusted for child mortality rate for rural AP of 35 per 1000 births as per SRS Bulletin (2019), we get an average of 1.64 surviving children per woman. The reference family size based on these calculations is, therefore, 3.64 (2 adults + 1.64 surviving children).

The average household size in rural Andhra Pradesh in 2011 was 3.96 when single person households (that do not have children) and especially large households of nine or more members (that are probably extended families with more than two potential adult workers) are excluded. The average household size for rural Prakasam district was also 3.96 when single person and very large households are excluded according to Census, 2011 data. This is probably an overestimate because these data on average household size are somewhat dated (Census, 2011), given that it is an accepted fact that there is a downward trend in average household size in India. The census data also indicates that 4 is the modal family size both in rural Andhra Pradesh, and rural Prakasam.

In summary, both approaches discussed above indicate 4 as reference family size. The adjusted child mortality rate TFR approach implies a family size of slightly less than 4 (3.64). The adjusted average household size is quite close to 4 at 3.96. Moreover, the Anker Methodology recommends that four should be the lowest reference family size as an average of slightly more than two children in a family is necessary for population reproduction.

SECTION II. COST OF DECENT LIVING IN RURAL PRAKASAM, ANDHRA PRADESH

Cost of decent living consists of expenses incurred for a low-cost nutritious diet, healthy housing, and non-food and non-housing (NFNH) expenses. NFNH expenses include several components such as the cost of adequate health care, children's education through secondary school, transportation, clothing, and other necessary expenses. The process and method of determining these costs for a typical reference family of four persons consisting of two adults and two children living in rural Prakasam district of Andhra Pradesh are discussed in the following sections.

6. COST OF FOOD AND FOOD PRICES

Cost of food is the most important component that makes up the cost of living for a living wage and living income. Cost of food is calculated on the basis of a low-cost but nutritious diet using the prices of common low-cost food items prevailing in the study district (Prakasam) for a family of four persons.

6.1 AVERAGE CALORIE REQUIREMENTS

Ability to undertake routine activities is a pre-requisite for leading a normal life, because all activities consume human energy. The energy required for basic bodily functions (indicated by Basal Metabolic Rates) was calculated using the Schofield equations recommended by WHO, which is based on a person's age, gender and body size. The body size (weight) input is typically based on an assumption of BMI of 21 (the midpoint of the normal healthy weight range for BMI). Our estimates of average adult heights are based on the National Family Health Survey (2019-2021). The average height in rural Andhra Pradesh is 1.63 meters for adult male and 1.52 meters for adult female. The basic energy requirements thus determined were further adjusted for different levels of physical activity. Children were assumed to engage in moderate activity levels.

One adult in the current study, because of the nature of their work and lifestyle (involving non-mechanized farm work) engages in vigorous activities requiring higher levels of energy consumption. Although the spouse typically contributes to farming activities, the type of work (e.g., weeding) in which they are engaged is less vigorous than that of the full-time adult. Furthermore, we found household work in the study area to be moderately energy intensive (as LPG is used for cooking and tap water is available near the house). After making small adjustments for the extra calories needed for pregnancy and lactation, our calculations indicate a requirement of 2,346 calories per person per day for the reference family.

This average calorie requirement is very similar to norm developed by the National Institute of Nutrition (NIN) on recommended dietary allowance (RDA) (ICMR – NIN, 2020). The average requirement (EAR) of calories for Indians estimated in the 2020 NIN report was also investigated. Using the NIN recommended norm of 3,470 Kcal/day for adult males with vigorous activity levels, 2,130 Kcal/day for adult females with moderate activity levels, and 1,902 Kcal/day for children, the average calorie requirements per person for a family size of four is 2,351 (excluding small increases during pregnancy and lactation). Thus, our estimate of calorie requirement for rural AP using Schofield equations is almost the same as that recommended for all-India by the National Institute of Nutrition (NIN).

6.2 PREPARATION OF PRELIMINARY MODEL DIETS

Determining the cost of a low-cost but nutritious diet for the reference family is an important step for estimating living wage and living income. The diet, apart from being nutritious, has to suit the food habits and preferences of the local people. In other words, the diet needs to be not only nutritious, meeting the WHO recommendations of minimum nutrient intakes, but should also be consistent with local food preferences, be relatively of low cost, and be consistent with the country's development level. The model diet for this study, therefore, has to meet the average calorie requirements that have been calculated above as well as have sufficient macro and micronutrients.

As a starting point to prepare our model diet, we used actual food consumption data for rural Andhra Pradesh, available from the latest National Sample Survey (NSS) – Round 68: July 2011-June 2012 (NSSO, 2014) on household consumption and expenditure.⁶ This provides a starting point for developing the model diet, because it indicates the general consumption pattern of food across major food groups.

The National Sample Survey Office (NSSO), Ministry of Statistics and Programme Implementation, undertakes all-India survey on household consumption expenditure (CES) at quinquennial intervals. The latest available survey (the 68th round) on consumer expenditure is from July 2011-June 2012.⁷ The NSS Consumer Expenditure Survey generates estimates of household Monthly Per Capita Consumer Expenditure (MPCE) and the distribution of households and persons over the MPCE classes. It is designed to collect information regarding expenditure on consumption of goods and services (food and non-food) by households.

These NSS data include information on consumption (in kilograms) of various food items per person for 30 days for rural AP. We converted these data into number of purchased grams per day.⁸ We also aggregated listed food items under eleven different food groups that are typically used in model diets to determine the number of grams purchased for each food group. Details of how edible grams for each food group were calculated from purchased grams and the specific food items that we used to represent each food group are provided in Table 8. This includes both purchased grams according to NSS data as well as the adjustments we made to construct a nutritious low-cost model diet for rural AP, which is expressed in edible grams. NSS 2011-12 data for rural AP used to create a preliminary model diet was further modified by making adjustments based on local food preferences and local food prices and discussions with workers, farmers and key informants during the field research conducted during August-September 2022 in rural Prakasam district.

⁶ Government ministries and the World Bank to estimate food costs for poverty lines have also used model diets based in part on actual food consumption observed in household expenditure surveys widely.

⁷ Data from a more recent NSO CES survey for 2017-18 was never released to the public (Seshadri, 2019).

⁸ In case of a few food items, consumption is not in weight, but in number of units consumed (e.g.: Eggs, Lemon, Bananas, etc.). In such cases, we used average weights of these food items to convert them to number of grams.

Table 8. Number of purchased grams and specific foods for rural AP

Food group #	Food group	Details of NSS data for rural AP	Adjustments to create our model diet for rural AP
1A	Cereals and Grains	According to NSS data, a total of 392 grams of cereals was purchased per person in rural AP. We proportioned between rice and wheat, the two common cereals in the study region using the same ratio as indicated by the NSS consumption of these two items [96% and 4% respectively].	During our field investigation, it was observed that rice is very popular, and families usually buy rice in bulk (i.e., in 25 kg or 40 kg bags). Wheat is rarely used and purchased in small quantities.
1B	Prepared Cereals (e.g., bread and pasta)	NSS data does not report consumption of prepared cereals.	It was found during the field investigation that prepared cereals were not popular, and hence they have been excluded.
2	Roots and Tubers	Actual consumption of roots and tubers, according to NSS data, was 17 grams per person per day. Roots and tubers are an important source of starch and calories in India.	Potato has been used to represent the roots and tubers food group and amount increased from amount in NSS, because it is widely consumed and relatively inexpensive in rural AP.
3	Pulses	Pulses are a popular and inexpensive source of protein worldwide. According to NSS data, 29 grams of pulses was consumed per person per day.	Arhar dal represents pulses in our model diet, because it is the most consumed pulse/legume in the study region. During our field investigation in Prakasam District, all 84 respondents surveyed consumed Arhar dal as part of their daily food. In addition, all households also consume Urd dal, which is used as the batter to make breakfast items such as Idlis, Dosas, etc. Since our preliminary model diet was low on protein content (primarily because of the high intake of rice), 2 servings of Arhar dal per person per day (i.e. 56 grams) and 18 grams of Urd dal per person per day have been included in our model diet.

Food group #	Food group	Details of NSS data for rural AP	Adjustments to create our model diet for rural AP
4	Dairy	Actual consumption of Buffalo milk, as per NSS data, was 121 grams per person per day. Purchase of other dairy products is limited in rural AP as many of these, especially Curd and Buttermilk, are prepared at home from raw milk.	<p>The field investigation in Prakasam District, revealed high consumption of milk, including in the form of curd and buttermilk. These milk products are consumed as part of every meal.</p> <p>Milk consumption was increased from NSS to ensure a nutritious diet to 1 cup (240 ml) per day for children. In addition, 2 cups (~100 ml milk required per cup of preparation) of buttermilk or curd per adult per day. A small amount of milk has also included for adding to tea for adults. Thus, total consumption of milk per day person comes to 250 ml.</p>
5	Eggs	According to NSS data, consumption of eggs was 8 gram per person per day. Data on eggs was given in numbers/units in NSS data which we converted to grams (assuming an average weight of 50 purchased grams and 44 edible grams per egg).	<p>Consumption of eggs in the study district was fairly common.</p> <p>We included two eggs per week to provide proteins and a palatable diet for rural Prakasam.</p>
6	Meat & Fish	Actual consumption, according to NSS data, was 27 grams of all meats and fish together per person per day.	<p>In-depth interviews with respondents in Prakasam revealed that chicken was the preferred meat and mutton was hardly consumed. Our visits to the market revealed similar results. Mutton and fish were sold only on Sundays and on special occasions, and their sales were limited.</p> <p>We included 3 servings (36 edible grams) of chicken per week to provide proteins and a palatable diet for rural Prakasam.</p>

Food group #	Food group	Details of NSS data for rural AP	Adjustments to create our model diet for rural AP
7A & 7B	Vegetables	NSS data report an actual consumption of 179 grams of vegetables per person per day. Common vegetables include: (i) spinach (the most common green vegetable), (ii) ladies finger, (iii) brinjal, (iv) and (v) tomatoes and onions (which are consumed independently but also are important ingredients in Indian cooking).	Vegetables included in our model diet was based on in-depth interviews with respondents in the study districts as well as observed prices and availability. We included cabbage to our model diet in addition to spinach, ladies finger, brinjals, tomatoes and onions.
8	Fruits	According to NSS data, 69 grams of fruits was consumed per person per day. Bananas were the most popular fruit in the region. Since consumption of bananas and several other fruits was expressed in number of units in NSS data, these were converted to purchased grams using appropriate weights per unit (e.g., an average weight of 120 gram per unit is used for bananas) ⁹	<p>Since bananas are available throughout the year and it is also the cheapest fruit, we included it in the model diet. In addition, we included Guavas which is a popular fruit in our study district as revealed during the interactions with respondents in the field.</p> <p>Each of these 6 vegetables and these 2 fruits have been allocated equal amounts of edible grams (~31) in the model diet. This is to ensure that the total consumption of vegetables, fruits and pulses / legumes is at least 325 grams per person per day as per the Anker Methodology norms.</p>
9	Oils & Fats	Actual consumption of oil is 27 grams per person per day, according to NSS data.	Type of cooking oil used differs in various parts of India. Sunflower and palm oil was found to be the most widely used cooking oil in the study districts. It is typically purchased in 1-liter bottles. Given the already high fat content in the model diet, we reduced the oil to 24 grams per person per day.

9 The average weight was calculated by the research team by weighing quantities (in dozens) of various fruits and estimating the per unit weight in grams.

Food group #	Food group	Details of NSS data for rural AP	Adjustments to create our model diet for rural AP
10	Sugar	According to NSS data, 19 grams of sugar was consumed per person per day. Other sugar products like gur (jaggery) and candy were negligible and so were ignored.	Based on WHO recommendation on maximum amount of sugar, 30 grams per person per day has been included in the model diet. This is done to ensure sufficient amount to prepare sweets at home and for addition to tea.
11	Non-alcoholic Beverages	NSS data reports consumption of 3 grams of tea per person per day.	Tea is popular in this part of the country, and so has been included in the model diet and expressed in grams of tea leaves per person per day (using 2 grams per cup of tea and assuming 2 cups per day for adults). This amounts to 1.78 grams per person in the family per day. Although coffee is also consumed in this region, respondents during field investigation revealed larger consumption of tea compared to coffee.

6.3 NUTRITIONAL CONTENT OF FOOD ITEMS

Instead of using the USDA Nutrition Database (which is often used in Anker Methodology living wage and income studies), database of the National Institute of Nutrition (NIN, 2012) was used, because the latter provides nutritional content of each food item (based on edible portions) such as calories, proteins, fats and carbohydrates) specific to the Indian context.

6.4 CONVERSION OF PURCHASED GRAMS TO EDIBLE GRAMS

The USDA Nutrient Database¹⁰ was used to determine the edible proportion of each food item in the model diet, with some adjustments made to suit local conditions of how food is purchased, prepared and eaten in AP.

¹⁰ There is no reliable source available in India providing edible proportions of the various food items. Hence, we rely on the USDA database. However, some adjustments were made, as the methods of preparation for several vegetables differ between the United State and India. For instance, skin of potato is eaten locally and hence the edible portion is higher in India (90%) compared to the United States (75%). Similarly, the edible proportions of some vegetables are also higher in India compared to the United States. For example, 80% of spinach in India vs 72% in the USA (this may be because spinach is bought without large roots in India, only large stems are removed); 90% of cabbage in India vs 80% in the USDA database; 100% of tomato used in India vs 91% in USDA NAL (this may be because tomato is purchased without stem, and the core is also consumed in India); 95% of guava in India vs 78% according to USDA because the skin is consumed and only a small core is not eaten). Chicken in rural India is mostly bought dressed with feather, legs/feet and head of the chicken removed; giblets, neck, liver, heart and gizzard are cooked and eaten in rural India. Considering these counterbalancing factors, we use of 25% inedible only.

6.5 ADDITIONAL MODEL DIET COSTS

Three additional costs were added to the model diet to make it more realistic. In order to ensure reasonable variety, 11% was added to the cost of the model diet; 8% was added to account for costs of salt, spices, condiments and sauces (as indicated in NSS data for these food items); and 4% was added to account for wastage and spoilage during preparation and storage of food.

6.6 NUTRITION ADJUSTMENTS TO CREATE OUR MODEL DIET

As indicated above, we started with the number of edible grams of each food group and main food items according to NSS (2011-12) food consumption data for rural AP. The number of grams of each food item were first adjusted to ensure the required 2346 calories.¹¹ The following adjustments were subsequently made to ensure that the model diet meets the WHO and ICMR nutritional standards of calories, macronutrients, and micronutrients. Features of our model diet are listed below:

- The diet is palatable for rural AP, i.e. reflects local food preferences. The choice of various food items in each food group represents commonly purchased and relatively cheaper items, including non-vegetarian food that is commonly consumed in rural AP.
- The diet is of relatively low cost for a nutritious diet. For food groups (cereals, vegetables, fruits, and pulses) where a number of varieties are available, we used items of lower cost when they are widely available and considered locally palatable.
- Based on observed differences around the world, Anker and Anker (2017) recommends that 11-12% of calories should come from proteins for a lower-middle income country such as India. In our model diets, around 11% of calories come from proteins. Also, it is important that minimum amounts of animal-based foods as well as protein-rich plant-based products are included, despite their high cost per calorie. Hence, the following adjustments have been made:
 - Three servings (85 edible grams per serving) of meat per week, which implies ~36 grams per day has been included. This has been allocated to chicken, which is the least expensive and most widely consumed meat in the study area.
 - Two servings of pulse (28 edible grams per serving), and an additional 18 grams for preparation of batter for breakfast items, amounting to 74 grams of pulses in total has been included in our model diet.
 - Two eggs per week (44 edible grams per egg), which implies ~12 edible grams per day.
 - Milk consumption has been increased to ensure a nutritious diet to 1 cup (240 ml) per day for children and 2 cups (~100 ml milk required per cup of preparation) of buttermilk or curd per adults per day. A small amount of milk has also included for adding to tea for adults. Thus, total consumption of milk per day person comes to 250 ml. Although higher than actual consumption at present, consumption of adequate amount of milk is included in the model diet as an important source of protein. Further, it is a common practice that families use milk to prepare curd and buttermilk at home.

¹¹ The starting model diet based solely on NSS food consumption data indicated too few calories (2070 calories). Hence, the number of edible grams for each food in the NSS diet was proportionately scaled up so that the total number of calories in the starting model diet equalled the total number of calories required (as calculated and indicated above).

- Based on WHO/FAO (2003) and Anker & Anker (2017) guidelines, 325 grams (for lower-middle income countries) of fruits, vegetables (excluding roots and tubers), pulses and legumes are included in the model diet. NSS data on food consumption indicate that vegetable and fruit consumption is about 179 and 69 edible grams per person per day respectively. Accordingly, the amounts of vegetables and fruits in the model diet was increased substantially to meet the requirements of 325 grams.
- 30 grams of sugar, which is the maximum amount WHO recommends per day, has been included in the model diet; this is higher than the 19 grams of current consumption which is reported in NSS data.
- The WHO standard restricts oil consumption and Anker and Anker (2017) sets this at a maximum of 34 grams per person per day. Oil consumption is 24 grams as per the model diet, due to already relatively high fat content of our model diet.
- In rural India, prepared cereals such as pasta and bread are uncommon and hence prepared cereals are not included in the model diet.
- In order to ensure reasonable variety in the diet, 11% was added to the cost of model diet. Eight per cent was added to account for cost of salt, spices, condiments and sauces. NSS data indicates the same percentage for these food items. An additional 4% was added to account for wastage and spoilage in preparation and storage of food.

6.7 LOCAL FOOD PRICES

As is evident, cost of a model diet depends on the prices of the food items that constitute it. In the current study district, in-depth interviews with 84 farmers and other respondents revealed that workers/farmers of these areas shop primarily at the market area located in the nearest mandal center. Rice is usually bought in bulk, and stocked up for a fortnight or a month. Fruits and vegetables are bought 2-3 times per week, or even daily. Many of the villages had small local shops selling toiletries, tobacco, and packaged food (like biscuits, chips, tea leaves, cooking oil). These shops also sell cereals and pulses in smaller SKUs (like 1 kg packets or sold loose) and some vegetables and tubers with a larger shelf life such as potatoes and onions.

The field research team made repeated visits to various kinds of shops in different locations from where the workers / farmers make their purchases, including neighborhood general stores, dairies, poultry shops and fixed vegetable and fruit shops in the mandal centers. The field team visited street vendors who have semi-permanent spots in these areas. In addition, the field team visited village level shops and kirana stores. As many as 70 price points were obtained for rice, wheat, pulses, oil, tea and sugar from different locations. About 40 outlets selling vegetables and 35 fruit vendors were visited to obtain prices of different fruits and vegetables. The field team also visited 36 dairies and 18 poultry shops to obtain prices of milk and chicken, respectively. Eggs are sold at dairies, departmental (general) stores, and kirana shops; and 77 price points for eggs were obtained. In fact, eggs are sold per piece, or by dozen or in trays of 24/30 pieces. The prices for all the items in our model diet were taken for different qualities and quantities of the commodity. Fruits and vegetables are mostly sold by kilograms, and wherever a piece system was used (e.g., bananas are usually sold by dozen, and spinach is usually sold by bunch), the observed costs were converted to weights to determine price per kilogram. The table below (9) describe types of markets where residents of the rural Prakasam district typically shop for food.

Table 9. Markets in rural Prakasam where rural residents typically shop for food

Food item	Wholesale and general stores in nearby town	VillageNeighborhood shop / Kirana Shops	Street vendors / Wet Markets in Nearby Towns	PDS store	ProducedatHomefor Self-Consumption
Cereals – Rice	Yes			Yes	
Cereals – Wheat	Yes				
Pulses	Yes	Yes		Yes (Arhar Dal)	Yes
Milk	Yes	Yes			Yes
Egg	Yes	Yes			
Chicken	Yes				
Vegetables	Yes	Yes	Yes		
Fruits	Yes		Yes		
Tea/Sugar/Oil	Yes	Yes		Yes (Sugar)	

Presented below are pictures of the markets in some parts of rural Prakasam.



Picture 1. Departmental (general) store



Picture 2. Vegetable shop



Picture 3. Fruit vendor



Picture 4. Another fruit vendor



Picture 5. Vegetable vendor on the pushcart

Based on food price data thus collected, the median price per kilo was obtained for each food item. Food items that were widely available, commonly consumed, sold in reasonable sizes, and relatively cheaper were selected to include in the model diet. The prices of food items, which are mainly self-produced and self-consumed, were determined on the basis of prices of the same prevailing in the market. We assumed that no one obtains food from the Public Distribution system (PDS) when costing our model diet, because the beneficiaries under the PDS include only families below the poverty line (BPL).¹²

7. MODEL DIET

The model diet, which was prepared using the Anker Methodology and adjustments discussed in the previous section, is presented in Table 10. The cost of model diet for rural Prakasam is Rs. 81.89 per person per day.

Table 10. Composition and cost of model diet for rural Prakasam, Andhra Pradesh

Food Group	Food Item	Edible Grams	Purchased Grams	Cost per KG	Cost
1. Cereals and grains	Rice	338	338	44	14.87
	Wheat	18	18	50	0.91
2. Roots and tubers	Potato	31	35	40	1.39
3. Pulses, legumes, beans	Arhar / Toor / Red Gram	56	56	110	6.16
	Urd (Split) White	18	18	105	1.89
4. Milk	Buffalo Milk	250	240	63	15.75
5. Eggs	Chicken Egg	13	14	100	1.43
6. Meats & fish	Chicken	36	49	180	8.74
7A. Dark green leafy vegetables (GLV)	Spinach	31	39	20	0.78
	Cabbage	31	35	40	1.39

12 The Public Distribution System beneficiaries include families with a Ration Card. Ration Card is issued to all citizens of Andhra Pradesh who fulfil the following criteria: (i) The applicant's family income should be less than Rs. 10,000/month in rural areas and Rs. 12,000/month in urban areas; (ii) Applicants with Rural Landholding must not be more than 3 acres of wetland /10 acres of dry land/ 10 acres of both wet & dry land collectively; (iii) The family of the applicant should not include any government workers/employees; (iv) Applicants from Urban areas should have no property at all or have less than 750 sq. ft of space; (v) The applicant's electricity consumption must be less than 300 units in a month; (vi) The applicant's family must not own a four-wheeled vehicle; (vi) None of the applicant's family members should pay income tax.

Food Group	Food Item	Edible Grams	Purchased Grams	Cost per KG	Cost
7B. Other vegetables	Brinjal	31	39	30	1.16
	Ladies Finger	31	36	30	1.09
	Tomato	31	31	20	0.63
	Onion	31	35	25	0.87
8. Fruits	Guava	31	35	40	1.39
	Banana	31	49	35	1.70
9. Oils & fats	Edible Oil	24	24	147	3.54
10. Sugar	White Sugar	30	30	40	1.20
11. Nonalcoholic beverages	Tea	2.0	2.0	830	1.66
Total cost of model diet excluding additional costs indicated below					66.58
Total cost of model diet including additional costs indicated below					81.89
Percentage added for salt, spices, sauces, and condiments					8%
Percentage added for spoilage & waste					4%
Percentage added for variety					11%

7.1 VALUE OF CHILDREN'S FREE LUNCH AT SCHOOL

The Midday Meal Scheme promoted by the Government for several years attempts to improve the nutritional standing of school-going children in India. The programme supplies free lunch on working days for school going children studying in standards 1-8 in government schools, government aided schools and other centers under the Sarva Shiksha Abhiyan (Universal education). When children eat free meals at school, the cost of food for the family is reduced by the amount it would have cost the family to prepare that school meal at home. In our living wage calculations, we assume that families send their children to government schools from Class 1 to 5, and use a mix of public and private schools for higher classes (see Education cost post check section below).

The Right to Education Act, India requires the first through fifth-grade students to spend 200 days in school, with a total of 800 hours of classes, and sixth through eighth-grade students to spend 220 days in schools, with a total of 1,000 hours of classes. Thus, families save the cost of lunch for 200 days in a year for children in the age group of six to ten years, and for 220 days in a year for children in the age group of eleven to thirteen years. Based on the required number of calories per day by age (recommended by WHO), and the assumption of the percentage distribution of calories between breakfast, lunch and dinner (which we assume to be 20%, 40%, 40%), the school lunch is worth Rs. 24.78 per child age 6-10, and Rs. 33.68 per child age 11-13 years, on days when they eat lunch in school.

However, children are not in school every day in the year (i.e., 200 or 220 of 365 days), and free school lunch is provided for only 44% of childhood years (i.e., 8/18 years). Further, we assume that out of the 8 years (Grades

1 – 8) where free school lunch is provided, workers/farmers use only public school facilities for grades 1-5, and a mix of public and private facilities (50% public and 50% private) for grades 6-8 (see section below on Education cost post check). Those sending children to private schools at the middle level forgo the benefit of mid-day meals. Multiplying the value of school lunches by the proportion of days in a year spent in school, and the proportion of childhood years when free lunches are provided, and the number of children in the reference family (i.e. two), gives us the average savings per day per family as Rs. 10.93 (of which Rs. 7.54 is for grades 1-5, and Rs. 3.38 for grades 6-8). The savings per person per day because of free school meals is Rs. 2.73.

7.2 COST OF FOOD FOR THE FAMILY

The cost of model diet in rural Prakasam was estimated to be Rs. 81.89 per person per day. After deducting the value of free school meals, the food costs per person per day is Rs. 79.16, which becomes Rs. 2,408 per person per month, and Rs. 9,632 (USD 122) per month for a family of four in rural Prakasam.

8. HOUSING

Housing makes a difference in the quality of decent living and constitutes a major component of the cost of living. Therefore, the cost of housing is taken into account to assess the cost of a basic but decent living.

8.1 NORMS OF ACCEPTABLE HOUSES

The cost of housing for a typical family of four members living in rural Prakasam district is assessed based on minimum standards. Several parameters contribute to an acceptable housing standard, including (i) international minimum housing standards (see Anker and Anker 2017); (ii) local housing conditions; and (iii) housing norms as prescribed by the Government of India. Apart from the size and physical condition of the dwelling unit, provision of basic amenities such as safe drinking water, availability of electricity, good sanitation and drainage facilities are mandated by international norms as well as local norms and conditions.

Minimum standards for acceptable housing, as recommended by international organizations such as WHO, FAO, ILO and UN-HABITAT, include: (i) privacy; (ii) security; (iii) hygiene; (iv) safety; (v) safe drinking water; (vi) sanitary toilet; and (vii) fire and electrical safety. Anker and Anker (2017) recommend that acceptable/adequate housing should have the attributes of (i) durable structure, (ii) sufficient living space, (iii) access to

safe water, (iv) access to sanitary toilet and washing facilities, (v) adequate lighting, (vi) adequate ventilation, (vii) sufficient space for food storage, (viii) separation from animal quarters, (ix) protection from cold, damp, heat, rain, wind or other threats to health, structural hazards, and disease vectors, (x) good condition, and (xi) not located in a slum, unsafe or hazardous area and without proper refuse disposal, site drainage, or emergency services.

The Bureau of Indian Standards (BIS), Government of India (BIS, 2016) developed a National Building Code, which is a comprehensive guideline for regulating construction activities, including residential houses, across India. It provides a model code stipulating general building norms, safety requirements, structure of the building, kind and quality of materials used, plumbing services, sustainability, etc.

International norms and local standards for decent housing have influenced our healthy housing standard to assess housing costs in rural Prakasam district AP.

- Minimum area of 48 square meters (517 sq. feet) of living space, or 53.8 square meters (579 sq. feet) of built area
- Minimum two rooms (living room and one bedroom); in addition to separate kitchen or cooking area inside the house
- Sufficient clearance above the ground
- Floor made of cement or mosaic
- Walls made of concrete, burnt brick, un-burnt brick, wood, or stone
- Roof made of burnt brick, concrete, stone, tiles, or metal sheets
- Ceiling with a minimum height of 2 meters
- Flush toilet, even if shared, or pit latrine with slab
- Water from a safe source, hand pump or well located close to home
- LPG, PNG, or firewood as cooking fuel
- Electricity (supplemented by possibly kerosene) as standard source of lighting
- House is maintained in a reasonably good condition
- House in safe area and without site hazard

8.2 HOUSING IN RURAL ANDHRA PRADESH

Data on the condition of houses are included in the National Family Health Survey (NFHS 2019-2021), an all-India survey, conducted periodically by the Ministry of Health and Family Welfare, Government of India. The main characteristics used to assess the condition of housing in the survey include the structure of the house, number of persons using one room for sleeping (an indicator of privacy), type of toilet facility, availability of space for cooking, access to drinking water, electricity, cooking fuel, and ownership of consumer durables. The

table (11) below indicates the state of housing in rural India as well as in rural Andhra Pradesh.

Table 11. Housing conditions in rural India and rural Andhra Pradesh

Characteristics	India (Rural) %	AP (Rural) %*	Comments on our local healthy housing standard
Structure			
Permanent (concrete/bricks/ zinc)	48.0	80.8	Temporary or <i>kutcha</i> houses are not acceptable
Semi-permanent (either wall or roof not permanent)	44.2	15.7	
Temporary (thatch roof & sundried bricks)	6.4	2.3	
Toilet facility			
Pit latrine with slab	6.2	1.0	Flush toilet, even if shared, or a Pit latrine with slab acceptable
Pit latrine without slab/open pit	1.4	0.1	
Flush toilet	66.3	76.4	
No facility, bush	25.9	21.8	
Other (Night soil into open drain or services by animals or humans)	0.2	0.7	
Cooking fuel			
Wood	43.7	17.9	LPG/ PNG /firewood as cooking fuel is acceptable
Charcoal/coal/lignite	1.8	1.8	
Kerosene	0.4	0.2	
LPG/PNG	42.3	77.3	
Electricity	0.5	0.5	
Other (crop residue, cow dung cakes, biogas, or no cooking)	11.3	3.3	

Characteristics	India (Rural) %	AP (Rural) %*	Comments on our local healthy housing standard
Consumer durables			
Radio/transistor	4.1	1.3	Availability of private vehicle (motorbike) and mobile phone is necessary for decent standard of living. Percent with motorbike in 2011 is not indicative of situation in 2021.
Motorbike or scooter	44.3	43.0	
Car/jeep/van	4.4	1.4	
Television	58.4	82.8	
Computer/laptop	4.4	1.9	
Mobile Phone/landline phone	92.6	90.3	
Bicycle	54.2	31.4	
Drinking Water source			
Piped water into dwelling/ yard/plot	22.6	15.6	Water from a safe source, hand pump or well located close to home acceptable.
Piped to neighborhood	1.6	2.2	
Borehole/tube well	45.9	14.2	
Public Tap/Standpipe	13.9	28.2	
Other Improved Source (such as protected dug well, community RO plant, protected spring or tanker truck)	10.5	35.3	
Unprotected Sources (dug well or spring or surface water)	5.1	4.3	
Electricity - Lighting source			
Yes	95.3	99.0	Electricity as standard source of lighting required.
No	4.7	1.0	
Persons per room used for sleeping			
<3	57.7	53.7	53.8 square meters of built area (48 square meters of living space).
3-4	29.2	35.1	
5-6	9.9	10.0	
7 and over	3.2	1.3	

Characteristics	India (Rural) %	AP (Rural) %*	Comments on our local healthy housing standard
Place of cooking			
In the house, separate room	48.8	58.9	Cooking area should be separate inside the house.
In the house, no separate room	27.3	23.4	
In separate building	13.7	6.1	
Outdoors	9.9	11.2	
No cooking	0.1	0.4	
Other	0.2	0.1	

Source: NFHS 2019-21.

Several points can be observed from the table above. The condition of houses in rural Andhra Pradesh is much superior to that found in rural India as a whole. According to NFHS (2019-21), as much as 80.8% of houses in rural AP had a permanent structure with safe materials such as concrete or burnt brick, and stone used for roof and walls, which is way above the average condition of houses found in rural India where only 48.0% of houses had a permanent structure. However, houses in rural AP, compared to rural India, seem to have less privacy for sleeping purposes. In rural AP, less than three persons 53.7% of the sleeping rooms, compared to rural India where less than three persons shared 57.7% of the sleeping rooms. Similarly, in more than 35 percent (35.1%) of households in rural AP, in comparison to 29.2% of cases in rural India, one room was shared by three-to-four persons; and in 10% of households in rural AP, compared to 9.9% in rural India, 5-6 persons shared one room for sleeping purposes. However, 3.2% in rural India had one room shared by seven or more persons compared to 1.3% of households in rural AP.

Again, rural AP is much better with 76.4% of houses having flush toilet facilities compared to 66.3% of houses in rural India with similar facility. Rural AP is ahead with 77.3% of houses having access to LPG for cooking compared to only 42.3% in rural India. Also, 95% of households in rural AP use an improved source of drinking water, but only 18% (compared to 24% for rural India) have water piped into their dwelling, yard, plot, or neighbourhood. The rural electrification program, which has been pursued by successive governments during the past several decades, seems to be yielding results. According to NFHS (2019-21) survey, 95.3% of rural India and 99.0% of rural AP have access to electricity for lighting.

Regarding ownership of consumer durables such as mobile phones, motorcycles and television are, the situation in rural AP is similar to that of rural India. In rural AP, 90.3% of households compared to 92.6% in rural India owned mobile phones; 43.0% in rural AP compared 44.3% in rural India owned a motorcycle, while 82.8% of households in rural AP compared to a much lower 58.4% in rural India owned television. In fact, ownership of a two-wheeler (motorcycle) seems to have become a norm in modern rural India. As much as 44.3% in rural India and 43.0% in rural AP owned a motorcycle in 2011, and it is much more now, given the absence of public transport facilities for commuting to carry out daily chores.

8.3 CONDITION OF HOUSES IN RURAL PRAKASAM DISTRICT

The research team visited 84 houses in the 12 study villages (three villages each in four mandals of the district). These study villages were chosen by the research team in consultation with (i) local NGO officials (Assist India),

and (ii) recommendations of two tobacco supplier organisations, namely Godfrey Philips India (GPI) and Alliance One International (AOI). Two mandals, each belonging to the supervisory jurisdiction of GPI and AOI respectively, were chosen for carrying out our detailed field investigation. Individual houses visited within the study villages were chosen randomly, as far as possible, but ensured that they were located in different areas of the village.

The residents we spoke to are mostly land owning cultivators. Sixty three out of the 84 (75%) respondents were land owning cultivators. The average amount of land owned was 4.65 acres¹³, which is not a large area. A few respondents owned between 10-20 acres and much fewer above 20 acres. Many respondents owned less than four acres of land, while some of them cultivated on land taken on lease. Some residents of the village were landless laborers who worked on daily wages. Children of many farmers have migrated out to other cities within the country or outside for better paying jobs. Tobacco was most commonly cultivated crop, while some farmers also cultivated paddy, maize or red grams. A brief summary of the condition of the 84 houses that the research team visited during the field investigation is presented in the Table 12 below.

Table 12. Conditions of houses in Prakasam visited by the research field team

Characteristics	Number of houses	Percentage
Number of houses visited	84	100
Kutcha or semi-pucca houses	8	9.5
Dilapidated houses	1	1.2
Houses without a roof made of concrete or similar material	31	36.9
Houses with a mud floor	2	2.4
Houses without a concrete or a brick wall	11	13.1
Houses with less than 2 rooms	20	23.8
Houses without a toilet (inside or outside)	23	27.4
Houses without a separate kitchen	34	40.5
Houses with fair or poor ventilation quality	6	7.1
Houses with a foundation less than 3 ft or no foundation	15	17.9
Houses with height of ceiling less than 10 ft	22	26.2
Houses with an area less than 400 sq. ft.	47	56.0

Note: The above table was constructed by the authors based on primary research.

13 One acre is equivalent 43,560 square feet or 4,840 square yards. It is equivalent of 0.4047 hectare or 4,047 square meters.

As shown above, only eight out of 84 houses visited by the research team were found to be kutcha or semi-pucca. In other words, more than 90 percent (90.5%) of the houses visited in Prakasam district had permanent structures. Overall, the quality of material used, the condition of houses and the surrounding environment were generally satisfactory. Most houses were made of concrete or brick with good ventilation. However, over 50 percent of houses did not have sufficient area of living space; 47 out of 84 houses (56.0%) had less than 400 square ft. of living space and nearly one-quarter of houses visited, 20 out of 84 (23.2%), had less than two rooms. Similarly, 34 out of 84 (40.5%) houses did not have a separate kitchen, and 23 out of 84 (27.4%) did not have a toilet either inside or outside the house.

The photos below illustrate the range of houses found in villages of Prakasam district.



Picture 2.3A: a village house



Picture 2.3B: Village sarpanch's house



Picture 2.3C: kutcha house-1



Picture 2.3D: kutcha house-2

Sources: Authors' photos

Although on an average, houses in rural Prakasam district were generally found to be built with safe material

and permanent structures, kutcha houses with non-permanent structures and unsafe materials, were also found in some parts of the district.

While many older houses, like the one in picture 2.3A, were permanent structures, with walls made of stone or burnt brick, and have tiled roof supported by wooden attic, some were modern houses, like that of the village sarpanch shown in picture 2.3B, which are made of concrete roof, concrete walls, stone or burnt brick. Kutcha houses with non-permanent structures, like in pictures 2.3B and 2.3C, are also found in some parts of the study district.

9. COST OF HOUSING

While it is not uncommon to find people living in rented houses in urban spaces, the situation is different in rural India where most people live in their own houses. As reported by Bhattacharya (2016), quoting from the Household Survey on India's Citizen Environment & Consumer Economy (ICE 360°, 2016), 97% of households belonging to the bottom-income quintile (bottom 20% of India's income distribution), live in their own houses, compared to only 81% of households in the top-income quintile (top 20% of India's income distribution).

9.1 RENTAL EQUIVALENT VALUE OF BASIC ACCEPTABLE OWNED HOUSING

Rural AP is no exception to the common practice of rural India where people live in their own houses. No farmer or rural worker, whether they owned land or not, was found living in a rented house in the study villages in Prakasam district. During the field visits, the research team was told by local people that renting residential spaces was not part of the local culture. If, by chance, the owner did not occupy the house, it would not be rented out, but could be given to a relative or someone known to the owner to use it without a rent.

Given the absence of rental practice and non-availability of rental expenditure data in consumption expenditure surveys for rural Prakasam district, it was not possible to assess housing cost on the basis of rental value. Instead, we have relied on the user cost value of housing, as recommended by Anker and Anker (2017). For this purpose, the monthly user cost of a basic house was estimated, which meets our acceptable healthy housing standards. The user cost is estimated using the construction cost of the house and assumptions of its expected service life and cost of maintenance. Our standard of 53.8 sq. meters (579 sq. ft.)¹⁴ of built area of living space has been taken as the acceptable area for a decent house. The cost of construction was determined based on information provided by licensed contractors in the area.

We procured quotations from contractors who are engaged in house construction. The square foot cost of construction as per the quotations received from the contractors ranged from Rs. 2,140 to Rs. 2,548 giving us an average of Rs. 2,456 per square foot. These quotations primarily referred to semi-urban and urban areas. The cost of iron, cement, tiles, flooring material and paint are similar in rural and urban areas, although transport costs are higher in rural areas. At the same time, bricks and sand are slightly cheaper in rural areas as villagers are able to negotiate them for cheaper prices from nearby facilities. Villagers are said to be able to procure sand at a cheaper rate, which is highly regulated and expensive in urban areas. Moreover, labor is invariably cheaper in rural areas because of local availability and involvement of family labor. Given these reasons, the urban estimate was reduced by 15% to obtain a cost of Rs. 2,071 per sq. foot for rural areas. People who had constructed houses recently in rural Prakasam corroborated these estimates.

14 The living space of 48 sq. meters is equivalent to around 53.8 sq. meters of built-up space considering an additional 12% to account for thickness of outer and inner walls (Anker and Anker 2017).

Based on the above estimates, the cost for constructing a house with a built-up area of 579 sq. ft (53.8 sq. meters)¹⁵, with two rooms, a separate kitchen, toilet and bathing facility outside the house with basic parameters of safety and durability has been calculated to be Rs. 1,199,168 (i.e., 579 sq. ft. x Rs. 2,071 per sq. ft.).

The annual user cost is calculated by assuming depreciation on a straight-line method plus the cost of maintenance and repairs. We assume that rural families do not borrow money to fund construction and so there are no interest payment costs. Depreciation cost has been calculated based on the average service life of 50 years for a house built with concrete in rural India. This is the rule of thumb for middle-income countries like India as suggested by Anker and Anker (2017) which is similar to the 50-60 years recommended for India (Gupta, 2020).

Assuming a service life expectancy of 50 years and 2% for annual maintenance (Anker and Anker, 2017), the average monthly user cost of housing has been calculated and presented in Table 13. The cost of interest rates has been ignored, primarily because an effective financial system is absent in rural areas. Moreover, it is a common practice in rural India that most farmers/workers build their houses either out of their own savings or from inherited wealth or from the partial grant received under the government housing scheme. Based on the aforementioned premises, the user cost for housing has been calculated (see Table 13) to be Rs. 3,997 per month.

Table 13. User cost of housing based on construction cost, service life expectancy, and maintenance

Built up area	53.8 sq. meter or 579 sq. ft.
Cost per sq. ft. (Rs.)	2071
Cost of Construction (Rs.)	1,199,168
Life expectancy (years)	50
Annual Depreciation Cost (Rs.)	23,983
Annual Maintenance Cost (%)	2.0%
Annual Maintenance Cost (Rs.)	23,983
Total Annual Cost (Rs.) Depreciation + Maintenance	47,967
Total Monthly Cost (Rs.)	3,997

Source: Authors' calculations.

15 The living space of 48 sq. meters is equivalent to 53.8 sq. meters of built-up space considering an additional 12% to account for thickness of outer and inner walls (Anker and Anker 2017).

10. UTILITIES AND OTHER HOUSING COSTS

In order to assess a realistic cost of housing, cost of utilities such as water, electricity, cooking fuel and lighting are added to the user cost of decent housing as calculated above.

10.1 COST OF WATER

Water was available through taps inside the house or hand-pumps located within close proximity (50 meters distance) of every household visited. According to data from NFHS (2019-21), 89% of households in rural AP have access to basic drinking water service.¹⁶ Although water supply was not continuous, it was found available at fixed times of the day. Most households have constructed cement tanks and kept aside plastic buckets to store water for use during the day. As villagers had access to water either within the house or next to it outside at free of cost, the cost of water is assumed to be zero.

10.2 COST OF LIGHTING

According to NFHS survey (2021), nearly 99% of rural households in Andhra Pradesh have access to electricity. Every household that the research team visited had electricity connection and reported satisfactory supply for reasonable part of the day and night. A good number (52 out of 84) of respondents reported that they had more than 18 hours of electricity supply a day, while 32 of them said that electricity supply varied from 10–18 hours a day. The typical electricity cost for running fans, bulbs and appliances such as TVs per month ranges between Rs. 250–500. Households with additional amenities such as refrigerator and air coolers reported spending more than Rs. 1,000 per month on electricity.

According to household expenditure data reported in the 68th Round of NSS 2011-12 (NSSO, 2014), Rs. 34.53 per person per month was spent on electricity, which is equivalent to Rs. 138.1 for a family of four members. Taking inflation into account, the amount spent on electricity in 2022 becomes Rs. 291. As per the CMIE-CPHS (2022), the average household expenditure in rural AP on electricity is Rs. 269 per month.

Based on estimates obtained from the primary research and that which was obtained from secondary sources, Rs. 300 is used as the monthly cost for using a fan and a bulb in every room and sufficient electricity to charge mobile phones.

10.3 FUEL FOR COOKING AND FOR HEATING IN WINTER

According NFHS (2021) survey, 77% of households in rural Andhra Pradesh use LPG for cooking, while 18% depended on firewood.

All the households that the research team visited during the field investigation in the study districts used LPG for cooking. Firewood was sometimes used for boiling water. From the field interaction with the respondents, we understand that an LPG cylinder (currently costing Rs. 1,100 for 14.2 kgs) typically lasts about 40-45 days, which was to cook meals for the entire family. Based on this assessment, a monthly cost of Rs. 733 (i.e. Rs 1,100 spent over one and half month) has been estimated as fuel cost. Note here that the average temperature prevalent in AP round the year is warm and hence no heating is required.

¹⁶ This is defined as drinking water from an improved source, provided that either water is on the premises or round-trip collection time is 30 minutes or less.

Therefore, based on the cost of water (zero), cost of lighting (Rs. 300), and that of cooking fuel (Rs. 733), monthly utility costs incurred by a household has been calculated at Rs. 1,033 in rural Prakasam. This amount was validated by the secondary data available in the 68th round of the National Sample Survey (NSSO, 2014) which reports Rs. 104.78 as the per capita monthly expenditure on fuel and light in rural AP. Therefore, when we multiply this amount by a family size of four and update it for inflation to 2022, an amount of Rs. 882.1 per month is obtained which is lower than our estimate. This may be due to greater prevalence of solid fuels such as firewood and cow-dung cakes for cooking (which are mostly available free of cost, and the price is difficult to impute) and sources other than electricity for lighting at the time of survey in 2011-12.

10.4 SUMMARY OF HOUSING AND UTILITIES COSTS

A summary of the housing cost and cost of utilities are summarized in Table 14.

Table 14. Total Housing Cost (Rent + Utilities) for decent housing in rural Prakasam

Item	Average Cost per Month (Rs.) for reference family
Water	0
Lighting	300
Fuel	733
Total Utilities	1,033
Average Rent (User Cost)	3,997
Total Housing	5,030

Source: Authors' calculations.

As shown on Table 14, monthly housing cost has been calculated to be Rs. 5,031 for the reference family, which includes the cost of utilities (Rs. 1,033) and housing user cost equivalent value (Rs. 3,997).

11. NON-FOOD NON-HOUSING (NFNH) COSTS

The Anker Methodology (Anker and Anker 2017) estimates non-food and non-housing (NFNH) expenses in three steps as described below.

In step 1, NFNH costs are calculated on the basis of current household expenditure patterns of rural Prakasam using CMIE Consumer Pyramids Household Survey data¹⁷ for January – April 2022 (CMIE, 2022). First, the ratio between expenditure on food and NFNH is determined for households at the 30th percentile of the household expenditure distribution because such households are likely to be out of poverty, but still living at

¹⁷ Consumer Pyramids Household Survey (CPHS) is a continuous survey administered on a panel of sample households by Center for Monitoring Indian Economy (CMIE). It delivers fast-frequency data on consumption expenditure of households which are collected thrice every year.

a fairly basic standard. This is done by taking the average of the ratios for households in the 3rd and the 4th deciles (which is roughly the 30th percentile on average) of the household expenditure distribution for rural Prakasam.¹⁸ These deciles in the income distribution have been chosen because they represent expenditures of households above poverty. Table 15 shows the percentage share of total expenditure by major expenditure group for the 3rd and 4th decile of rural Prakasam households.

Table 15. Expenditures by Major Group as a share of Total Household Expenditure in rural Prakasam, Andhra Pradesh, January–April 2022

Expenditure Group	Category	Category (food, housing, NFNH) in Anker Methodology	Percent of household expenditure(3 rd decile)	Percent of household expenditure(4 th decile)
Food and non-alcoholic beverages	Food	Food	48.6%	46.4%
Cooking fuel	Food	Housing	2.2%	3.5%
Alcohol	Alcohol, tobacco, narcotics	NFNH	2.6%	2.8%
Tobacco and pan	Alcohol, tobacco, narcotics	Excluded	1.6%	1.8%
Clothing & footwear	NFNH	NFNH	2.2%	2.9%
Rent ^a	Housing	Housing	0.9%	0.8%
Services (including electricity)	Housing	Housing	2.9%	3.0%
Household contents and appliances	NFNH	NFNH	0.3%	0.3%
Health services	NFNH	NFNH	1.5%	2.2%
Education	NFNH	NFNH	0.6%	1.0%
Private vehicle operation	NFNH	NFNH	6.1%	5.6%
Passenger transport services	NFNH	NFNH	4.1%	3.9%
Telecommunications	NFNH	NFNH	6.3%	6.1%

18 The broadest level of stratification in the CMIE-CPHS survey is the Homogeneous Regions (HRs). A Homogeneous Region is a set of neighbouring districts within a state that has similar agroclimatic conditions, relatively similar urbanisation levels and relatively similar female literacy and are of a similar size in terms of households as per the 2011 Census. We use data on the Guntur - Nellore HR to obtain estimated for rural Prakasam. This HR comprises the following districts: Guntur, Praksam, Sri Potti Sriramulu Nellore.

Expenditure Group	Category	Category (food, housing, NFNH) in Anker Methodology	Percent of household expenditure(3 rd decile)	Percent of household expenditure(4 th decile)
Recreation and culture	NFNH	NFNH	0.3%	0.3%
Restaurants and hotels	NFNH	70% Food, 30% NFNH	2.9%	2.4%
Miscellaneous expenditures	NFNH	NFNH	16.9%	17.0%
Adjusted NFNH			41.7%	42.8%
Preliminary NFNH/ Food ratio			0.8243	0.8895

Note: NFNH indicates non-food non-housing. ^a Indian household expenditure statistics do not include any value or cost for owner-occupied housing.

Source: Authors' calculations based on CMIE (2022).

In step 2, household expenditures on items such as tobacco and narcotics such as pan, that are not considered necessary for a decent living, are eliminated. We assume that 70% of the cost of meals away from home is for the food items in these meals and 30% for services and profit. To account for this, we included 30% of this share in NFNH and moved 70% to food.

The preliminary NFNH to Food ratio for rural Prakasam for the 30th percentile household is 0.8569, namely, the average of the preliminary NFNH to Food Ratio for the households in 3rd and 4th deciles of the expenditure distribution. Multiplying this by the cost of food per month (Rs. 9,632) for the reference family of four, gives us Rs. 8,254 per month as the preliminary NFNH expenses.

11.1 POST CHECKS FOR HEALTHCARE, EDUCATION AND TRANSPORT

In step 3, important expenditure groups such as health care and children's education (which we consider human rights) and other major expenses (such as transportation) are reviewed. This is to make sure that the funds included in the preliminary NFNH as estimated in step 2 for these are adequate for a decent living. If found insufficient, additional funds are added to ensure a decent living.

Post-checks for children's education and health care are done by first determining the amounts for these included in the preliminary NFNH estimate noted above. Then these amounts are checked against our estimates of these costs from our fieldwork and rapid assessment, and where the amount included in the preliminary NFNH estimate is insufficient, we add a post-check amount to NFNH.

11.2 ESTIMATES FOR HEALTH CARE, EDUCATION AND TRANSPORT INCLUDED IN THE NFNH

The shares of health care, education and transport in the preliminary NFNH estimate are calculated in Table 16 below (column 3). Multiplying this percentage by the preliminary NFNH estimate (Rs. 8,254) indicates the amount for each expenditure group included in the preliminary NFNH estimate. These calculations and results are presented in Table 16 below.

Table 16. Calculating amount implicitly included in preliminary NFNH estimate for health care, education, and transport for reference family in rural Prakasam

Item	Percentage of total monthly per capita household expenditure	Percentage of total NFNH	Amount(Rs.permonth)inpreliminary NFNH costs of Rs. 8,254
Health care	1.82%	4.28%	352
Education	0.80%	1.88%	155
Transport	9.82%	23.25%	1,919

Source: Authors' calculations based on CMIE (2022).

12. HEALTH CARE POST CHECK

It is a well-known fact that the public expenditure on health care in India has not been adequate for several decades and the health care services available to the public has never been satisfactory. The COVID-19 pandemic further exposed the weaknesses of the public health care system in India. According to the National Health Accounts report¹⁹, the total expenditure – total money spent by the government, private entities and external funding - on health care as a proportion of GDP in 2018 was a mere 3.2%. Government expenditure on health as a proportion of GDP was just 2%, far lower than most other countries, especially the developed nations. Thus, out-of-pocket expenditure as a proportion of total health care expenditure was reported to be 42.06%.²⁰

According to Census 2011, out of the 985 villages spread across 56 blocks of Prakasam district, 76 villages have a primary health center, nine villages have a community health center, 23 villages have a dispensary, and four villages have alternative medicine hospitals. Around 425 villages have a primary health sub-center, 150 villages have veterinary hospital, and 149 villages have mobile health clinic. Only one village was reported to have a family welfare center in the entire Prakasam district. Not a single village in the district was reported to have a maternity and child welfare center or an allopathic hospital. According to the 2011 census report, only 41 villages had a medical practitioner with MBBS degree, although 166 villages were reported to have a medical practitioner without a proper medical (MBBS) degree. While there were medical shops in 161 villages, 231 villages had no medical facility at all. Only Ongole (district headquarters) had reasonably comprehensive access to a medical facility. People from other towns had to travel 35–45 kms to avail of medical facility such as that of an allopathic hospital.

Nearly every respondent met during our field investigation in Prakasam district felt that public health care was unsatisfactory and inadequate. Although public health centers (PHC) are set up by government authorities at different locations in the villages, doctors and medicines were said to be rarely available at these public clinics. Most village residents we spoke to said that they resorted to using private healthcare facilities. They

19 <https://www.moneycontrol.com/news/economy/policy/indias-spend-on-health-as-percentage-of-gdp-went-down-in-15-years-but-remarkable-improvement-in-out-of-pocket-expenditure-9165581.html>

20 World Bank: "Domestic general government health expenditure (% of GDP)" (<https://data.worldbank.org/indicator/SH.XPD.GHED.GD.ZS>)

visit the rural private medical practitioners (RMPs) located within the center of large villages or within a cluster of them and at mandal centers, or the private clinics situated in the mandal centers and nearest towns. The first contact point of the villager typically is the Rural Medical Practitioner (RMP) for a routine illness. Although the RMP charges no consultation fee (or sometimes a nominal one), villagers have to pay for medicines and investigative tests. If the patient is dissatisfied with the treatment of the RMP after 1-2 visits, they shift to larger private clinics in mandal centers.

The research team visited five private clinics and fifteen RMPs to understand the costs and pricing of RMPs and private clinics. An average amount of Rs. 350 (including the cost of consultation fee, medicines, and tests), was spent per visit by a rural resident to RMPs for one spell of illness. However, Rs. 1,062 is the corresponding figure which is spent on visiting a private clinic. Assuming that a person visits a medical facility every 3-4 months or 3.5 times per year (see Anker and Anker 2017) with 2 visits to an RMP and 1.5 visit to a private clinic, and also assuming that an investigative test is required in half the times, the annual medical expenditure on routine illness for a person is Rs. 1,412, which is Rs. 471 per month for a family of four members. But this amount only considers care of routine illnesses and does not include serious medical situations requiring hospitalisation, which will incur major expenditures and which we assume will be done in public hospitals. Table 17 provides a summary of our estimate of health care costs for a reference family of four in rural Prakasam.²¹

Table 17. Estimated Healthcare Costs for a Reference Family

Type of provider	Cost per visit	No. of visits per year per person	Total cost
RMP			
Consultation Fee	0	2	0
Medicines	100	2	200
Investigative Tests	150	1	150
Private clinic/doctor			
Consultation	100	1.5	150.0
Medicines	364.5	1.5	546.8
Investigative Tests	487.5	0.75	365.6
Total cost per person per year			1,412
Total cost per family per month (cost per person per year x reference family size)/12 months			471

Source: Authors' calculations based on primary research.

21 According to the 75th round (July 2017 – June 2018) of the National Sample Survey on Social Consumption - health (NSSO, 2019), of all the people reporting an ailment in rural AP, 98.4% received an allopathic treatment, and 1.4% received an AYUSH treatment. Also, 19.1% were treated on medical advice by a government/public hospital, 1.6% by an NGO run or a charitable hospital, 51.6% by a private hospital, 21.6% by a private doctor in a private clinic and 6.1% by an informal health care provider. Moreover, 25.8% of hospitalizations were in a government/public hospital, 2.5% in NGO-run or a charitable hospital, and 71.8% in a private hospital. The average medical expenditure incurred for treatment during stay at hospital per case of hospitalization for rural Andhra Pradesh was Rs. 1,453 in a public hospital, Rs. 22,415 in a private hospital, and Rs 16,717 in all hospitals (including the NGO run charitable hospitals). The average medical expenditure per spell of ailment for non-hospitalised treatment was estimated at Rs. 428.

Based on the above calculations, we consider Rs. 471 as an appropriate amount of monthly health care expenditures for a reference family of four persons living in rural Prakasam. This amount we estimated is higher than the Rs. 352 per family included in our preliminary NFNH estimate. Therefore, the difference is Rs. 115, which we rounded off to Rs. 100 has been added to the preliminary NFNH in this post check.

13. EDUCATION POST CHECK

Education in modern India, has assumed its rightful place in shaping the careers and livelihoods of young people in rural 'aspirational India'. Many parents who may have had very little education are extremely anxious to provide good quality education to their children, with the hope that they would have a better future. Many parents spend much more money they can afford to send their children to English medium private schools. Proficiency in English is considered an important criterion in the Indian job market.

According to the National Education Policy 2020 (Government of India, 2020):

“Education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development. Providing universal access to quality education is the key to India’s continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation. Universal high-quality education is the best way forward for developing and maximizing our country’s rich talents and resources for the good of the individual, the society, the country, and the world. India will have the highest population of young people in the world over the next decade, and our ability to provide high-quality educational opportunities to them will determine the future of our country.”

The new national education policy re-structured Indian school education into different segments of: (1) pre-school + classes 1 & 2 (for ages from 3 to 7); (2) classes 3 to 5 (for ages from 8 to 10); (3) classes 6 to 8 (for ages from 11 to 13); and (4) classes 9 to 12 (for ages from 14 to 18), as against the earlier system of primary, secondary and senior secondary school. Higher education takes place in colleges and universities. School education is not only every child’s right in India but is also compulsory until age 14.

The AP government has undertaken extensive modernisation of schools under ‘Naadu Needu Scheme’, within which the government is offering English medium education, free textbooks and other education kits. Smart classes equipped with LED TV Screens are also seen occasionally. A few schools have received funding under CSR initiatives from companies such as ITC and PMI. Public schools do not charge any fee and also provide mid-day meals which is an additional incentive.

They have also attempted to improve amenities such as introduction of toilets with piped water, drinking water facility, electrification with tube lights and fans, modern furniture, green chalkboard, renovation of the school building, adding kitchen and raising compound wall, etc. This scheme is apparently attracting more parents to send their children to public schools especially at the primary level.

Although the government of AP has made efforts to improve infrastructure and other facilities to enhance the quality of school education in government schools, most parents in the study villages we spoke to were found to prefer sending their children to private schools, especially at higher levels (classes 6-10) if they could afford this. During our field investigation, the research team found that almost every village in Prakasam district has a government school for Classes 1-5, while High Schools (Class 6-10) are located at the mandal centers or within a cluster of villages.

During the field investigation, the research team found that out of 63 parents it spoke to whose children (of all age groups) go to school, 25 are using public (state) facilities, 35 are using private, and 3 are using a combination of both. In fact, one of the popular private schools in rural Andhra Pradesh has opened branches at mandal headquarters offering 'quality education' to which many villagers are attracted and send their children. Though there are public junior colleges, parents prefer private junior colleges for Class 11 and 12.

Although private sector has always played an important role in education in India, its share has been steadily increasing in recent years. Education falls under social sector in India. Despite the rise in proportional spending in social sector, the percentage of expenditure on education has fallen in recent years (India Today, 30 January 2022). The Covid-19 pandemic exposed the underbelly of Indian education system. Schools remained closed during the pandemic in India for 75 weeks until the end of September 2021 compared to an average period of less than 35 weeks in most parts of the world.

According to India Today (2022), nearly 400,000 schools out of the nearly 11,00,000 government schools in India have less than 50 students and more than 100,000 schools have less than 20 students. Only around 19 per cent of a teacher's working time is spent on teaching activities in the school; major part of his/her time is used on non-academic activities such as election duties, data collection, mid-day meal distribution, and so on. It is also reported that a little over 10 per cent of children in Std III could read at Std II level and a lesser per cent could solve a simple Std II level subtraction problem. During the last 10 years, government expenditure on public education has been reduced from 11.4 per cent of the total government expenditure in 2011-12, to 10.4 per cent in 2020-21 which is less than four percent of GDP.²²

Despite higher cost, there are many things that make private schooling more attractive to the so-called 'aspirational' India, majority of whom live in rural areas. Apart from the non-professional manner of teaching and administration of the government schools as mentioned above, the latter uses local (regional) language as the medium of education. On the other hand, private schools impart education in English medium from early classes. Proficiency in English has been for long a major advantage in the competitive Indian job market, private or government. During the past many years even relatively poorer parents have been preferring to send their children to private and English medium schools, spending much more money than they could afford. In fact, since the mid-1990, there has been a rapid increase of private investment in education. It is not uncommon to see private schools being established not only in urban areas but also in semi-urban and even in rural areas.

Aser (2021), a reputed research publication, based on annual assessment of school education, makes an interesting observation that only a quarter of all enrolled children received some kind of learning materials/activities from their teachers during the pandemic closure. Importantly, a higher percentage of private school children received learning materials and/or activities compared to government schoolchildren in the same grades. As mentioned above and noted by Chopra (2021), during the past several years, the government has reduced investment in education as they have done in health care in India, leaving much more space for the private sector. Despite free education and meals provided by government schools in lower classes, private schools, including those in rural areas, have been gaining popularity.

22 Economic Survey, GOI, 2021.

The photos below depict schools in rural Andhra Pradesh



Picture 1. A government school



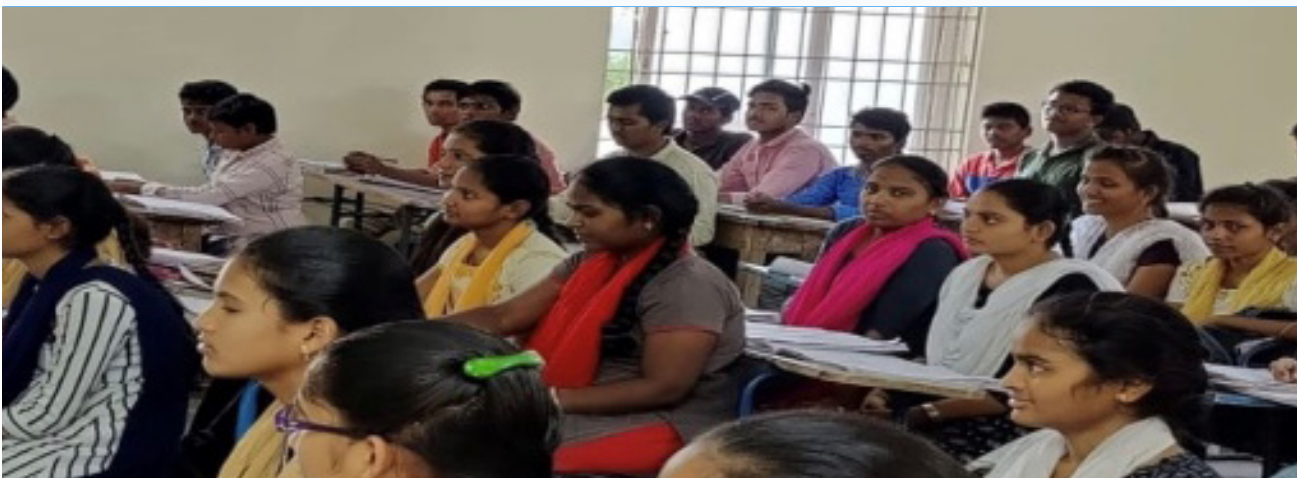
Picture 2. A private school



Picture 3. A class room



Picture 4. A makeshift class room



Picture 5. An intermediate (Junior College)

According to Census 2011, out of the 985 villages of Prakasam district, 125 of them had facilities of a pre-primary school, 947 of them had primary schools, 603 had middle schools, 334 had secondary schools and 52 villages had senior secondary schools. Around 21 villages had degree colleges of arts, science or commerce, 10 villages had engineering colleges, 13 villages had management institutes, seven villages had polytechnic institutes, and 16 villages had vocational training institutes. There were no village with a medical college. In fact, 38 villages in the district had no primary school and 37 villages had no education facility.

The research team visited 22 private schools (9 Primary Schools grades 1 to 5; 10 Middle and Secondary Schools grades 6 to 10, and 3 Junior Colleges grades 11 & 12) where parents we spoke to have enrolled their children. Based on the information gathered thus, expenditures incurred for schooling in the two districts are summarised below.

The median annual tuition expense on private schooling was around Rs. 10,000 for primary classes; Rs. 17,000 for middle and secondary classes, and Rs. 15,000 for junior college (intermediate classes). In addition, many spent around Rs. 3,500, Rs. 5,500, and Rs. 1,500, respectively, on books at each of the three levels of schooling. Similarly, Rs. 2,500, Rs. 3,000 and Rs. 1,500 respectively was spent on uniforms at the three different levels. Students paid an additional amount of Rs. 300, Rs. 300 and Rs. 848 as examination fee at the three levels. Therefore, parents paid total amount of Rs. 16,300 annually per child for private schools at the primary level, Rs. 25,800 at the middle and secondary level, and Rs. 18,848 at the junior college level.²³ Junior colleges in the study area were somewhat surprisingly less expensive than secondary schools in the study area. One partial explanation for this is that junior colleges do not always require uniforms, and junior college students often use notes and photocopied material instead of books. Another possible explanation is that workers' children often go to junior colleges in the area where fees and hostel costs are relatively low compared to those in bigger cities (and in addition some local students stay at home and not in a hostel because a junior college is close enough to home not to require staying in a hostel).

Given the ground realities and the prevailing conditions, we assume that a combination of both private and public education is needed for decent living. We assume that it is decent for families to send their children to public school at the primary level (i.e., grades 1 to 5), and shift to private education at the secondary level for all or part of grades 6 to 12 depending on availability of local public and private schools. For simplicity, we assume either that one-half of the children attend private school for grades 6-12 or that one-half of grades 6-10 are private. At the junior college level (grades 11 and 12), families also send their children to private or public institutions depending on the stream of choice (for instance, private junior colleges are preferred for pursuing professional programs such as engineering or medicine after schooling, while public junior colleges could be preferred for pursuing arts and humanities). Based on these assumptions and the existing costs (Table 18), we have estimated the amount needed for educating children through secondary school. The average monthly expenditure incurred on education for a family with two children works out to be an average amount of Rs. 772 per month. Table 18 summarizes the cost for children's school for our reference family, which includes two children.

²³ Though schools charge additional transportation fees, this amount depends on the distance between place of residence and school. If schools are in the vicinity, children prefer to walk or cycle, else they take school transport. Since transportation costs for a household have been included separately (see next section), we do not include transport costs for education here.

Table 18. Cost to Family for Children's School

Type of expense	Primary School (Grades 1-5)	Middleandsecondaryschool (Grades 6-10)	Junior College (Grades 11-12)
School costs in a public school#	0	0	0
School costs per year in a private school			
Tuition Fees	10,000	17,000	15,000
Books & Stationery	3,500	5,500	1,500
Uniform	2,500	3,000	1,500
Other Expenses (e.g., Exam Fees)	300	300	848
Total per year	16,300	25,800	18,848
Number of years in each level spent in a Public School*	5	2.5	1
Number of years in each level spent in a Private School	0	2.5	1
Total cost per year x number of years in each level	-	64,500	18,848
Average cost per child per year (Total Cost / 18 years of childhood)	-	3,583	1,047
Average cost for reference family per month (Average cost per child per year x number of children in reference family/12 months)	-	597	175
Total per month (Rs.) 772			772

Notes: # Public schools do not have fees and provide free uniforms and books. Children studying in public schools (from classes 1 to 8) are also provided with free lunch on all school days under the Mid-Day Meal Scheme. We have adjusted our food costs for the free meals received in school (see above).

* 5 years are spent in primary school. We assume that these are spent in a government funded school, and there are no financial implications for the parents for these years. Parents prefer to send their children to private school in middle and secondary school, and junior college (grades 6 to 12) and we assume for half of the time because of the poor quality and often unavailability of government schools in the vicinity. At the junior college level, parents also opt for either a government or a private institution depending on the stream of study.

Source: Authors' calculations based on primary research.

The amount that we have estimated above for education is much higher than the Rs. 155 which was included in our preliminary estimate of non-food and non-housing costs for education. Therefore, the difference of Rs. 616 (rounded off to Rs. 600), is added to non-food and non-housing expenses to ensure availability of adequate funds to meet educational expenses at primary through secondary school.

14. TRANSPORTATION POST CHECK

In rural AP, 43% of the households own a motorcycle or a scooter (NFHS, 2022). Out of the 84 respondents met by the research team during field investigation, 61 owned a motorcycle (73%). Furthermore, it was found that those who do not own a two-wheeler often borrow one from a neighbour or relative to visit markets and to meet other contingency requirements. Given that basic facilities (such as markets, healthcare centers, etc.) are not located at close proximity (in walking distance) to residential areas and adequate public transport facilities are absent in the area, owning, maintaining and running a private vehicle (a two-wheeler) is considered essential and required for decency.

The purchase price of a motorbike is around Rs. 37,500 (median cost of a second-hand motorcycle based on 21 price points obtained from dealers in the area). Considering a life expectancy of about five years for a second-hand bike, the straight-line depreciated annual cost of owning a motorbike is Rs. 7,500. We get a similar annual depreciation cost if we use in our calculations a new entry level motorcycle, whose median price is Rs. 75,000, but assuming a higher life expectancy of 10 years.

The current local price of Rs. 111 per litre of petrol was used for estimating fuel costs. The mileage of a 150cc motorcycle is 45 kmpl. During the field investigation, it was found that the average distance travelled per day is around 7 km. Therefore, the amount of fuel used annually is 56.8 litres (i.e., $7 \times 365 / 45$), cost of which amounts to Rs. 6,302 as annual fuel costs. Adding the depreciated annual cost of owning a motorbike, the annual cost on private transportation is Rs. 14,141, or Rs. 1,178 per month. When the typical maintenance and repair costs (assuming this to be approximately 25%) are added, the total monthly cost becomes Rs. 1,473. As this amount is lower than Rs. 1,919 that was included for transport in our preliminary NFNH cost estimate, no post check adjustment is made for transport.

15. PROVISION FOR UNEXPECTED EVENTS TO ENSURE SUSTAINABILITY

Most villagers live on meagre means barely managing to survive from day to day. Planned and inevitable events, like marrying a daughter, often create serious financial crisis in the lives of small and marginal farmers/workers. It is not uncommon that unforeseen events like illnesses, accidents and deaths incur huge expenses, which derail workers into poverty and debt from which they find it difficult to recover. It is, therefore, imperative to add a small margin (saving) to meet the unexpected events over and above the cost of a basic quality of life when estimating a living wage or living income. Hence, a margin of five percent, as recommended in the Anker Methodology, has been added to the amount assessed as the living income or living wage for taking care of emergencies and discretionary spending.

In addition, grown up children with their own income are expected to help and support their old parents. In many case, they are expected to share resources with other relatives, who may be economically weaker. Given the strong social/cultural norms of helping parents or other relatives in rural India including AP, we feel that it is reasonable and appropriate to include a small margin of 2% for this. This modest sum for assistance to parents (and relatives) helps to justify the decision to use a conservative family size as well as the decision not to include parents or other relatives in the reference family size.

16. COST OF DECENT LIVING

Based on the above calculations, the living income for the reference family of four persons living in rural Prakasam has been estimated at Rs. 25,269 per month, as indicated below in Table 19. It is important to note

that this is the cost of living for a basic but decent standard of living for a typical size family of four persons in rural Prakasam district.

Table 19. Estimation of Family Living Costs (Living Income) for Rural Prakasam

Values and Assumptions	Rs.	USD
Cost of Model Diet per Person per Day	81.89	1.02
Savings from Free School Lunch per Person per Day	2.73	0.03
Adjusted) Food Cost per Person per Day	79.16	0.99
Food Cost per Person per Month	2,408	30
Food Cost for Family per Month	9,632	121
User-cost per Month for Acceptable Housing	3,997	50
Cost per Month for Utilities (Fuel, Lighting and Water)	1,033	13
Housing Cost per Month	5,030	63
NFNH Costs	8,954	112
Preliminary Non-Food Non-Housing Costs	8,254	103
Health care adjustment	100	1
Education adjustment	600	8
Transportation adjustment	0	0
Sub-total Monthly Cost for Decent Living for Family	23,616	295
Funds for Sustainability & Emergency (5%)	1,181	15
Funds for Assisting Family and Relatives (2%)	472	6
Total Family Costs (Living Income)	25,269	316

Note: USD values provided for expositional purposes only, because the exchange rate is volatile.

Table 20. Key assumptions for living wage and living income estimates

Parameters	Value
Date of Study	August-September 2022
No of days in a month	30.42
Non-food non-housing (NFNH) to food ratio	0.8569
Reference family size	4
Number of children in reference family	2
Number of adults in reference family	2
Exchange rate (Rs. per USD)	79.92

Note: Average USD-INR exchange rate for the period August –September 2022.

SECTION III. LIVING INCOME IN CONTEXT AND LIVING INCOME LADDER

17. Living Income in Context and Living Income Ladder

The living income ladder, presented in Figure 4 at the end of this section, compares our living income estimate for rural Prakasam with other incomes such as the family incomes at the national poverty line, at the World Bank poverty line, at current average household expenditure, and at the minimum wage (see Annex A for a discussion on poverty lines in India, and minimum wages and prevailing wages in Andhra Pradesh).

As explained in section 2 of this report, Rs. 25,269 has been estimated as living income per month for rural Prakasam. This amount is around 3.1 times that of the family income at the Indian national poverty line (at 2011-12 prices and adjusted for inflation to 2022); around 2.7 times that of the World Bank poverty line for a lower-middle income country such as India; around 1.6 times that of the family income if members earned the agricultural minimum wage in AP; and around 1.8 times that of the family income if family members earned average prevailing wages in AP for agriculture work. Our living income is only around 11% higher than family income if family members earn the minimum wage for skilled workers in AP, 35% higher than family income if members earn the minimum wage of semi-skilled workers, and 59% higher than family income if members earn the minimum wage for unskilled workers.

Let us explain some of the above differences. The India national poverty line, for example, was set in 2014 by the Rangarajan Committee at 2011-12 prices. It is clear that this amount would be significantly higher in real terms today than it was in 2022 because of the considerable economic development and increase in income in India since 2014. Similarly, the living income estimated for rural AP is much higher than that of the World Bank poverty line, because the latter refers to mere subsistence level; the living income, on the other hand, should be higher and adequate for a decent living. Lastly, the minimum wages prevailing in most of the states in India are universally acknowledged to be insufficient and inadequate for decent living.²⁴

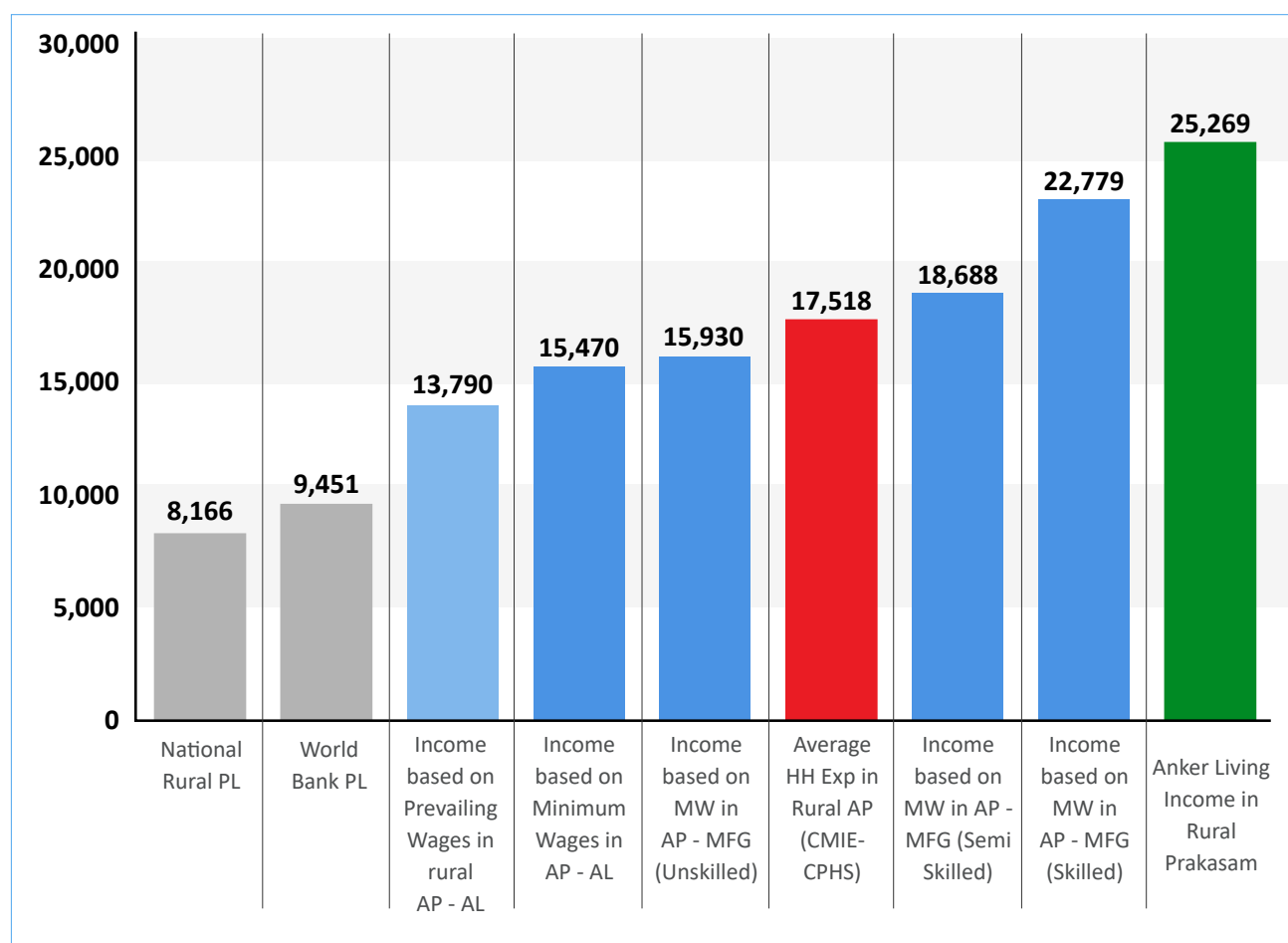
According to the NSS 68th Round for July 2011-June 2012 (NSSO, 2014), average monthly per capita expenditure for rural Andhra Pradesh was Rs. 1,754, which is equal to Rs. 7,016 per month for a family of four. In order to make this amount relevant for 2022, we increased it by (i) inflation between 2011-12 and 2022 (using the Consumer Price Index of Agricultural Laborers)²⁵, and (ii) another 16% because of the fact that NSSO household expenditure statistics exclude the cost or value of owner-occupied housing (16% is what we found in our study for the value of owner-occupied housing), which amounts to Rs. 17,110. This amount is closer to a more recent estimate of average expenditure for a family of four in rural AP based on CMIE-CPHS data for January–April 2022. The actual estimate is Rs. 14,139, which, when adjusted for inflation in the last year and the value of owner-occupied housing, amounts to Rs. 17,564. Our living income estimated is 45% higher than the estimate of average household expenditure in 2022-23 in rural Andhra Pradesh (based on NSSO, 2014 MPCE)

²⁴ Report on the Working of the Minimum Wages Act, <http://laborbureau.gov.in/MW2k6%20Section-1.htm>

²⁵ The annual inflation rates based on Consumer Price Index for Agricultural Laborers were 10% in 2012-13, 12% in 2013-14, 7% in 2014-15, 4% in 2015-16, 4% in 2016-17, 2% in 2017-18, 2% in 2018-19, 8% in 2019-20, 6% in 2020-21, 4% in 2021-22 and 4% in 2022-23. The compounded average annual increase in the index is around 7% over this period.

and 41% higher than the estimate based on CMIE-CPHS (2022). It may be noted that the average monthly per capita expenditure in 2011-12 in better developed states were Rs. 2,669 (in rural Kerala), Rs. 2,345 (in rural Punjab) and Rs. 2,176 (in rural Haryana). Taking inflation into account and making additional adjustments to account for the value of owner-occupied housing, the monthly household expenditure (for households with 4 members) for these relatively better developed states amounts to Rs. 26,034 for rural Kerala, Rs. 22,873 for rural Punjab, and Rs. 21,228 for rural Haryana in 2022-23. The living income estimated for a typical size family in rural Andhra Pradesh, in other words, is higher than the current average household expenditure of rural Punjab, and close to that of rural Kerala.

Figure 4. Living income ladder for rural Prakasam (in Rs. per month)



Source: Authors' calculations.

AL=Agricultural Laborers; MFG= Manufacturing; MW = Minimum Wages; PL=Poverty Line; Incomes refer to family incomes

As shown in Figure 4., the living income estimated for rural AP is much higher than the World Bank poverty line, national rural poverty line, and family incomes based on prevailing and minimum wages. Some possible reasons for these large gaps have been explained above, especially due to the time gaps and different reference points. The living income estimated in this paper is based on a realistic assessment of costs of living. It also reminds us of the growing inequalities within India. It is not false that rural India does not benefit as much of the economic progress and social development as it should; and the rural poor continue to live in relative deprivation and with low incomes.

SECTION IV. CONCLUSIONS

18. CONCLUSIONS

We used a combination of primary data collected through field investigation and latest secondary data available in reliable sources to estimate the living income and living wage for rural Andhra Pradesh. Major sources of secondary data include the Census (2011), NSSO Consumption and Expenditure Survey – 68th Round: July 2011-June 2012 (NSSO, 2014), National Family Health Survey (NFHS, 2019-21) and CMIE-Consumer Pyramids Household Survey for January – April 2022. Primary data was collected during detailed field investigations that in August-September 2022 in 12 select villages spread across four mandals of Prakasam, AP, to gather primary data on food prices, costs of decent and healthy housing, adequate health care, education through secondary school, and motorbike (for transportation).

Based on detailed analysis and interpretation of the data, the living income for a family of four in rural Prakasam, Andhra Pradesh is Rs. 25,269 (\$316) per month. As has been explained in this report, living income refers to the quantum of money which is required by a typical size family (of four persons) to lead a basic but decent life, more specifically referring to rural Prakasam district in August-September 2022.

The living income ladder is a graphical presentation of the estimated living income, comparing it with other estimates such as the World Bank poverty line, national poverty line, average household expenditure, and minimum wages and prevailing wages in Andhra Pradesh. The living income estimated in this report is approximately 3.1 times that of the outdated national poverty line family income, and 2.7 times the World Bank international poverty line family income. The estimated living income is 1.8 times that of family income assuming that family members earn prevailing wages for agricultural laborers; 1.6 times of family income assuming family members earn minimum wage for agricultural laborers; and 59% higher than family income assuming family members earn the for non-agricultural unskilled laborers minimum wage. The living income that has been estimated for rural AP is 44% higher than the estimated average monthly household consumption expenditure of rural AP. The living income estimated in this report for rural AP is close to the average monthly consumption expenditure of households in rural Kerala, which is among the relatively better developed states in India.

This report, no doubt, has specifically focused on rural Prakasam district. However, the living income and living wage estimated for this area are considered to be applicable to other regions of rural AP. The findings of this report illustrate clearly the inadequacy of the current income and wages of farmers and workers of rural Andhra Pradesh to lead a decent life. This report based on detailed analysis of secondary and primary data has been prepared with the hope that employers, policy makers and the government will review the existing policies and practices and take appropriate steps to enhance the livelihood of rural Andhra Pradesh.

ANNEX. LIVING WAGE FOR RURAL ANDHRA PRADESH

The brief discussion below in this Annex describes how the number of full-time workers in our reference family providing financial support is estimated as well as how our net living wage (i.e., take home pay required) and gross living wage (aka living wage) are estimated. It also explains how our estimated living wage for rural Prakasam district compares with various other wages, such as minimum wage, poverty line wages, and average wages.

A1. NUMBER OF FULL-TIME EQUIVALENT WORKERS IN THE REFERENCE FAMILY PROVIDING SUPPORT

Living wage is a family concept; and hence it is common to find more than one adult in a family to be working to provide financial support. It is of course unacceptable in any context in today's world including in the Anker Methodology, for children to be working to provide family support. Therefore, consistent with the decency concept of living income and living wage, children are assumed to not be working in Anker living income and living wage Benchmark estimates.

Often other living wage methodologies are based on the assumption that either both the spouses/partners work full-time or that only one spouse/partner works full-time. The male breadwinner model of the household, which was the accepted norm till some years ago in Western countries, which continues to prevail in some parts of the world even today, has dominated the assumption of one full-time worker. The assumption of two full-time workers is based on the idea that all adults work full-time year-round. Neither assumption is realistic for rural Andhra Pradesh, like many other parts of the world. The reality is that many adults work, while many others are not able to find work, during many months of the year, particularly in non-peak seasons.

We determine the number of full-time equivalent workers in the reference family (as shown below) by using data available on (i) age and sex specific labor force participation rates (LFPR), (ii) unemployment rates (UR), and (iii) part time employment rates.

$$\text{Number of full-time equivalent workers per family} = 1 + \left[\text{LFPR} \times (1 - \text{UR}) \times \left(1 - \frac{\text{Part Time employment rate}}{2} \right) \right]$$

This formula is used separately for adult males and adult females, after which an average of the two is taken. The data on LFPR and UR for rural AP for the age group 25-59 (prime working ages) are taken from the Periodic Labor Force Survey (2019-20). Part-time employment rates (for males and females) are drawn from the World Bank World Development Indicators (World Bank, 2022) database, which provides information on part-time employment rates (for males and females) for 136 countries. Since estimates for India are not reported in this database, the part-time employment rates (14.1% for males and 38.0% for females) are drawn from the values of other countries (Bangladesh, Pakistan, Nepal, and Sri Lanka) of the Indian sub-continent with values.²⁶ Calculations are shown in Table 21.

26 Note that the average part-time rate for all countries for females (for the last 5 years) is 34% and for males is 21%.

Table 21. Calculation of number of full-time equivalent workers in the reference family

	LFPR (Usual Activity Rate)	Unemployment rate	Part-time rate	% of Full-time work
Male	97.8%	2.2%	14.07%	88.9%
Female	55.5%	1.2%	37.99%	44.4%
Average				0.666
Number of Full-time Workers in Family				1.666

Based on the above calculations, 1.666 has been derived as the number of full-time (equivalent) number of workers per family. Given 1.666 workers per family, the net monthly living wage for rural Prakasam is Rs. 15,167 (\$190).

A2. MANDATORY PAYROLL DEDUCTIONS AND INCOME TAX DUE ON LIVING WAGE

It is necessary to add possible income tax and mandatory payroll deductions to the net living wage to ensure that workers have sufficient take home pay to be able to afford a decent standard of living for their family (see Table 21 above).

Under the Indian Income Tax Act, a person paying another individual a remuneration under the head 'salary', is expected to deduct income tax (TDS) on the estimated income of the person who is being paid. The deduction is to be made at the time of the actual payment. However, no tax is deducted unless the estimated salary income of the individual during the relevant financial year exceeds the maximum amount which is exempted from income tax. The income tax slabs in India for the assessment year 2021-22 indicates an exemption limit of Rs. 250,000 for individuals of less than 60 years of age, Rs. 300,000 for individuals between 60-80 years of age, and Rs. 500,000 for individuals of 80 years age and above. Our living wage estimate suggests that workers earning a living wage are exempted from paying income tax.

There is a statutory payroll deduction for Provident Fund, i.e., the contributions made by the employee during the time he/she worked along with an equal contribution by his/her employer. This is calculated at 12% of his/her basic salary with the same amount contributed by the employer. However, employees have the option to contribute more than 12%.

Thus, while no income tax is due on our estimated living wage, statutory payroll deduction for provident fund for employees is required. Although there is no legislative norm in India on the actual proportion of pay and allowances that are subject to the 12% provident fund deduction, court judgements²⁷ and general practice suggest that allowances do not exceed 50% of the total pay. In addition, the provident fund deduction is assessed on the basic wage and dearness allowance components of the total salary. Given this background, we decided to consider that 6% of the net living wage is deducted as employees' contribution to the Provident

²⁷ See, <https://www.argus-p.com/updates/updates/sc-on-which-allowances-to-form-part-of-the-basic-wages-for-the-purpose-of-epf-contribution/>

Fund. Adding this amount to our net living wage, we get the gross living wage of Rs. 16,077 (\$201).

A3. LABOR LAWS IN INDIA

The legislative framework governing labor and employment conditions in India has been recently revamped in India. The large number (as many as 44) of separate and often contradicting individual laws have been grouped into broad categories of (i) working conditions, (ii) industrial relations, (iii) wages, (iv) welfare, and (v) social securities. After many years of back-and-forth deliberations and several rounds of discussions at various levels, this multiplicity of legislations has been replaced by four major labor codes, namely (i) the Code on Wages, 2019, (ii) the Industrial Relations Code, 2020, (iii) the Occupational Health, Safety and Working Conditions Code, 2020, and (iv) the Code on Social Security, 2020.²⁸

Both the central government and the state governments are required to notify the rules of the four labor codes, since matters of 'labor and employment' fall under the concurrent list in the constitution of India, and to enforce these laws in respective areas of their jurisdiction. Although the power to make the rules has been vested with the Central Government, the state governments are required to publish the rules in their official Gazette. Many state governments have published these rules under the new Labor Codes.

The four separate pieces of central labor legislations, namely the Payment of Wages Act, 1936, the Minimum Wages Act, 1948, the Payment of Bonus Act, 1965 and the Equal Remuneration Act, 1976 have been replaced by the Code on Wage. According to the new definition of wage under the Code on Wage, wage includes all remuneration paid by way of salaries, allowances or otherwise, including basic pay and dearness allowance. However, it excludes: (a) any bonus payable under any law in force; (b) value of house-accommodation/house rent allowance or the supply of light, water, medical attendance or other amenity; (c) contribution paid by the employer to any pension or provident fund, and the interest which may have accrued thereon; (d) any conveyance allowance or the value of any travelling concession; (e) any sum paid to the employed person to defray special expenses entailed on him by the nature of his employment; (f) remuneration payable under any award or settlement between the parties or order of a court or tribunal; (g) any overtime allowance; (h) any commission payable to the employee; (i) any gratuity payable on the termination of employment; and (j) any retrenchment compensation or other retirement benefit payable to the employee or any ex gratia payment made to him on the termination of employment.

A4. LIVING WAGE COMPARISONS AND WAGE LADDER

Different wage comparisons such as minimum wage, prevailing wage, World Bank poverty line wage, national poverty line wage and so on are compared in this section below to our living wage for rural Prakasam district, AP.

A4.1 MINIMUM WAGES IN ANDHRA PRADESH

Employers are required to pay workers not less than the stipulated minimum wage and the Code on Wage mandates that minimum wages must be revised and reviewed by the central and state government at an interval of not more than five years. There are variations in the quantum of minimum wage and salaries mandated by different states for different industries, occupations, and skill-levels located in different areas within the state based on the level (zone) of development. The prescribed quantum of minimum wage

²⁸ See: <https://labor.gov.in/labor-codes>

depends on the skill-level of the worker and the nature of work. Broadly, workers in India are categorized into categories of unskilled, semi-skilled, skilled, and highly skilled. Each state in India prescribes from time to time the minimum wages, including dearness allowance, for different occupational categories and skill levels.

The minimum wages of agricultural laborers in Andhra Pradesh depends on the nature of work and the zone in which they are employed. The wages in Zone I range from Rs. 338 to Rs. 462 per day, wages in Zone II range from Rs. 297.5 to Rs. 405.5 per day, and the wages in Zone III range from Rs. 281.5 to Rs. 360 per day. Taking an average of these three levels of wages and assuming a 6 day workweek, the minimum wages for agricultural casual labor in rural AP is Rs. 9,286 per month. At the same time, the minimum wages prescribed for non-agricultural workers in the categories of unskilled, semi-skilled, skilled and highly skilled are Rs. 9,562, Rs. 11,217, Rs. 13,673 and Rs. 16,956 per month respectively.²⁹ These wages are effective from 1st April 2020 and valid till October 2022.

A4.2 PREVAILING WAGES IN RURAL ANDHRA PRADESH

According to a Reserve Bank of India (RBI, 2021), the average daily wage rates for rural male non-agricultural labor is Rs. 305.3 in Andhra Pradesh, compared to Rs. 677.60 in Kerala, Rs. 449.5 in Tamil Nadu, Rs. 344.2 in Punjab and Rs. 384.4 in Haryana. For rural male agricultural labor, the average daily wages are Rs. 318.6 in Andhra Pradesh compared to Rs. 706.5 in Kerala, Rs 434.2 in Tamil Nadu and Rs. 357 in Punjab. Assuming a worker works 6 days in a week, this equals Rs. 8,277 per month for agricultural laborers and Rs. 7,932 per month for non-agricultural laborers assuming that there are no public holidays, or leave (paid or unpaid), or sick days. The minimum wage prescribed by the government of AP, valid from 1st April 2020 for tobacco manufacturing workers (excluding beedi workers), ranged from Rs. 8,350 to Rs. 9,995 per month.

A4.3 WORLD BANK POVERTY LINE AND POVERTY LINE WAGE

The World Bank has set \$2.15, \$3.65, and \$6.85 per person per day as international poverty lines for developing countries in 2017 internationally comparable PPP (purchasing power parity) dollars for low-income, lower-middle income, and upper-middle income countries respectively. The poverty line of \$3.65 per person per day is applicable for India as it falls in the lower middle-income category in the classification of World Bank. This amounts to 111 PPP dollars per person per month and 444 PPP dollars for a family of four per month. Using a conversion rate of Rs. 21.28³⁰ per international dollar, the World Bank poverty line for India for a family of four persons per month amounts to Rs. 9,451. Dividing this amount by 1.666 workers per family gives us the World Bank Poverty Line wage for AP, India as Rs. 5,673.

A4.4 NATIONAL POVERTY LINE AND POVERTY LINE WAGE

An officially accepted national poverty line is not available for India. However, official poverty estimates made by Niti Aayog³¹ follow a multidimensional approach. The Rangarajan committee (Government of India, 2014) estimated monthly per capita expenditure of Rs. 972 per month for rural areas and Rs. 1,407 per month for urban areas as the poverty threshold. These poverty line thresholds are based on 2011-12 prices and are at an

²⁹ See <https://paycheck.in/>

³⁰ We used the World Bank Private Consumption Expenditure PPP for 2021 of 21.28. The World Bank recommends a formula to update PPP values for future years (such as from 2021 to 2022) using the inflation rate for the country and the United States which is the comparator country for PPPs. However, since India and United States inflation rates in 2022 are very similar, we decided to use 21.28.

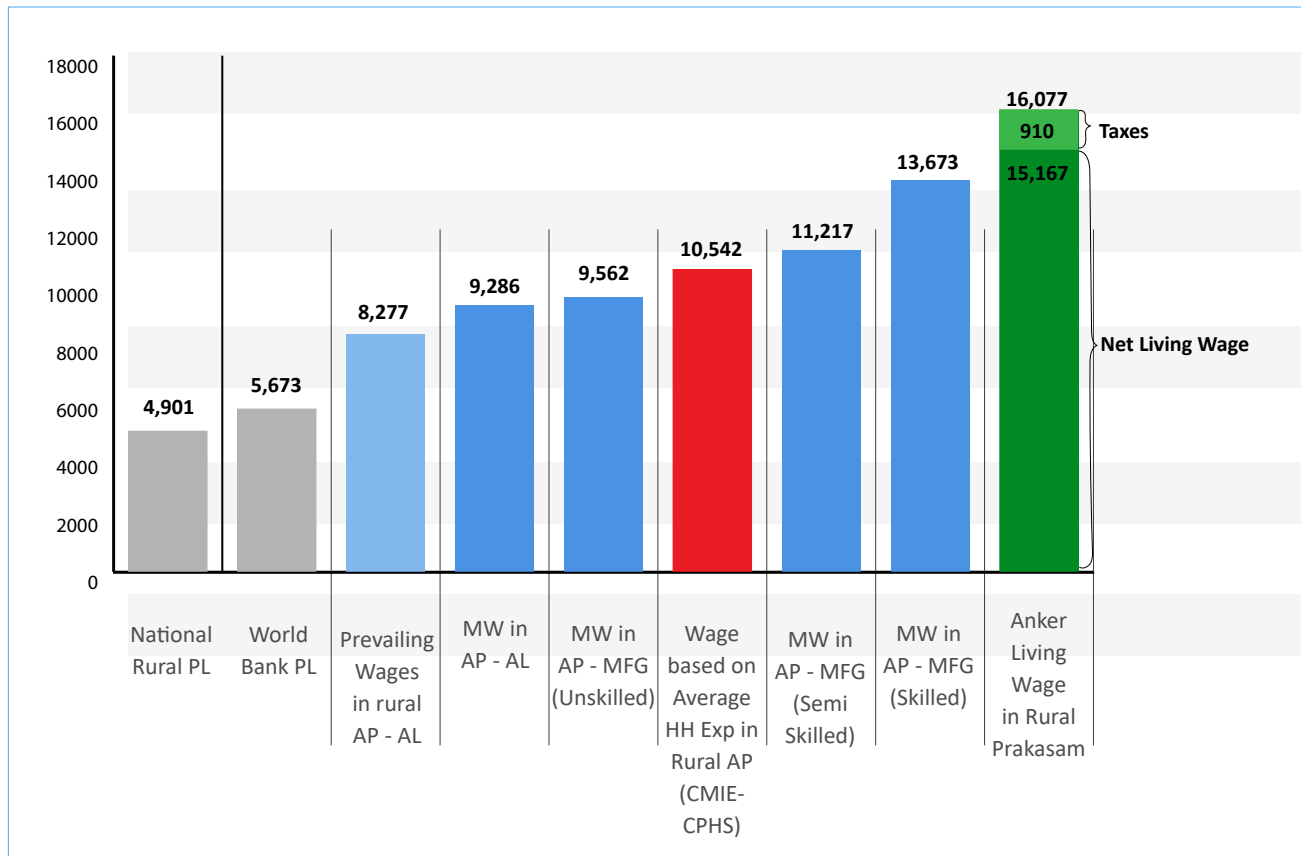
³¹ The Niti Aayog is the apex public policy think tank of the Government of India. This body has replaced the erstwhile Planning Commission of India.

all-India level. When updated by inflation based on Consumer Price Indices for Agricultural Laborers, we get Rs. 2,041 per person, amounting to Rs. 8,166 for a family of four as the national rural poverty lines per month for 2022-23. Assuming the number of workers as 1.666 per family, the National Poverty Line wage becomes Rs. 4,901 per month.

A4.5 WAGE LADDER

The wage ladder below illustrates how our living wage for rural Prakasam compares with other wage benchmarks which were discussed above. As can be noted from the living wage ladder below, the living wage which has been estimated for rural Prakasam district is 3.3 times that of the national rural poverty line wage, and 2.8 times that of the international poverty line wage. It is 1.9 times the prevailing wages for agricultural laborers, 1.7 times that the minimum wages for agricultural laborers, and 68% higher than the minimum wages for non-agricultural unskilled laborers. Our estimate of living wage is 43% higher than minimum wage for semi-skilled manufacturing workers, 18% higher than the minimum wage for skilled manufacturing workers, and 5% lower than the minimum wage for highly skilled manufacturing workers. The wage implied by the average expenditures of households in rural Andhra Pradesh based on consumption expenditure survey data is also higher than our living wage estimate by more than 50%.

Figure 5. Wage ladder for rural Prakasam (in Rs. per month)



Source: Authors’ calculations.

Notes: AL=Agricultural Laborers; NAL=Non-Agricultural Laborers; MFG=Manufacturing; MW=Minimum Wage; PL = Poverty Line

REFERENCES

- Anker R and Anker M (2017). Living wages around the world: Manual for measurement. Edward Elgar Publishing. Cheltenham UK and Northampton USA.
- Anker R. (2006). Living wages around the world: a new methodology and internationally comparable estimates. *International Labor Review*. 145(4):309–338. Doi: 10.1111/j.1564-913X.2006.tb00037.x
- Anker R. (2006) Poverty lines around the world: a new methodology and internationally comparable estimates. *International Labor Review*. 145(4):279–307. Doi: 10.1111/j.1564-913X.2006.tb00036.x
- Anker, R. (2011). Estimating a living wage: A methodological review. *Conditions of Work and Employment Series No. 29*. Geneva: ILO.
- Argus Partners. (March 18, 2019). SC on which allowances to form part of the ‘Basic Wages’ for the purpose of EPF contribution. <https://www.argus-p.com/updates/updates/sc-on-which-allowances-to-form-part-of-the-basic-wages-for-the-purpose-of-epf-contribution/>
- BIS (2016). National Building Code of India, Government of India.
- Chopra, R. (2021). School education takes biggest hit: Govt cuts proposed education spending by Rs 6,000 crore, *The Indian Express*, 2 February <https://indianexpress.com/article/india/school-education-govt-cuts-proposed-education-spending-budget7170773/>
- CMIE (2022). Consumer Pyramids Household Survey Expenditure Estimates for Households Data. January - April 2022.
- Dutt, A. (2022). Govt’s FY19 health spend dropped: what the accounts show. *The Indian Express*. <https://indianexpress.com/article/explained/explained-health/explained-what-health-accounts-show-8151692/>, September 15.
- Dutta, S. S. (2022). Healthcare spend as percentage of GDP down in 15 years; out-of-pocket expenditure declines. *Moneycontrol*. <https://www.moneycontrol.com/news/economy/policy/indias-spend-on-health-as-percentage-of%20%20%20gdp-went-down-in-15-years-but-remarkable-improvement-in-out-of-pocket-expenditure-9165581.html/amp>. September 12.
- Express News Service. (2020). Andhra Pradesh CM YS Jagan Mohan Reddy launches ‘Jagananna Vasathi Deevana’ scheme. *The New Indian Express*. <https://www.newindianexpress.com/states/andhra-pradesh/2020/feb/25/andhra-pradesh-cm-ys-jagan-mohan-reddy-launches-jagananna-vasathi-deevana-scheme-2108014.html>. February 25.
- Government of India (2011). Census (2011), Ministry of Home Affairs.
- Government of India (2020). National Education Policy (2020), Ministry of HRD
- Government of India (2020). Labor Codes, Ministry of Labor and Employment, <https://labor.gov.in/labor-codes>
- Government of India (2021). National Family Health Survey - 5, 2019-20, International Institute for Population Science, Mumbai.
- Government of India. (2012). National Sample Survey: 68th Round (2011-2012), National Statistics Office, Ministry of Statistics and Programme Implementation
- Government of India (2018). National Sample Survey on Social Consumption: 75th Round (2017-18), National Statistics Office, Ministry of Statistics and Programme Implementation.

- Government of India, Ministry of Finance. 2022. Economic Survey 2021-22. <https://www.indiabudget.gov.in/economicsurvey/>
- ICE 360 (2021). People Research on India's Consumer Economy: Household Survey on India's Citizen Environment & amp; Consumer Economy.
- ICMR - National Institute of Nutrition. 2020. Nutrient Requirements for Indians: Recommended Dietary Allowances and Estimated Average Requirements - 2020. https://www.nin.res.in/RDA_Full_Report_2020.html
- Jonathan, P. S. 2022. Andhra Pradesh govt. to pay 100% fee for students studying in world's top 100 varsities. The Hindu. <https://www.thehindu.com/news/national/andhra-pradesh/andhra-pradesh-govt-to-pay-100-fee-for-students-studying-in-worlds-top-100-varsities/article65627077.ece?homepage=true>, July 11.
- Jonathan, P.S. (2022). Jagan to release Rs. 694 crore under Vidya Deevena at Bapatla on August 11. The Hindu. <https://www.thehindu.com/news/national/andhra-pradesh/andhra-pradesh-jagan-to-release-694-crore-under-vidya-deevena-at-bapatla-on-august-11/article65754594.ece>, August 10.
- Niti Aayog (2021). National Multidimensional Poverty Index Baseline Report Based on NFHS-4. https://www.niti.gov.in/sites/default/files/2021-11/National_MPI_India-11242021.pdf
- Pavithra, K. M. (2021). Data: Where does India stand in 'Private Health Expenditure' compared to other countries? Factly. <https://factly.in/data-where-does-india-stand-in-private-health-expenditure-compared-to-other-countries/>, May 28.
- Paycheck India. (2022). Minimum Wage – Andhra Pradesh. <https://paycheck.in/salary/minimumwages/13970-andhra-pradesh>
- Planning Department, Government of Andhra Pradesh. (2021) Socio-Economic Survey 2020-21. http://www.apsdps.ap.gov.in/WeatherPages/Reports-Publications/Socio-eco/Socio_Economic_Survey_2020-21.pdf
- Pratham, (November 17, 2021). Annual Status of Education Report (Rural) 2021. https://img.asercenter.org/docs/aser2021finalreport_16.116.54pm1.pdf
- Raghavendra, V. (December 9, 2020). 'Amma Modi' scheme to be launched on January 9. The Hindu. <https://www.thehindu.com/news/national/andhra-pradesh/amma-vodi-scheme-to-be-launched-on-january-9/article33440378.ece>
- Government of India (2014). Rangarajan Report on Poverty Estimates, Planning Commission.
- Seshadri, S. (2019), What is Consumer Expenditure Survey, and why was its 2017-2018 data withheld?, The Hindu, 3 December (<https://www.thehindu.com/business/Economy/what-is-consumer-expenditure-survey-and-why-was-its-2017-2018-data-withheld/article61611662.ece>)
- Sharma, R. (2022). YSR Nadu Need 2022: Phase 2 & 1 Status, PM Modi Yojanaye. <https://pmmodyojana.in/ysr-nadu-nedu/>, June 14.
- Sharma, S. (2022). Will Budget 2022 heal India's sagging education system? India Today. <https://www.indiatoday.in/diu/story/budget-india-education-system-covid-school-closures-1906438-2022-01-30>, January 30.
- Nagarjuna Fertilizers and Chemicals Limited, AgrilInformatics & Services. (2022). Tobacco: climate and soils. <https://www.ikisan.com/ap-tobacco-soils-and-climate.html>

USDA Nutrient Database (2021).

World Bank (2022). World Development Indicators Databank, Washington DC.

World Health Organization. (2003). Diet, nutrition and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation, Geneva, 28 January - 1 February 2002. World Health Organization.
<https://apps.who.int/iris/handle/10665/42665>