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**PAKISTAN INSTITUTE OF LABOUR
EDUCATION & RESEARCH**

IMPACT OF CLIMATE CHANGE & FREQUENT POWER OUTAGES ON LABOURS IN KARACHI



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Executive Summary

Mitigating the Impact of Power Outages and Climate Stress on Informal Labourers in Karachi through Off Grid Solarization and Social Security Reforms.

This policy brief seeks the consideration of the Government of Sindh to address the severe socio economic, health, and productivity impacts of prolonged electricity load shedding and climate stress on informal labourers and daily wage earners in Karachi. The submission proposes **targeted, fiscally viable, and climate resilient interventions**, with particular emphasis on **off grid solarization of low income labourer households**, financed through existing labour welfare funds, alongside **structural reforms in social security coverage and labour protection**.

Context

Pakistan is among the most climate vulnerable countries globally and suffered unprecedented economic and livelihood losses during recent extreme weather events. Karachi, the largest metropolitan and industrial centre of Sindh, is acutely affected by rising temperatures, heatwaves, water scarcity, and persistent electricity shortages. These impacts are disproportionately borne by informal labourers living in low income and informal settlements.

Electricity distribution in Karachi is governed by feeder level loss policies, resulting in **12-20+ hours of load shedding daily** in labour dense localities such as Korangi, Landhi, Baldia, Orangi, and Ibrahim Hyderi. These outages contribute to:

- Loss of working hours and daily wages
- Heat stress, dehydration, and occupational accidents
- Disruption of children's education
- Water, sanitation, and hygiene challenges
- Increased domestic stress and violence
- Declining labour productivity and income insecurity

Despite high nominal electricity connections reported in official statistics, **actual access and reliability remain critically deficient in informal settlements**.

At the same time, the majority of Karachi's industrial and service sector workers are employed informally, earning below the minimum wage and lacking access to pensions, health insurance, maternity benefits, or reliable social security. Existing labour welfare institutions are constrained by low registration, weak enforcement, and exclusionary eligibility thresholds.



Key Evidence from Field Assessments

- Nearly **60% of surveyed labour households** earn below the legally notified minimum wage.
- **Approximately half of respondents face more than 16 hours of daily load shedding**, with one third facing 18–20 hours.
- Informal workers experience heightened rates of dehydration, heat illnesses, fatigue related accidents, and lost income due to power outages.
- Women workers face compounded vulnerabilities due to lack of maternity protection, food insecurity during pregnancy and lactation, and exposure to domestic stress.
- Pakistan's commitments under at least **19 labour related SDG targets** are directly compromised by chronic energy insecurity.

Fiscal Feasibility and Opportunity

Between FY2016–17 and FY2024–25, the Sindh Workers' Welfare Fund (SWWF) and Sindh Workers' Profit Participation Fund (SWPPF) collectively generated over **PKR 78 billion**. These funds represent a **viable, non budgetary financing mechanism** for targeted livelihood resilience interventions.

At an estimated unit cost of **PKR 300,000 per household**, off grid solarization could benefit **approximately 94,000 labourer households**, significantly reducing electricity expenditures, improving quality of life, and enhancing climate resilience—without placing additional burden on the provincial exchequer.

Policy Recommendations for Consideration

Inclusion of Solarization Schemes under Workers' Welfare Framework

- Expand the legally permissible scope of SWWF to include **off grid solar energy systems for registered and eligible labourer households**.
- Prioritize workers residing in high load shedding zones and climate vulnerable areas.

Establishment of Sindh Solarization Endowment Fund for Labourers (SSEFL)

- Create a dedicated endowment from SWWF allocations to ensure financial sustainability.
- Invest funds through a mix of short-, medium-, and long term instruments to preserve capital and generate returns.

Independent Governance and Transparency

- Constitute an **Independent Board of Governors** comprising labour representatives, energy experts, economists, and civil society.
- Mandate transparent eligibility criteria, grievance redressal mechanisms, and third party audits.

Sindh Solar Policy for Labourer Households

- Notify a **Labour Focused Off Grid Solar Policy** providing cost effective technical standards, eligibility rules, and maintenance frameworks.
- Encourage local manufacturing and installation to maximize employment multipliers.

Structural Reforms in Social Security Coverage

- Revise SESSI registration thresholds to align with inter provincial standards (minimum wage + 50%).
- Move progressively toward **universal social security coverage**, including informal, home based, and contract workers.

Enforcement of Labour Safety and Employer Contributions

- Enforce provisions of the Sindh Employees' Social Security Act, 2016, including **increased employer contributions where safety rules are violated**.
- Strengthen inspection, compliance, and penalties for non registration and underpayment of wages.

Labour Accident and Health Registry

- Establish a **province wide digital registry** for reporting fatal and non fatal occupational injuries, diseases, and heat related incidents, enabling rapid response and policy planning.

NEPRA to eliminate unprotected tariff system

- NEPRA must eliminate the six months' elevated slabs and billing on account of the bill exceeding 200 units for a given month. This affects the people from low-income strata and labour class the most.

Expected Outcomes

- Reduced household energy costs and reliance on unsafe coping mechanisms
- Improved health, nutrition, education, and productivity outcomes for labour families
- Enhanced climate adaptation and urban resilience
- Progress toward Sindh and Pakistan's SDG commitments
- Reduction in intergenerational poverty among informal workers
- Attraction of international climate finance and development partner support

Conclusion

In an era of fiscal constraints and escalating climate risk, **targeted public investment in renewable energy for labour households represents a high impact, low fiscal stress intervention**. The proposed policy actions align with Sindh's development priorities, labour welfare mandate, and climate commitments. The Government of Sindh is respectfully urged to consider these recommendations for early adoption through executive action, legislative support, and inter departmental coordination.



Acronyms

BISP	Benazir Income Support Programme
CRI	Climate Risk Index
EIU	Economic Intelligence Unit
FGDs	Focus Group Discussions
FY	Fiscal Year
GDP	Gross Domestic Product
GOS	Government of Sindh
KE	K Electric
KESC	Karachi Electric Supply Corporation
NEPRA	National Electric Power Regulatory Authority
P&DD	Planning and Development Department
PBS	Pakistan Bureau of Statistics
PILER	Pakistan Institute of Labour Education and Research
PKR	Pakistan Rupee
SBP	State Bank of Pakistan
SDGs	Sustainable Development Goals
SESSI	Sindh Employees' Social Security Institution
SRB	Sindh Revenue Board
SSEFL	Sindh Solarization Endowment Fund for Labourers
SWPB	Sindh Workers' Welfare Board
SWPPF	Sindh Workers' Profit Participation Fund
SWWF	Sindh Workers' Welfare Fund
UN	United Nations
USD	United States Dollar
WAPDA	Water and Power Development Authority
WWF	Workers' Welfare Fund

Introduction



Pakistan ranked 15th on the average Climate Risk Index for the past three decades 1995-2024, and recently in 2022 Pakistan ranked 1st on account of economic and livelihood losses due to climate change resulting from devastating floods affecting 33 million people and causing damage worth USD 15 billion . The dimensions of extreme weather events ranging from floods, heatwaves, rise in temperature and rise in sea level are affecting the livelihoods of people across the country.

Karachi is no exception to climatic conditions, and the poor work environment and bad governance add gravity to the adverse livelihood of informal workers in Karachi. The daily wagers, and workers from low-income strata are disproportionately affected by climate events. The social protection framework of the country, factories, and workplace do not offer much to mitigate the negative impact of climate change in terms of loss of working hours, exhaustion, dehydration, heatstroke, diseases, and loss of income.

Power distribution in Karachi is operated by K-Electric, a private limited company, which took over from the state-owned enterprise Karachi Electric Supply Corporation (KESC) in 2005 under the privatization transaction with Government of Pakistan. The jurisdiction of KE is about 6500 square kilometers with 3.7 million connections across residential, industrial, and agriculture sector in Karachi, Dhabeji, Gharo (Sindh), and Uthal, Vinder and Bela (Balochistan).

Areas where relative concentrations of labourers and citizens from low-income strata are higher, usually face frequent power outages even during the extremely warm summers of Karachi. Obviously the scheduled and frequently unscheduled power outages affect the lifecycle of residents of these areas, in terms of absence from work, poor or lack of sleep, dehydration, violence, poor health, loss of income and many more. Karachi is ranked among the least livable cities of the world and ranked 170 out of 173 cities in most recent ranking of Economic Intelligence Unit. The poor livability conditions of Karachi city, commute time, traffic congestion, dust, pollution, expensive hospitalization and medical cost, shortage of water, load shedding of natural gas, inflation etc. are compelling determinants of the vicious cycle of poverty for labourers.

This policy brief provides an extensive situational analysis of conditions of formal and informal labourers in low-income areas of Karachi. The methodology of this study is, collection of data and information based on micro-analysis, direct survey and focus group discussion with the key stakeholders in the poorest localities of Karachi, including the Sindh Employees Social Security Institution (SESSI), Sindh Workers' Welfare Fund (SWWF), Sindh Workers' Profit Participation (SWPPF) and other relevant institutions responsible for the welfare of the labourers in Sindh. The policy brief further examines the potential options for reform and to improve the situation of labourers in both the short and long run. These appear to be the most workable options in a scenario of limited fiscal space.

Background & Situational Analysis

- Climate Risk Index Report 2025 and Climate Risk Index Report 2026 published by German Watch.
- The largest Social Protection programme of Pakistan is Benazir Income Support Programme (BISP) which accounts for 0.3 percent of GDP.
- Economic Intelligence Unit, Global Livability Survey and Global Livability Index Ranking
- Although the jurisdiction of KE includes areas of province of Balochistan adjacent to Karachi, however the scope of this study is restricted to the Labourers of Karachi.

2.1 Industrial Base, Minimum Wage and Social Security Institution

There are 10,000 factories in Karachi, most of them are textiles and its ancillary industries; the cumulative number of workers associated is approximately five hundred thousand. A large majority of workers are serving in informal capacity with insecure employment, no access to minimum wage of PKR 40,000 which is much below the living wage of PKR 103,772, and poor access to social security. Sindh Employees' Social Security Institution (SESSI) is the primary institution responsible for registration of workers. Karachi's informal workers live in informal housing settlements with poorly designed structures where utilities (e.g., electricity and water) and social services remain low. In Pakistan, the labourers in the informal sectors, industries or markets have either no or very limited access to formal finance and/or microfinancing, no provision for medical assistance in case of accidental injury, and no pensions. Home based workers, specifically, house helps are paid compensation which is inadequate to manage the cost of their living. Female workers often faced harassment, violence and threats which are either not reported at all or significantly underreported. There is no provision of maternal leaves, pregnancy allowance, or any kind of social protection and due to which food security during pregnancy and lactation period becomes the greatest challenge, which also leads to various forms of malnutrition in newborns like low birthweight, stunting and wasting.

2.2 Power Supply to the City and Power Outages

KE's loadshedding policy is based on the proportion of losses on a feeder level, which are defined based on theft of electricity and non-payment of bills. This is in line with the Government of Pakistan's National Power Policy and applicable across the country.

KE accuses workers' settlements in Korangi, Baldia, Landhi and Orangi town for non-payment of bills and conducts 16-plus hours of routine load shedding in these areas. Extensive load shedding also leads to water access problems, leading to sanitation and hygiene issues for households. Due to load shedding at night times, workers cannot get adequate rest, leading to frequent workplace accidents. Although the Pakistan Bureau of Statistics published the statistics on accidents in Pakistan, but the scope is limited to non-fatal accidents – refer Table 1, the accidents rate reported across Pakistan was 2.7 percent of the total whereas it is only 1.8 percent for Sindh. The reporting of occupational injuries could be improved and will increase awareness, assist in policy making, and computation of fair compensation to the affected labourers. The city of Karachi has undergone a significant increase in temperature in the last decade. The rising heat distress causes physical and mental health challenges and there have been growing incidents of protests and violence as a response to recurring load shedding in these areas.

Table 1

Non-Fatal Occupational Injuries/Diseases - Employed Persons by Status by Sex (%)

Area	Accident/Injury	PAKISTAN			SINDH		
		Total	Males	Females	Total	Males	Females
Total	Suffered	2.7	3.2	1.2	1.8	1.8	2.1
	Not suffered	97.3	96.8	98.8	98.2	98.2	97.9
Rural	Suffered	2.6	3.2	1.1	1.4	1.4	1.6
	Not suffered	97.4	96.8	98.9	97.8	97.9	96.4
Urban	Suffered	2.9	3.1	1.6	2.2	2.1	3.6
	Not suffered	97.1	96.9	98.4	97.8	97.9	96.4

Source: Labour Force Survey of Pakistan 2024-25

- According to the Labour and Human Resource Department's Notification No. L-II-13-3/2016-I dated 28th July 2025; in compliance with Section 4(1) and Section 6(1) of the Sindh Minimum Wages Act, 2015 the minimum wage for unskilled adult and adolescent workers employed in all industrial and commercial establishments is PKR 40,000 effective from July 1, 2025. For detail refer Annexure 1.
- Calculating a Living Wage - Asia Floor Wage Alliance
- Social Security Scheme was launched on 1st March, 1967, under West Pakistan Employees' Social Security Ordinance No. X of 1965, with the assistance of the International Labour Organization. The Sindh Employees' Social Security Institution (SESSI), however, came into being on 1st July, 1970 when the Scheme was reorganized on provincial basis after the dissolution of One-Unit. Initially, the Scheme was designed for coverage of textile industry workers of Karachi and Hyderabad. On getting encouraging results later the Scheme was extended to all other industries and commercial units.

2.3 Pakistan's commitment to SDGs for Labours and Sustainable Energy

Recognizing the strategic importance of the UN Sustainable Development Goals SDGs, the Parliament of Pakistan adopted SDGs as its own national development goals in February 2016, and before that the Ministry of Planning, Development and Special Initiatives had already internalized the SDGs in its development framework back in September 2015, also embedded the SDGs in Pakistan Vision 2025.

The Ministry of Planning published Pakistan's committed Sustainable Development Goals (SDGs) National Framework for 68 out of 169 SDGs, which is based on three categories of SDGs; Category-I (7 SDGs; 31 targets) signifies immediate interventions in the short run, the SDGs under Category-II (7 SDGs; 27 targets) need relatively longer timeframe and consistent policy support and for SDGs of Category-III (2 SDGs; 6 targets), a longer gestation period and major institutional reforms are needed.

Out of Pakistan's 68 SDG targets at least 19 SDG targets are at risk of being unmet and the resultant performance outcomes have been seriously compromised, the relevant SDGs target and the impact of loadshedding on those targets is provided in detail in Table 2.

Table 2

Pakistan's Labour related SDGs under compromise due to power outages

SDG No.	Pakistan's National Priority Targets	Frequent Power Outage & Its Impact on Pakistan's Committed SDGs Target	Pakistan's Committed Intervention Time
1	1.2 Poverty 1.3 Social protection 1.4 Access to basic services 1.5 Government spending on essential services	Due to loss of income, sleep deficit, absence from workplace. Low coverage for labourers. Water and basic services compromised due to power outages. Government spending is not as per the need.	Medium Term
2	2.1 Undernourishment and food security 2.2 Malnutrition	Loss of income, loss of purchasing power, often only one meal a day. Malnutrition is due to hunger and poor-quality food.	Immediate
3	3.6 Road traffic accidents	Due to sleep deficit, deficit in calorie intake results in higher frequency of traffic accidents.	Immediate
4	4.1 Effective learning outcomes	Learning outcomes and education are compromised due to lack of sleep at night, no power or frequent power outages affecting the study time of children.	Immediate
5	5.2 Violence against women and girls	Areas of high load shedding report high degree of violence against women and girls, due to mood swings, loss of income.	Medium Term
6	6.1 Safe drinking water 6.2 Access to sanitation and hygiene	Water motors remain off due to no power or frequent load shedding. Due to the lack of water sanitation and hygiene are badly affected.	Immediate
7	7.1 Access to energy 7.2 Share of renewable energy 7.3 Energy efficiency	Access to energy is costly compared to peer income countries. Fossil fuel energy carries higher weightage, solarization and renewables are unaffordable. Energy efficiency is lowest among the peer income countries; power outages are routine.	Immediate
8	8.5 Full employment and decent work	How can work be decent where minimum monthly wages are PKR 40,000.	Immediate
10	1.1 Income growth of bottom 40 percent 1.4 Fiscal and social protection policies	Loss of income, loss of daily wages, absence from workplace. Low fiscal space and low priority for welfare of labourer.	Medium Term
11	11.1 Housing and basic services	Energy is basic service, which is unaffordable, frequent power outages.	Medium Term
13	13.1 Resilience and adaptive capacity 13.2 Climate change policy	Adaptive capacity needs shift to off grid solarization and renewables. Pakistan's climate change policy strongly advocates and appreciates the off-grid solarization, but due to taxes, and high installation cost off grid solarization is unaffordable for labourers, and daily wagers.	Long Term

Source: Author's research, analysis, and outcomes of Focus Group Discussions (FGDs).

FGDs & Stakeholder's Consultation

in High Loadshedding Areas

3.1 High Loadshedding Zone and the Poor Household

One of the primary merits of this study is extensive stakeholders' consultation for fact-finding and to assess the gravity of socio-economic and health conditions of daily wagers, poor workers living in different low-income areas of the city. For a city like Karachi, this is a demanding venture, requiring collection of quantitative and qualitative data, institutional assessment, stakeholders' viewpoints, contesting narratives and finding a balanced solution to reform public institutions, provide welfare for poor labourers, victims of excessive loadshedding.

Karachi is the largest metropolis and capital of Sindh with a population of 20.3 million as per Census 2023. For this study Pakistan Institute of Labour Education and Research (PILER) covered the towns like Landhi, Orangi, Korangi, Ibrahim Hyderi and Baldia which host the poorest localities with highest frequency of power outages. Most daily wagers, workers and factory labourers reside in these towns. The question of coverage of the study is technical and complex, the selected towns represent about one-fourth of the population, and 22.7 percent households of the city -- Table 3 provides a breakdown, however independent estimates and studies suggest (refer footnote 9) that the size of the city is more than what is represented in succeeding censuses, this creates a problem of under coverage or underestimation of relief requirement for labourers.



Table 3

Information about Population of Survey Towns, and Districts

Districts of Karachi			Town Covered Under Survey /FGDs		
Name	Population	Households	Name	Population	Households
Central	3,822,325	651,268			
East	3,921,742	659,389			
Keamari	2,068,451	319,121	Baldia	948,597	148,116
Korangi	3,128,971	493,050	Korangi	1,363,992	207,086
			Landhi	681,294	115,900
Malir	2,432,248	421,426	Ibrahim Hyderi	1,341,638	214,288
South	2,329,764	425,093			
West	2,679,380	464,756	Orangi	596,919	95,128
Total	20,382,881	3,434,103		4,932,440	780,518

Source: Population Census 2023, Pakistan Bureau of Statistics, Islamabad.

Effectively the sample selection by PILER is not based on population, rather it is based on two criteria areas of frequent load shedding, with high density of labourers and residents of low-income strata. Therefore the question of overall undercounting of population seems to have less relevance. The kind of sampling is problem specific and a blend mix of convenience and snowball sampling (referral from previous sample). The Census 2023 provides an account of fuel for lighting comprising of three categories electricity, solar and others.



The underreporting of Karachi's population is historical, and there are many accounts which provides details. In 1988 the UNDP special report "Population Growth and Policies in Mega-Cities: Karachi" claimed that the population of Karachi is 7.5 million whereas the Census 1981 reported a population of 5.44 million. Similarly, the Institute of Transportation and Development Policy, New York, United States of America estimated the population of Karachi to 23.0 million in 2015, whereas Census 2023 reported a population of 20.36 million.



Table 4

4 Housing characteristics, Facilities Used for Fuel



Districts		Towns		Fuel For Lighting		
Name	HH	Name	HH	Electricity	Solar	Other
Central	651,268	Central	-	-	-	-
East	659,389	East	-	-	-	-
Keamari	319,121	Keamari	148,116	145,941	1,163	1,012
			%	98.53	0.79	0.68
Korangi	493,050	Korangi	207,086	204,781	1,196	1,109
			%	98.89	0.58	0.54
			115,900	114,308	876	716
			%	98.63	0.76	0.62
Malir	421,426	Malir	214,288	206,918	5,117	2,253
			%	96.56	2.39	1.05
South	425,093	South	-	-	-	-
West	464,756	West	95,128	94,189	786	153
			%	-	-	-
Total	3,434,103		780,518	766,137	9,138	5,243
			%	98.16	1.17	0.67

Source: Pakistan Bureau of Statistics, Census 2023.

Table 4 shows the relative coverage of electricity is very high, may be corresponding to the number of meters of K-Electric in respective areas. However, the data seems to not reflect on situation of fuel for lighting in slums, informal settlements, exactly the households which this policy brief aims to study. As such, national statistics do not adequately capture the complete reality. Additionally, the data only provides information about categories of fuel for lighting, but not load shedding, so this can serve as an indicative of electricity access at household level, but the data does not provide details about access to electricity by labourer households.

3.2 Characteristics of the Participants of FGDs

A focus group discussion (FGD) of 101 households from above-mentioned towns was conducted for detailed survey. As per the format of FGD, each household was represented by the head of the households. The gender composition of the sample was 56 males (55 per cent) and 45 females (45 per cent).

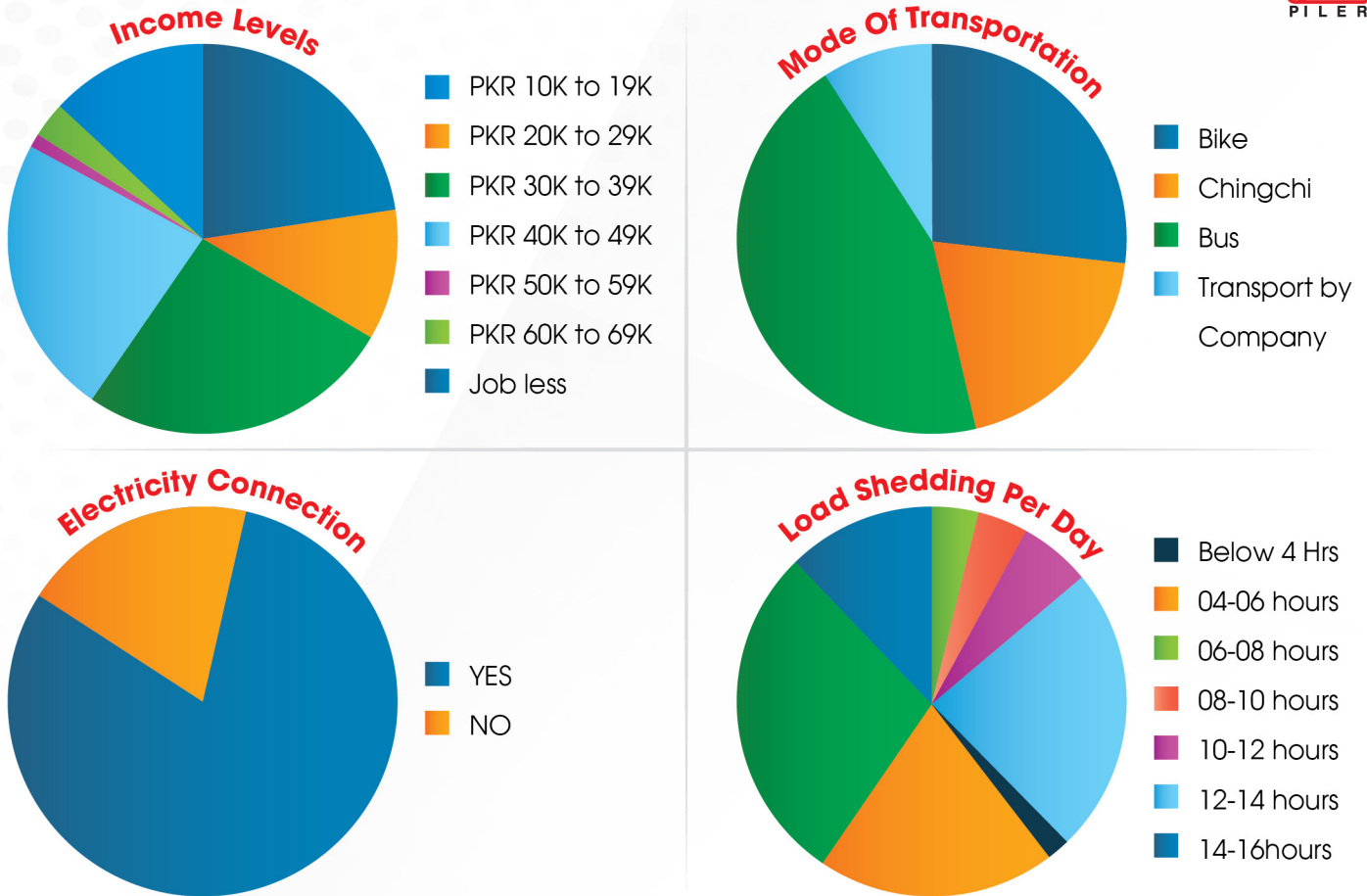
3.2.1 Income status of the participants of FGDs

The income mix of participants varies among seven categories. 60 participants (59 per cent) had wages below PKR 40,000 which is the legal minimum wage in Sindh.

Only four participants reported an income level more than PKR 50,000, the threshold over which income is subject to federal income tax at the lowest tax bracket. Within this sample, 13 per cent of participants were unemployed, and they were actively seeking a respectable job to bear the expenses of their cost of living.

* The tax information has not been documented.

3.2.2 Features of the Survey/FGDs Participants



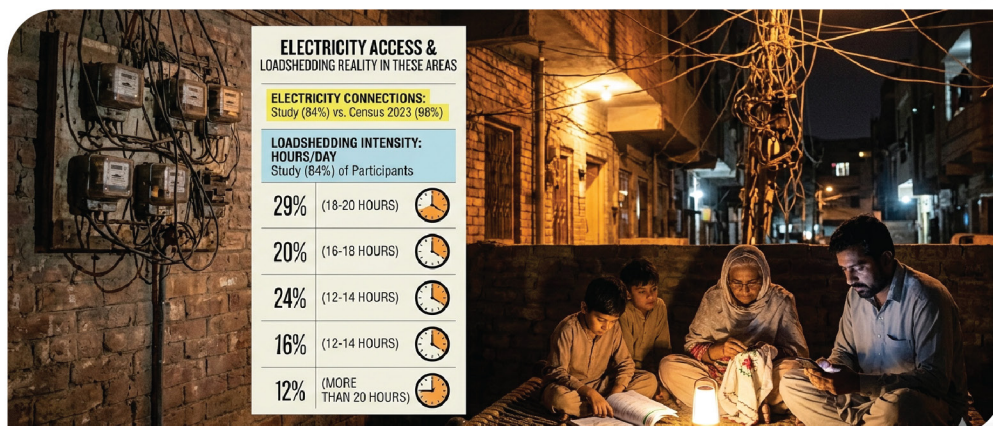
Source: Primary survey conducted by PILER

3.2.3 Mode of Transportation

main mode of transportation reported by participants is public bus transportation which is 44 per cent followed by personal bike 27 per cent, Chingchi 20 per cent and provision of transport by the company is only 9 per cent

3.2.4 Electricity Connection and Loadshedding

About 84 per cent of participants have electricity connections, which is lower than the households with electricity as reported in Census 2023 for these areas 98 per cent – see Table 4. The intensity of loadshedding may be assessed through the responses for loadshedding; 29 per cent of the participants reported 18-20 hours of loadshedding followed by 20 per cent reported 16-18 hours, 24 per cent reported 12-14 hours and 12 per cent reported more than 20 hours of loadshedding.



Box 01



Poor socio-economic, health conditions and solutions reported by participants of FGDs

A. Disruption in children's education and sleep

Frequent load shedding disturbs the children from sleeping properly at night, making it difficult for them to maintain focus in studies during daytime in school. It also affects their ability to study at home due to the lack of light and unbearable heat.

B. Increased dehydration and heat-related illnesses

Without electricity, fans and cooling devices cannot operate, causing people, especially labourers and children—to suffer from dehydration, exhaustion, and heat-related illnesses during severe heat waves.

C. Spread of mosquitoes causing malaria, dengue, and other diseases

In the absence of electricity, standing water cannot be dried or controlled, and families cannot use electric repellents or fans, leading to an increase in mosquitoes and mosquito-borne diseases like malaria and dengue.

D. Domestic violence and conflicts, affecting women.

Household responsibilities become more difficult without electricity, leading to stress, arguments, and increased domestic violence. Women, who work and manage cooking, childcare, and household chores, are often the most affected

E. Difficulties in cooking, water supply, and household work

Low gas pressure and electric-powered motors stop working during outages, making it hard to cook meals or pump water. Families struggle to complete basic household tasks, especially during long hours of load shedding.

F. Mental health issues due to irritability and stress

Continuous heat, lack of sleep, and daily frustration caused by electricity shortages lead to irritability, anxiety, and growing mental stress among household members

G. Accidents and reduced productivity at work

With little to no sleep at night due to heat, labourers feel tired and less alert during work, increasing the chances of accidents. Their productivity decreases, affecting both their income and job safety.

Suggested Solutions

The participants of the FGDs suggested three major initiatives that the government should immediately initiate:

- 1- Reliable and uninterrupted supply of electricity
- 2- Reduction in per unit cost of electricity, although the participants were aware of Pakistan's challenges and prevailing inflationary pressures in the country.
- 3- Renewable energy solutions; specifically the off-grid solarization of houses of low-income labourers, daily wagers.

Source: FGDs conducted by PILER.

Highlights from Key Informant Interviews

As a matter of assessment of institutional design, capacity, and support to poor labourers in Sindh, Key Informant Interviews of representatives from Sindh Workers' Welfare Board, Sindh Employees' Social Security Institution, Fishermen Cooperative Society were conducted. The valuable insights shared by the representatives of the above-mentioned institutions are reported anonymously.

4.1 Sindh Worker's Welfare Board

The mandate of the Sindh Workers' Welfare board is to provide support to the labourers under following categories.

- 1- Accidental Health Insurance: Up to PKR 700,000 annually for treatment at 270 hospitals nationwide.
- 2- Death Grant: up to PKR 1 million.
- 3- Marriage Grant: UP to PKR 500,000.
- 4- E-Motorcycles: distribution among industrial women and minority industrial laborers.
- 5- Sewing Machines: distribution among women workers to further their economic empowerment.

4.2 Sindh Employees Social Security Institution

The number of registered workers in social security is eight hundred thousand in Sindh. The minimum wage as announced by the government is PKR 40,000; whereas usually the minimum wage in registered and documented industry is PKR 40,000, Sindh's social security law requires only the workers with a minimum wage of PKR 40,000 plus PKR 5,000 can be registered in social security. So eighty per cent of workers automatically get out of social security because of the coverage.

Low registration

There are two significant issues for low registration in SESSI,

1. The companies are not following the minimum wages and government's enforcement of the minimum wages is very weak.
2. Most of the employment in industrial sector is in textiles. There is a contractual system under which payment is made on piece rate system. The law provides requirement of registration for permanent employees, therefore most of the labour force is out of the net of SESSI. The law requires that service providers should be registered with Sindh Revenue Board (SRB), but more than 90 percent of contractors are not registered with SRB.

Effective enforcement of minimum wages, and mandatory registration are key areas of reforms to secure financial position of labourers and provide them with social protection through SESSI.

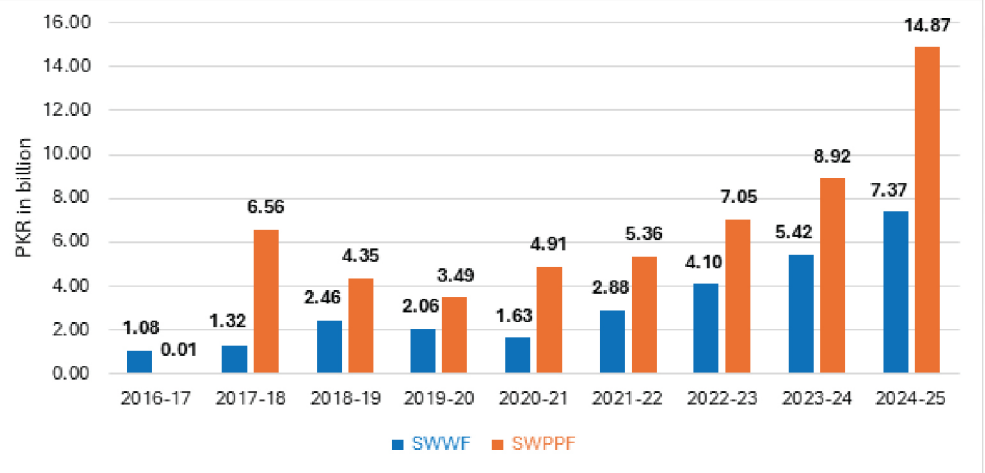
4.3 Provision of solar energy-based solution under SESSI

Since power outages are routine phenomenon, labourers are adversely affected by loss of provision for life, loss of work, accidents, injury, poor health, malnutrition, low calorie diet, food insecurity, no pension, no retirement benefits, and the cycle of intergenerational poverty continues indefinitely. The toll of climate change on the livelihood of labourers and daily wagers, in terms of serious health and socio-economic issues, is increasing over time, and electricity has become either unaffordable or the frequent power outages have resulted in loss of output. It is high time to invest in the Worker's Welfare Fund for the improvement and betterment of the lives of labourers. The off-grid solarization of houses of labourers is the most economically feasible option and will build adaptive resilience against climate change.

Figure 5

Collection of Sindh Workers Welfare Fund and Sindh Worker's Profit Participation Fund

Source: Author's collection of data from Sindh Revenue Board (SRB) which entrusted with the responsibility of collection of Sindh Workers Welfare Fund (SWWF) and Sindh Worker's Profit Participation Fund (SWPPF).



From fiscal year 2016-2017 to 2024-25 the total collection against Sindh Workers' Welfare Funds is PKR 28.33 billion and against Sindh Worker's Profit Participation Fund (SWPPF) for the corresponding period is PKR 50.55 billion. To allocate funds for the solarization schemes the problem of fiscal space may be sorted out by earmarking of collection of SWWF and SWPPF for solarization. If we consider PKR 300,000 to be the cost for solarization of average labourer household, the total beneficiary households will be 94,433 which is a substantial number in terms of coverage.

Size	Panels	Suitable for	Mono Solar Panels PKR	Bifacial Solar Panels PKR
3 kW	5-6	Small homes with basic appliances	152,000 to 216,000	180,000 to 270,000
5 kW	9-10	Medium homes	275,000 to 360,000	324,000 to 450,000
10 kW	18-20	Large homes and small businesses	550,000 to 720,000	650,000 to 900,000
20 kW	36-38	Commercial shops	1,100,000 to 1,368,000	1,296,000 to 1,710,000
30 kW	54-56	Warehouses, factories, and large commercial	1,650,000 to 2,016,000	1,944,000 to 2,565,000

Source: Solar Panel Price in Karachi: System Cost Analysis and ROI Calculation

- Any concern engaged in manufacturing or producing articles in the province of Sindh is liable to pay 2 percent of profit before taxation as Workers Welfare Fund.
- Any concern engaged in manufacturing or producing articles in the province of Sindh is liable to pay the leftover amount of fund (fund created as 5 per cent of profit before taxation) after distribution of the said fund among workers, as Workers Participation Fund.

Way Forward



Pakistan is among the 54 most debt-distressed countries in the world, and spends more on debt servicing than it does on education, health, nutrition, social protection, and labour welfare. This policy presents detailed situational analysis of loadshedding in Karachi and its impact on socio-economic and health conditions of labourers. The brief presents a range of workable ideas of reforms including the creation of fiscal space through earmarking SWWF and SWPPF collection for solarization of houses of poor labourers. These options merit urgent consideration by the Government of Sindh, including through assembly debates, discussions, and private sector engagement.

Given the complexities arising out of issue of power outages, the public investment in alternative energy schemes would have a very high multiplier effect on productivity of labourers and socio-economic status of their households. Being green and climate friendly investment which accounts for climate changes mitigation, the public investment in solar schemes for labourers will reduce the carbon footprint therefore may attract support from international development partners, and above all if the public investments are managed through the Worker's Welfare Fund, the impact of fiscal obligations will not distress the provincial exchequer of Government of Sindh.

1. The inclusion of solar panels schemes for labourers through Workers' Welfare Fund; the scope of WWF includes activities which are supportive and beneficial to the labourers in managing their cost of livelihood, income generation, in addition to the death, and marriage grants. The scope of welfare activities WWF may be enhanced, and solar schemes for the registered labourers of SEESI may be included. Such inclusion will reduce the cost of living for poor labourer households and reduce the suffering due to power outages.

2. Individual or collective model of solarization; it is equally important for Government to conduct an assessment in labour colonies to determine whether solar panels can be installed at the individual household level or whether a collective off-grid solar system would be more feasible.

3. Brand accountability under international due diligence laws; brands to be held accountable under international human rights, environmental, and due diligence laws, as workers in their supply chains are severely affected by rising temperatures and extreme heat conditions.

4. SEESI should establish a Sindh Solarization Endowment Fund for Labourers (SSEFL) out of collection of Workers' Welfare Fund; since the power outage problem has multifaceted consequences, welfare fund labourers should be established with placement of funds in a mix of short, medium- and long-term high yielding investments to protect the initial endowment.

5. SSEFL to be governed by independent Board of Governors; to make it transparent, equitable and fair, Government may notify a Board of Governors comprising independent experts, labour leaders, representatives of trade unions etc. and the Board will function independently to form rules and modus operandi for registration of eligible labourer or prospective beneficiary from the solarization scheme. The biggest challenge for government will be survey and evaluation, and fixation of residence period for beneficiary labourers in the homes where solar panels will be installed through the WWF.

- Lars Jenson, **"Avoiding 'Too Little Too Late' on International Debt Relief"**, UNDP Global Policy Network Development Future Series Working Paper, 2022.

6.Solar Policy for the Sindh Solarization Endowment Fund for Labourers; the Sindh solar policy may introduce off-grid, cost effective solutions, eligibility and evaluation criteria for labourers, rules for inclusion may be framed and notified by virtue of Act of Provincial Assembly.

7.Structural reforms - revision of Baseline criteria; the threshold for registration of workers with Sindh Employees Social Security Institution should be comparable with the threshold of other provinces (Minimum wage + 50 percent).

8.Province wide coverage of the fund; starting from largest concentration of labourers, both formal and informal, home-based workers the Board will be entrusted with the responsibility of increasing the scope and coverage of the solarization policy for labourers.

9.Structural reform - universal coverage of social security; it is important that the coverage of social security be universal for all labourers without any form of discrimination. To materialize this task, a high-level taskforce headed by credible economists, labour support organization, and trade unionists may immediately be constituted.

10. Structural reform - increase the contributions where safety rules are not observed; the Government should enforce in letter and spirit various provisions related to safety of labourers specifically where safety rules are not observed. For example, Section 27 of Sindh Employees Social Security Act. 2016 provides guidance "Increase of contributions where safety rules not observed", if an employer fails to observe rules of safety or hygiene prescribed by or under any enactment applicable to his establishment, the Commissioner may, subject to rules, by order in writing, increase the employer's rate of contribution provided that such increase shall not exceed twenty per centum of the contribution otherwise payable.

11. Structural reform - data, record and registry of fatal and non-fatal industrial accidents; since the data on accidents, injuries, and severe diseases of labourers are significantly underreported or under-recorded, therefore government may set up a diligent and easy to use online application based forum to self-use of labourers so that accidents, injuries and any severe medical conditions is immediately reported for action and provision of medical treatment cum social protection.



GOVERNMENT OF SINDH
LABOUR &
HUMAN RESOURCES DEPARTMENT
Karachi dated 28th July, 2025

Notification

No. L-II-13-3/2016-I: In accordance with Section 4(1) of the Sindh Minimum Wages Act, 2015, and in exercise of the powers granted under Section 6(1) (a) of the same Act, the Government of Sindh is pleased to fix the minimum monthly wage at **Rs. 40,000/-** for unskilled adult and adolescent workers employed in all industrial and commercial establishments across the province. This will take effect from **1st July, 2025**, subject to the following conditions:

1. These revised minimum wages will apply to all unskilled adult and adolescent workers working in any industrial or commercial establishment, whether registered or unregistered, throughout Sindh.
2. This minimum wage shall be uniformly applicable across the entire province and will come into force from **01.07.2025**, as per the provisions of the Sindh Minimum Wages Act, 2015.
3. Male and female workers in this category shall receive equal pay.
4. Working hours, overtime rules, rest days, and paid holiday provisions for these workers shall be governed by the Sindh Factories Act, 2015, the Payment of Wages Act, 2015, and other applicable labor laws.
5. The wages for skilled and semi-skilled workers in any industry must not be lower than the minimum wage fixed for unskilled workers.
6. All employers, regardless of whether their establishment is registered or unregistered, must pay their unskilled and adolescent workers not less than **Rs. 40,000/- per month**, as stated in the attached schedule.
7. "Wages" shall be interpreted according to the definition provided in Section 2(xix) of the Sindh Minimum Wages Act, 2015.
8. Employers must revise the rates for piece-rated workers to ensure that such workers earn at least **Rs. 192** per hour on any working day.
9. The new minimum wage is not to be considered the maximum. Any current wages higher than the new minimum must not be reduced. Employers are encouraged to





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