Aligning Government Initiatives with Sustainable Development Goals: A Village-Level Mapping in India

A Amarender Reddy[1], Anindita Sarkar[2], Ch Radhika Rani[3], Abhipsita Das[4], C Papi Reddy, Anjani Vajrala Sneha[5]

1 Indian Council of Agricultural Research
2 University of Bonn
3 National Institute of Rural Development and Panchayati Raj
4 Alabama State University
5 New York University (NYU)

Abstract

The paper examines the relationship between the various development and welfare schemes and the SDGs at the village level in India. The objective of the paper is to enlist the schemes functional at the village level that directly benefit the village households and to measure the extent of benefits from different schemes by households categorized on the basis of income, social groups, occupation, and land ownership. The coverage of beneficiaries and financial assistance received by the villagers helps us to see a composite picture of SDG implementation in the village, linking it with policy impact. It further analyses whether the beneficiaries have utilized the resources distributed under the welfare schemes for their targeted purpose. The research was conducted in Emped village, India, by collecting information from all 287 households in the year 2017. Although more than 50 schemes were implemented in the state, the study covered only 29 schemes which had at least one beneficiary household in the village. The majority of households benefited from schemes like the Public Distribution System, direct benefit transfer to farmers, the employment guarantee, and the mid-day meal scheme, but very few benefited from the large-ticket schemes like the housing

scheme. Schemes addressed to women like the assistance to pregnant women were effective. Most of the assistance received from agricultural development schemes was spent on the intended purpose, whereas others were spent on consumption purposes. Though these schemes were helpful in addressing the needs of the poor and the needy, there was a delay in fund reimbursement, leakages, and exclusion errors. The relationship between monetary benefits received and the income of households is best represented by an 'inverted U shape' curve, indicating that most of the benefits from welfare programmes were received by the high and middle-income categories, excluding the poorest section.

A. Amarender Reddy[1,*], **Anindita Sarkar**[2], **Ch Radhika Rani**[3], **Abhipsita Das**[4], **C Papi Reddy**[5], and **Anjani Vajrala Sneha**[6]

[1] *School of Policy Support Research, ICAR-National Institute of Biotic Stress Management (ICAR-NIBSM), Raipur*

[2] *The Center for Development Research, University of Bonn*

[3] *National Institute of Rural Development & Panchayat Raj (NIRD&PR), Hyderabad, India*

[4] *Alabama State University, Alabama, USA*

[5] *Ministry of Rural Development, Government of India, New Delhi*

[6] *New York University, New York, USA*

[*] Correspondence: amarender.reddy@icar.gov.in

1. Introduction

The 2030 Agenda for Sustainable Development outlines a global policy framework for countries to collectively manage and transform their social, economic, and environmental dimensions. Despite the diverse focuses of each Sustainable Development Goal (SDG), they are interconnected, mutually dependent, and universally applicable, emphasizing the principle of "leaving no one behind" (Nilsson et al., 2016). The achievement of these goals necessitates global society's ability to optimize synergies and navigate existing trade-offs (Ramos & Laurenti, 2020). Additionally, the time-bound nature of these goals underscores the pressing need for every country worldwide to devise and implement policies addressing poverty eradication, ensuring a decent quality of life, and fostering peace (Raszkowski & Bartniczak, 2019), with the aim of reaching all beneficiaries by 2030 (Sachs, 2012).

While the SDGs lack legal binding, they have received global endorsement from signatory countries. This endorsement compels governments and stakeholders worldwide to establish national and regional plans aligning with the agenda's goals. Given that India constitutes 18% of the global population, the fulfillment of many SDG targets hinges on India's

success in meeting them. In essence, addressing development challenges in India holds significance for the overall progress of international development on a global scale. The Government of India, at both the central and local levels, is actively implementing various development programs, specifically tailored to achieve the SDGs, yielding mixed results (NITI Aayog, 2019).

Localizing the Sustainable Development Goals (SDGs) is crucial for effective policy targeting to ensure inclusivity and the principle of "no one is left behind." Most of the seventeen SDGs, with the exception of Goals 9, 12, 13, 14, and 17, necessitate interconnected strategies at the community level to address the complex links among poverty, unemployment, ill health, and environmental degradation (Siphamb et al., 2020). This challenge is particularly pronounced in a large and diverse country like India, characterized by substantial development gaps between rural and urban areas (Aubron et al., 2015), where a significant portion of the population grapples with issues of hunger, poverty, and deprivation.

To bridge this gap, it is recommended that SDG implementation takes place from the bottom up, with a focus on the local level, and local governments playing a pivotal role in realizing the SDGs (Bednarska-Olejniczak et al., 2020). Against this backdrop, the study delves into the relationship between various development and welfare schemes and the SDGs at the village level in India. The paper aims to compile a list of schemes, both from the central and state governments, operational at the village level, directly benefiting village households. It seeks to gauge the extent of benefits accruing to each household in terms of SDG goals, selecting a typical village that reflects the socio-economic conditions of India.

The study also evaluates the extent of benefits from different schemes, categorizing households based on income, social groups, occupation, and land ownership. Furthermore, it analyzes whether beneficiaries have effectively utilized the resources distributed under welfare schemes for their intended purposes. The examination of the coverage of beneficiaries and the financial assistance received by them provides a comprehensive picture of SDG implementation at the village level, linking it to policy impact.

Therefore, a one size fits all approach to India's social protection architecture would not succeed without understanding the contextual needs of states, and involving them as integral stakeholders in the journey of crafting safety nets.

2. Literature review

Welfare schemes, also referred to as social protection schemes, play a pivotal role in achieving a substantial number of Sustainable Development Goals (SDGs) (ILO, 2017). According to the International Labour Organization (ILO, 2012), social protection schemes encompass policies and programs that provide basic guarantees ensuring that, throughout the life cycle, all those in need have access to essential health care and basic income security. These guarantees secure effective access to goods and services defined as necessary at the national level. The Social Protection Floors Recommendation, 2012 (No. 202), outlines the significance of social protection in social and economic development, recommending coverage in nine key areas: health, maternity, children and family, employment injury, unemployment, disability, sickness, old age, and survivorship (Duggirala, A. & Kumar, R. 2021). Importantly, these areas align with the goals set by the SDGs at the international level. The terms "welfare schemes" and "development programs" are often

used interchangeably in various literature to describe these initiatives.

Government welfare schemes play a crucial role in enabling underserved and disadvantaged populations to access essential health services and attain income security, thereby determining the well-being and socio-economic security of a nation. The necessity for a social protection system has become even more pronounced in the face of significant global challenges, such as the COVID-19 pandemic. The pandemic has had widespread effects on employment opportunities, wage rates, and access to essential health services worldwide (OECD, 2021), leading to economic contraction from both aggregate-demand and aggregate-supply shocks (The World Bank, 2020). Alongside an increase in mortality rates, the pandemic has exacerbated poverty, food insecurity, income inequalities, and gender disparities, derailing progress toward achieving the SDGs (Hörisch, 2021). An effective social protection system has the potential to mitigate these adverse effects in the long run and build resilience in the face of such challenges.

Establishing an effective social protection system is crucial, given its connection with Sustainable Development Goals (SDGs) and the creation of resilient communities. However, the implementation of such systems in developing countries is beset by a range of challenges. Many of these challenges stem from contested and ambiguous national priorities (Allen et al., 2018; O'Neil et al., 2018; Fukuda-Parr, 2016; Lu et al., 2015) and a lack of financial resources to execute the plans (Espey et al., 2015; Akenroye et al., 2017). Numerous programs suffer from vaguely defined delivery targets and unclear indicators (Vandemoortele, 2018; Fukuda-Parr, 2016), making implementation and evaluation difficult.

Similar concerns have been raised by researchers and institutions regarding the execution of development schemes in India. Many programs struggle to reach beneficiaries due to weak coordination between central and regional governments, along with unclear targets (Khalid et al., 2019), and, notably, a lack of funds (Bhamra et al., 2015). The Comptroller and Auditor General (CAG) of India's 2019 audit report on the preparedness for SDG implementation highlighted various issues, including unaligned roadmaps and milestones for SDG targets, weak institutional arrangements, limited public awareness efforts and strategies related to SDGs, unprojected financing and budgeting requirements, and delays in finalizing monitoring and reporting frameworks (CAG, 2019).

Scholars have highlighted concerns about the inadequacy and quality of Sustainable Development Goals (SDG) data in India (Khalid et al., 2019; Ghosh et al., 2019), pointing to insufficient statistical capacities for data handling (Leal Filho et al., 2018; Beisheim et al., 2015; Espey et al., 2015; Lu et al., 2015). Challenges such as inadequate data collection, poor data quality, standards verification issues, and inadequate data monitoring make regular monitoring and evaluation difficult (Bali Swain and Yang-Wallentin, 2019; Lu et al., 2015). These challenges hinder the effective steering of program implementation, leading to schemes lacking a scientific evidence-based approach (Allen et al., 2018; Costanza et al., 2016; Nilsson et al., 2016). This deficiency in evidence-based approaches hampers engagement, dialogue, capacity building, and innovation (Mensah, 2019).

To enhance the effectiveness of social welfare schemes, it is believed that good governance practices, characterized by sensitivity to regulations, inclusiveness, and efficient resource allocation, are essential (Collste et al., 2017). Recognizing the need for involvement from local actors and stakeholders, such as local governments, NGOs, private sectors, minority communities, disadvantaged groups, and civil society organizations, alongside central and state governments, has

become increasingly evident over the years. This collaboration is seen as facilitating the actual implementation of SDGs (Breuer et al., 2019).

India's role in the adoption and success of the Sustainable Development Goals (SDGs) remains crucial due to its significant share of the global population, resulting in the highest number of deprived and unserved individuals, highlighting extreme inequalities across socio-economic and demographic indicators (Saikia and Kulkarni, 2017; Kharas et al., 2018; Khalid et al., 2018). While certain social development programs have demonstrated positive economic impacts at various levels, including the individual, household, community, and national levels in terms of output, employment, and income (Sharma, 2015), there remains a substantial gap in achieving the targeted numbers (Ghosh et al., 2019). Persistent challenges include high poverty rates, a large undernourished population, increasing gender and income inequality (UNDP, 2016), significant education and health inequalities (Suryanarayana et al., 2016), unbalanced urbanization, and an escalation in the frequency of disasters (Jain et al., 2018).

Despite the emphasis of the Indian government on the convergence of all welfare schemes at the village level to achieve SDG goals, the lack of detailed micro-level disaggregated data at the household level poses a significant challenge in localizing SDGs (Siphambe et al., 2020). Monitoring the convergence of all schemes at the household level to achieve SDG goals becomes a colossal task due to this data limitation. There is limited literature available on mapping SDGs with ongoing development and welfare schemes (Reddy, 2017; Reddy et al., 2016; Rani et al., 2021). Although some literature exists on mapping government schemes to SDG targets at the national level, there is a notable absence at the household level (Sachs, 2012; Richter et al., 2017; Lu et al., 2015; Tangcharoensathien et al., 2015; Stafford-Smith et al., 2017; Griggs et al., 2013; Nomani et al., 2017). Since the actual implementation of government schemes involves beneficiary selection at the household or individual level, local data and knowledge are essential for appropriate beneficiary selection. Additionally, most schemes, regardless of their funding agency, are implemented, supervised, and overseen by the gram sabha in general and the village panchayat in particular. This paper addresses this significant literature gap by conducting a case study of a village in India, evaluating the implementation of schemes, and analyzing their convergence with the SDGs through household-level data analysis.

3. Methodology and sampling framework

The study was conducted in Emped village in the state of Telangana, India. A structured household questionnaire was employed to interview all 287 households in Emped village. The questionnaire comprehensively captured information on their land and agricultural profile, household liabilities (including loans), and details of benefits received through various government schemes. It also gathered data on beneficiary enrollment, prevalence of benefit usage, and how individuals utilized the benefits they received. The analysis aimed to establish linkages between household socio-economic characteristics, such as land ownership, income, and caste, and the benefits received by each household member.

In addition to the questionnaire-based analysis, focus group discussions and interviews were conducted using semi-structured questionnaires to gain insights into the actual benefits received by beneficiaries and the reasons for exclusion.

Focus group discussions were conducted among different groups, including men, women, socially disadvantaged groups, and others.

The study compiled a comprehensive list of all welfare schemes implemented in Emped village by the government in 2017 (detailed in Table 2). The development schemes were presented in tabular form, outlining their beneficiary targeting, the nature of assistance provided, and their link to the Sustainable Development Goals (SDGs) (Table 2). From the listed schemes, 29 were shortlisted for analysis in this paper, as each of these schemes had benefited at least one household in the village during the survey in 2017.

These schemes have been divided into four categories for measurement of benefits in monetary terms as given below.

The benefits accrued from the various schemes in Emped village were analyzed using different methodologies based on the nature of each scheme:

i. Completely Subsidized Schemes: Examples include the old age pension schemes and the soil health card scheme. For these schemes, benefits were measured by considering the actual money transfer, equating it to the actual cost involved, and counting it as the benefit accrued to households.

ii. Schemes with Subsidy Components: This category includes schemes like fertilizers and the Rashtriya Krishi Vikas Yojana (RKVY). Here, only the subsidy component was considered to assess the benefit to households.

iii. Public Distribution System (PDS) Scheme: The subsidy amount for this scheme was calculated using the formula {(market price - subsidized price) × quantity}.

iv. Other Services: For services like gas subsidy (subsidized gas cylinders for home cooking) and public works programs, the actual amount of direct money transfer was taken into account for calculating benefits.

v. Schemes without Secondary Information: For schemes where secondary information was not readily available, benefits were calculated based on discussions with implementing agencies and key informants.

To assess significant differences among groups, t-tests were applied whenever possible. The Lorenz curve was utilized to depict income inequalities among scheme beneficiaries. This curve illustrates the cumulative percentage of total income plotted against the cumulative percentage of corresponding beneficiaries. The degree to which the curve deviates below a straight diagonal line indicates the level of inequality in the distribution of schemes among income groups in the village.

4. Results and discussions

4.1. Description of study area

Telangana, situated in southern India, became the country's 29th state in June 2014. With a population of 35,003,674 as per the 2011 Census and a population density of 312 per km², the state is characterized by a significant proportion of disadvantaged sections, as specified by the Constitution of India. Scheduled Tribes (ST) constitute 9.34%, and Scheduled Castes (SC) constitute 15.44% of the total population. More than 55% of the state's population relies on Agriculture &

Allied Sectors for their livelihood.

The formation of Telangana resulted from prolonged struggles for the development of marginalized groups and an inclusive growth vision, aspiring for a "Bangaru Telangana" (Golden Telangana). This vision is rooted in "progress with distributive justice," aligning with the Sustainable Development Goals (SDGs) mission of "leaving no one behind." Following its establishment, the state government initiated various programs and policy announcements, focusing particularly on the welfare of marginalized sections such as ST, SC, BC, and minorities.

Telangana has experienced a Per Capita Income growth rate of 4.6% per year since 2014, surpassing the national average. The state was recognized as one of the best in providing online services in Social Welfare, including health and agriculture, according to a National E-governance assessment (DARPG, 2019). Analyzing the welfare development schemes of this new state provides insights into how these policies align with the SDGs and impact beneficiaries for their socio-economic upliftment and well-being.

For our primary survey at the household level, we chose Emped village, which is among the 32 villages situated in Chityal mandal (comprising 11 mandals in the district) within the Jayashankar Bhupalpally district of Telangana (refer to Map 1). This village serves as a representative example, exhibiting a heterogenous population composed of various caste groups and marked by significant disparities in both income and land ownership distribution.
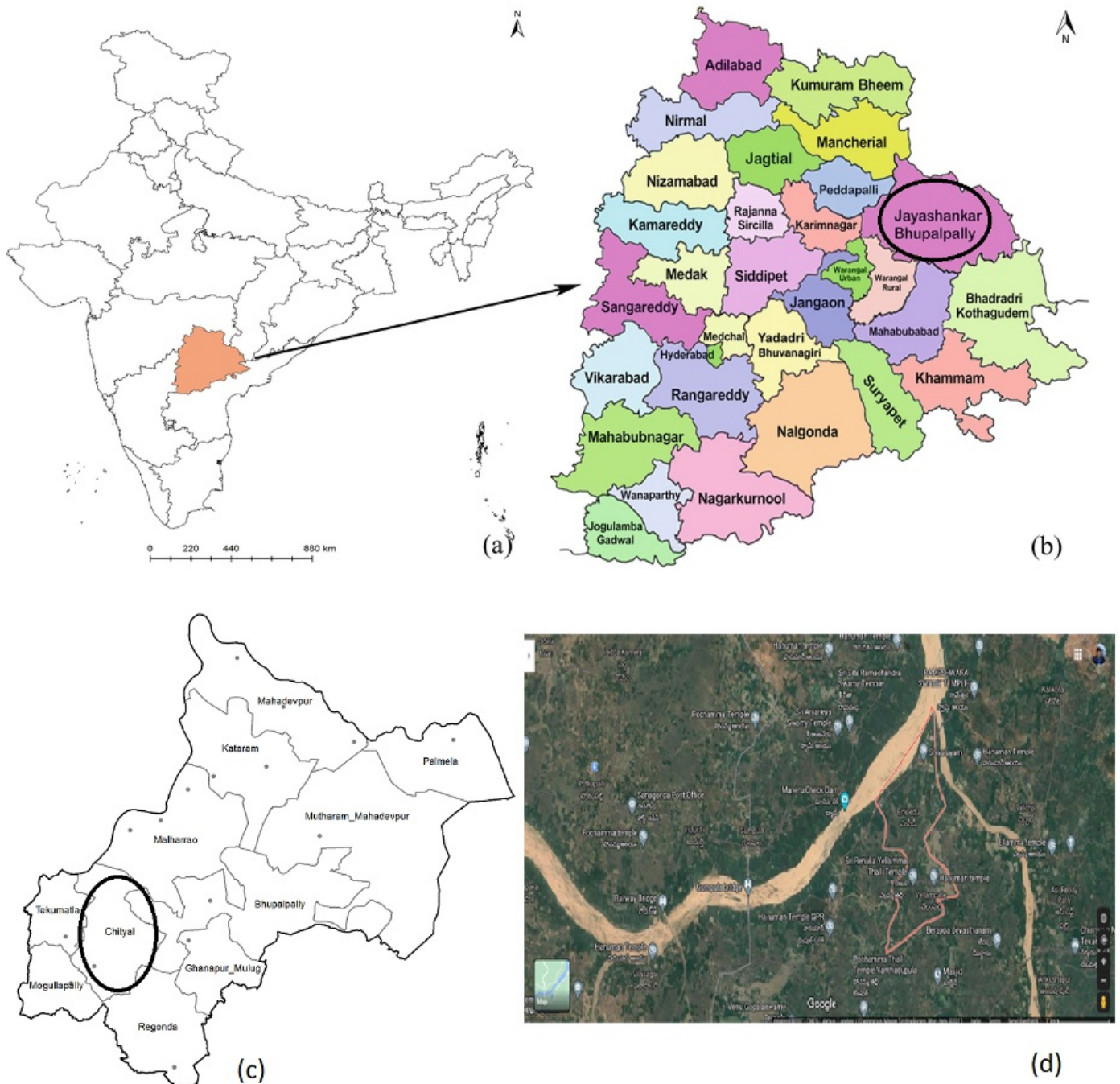
Figure 1. India map indicating Telangana state; 1b:Telangana state indicating Jayashankar Bhupalapally district; 1c: Jayashankar Bhupalapally district indicating Chityal mandal; (1d) Emped village google map, bordered with red lines.

Table 1 presents the socio-economic categorization of households in the Emped village based on caste, landownership, and poverty status. The Government of India classifies its citizens based on social and economic conditions, including Scheduled Castes (SC), Other Backward Class (OBC), Forward Caste (FC), or those not falling into any category. SCs are considered among the most disadvantaged in this classification. The village has an average family size of 3, and the households have an average annual income of Indian Rupees (INR) 60,600 (equivalent to USD 932) per annum. This average annual household income is lower than both the state and national averages, indicating a prevalence of poverty and deprivation among the residents. Approximately 18% of households fall below the poverty line, earning less than 1.9

$PPP per capita per day.

Table 1. Socio-economic categorization of the households in Emped village

Category	No. of households	%age of Households	Average family size	Education of family head (years of schooling)	Average Land owned (acre)	Annual income (INR)	Per capita income (INR)
Social profile: Distribution on the basis of caste							
BC	118	52	4.2	3.6	2.7	2,98,619	71,611
FC	63	28	3.8	5.1	4.4	3,16,143	82,544
SC	47	21	3.6	2.7	1.2	1,88,340	52,028
Total	228	100					
Economic profile: Distribution on the basis of land ownership							
Land less	79	35	3.5	4.4	0.0	1,93,443	54,955
Marginal	46	20	3.8	1.7	1.2	1,98,413	52,769
Small	54	24	4.3	4.8	3.3	3,30,278	76,277
Medium	44	19	4.3	3.2	7.2	3,87,091	90,021
Large	5	2	5.8	7.0	19.8	9,46,000	1,63,103
	228	100					
Distribution on the basis of poverty status							
Above poverty line	188	82	4.5	4.4	3.2	3,29,133	73,797
Below poverty line	40	18	1.6	1.0	1.2	53,225	33,266
Total	228	100	4.0	3.8	2.8	2,80,728	70,891

Source: Data collected and compiled from field survey in Emped Village.

Note: 2. The study was conducted in the year 2017-18. During this period, average exchange rates were INR 20.06=1 $PPP. The 1.9 $PPP per capita per day poverty line is equivalent to INR 14,319.39 per year. Based on that, all households falling below this are classified as Below Poverty Line (BPL) or poor, and those above are classified as Above Poverty Line (APL) or non-poor.

Agriculture constitutes the primary livelihood in the village, with only 21% of families relying on non-farm activities for income. Among the 58% of households engaged in cultivation, approximately 37% owned their farms, while the rest were tenant farmers leasing agricultural land from others for cultivation. Additionally, around 21% of families depended on wage labor from agriculture. The average size of agricultural landholding in the village was 2.14 acres. However, the village exhibited inequality in land ownership, with only about 3% of households reported to have more than 8 acres of cultivated land. The Forward Castes (FCs) owned four times more land than the most socially disadvantaged group, the Scheduled Castes (SCs), indicating a significant disparity. FCs also had more irrigated land holdings compared to the SCs, as expected. This disparity in land ownership correlates with inter-caste income disparities, with FCs being comparatively wealthier and having the highest average income among all social groups in the village.

The main crops grown in the village are paddy and cotton. Paddy is primarily sold at the Minimum Support Price (MSP) in procurement centers, while other crops, including cotton, are generally sold in the Agricultural Produce Market Committee (APMC) market. Farmers purchase paddy seeds from the agriculture department and cotton seeds from the market. Approximately 39% of farmers own bore-wells fitted with electric pumps, primarily used for groundwater irrigation.

4.2. Listing of the Welfare Schemes in the Village and Their Linkages to the SDGs

The United Nations has listed 17 Sustainable Development Goals (SDGs) (refer to Table 3). The schemes currently implemented in the village are comprehensive and feature integrated objectives. Most of these schemes are not targeted toward a specific SDG but instead contribute to a set of interdependent goals. Table 2 provides a detailed overview of all the schemes implemented in the study village in 2017, outlining the eligibility criteria for beneficiary selection and the financial assistance provided to beneficiaries under each scheme. While the government offers numerous schemes, only 29 schemes with at least one beneficiary in the study village are highlighted in the table. Additionally, the table illustrates the interlinkages and notes the SDGs that the schemes aim to achieve.

Table 2. Listing welfare schemes in the study village and its interlinkages with the SDGs

SDGs and linked welfare schemes	Eligibility	Type of assistance	Linkages with the SDGs
Food subsidy (PDS)	All ration cardholders with income under INR 150,000 (=USD 1972)	6 kgs rice per person without any ceiling on the number of members in the family at Re.1 per kg	SDG 2, 1, 10
Gas Subsidy	All households	Provides 12 subsidized LPG cylinders per year	SDG 7, 1, 3
Fertilizer subsidy	All land-owning farmers	Subsidy on buying fertilizers	SDG 2, 1, 10
Employment guarantee (MGNREG)	All able-bodied men and women	Cash for casual labour	SDG 8, 1, 2, 10
Farm Electricity subsidy	All farmers owning own irrigation pumps	100% subsidy	SDG 2, 7, 1, 10
Direct cash transfer to farmers (Rythu Bandhu)	All land-owning farmers	INR 5,000 (=USD 71) per acre per crop season	SDG 2, 1, 10
Free passbook for land	All land-owning farmers	Title Deed issued by the Revenue department containing details of land ownership under Land Records Registration Policy	SDG 1, 2, 10
Toilet construction in house	All BPL households	Financial help to construct latrines at homes (INR 12,000- INR 15,000)	SDG 6, 3, 10
Old age pension	Aged 58 years to 65 years, widowed, destitute, AIDS patients, weavers, and needy tribal people	INR 1000 (USD 15.36) per month	SDG 10, 5, 1
Water harvest structures	All village households	Subsidies for construction of rainwater harvesting structures	SDG 6, 2, 15
Housing subsidy-old	Families belonging to SC, ST, freed bonded labours, and BPL category	Financial assistance and technical help	SDG 11, 10,1

	Category		SDG
Seed Subsidy	All land-owning farmers	50% subsidy on buying seeds	SDG 2, 1, 10
Crop loan waiver scheme	All land-owning farmers	Waiving off all the outstanding institutional agricultural loans up to INR 100000 (=USD 1536)	SDG 2, 1, 10
Mid-day meal scheme school children	Students from Class 1 to 8 (6 to 14 years)	One hot cooked lunch per weekday	SDG 4, 3, 1, 10
Fees reimbursement	Students enrolling into higher education belonging to SC, ST, and BC families.	100 % financial assistance	SDG 4, 1, 10
Housing subsidy	BPL families who are homeless, live in kuccha or rented homes	100% subsidy	SDG 11, 10, 1
Health care subsidy (Aarogyasri)	BPL families	100% subsidy for treatment of identified diseases involving hospitalization, surgeries, and therapies through identified network of health care providers	SDG 3, 10
Child nutrition (ICDS)	Children in the age group of 0-6 years, pregnant women, and lactating mothers	Free immunization, supplementary nutrition, health checkup, referral services, pre-school education (informal) and nutrition and health information	SDG 3, 5,1, 10
Tarpaulin (RKVY)	All land-owning farmers	Subsidy in buying farm machinery	SDG 2, 1, 10
National horticulture mission (NHM)	All land-owning farmers	50% subsidy only on polyhouse construction, partial grants for drip and fogging system, planting material etc.	SDG 2, 1, 10
Assistance to pregnant women (KCR kits)	Pregnant women and new-born babies in cases of institutional births.	Financial assistance of INR 12,000 for baby boys and INR 13,000 for baby girls for natal care. KCR Kit contains baby oil, soaps useful for mother and child, mosquito net, dresses, handbag, toys for child, diapers, powder, shampoo, sarees, towel and napkins, baby bed.	SDG 3, 5
Marriage assistance (Kalyana Lakshmi and shadi mubarak)	Unmarried girls belonging to SC, ST, BC and minority (Muslim) and BPL families.	INR 1,00,116	SDG 5, 10
Chief Minister relief fund	Individuals and families in distress due to natural calamities and major diseases	Depends on claim	SDG 11, 10, 3, 1
Nutrition for mother and child (Aarogy Laxmi)	Pregnant and lactating women	An egg every day for children and pregnant women, one full meal at 35,000 Anganwadi centres in the State, iron and folic acid tablets, health check-ups and immunization	SDG 3, 5
farm implements - NFSM	All land-owning farmers	50% subsidy on agricultural machinery and inputs	SDG 2, 1, 10
National rural Health Mission(NRHM)	All rural population	Accredited Social Health Activists (ASHA) workers especially for women and child	SDG 3, 10
Pension to SHG women	All widows	INR 1000 (USD 15.36) per month	SDG 5, 1, 10
Village tank renovation (Mission Kakatiya)	All farmers using tank irrigation and indirectly for farmers using tube-well irrigation	Funds allocated for renovation of nearby tanks and water reservoir	SDG 2, 1, 6, 10, 15
Distribution of sheep on subsidy	Traditional shepherd community	20 sheep and a ram on 75% subsidy	SDG 2, 1, 10

Source: Compiled by the authors

It is apparent that the majority of welfare schemes align with SDG 1 and SDG 10, focusing on ending poverty and reducing inequality within the country (refer to Table 3). Both poverty and inequality are prevalent issues in India, deeply rooted in historical factors and socio-economic disparities related to land ownership favoring certain castes. Poverty in India is a complex issue, intertwined with historical roots and socio-economic inequality, particularly in the skewed ownership of landholdings in favor of higher castes. Poverty has become a social phenomenon where specific sections of society or social groups struggle to meet their basic life necessities (Hasanuzzaman, 2012).

Numerous poverty reduction schemes in rural India are inherently designed to ensure food security and support agriculture, with 13 schemes directly contributing to SDG 2. Given the elevated levels of poverty, malnutrition, and underemployment, it has become imperative for the government to provide income support through subsidies, create productive employment opportunities, and implement social security schemes in rural India (Maiorano, 2014; Patnaik and Das, 2017; Reddy et al., 2022). Interventions also include development schemes such as health insurance, subsidized treatments, and free education for children, contributing to SDG 3. Additionally, initiatives like surplus land distribution for the landless and subsidies for the purchase of fertilizers, seeds, and farm machinery are aimed at addressing the multifaceted challenges associated with poverty and inequality in the country (Debnath et al., 2018).

Table 3. Mapping SDGs with development and welfare schemes in the study village

SDGs	Goal of the SDGs	Number of schemes that meets this goal
SDG-1	End poverty in all its forms everywhere	26
SDG-2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	13
SDG-3	Ensure healthy lives and promote wellbeing for all at all ages	10
SDG-4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	2
SDG-5	Achieve gender equality and empower women and girls	6
SDG-6	Ensure availability and sustainable management of water and sanitation for all	5
SDG-7	Ensure access to affordable, reliable, sustainable, modern energy for all	2
SDG-8	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	1
SDG-9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	0
SDG-10	Reduce inequality within and among countries	30
SDG-11	Make cities and human settlements inclusive, safe, resilient, and sustainable	3
SDG-12	Ensure sustainable consumption and production patterns	0
SDG-13	Take urgent action to combat climate change and its impacts	0
SDG-14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	0
SDG-15	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	2
SDG-16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels	0
SDG-17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	0

Source: https://sdgs.un.org/goals and compiled by the authors

4.3. Aggregate benefits received from the welfare schemes

Figure 2 illustrates the aggregate benefits received from all schemes, segmented for different social groups, income groups, and land ownership groups. The double-bed room scheme specifically targets homeless and Below Poverty Line (BPL) families, predominantly belonging to Scheduled Castes (SCs) and Scheduled Tribes (STs). The Chief Minister's Relief Fund is allocated under special circumstances, such as accidents or calamities.

The aggregate benefits, excluding the housing subsidy and CM Relief Fund, are higher among Forward Castes (FCs) and Other Backward Classes (OBCs), followed by SCs and STs. However, when factoring in these two schemes, the aggregate benefits for SCs and STs increase significantly. The housing subsidy has particularly benefited the landless and agricultural laborers, who predominantly belong to the most disadvantaged social groups, the SCs and STs.

This finding aligns with earlier studies indicating that the poorest of the poor receive fewer benefits compared to relatively less impoverished households from government schemes (Reddy et al., 2022). Benefits from government schemes tend to increase with the size of landholdings, given factors such as substantial institutional loan waivers, free electricity, and subsidies for seeds and fertilizers, which may not be accessible to landless laborers. However, when considering the housing subsidy and CM Relief Fund, there is no significant difference among different land classes in aggregate benefits. These two schemes appear to act as equalizers, bridging the development assistance gap for the most socioeconomically disadvantaged, such as landless laborers and small landholding households.
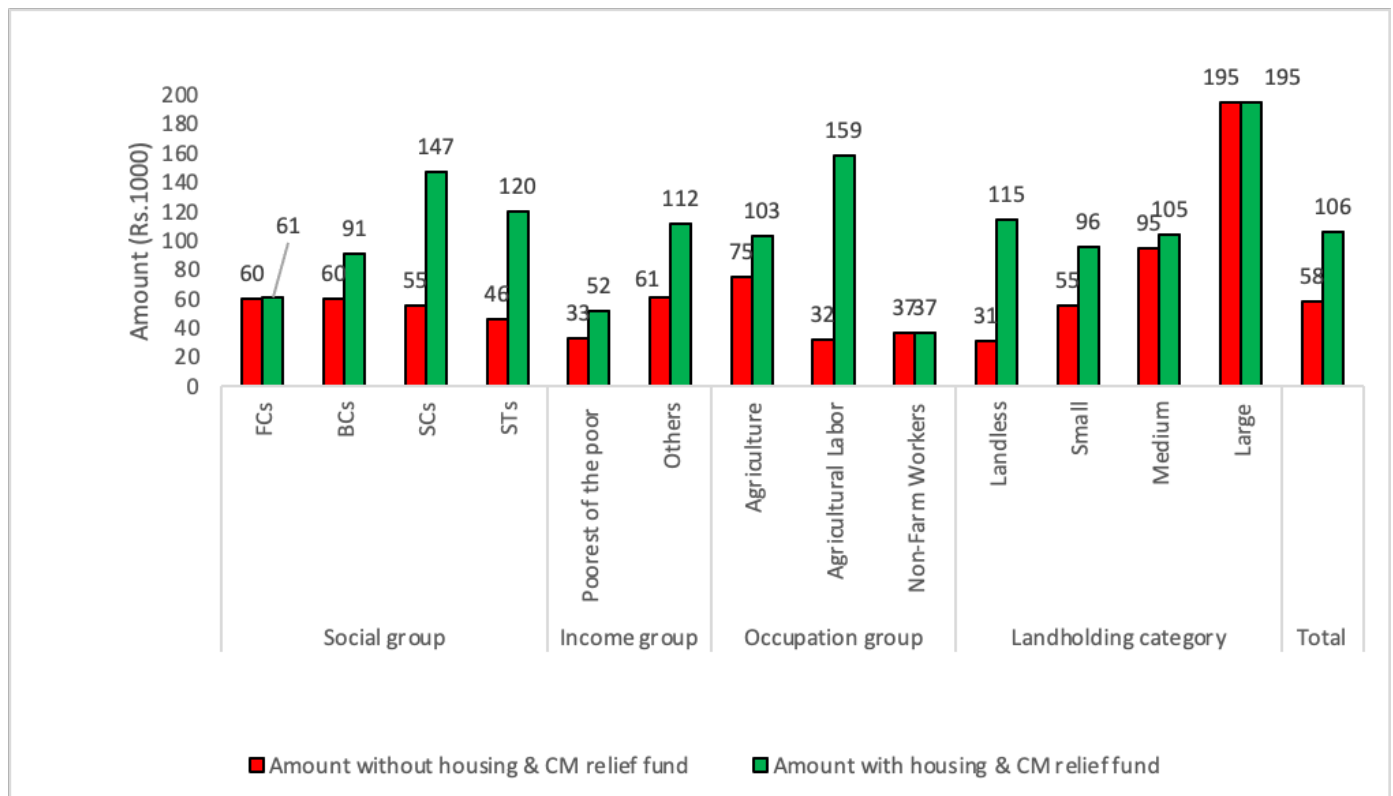

Figure 2. Benefits accrued to different beneficiary groups under different schemes

Source: Data collected and compiled from field survey in Emped Village.

4.3.1. Distribution of benefits by scheme

Among the 287 households in the village, several schemes have gained popularity and are benefiting the majority of households. The Public Distribution System (PDS), gas subsidy, fertilizer subsidy, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 24-hour free electricity for agriculture, input support for farmers, Aasara pensions (old age pensions), rainwater harvest structures, Indira Awaas Yojana (IAY), and seed subsidy are some of the schemes that have widespread adoption in the village. Approximately 90% of village households engage in MGNREGA work during the off-season, and a similar percentage of agricultural households benefit from input and seed subsidies. Most borewell farmers invest personally in well digging, but with free farm electricity, their operational costs are minimal. Farmers also receive subsidies for pipelines, seeds, tractors, and tarpaulins under the National Food Security Mission (NFSM) scheme and the Rashtriya Krishi Vikas Yojana (RKVY) scheme.

Certain schemes, such as the subsidy for double bedrooms, distribution of sheep, farm implements under RKVY, marriage assistance schemes, free health (Aarogyasree), crop loan waiver, and IAY, involve substantial subsidies ranging from Rs.3,00,000 to Rs.5,00,000. In contrast, other groups of schemes, such as fertilizer subsidy, fees reimbursement to students, old-age pensions, KCR-Kits, and Swachh Bharat (open defecation free), provide government support ranging between Rs.10,000 to Rs.20,000 per beneficiary. Another group of schemes offers lower financial assistance, including gas subsidy, seed subsidy, PDS, rainwater harvest structures, distribution of fee passbooks, benefits from working in MGNREGA, mid-day meal scheme, and Integrated Child Development Services (ICDS), with benefits ranging from Rs.4,000 to Rs.10,000 per household.
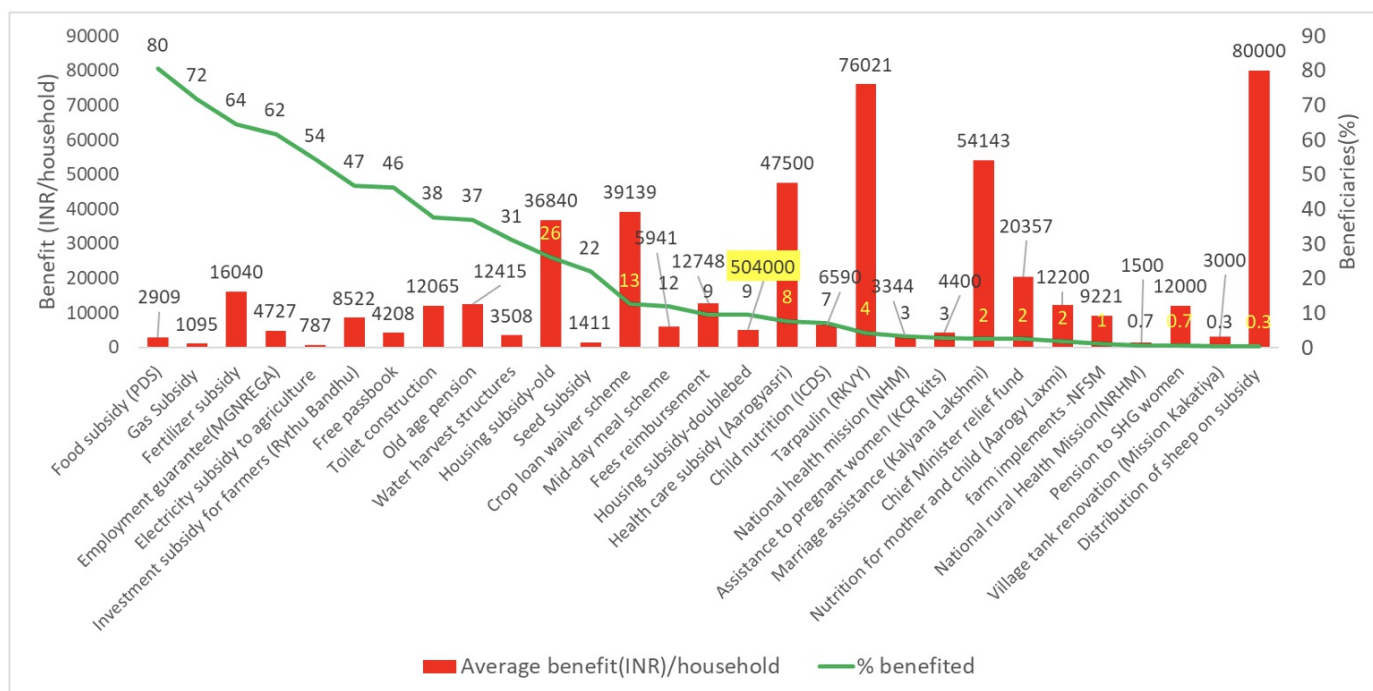

Figure 3. Proportion of beneficiaries and benefits in different welfare schemes in the village

Analyzing the schemes in connection with the Sustainable Development Goals (SDGs) (refer to Figure 4), approximately

one-fifth of the beneficiaries are aimed at achieving SDG 1 and 10. This alignment is because most of the schemes are designed to combat poverty (SDG 1), and the reduction of poverty inherently contributes to diminishing inequality within the country (SDG 10). Given that agriculture is the primary livelihood in Indian villages, roughly one-fourth of the beneficiaries are targeted to contribute to achieving Goal 2, which revolves around food security and sustainable agricultural development. The third priority is attributed to Goal 3 (health and well-being) and Goal 7 (access to modern energy). Notably, the state government's provision of free 24-hour electricity to all farmers with irrigation pumps has facilitated widespread access to this scheme among tube-well owning households without significant difficulty.
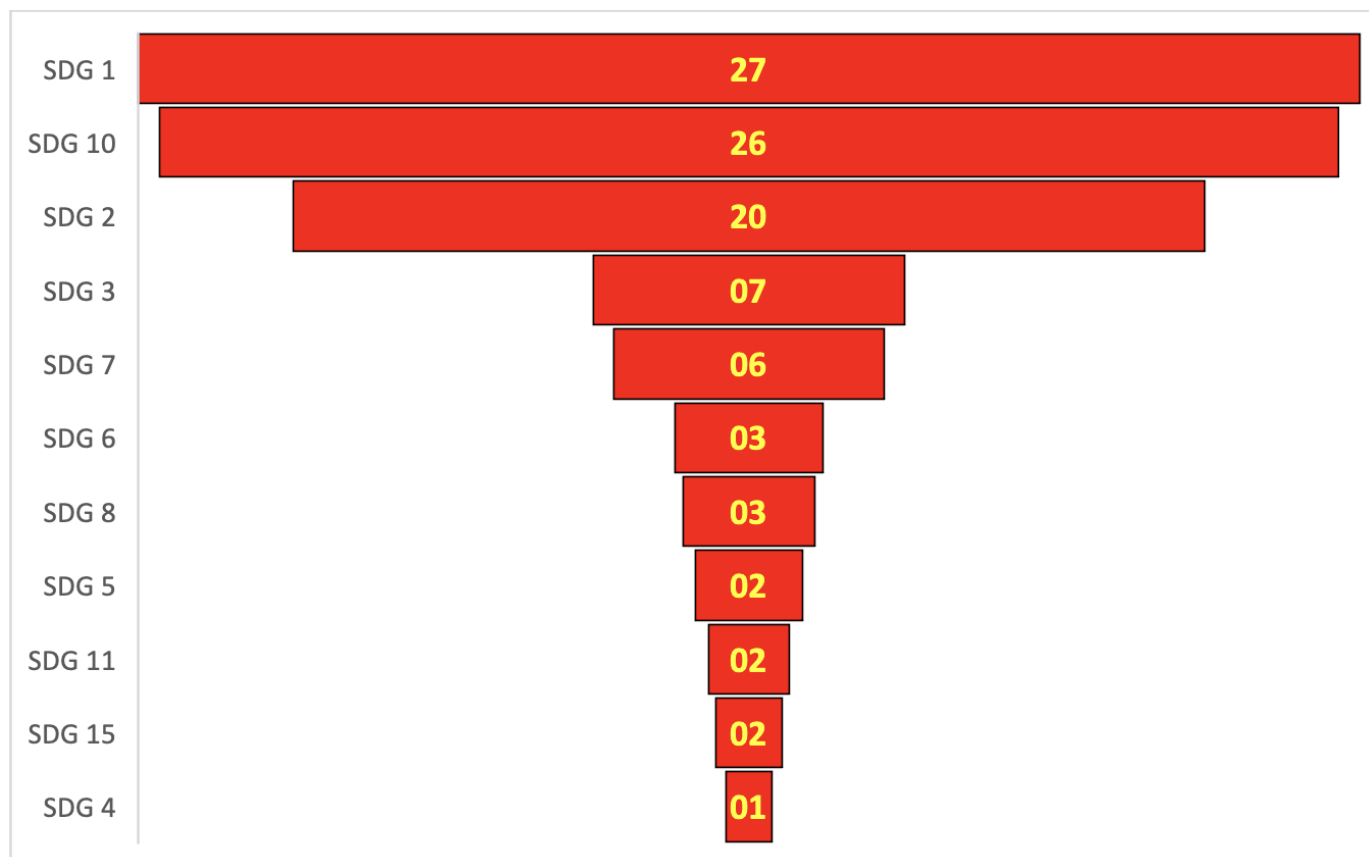

Figure 4. Proportion of beneficiaries in the welfare schemes and its linkages to the SDGs

Source: Data collected and compiled from field survey in Emped Village.

4.3.2. Distribution of benefits by landholding class

The analysis reveals that there is no significant difference in the benefits received by farmers based on landholding size class, except for two schemes: the fee passbook and the Rashtriya Krishi Vikas Yojana (RKVY) scheme (refer to Table 4). These two schemes have primarily benefited large landholding households with more than 6 acres of land. The issuance of Pattadar passbooks or Fee passbooks to every agricultural landowner in Telangana State, as mandated by the Telangana Rights in Land and Pattadar Pass Books Act, 2020, may explain the notable benefits received by large landowners. It is plausible that larger landowners possess more parcels of land, resulting in significant advantages from this scheme.

Furthermore, the RKVY scheme provides agricultural inputs at subsidized rates, and larger farmers have benefited by purchasing tractors through this scheme. Most farm machinery, despite being subsidized, remains economically viable only for larger farms due to their expensive nature and operational costs.

Table 4. Average benefits received by households under different schemes by Landholding groups

Schemes	Land less	Small	Medium	Large
	Average amount (in Rs.) of benefit			
Total number of households	**(97)**	**(126)**	**(58)**	**(6)**
Food subsidy (PDS)	2,511 (78.4)	3,012 (80.2)	3,299 (81.0)	3,241 (66.7)
Gas Subsidy	815 (62.9)	933 (75.4)	1,015 (89.7)	900 (83.3)
Fertilizer subsidy	12,434 (91.8)	10,952 (5.6)	25,814 (8.6)	39,312* (16.7)
Employment guarantee (MGNREGA)	4,300 (42.3)	4,577 (61.1)	4,126 (58.6)	3,150 (50.0)
Farm Electricity subsidy	668 (9.3)	548 (76.2)	768 (79.3)	730 (83.3)
Direct cash transfer to farmers (Rythu Bandhu)		4,599 (59.5)	13,481 (67.2)	26,333 (83.3)
Free passbook for land	1,667 (3.1)	2,426 (69.8)	5,936 (67.2)	6,400* (83.3)
Toilet construction in house	12,000 (34.0)	12,120 (32.5)	12,053 (31.0)	12,000 (16.7)
Old age pension	12,360 (45.4)	12,649 (50.0)	12,375 (27.6)	12,000 (25.4)
	3,329	3,433	3,546	4,000

Water harvest structures	3,323 (22.7)	3,433 (29.4)	3,340 (31.0)	4,000 (33.3)
Housing subsidy for old	34,429 (12.4)	33,220 (29.4)	33,700 (31.0)	
Seed Subsidy	1,102 (9.3)	1,152 (25.4)	1,912 (36.2)	1,230 (10.0)
Crop loan waiver scheme	80,000 (1.0)	29,375 (12.7)	41,765 (29.3)	74,500 (33.3)
Mid-day meal scheme school children	5,354 (11.3)	5,235 (11.9)	5,333 (5.2)	
Fees reimbursement	4,067 (3.1)	8,063 (12.7)	23,500 (13.8)	
Housing subsidy	504,000 (14.4)	504,000 (6.3)	504,000 (1.7)	
Health care subsidy (Aarogyasri)	60,000 (12.4)	43,571 (10.3)	35,000 (17.2)	100,000 (16.7)
Child nutrition (ICDS)	6,814 (8.2)	7,230 (7.1)	2,,500 (3.4)	
Tarpaulin (RKVY)	1,167 (3.1)	1,250 (3.2)	113,438 (6.9)	450,000* (16.7)
National health mission (NHM)		3,157 (5.6)	4,000 (3.4)	
Assistance to pregnant women (KCR kits)	2,000 (4.1)	2,000 (1.6)		
Marriage assistance (Kalyana Lakshmi and shadi mubarak)	50,000 (1.0)	50,600 (4.0)	51,000 (1.7)	

Chief Minister relief fund	25,000 (1.0)	14,625 (1.6)	29,500 (6.9)	
Nutrition for mother and child (Aarogy Laxmi)	12,250 (3.1)	12,000 (0.8)		
farm implements -NFSM		9,416 (1.6)	8,832 (1.7)	
National rural Health Mission(NRHM)	2,000 (1.0)			
Pension to SHG women	12,000 (1.0)	12,000 (0.8)		
Village tank renovation (Mission Kakatiya)		3,000 (0.8)		
Distribution of sheep on subsidy	80,000 (1.0)			

Note: *indicates significant differences in means at 5% level by using t-test; figures in parenthesis in the top row were a number of households in each group; percentage of beneficiary households is given in parenthesis.
Source: Data collected and compiled from field survey in Emped Village, 2017

4.3.3. Distribution of benefits by economic groups

The analysis indicates that the poorest of the poor receive more benefits primarily through the Public Distribution System (PDS) scheme, which provides essential food items such as rice, pulses, and edible oils, along with old age pensions. However, they have been less benefited from most of the other schemes (refer to Table 5). The limited benefits from other government schemes may be attributed to factors such as the lack of physical assets like land and the inability to work under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) due to old age.

Similar studies have also observed that many development schemes often do not reach the poorest of the poor because they come with preconditions related to asset ownership, which the poorest individuals lack due to their impoverished conditions (Reddy et al., 2022). Consequently, these programs frequently fail to target the intended beneficiaries, resulting in exclusion errors. Addressing this issue requires an urgent reorientation of schemes to make them more

accessible to the asset-less and elderly populations, ensuring that the poorest individuals can avail themselves of the benefits.

Table 5. Beneficiate received by the households covered under different schemes by income class of beneficiaries

Scheme	Poorest of the households (28)		Other households (259)	
	% of households benefited	Average of amount benefited (INR)	% of households benefited	Average of amount benefited (INR)
Food subsidy (PDS)	85.7*	1,833	79.9	3,033
Gas Subsidy	42.9	1,705	74.9*	1,057
Fertilizer subsidy	35.7	7,056	67.6*	16,554
Employment guarantee(MGNREGA)	35.7	7,460	64.5*	4,563
Farm Electricity subsidy	21.4	528	57.9*	797
Direct cash transfer to farmers (Rythu Bandhu)	14.3	9,300	50.2*	8,498
Free passbook for land	7.1	1,250	50.6*	4,253
Toilet construction in house	32.1	12,111	38.2	12,061
Old age pension	78.6*	11,773	32.4	12,583
Water harvest structures	32.1	3,222	30.9	3,540
Housing subsidy-old	17.9	29,000	27	37,400
Seed Subsidy	21.4	1,089	22	1,445
Crop loan waiver scheme	3.6	10,000	13.5*	39,971
Mid-day meal scheme school children	3.6	4,000	12.7*	6,000
Fees reimbursement	3.6	12,000	10.0*	12,782
Housing subsidy	3.6	50,400	10.0*	5,04,000
Health care subsidy (Aarogyasri)	10.7	36,667	7.3	49,211
Child nutrition (ICDS)	0	0	7.7	6,590
Tarpaulin (RKVY)	7.1	1,250	3.9	90,975
National health mission (NHM)	3.6	3,000	3.1	3,388
Assistance to pregnant women (KCR kits)	0	0	3.1	4,400
Marriage assistance (Kalyana Lakshmi and shadi mubarak)	0	0	2.7	54,143
Chief Minister relief fund	32.1	20,357	30.9	19,583
Nutrition for mother and child (Aarogy Laxmi)	0	0	1.9	12,200
farm implements -NFSM	0	0	1.2	9,221
National rural Health Mission(NRHM)	3.6	1,000	0.4	2,000
Pension to SHG women	3.6	12,000	0.4	12,000
Village tank renovation (Mission Kakatiya)	0	0	0.4	3,000
Distribution of sheep on subsidy	0	0	0.4	80,000

Note: *indicates significant differences in means at 5% level

Source: Data collected and compiled from field survey in Emped Village, 2017

The distribution of scheme beneficiaries and their income is illustrated using the Lorenz curve (Figure 5), providing insights into the inequality in subsidy distribution across different income categories in the village. Notably, schemes like gas subsidy and food subsidy exhibit less unequal distribution, as they are availed of by a large majority of households regardless of their income levels. In contrast, agricultural schemes such as loan waivers and direct cash transfers to farmers, along with the housing subsidy scheme, demonstrate a higher degree of unequal distribution.

While the housing subsidy scheme is designed for the homeless, it is primarily accessed by the poor and landless individuals. On the other hand, loan waivers and direct cash transfers to farmers predominantly benefit relatively better-off families who own farmland. This highlights the complexity of subsidy distribution across various schemes and their implications for income inequality within the village.
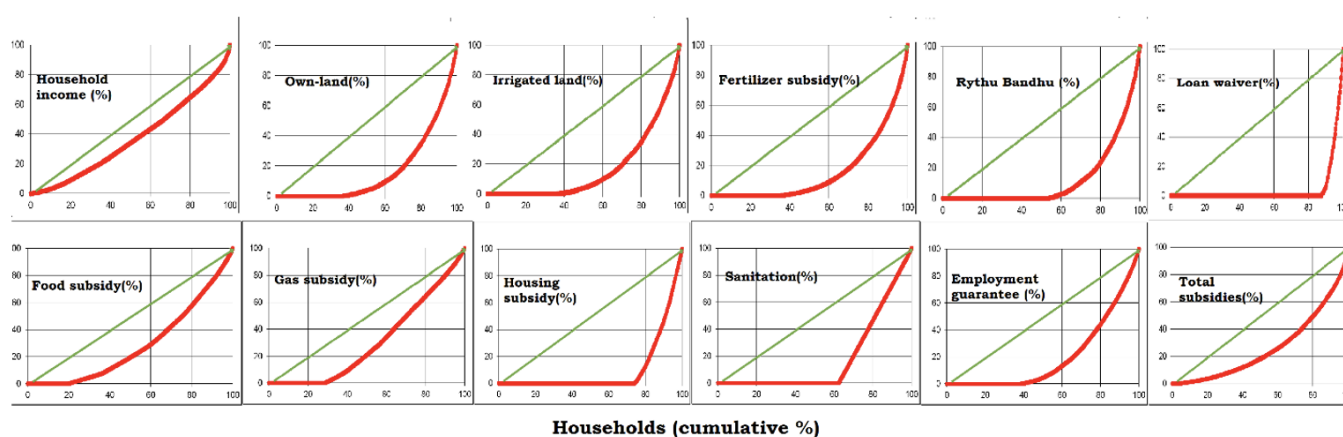

Figure 5. Distribution of income and its relation to number of beneficiary households

4.3.4. Distribution of benefits by social group

The analysis reveals no significant difference among social groups in terms of the number of beneficiaries across various schemes, except for the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which benefits Scheduled Tribes (STs) more than Forward Castes (FCs). This discrepancy is attributed to a higher number of unemployed and landless individuals seeking casual labor in the village, a demographic more prevalent among STs.

Certain schemes, such as water harvest structures, Indira Awaas Yojana (IAY) houses, and the mid-day meal scheme, have a higher number of beneficiaries among Scheduled Caste (SC) and ST households, as these schemes are specifically targeted toward these groups. SC households receive more benefits from schemes like fees reimbursement to students, double-bed room, horticultural schemes, and marriage assistance. These variations highlight the targeted nature of certain schemes toward specific social groups based on their needs and vulnerabilities.

Table 6. The average benefits received by households under different schemes by caste

Schemes	FCs (25)	BCs (165)	SCs (83)	STs (14)
Food subsidy	2559 (80%)	2929 (84.2%)	2908 (72.3%)	3259 (85.7%)
Gas Subsidy	1578 (88.0%)	922 (67.9%)	1260 (72.3%)	986 (85.7%)
Fertilizer subsidy	23631 (60.0%)	17933 (65.5%)	10110 (66.3%)	17171 (50.0%)
Employment guarantee(MGNREGA)	**5991 (44.0%)**	**4395 (59.4%)**	**4936 (66.3%)**	**5269 (92.9%*)**
Farm Electricity subsidy	687 (44.0%)	775 (53.9%)	854 (60.2%)	582 (42.9%)
Direct cash transfer to farmers (Rythu Bandhu)	**12433 (60.0%*)**	**9158 (46.7%)**	**6206 (43.4%)**	**4467(42.9%)**
Free passbook for land	**6923 (52.0%*)**	**4563 (48.5%)**	**2731 (42.2%)**	**1800 (35.7%)**
Toilet construction in house	12333 (24.0%)	12000 (37.0%)	12114 (42.2%)	12167(42.9%)
Old age pension	12462 (52.0%)	12118 (41.2%)	13364 (26.5%)	12000 (21.4%)
Water harvest structures	**3520 (20.0%)**	**3568 (27.9%)**	**3397 (40.9%*)**	**3750(28.6%)**
Housing subsidy-old	**40000 (12.0%)**	**30043 (28.5%)**	**52800 (24.1%)**	**35000 (35.7%*)**
Seed Subsidy	1807(28.0%)	1568 (22.4%)	915 (15.7%)	1058 (42.9%)
Crop loan waiver scheme	**52500 (24.0%*)**	**39389 (10.9%)**	**33545 (13.3%)**	**16000 (7.1%)**
Mid-day meal scheme school children	**0 (0%)**	**6571 (8.5%)**	**5333 (21.7%*)**	**7000 (14.3%)**
Fees reimbursement	**0 (0%)**	**10808 (8.5%)**	**14864 (15.7%*)**	**0 (0%)**
Housing subsidy	**504000 (0%)**	**504000 (6.1%)**	**504000 (18.1%*)**	**504000 (14.3%)**
Health care subsidy (Aarogyasri)	50000 (4.0%)	46071 (8.5%)	50000 (8.4%)	0 (0%)
Child nutrition (ICDS)	8250 (8.0%)	5728 (6.7%)	5900 (6.0%)	11400 (14.3%)
Tarpaulin (RKVY)	**1250 (4.0%)**	**113438* (4.9%)**	**1125 (2.4%)**	**1250 (7.1%)**
National health mission (NHM)	5000 (4.0%)	3750 (1.2%)	2933 (7.2%)	0 (0%)
Assistance to pregnant women (KCR kits)	**0 (0%)**	**1350 (1.2%)**	**5300 (6.0%*)**	**6000 (7.1%*)**
Marriage assistance (Kalyana Lakshmi and shadi mubarak)	0 (0%)	56750 (2.4%)	50667 (3.6%)	0 (0%)
Chief Minister relief fund	18000 (4.0%)	13500 (1.8%)	29500 (2.4%)	25000 (7.1%)
Nutrition for mother and child (Aarogy Laxmi)	0	12000 (1.2%)	12333 (3.6%)	0
farm implements -NFSM	0	9221 (1.8%)	0 (0%)	0
National rural Health Mission(NRHM)	0	2000 (0.6%)	1000 (1.2%)	0
Pension to SHG women	0	0 (0%)	12000 (1.2%)	12000 (7.1%)
Village tank renovation (Mission Kakatiya)	0	3000 (0.6%)	0 (0%)	0
Distribution of sheep on subsidy	0	0	80000 (1.2%)	0

*Note: *indicates significant differences in means at 5% level by using t-test; figures in parenthesis % beneficiaries in total households in each group*

Source: Data collected and compiled from field survey in Emped Village, 2017

The analysis indicates that crop loan waiver schemes and direct cash transfer disproportionately benefit Forward Caste (FC) households compared to other socially disadvantaged groups. This trend aligns with findings from a similar study with farm-level data, which concluded that direct cash transfer schemes have contributed to increased productivity and farm income among farmers. The scheme's effectiveness stems from its relatively straightforward beneficiary calculation

method, relying on preexisting land records infrastructure.

However, during focus group discussions (FGDs), farmers expressed concerns about the limited provision for grievance redressal. Some participants mentioned facing delays in updating land records, preventing them from receiving the financial transfer. It was observed that many small farmers did not possess the new Patta Passbook, or they obtained it late, making them unable to avail the benefits of this scheme. Similar studies have highlighted that programs involving direct cash transfers often face challenges in reaching socially marginalized individuals due to the demanding documentation process, which many may not fulfill.

Nevertheless, there is optimism that since the scheme links welfare distribution to land records, it may incentivize people to update individual records. This, in turn, could compel government officers to maintain more accurate land records, with potential long-term impacts on land revenue contributions.

4.4. The overall impact of welfare schemes

The analysis reveals that most of the benefits received from agricultural schemes, such as fertilizer subsidy, free electricity, sheep distribution, and rainwater harvesting structures (SHC), were primarily spent on their intended purposes. In contrast, benefits from social welfare schemes like gas subsidy, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), and old-age pension were predominantly used for consumption (Figure 6). This distinction in spending patterns emphasizes the different nature and objectives of agricultural and social welfare schemes, with agricultural benefits being directed toward enhancing farm-related activities and social welfare benefits contributing to household consumption needs.
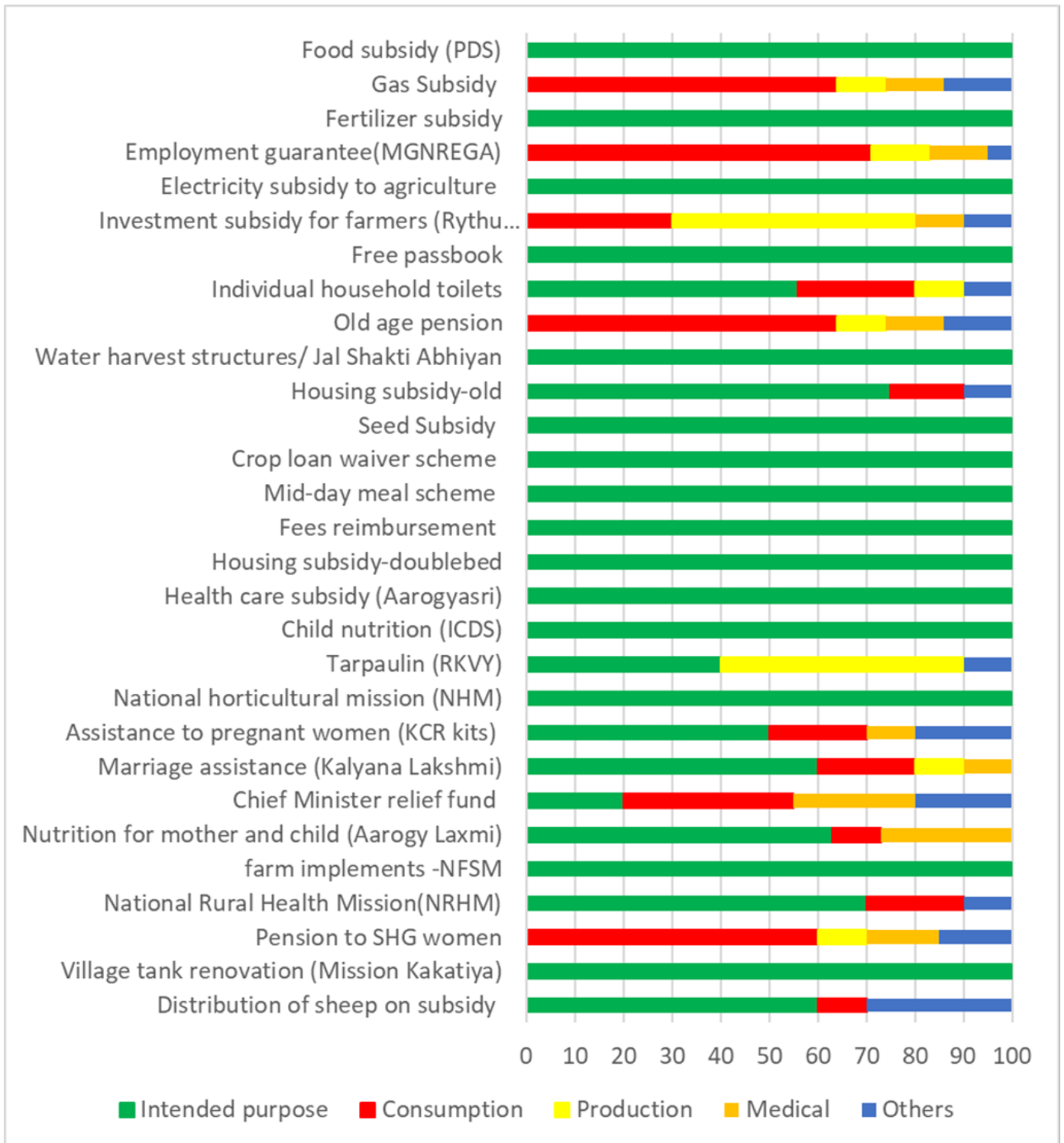
Figure 6. Use of benefits received from the government schemes

Source: Data collected and compiled from field survey in Emped Village, 2017

The analysis suggests that several central government schemes, such as the Pradhan Mantri Fasal Bima Yojana (PMFBY), the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), and the Soil Health Card (SHC), are not optimally utilized in the village. Connectivity issues contribute to this problem, as the village is located in a remote area with limited and underdeveloped transport facilities. Agricultural officers and supporting staff often rely on local seed and fertilizer

dealers to reach farmers and raise awareness about the schemes, rather than directly interacting with them. Additionally, the village's remote location, coupled with the impact of Maoist movements, deters agricultural officers from visiting to collect soil samples, preventing villagers from benefiting from the SHC scheme.

The relationship between household income and total benefits received follows an inverted U-shape pattern (Figure 7), while a positive relationship exists between landholding and benefits from government schemes (Figure 8). This is expected, as landownership typically correlates positively with household income. Similar observations have been made in other studies, indicating a large exclusion error, particularly among the bottom 20% of households. In other words, schemes designed to reduce rural poverty are being utilized more by relatively affluent households in the village.
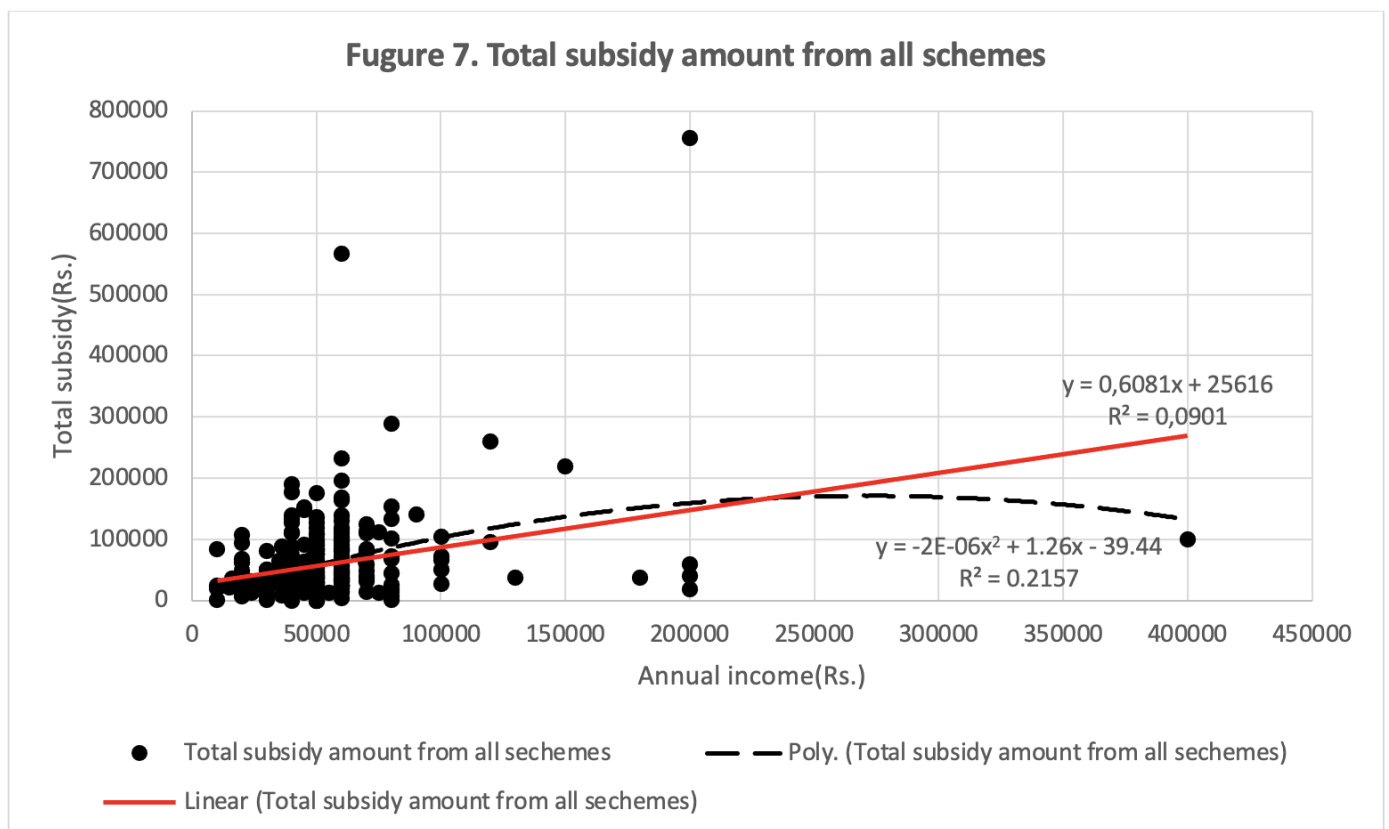

Figure 7. Total subsidy amount from all schemes

Source: Data collected and compiled from field survey in Emped Village, 2017
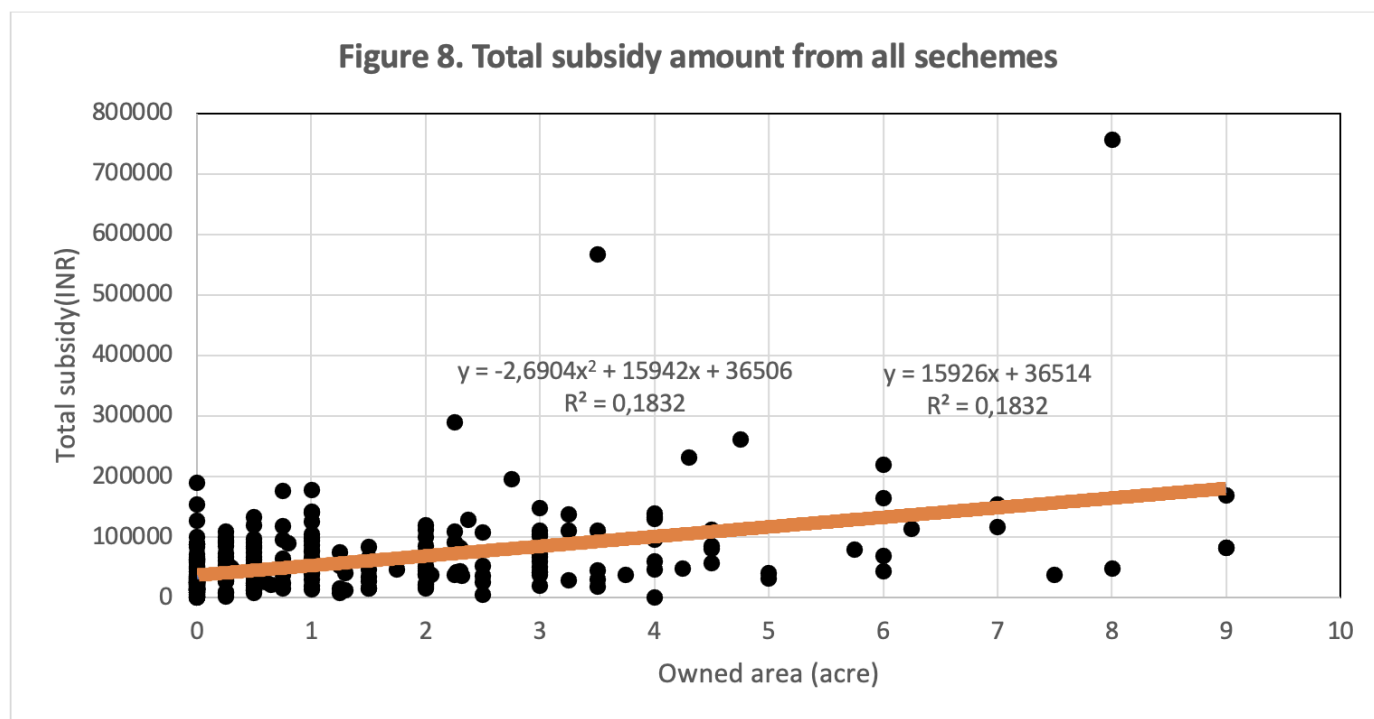
Figure 8. Total subsidy amount from all schemes

Source: Data collected and compiled from field survey in Emped Village, 2017

Exclusion errors in targeting, as observed in the analysis, can have long-term implications, contributing to increased vertical inequalities between the poor and non-poor populations. In unequal rural societies, programs aimed at benefiting the poor need to be reoriented and redesigned to minimize such exclusion in targeting. In the Indian context, schemes exclusively targeted for socially disadvantaged groups, such as Scheduled Castes (SCs) and Scheduled Tribes (STs), have proven to be more effective in reaching the poor.

Empirical evidence indicates that in rural areas of India, SCs and STs have substantially lower wealth and assets compared to Forward Castes (FCs). Additionally, since caste and class often overlap, targeting the socially disadvantaged groups also effectively targets the poorest of the poor. Therefore, addressing exclusion errors through targeted programs for marginalized communities can contribute to more equitable and inclusive development outcomes.

5. Discussion and Conclusion

Indeed, India's efforts to address poverty and inequality play a crucial role in the global pursuit of Sustainable Development Goals (SDGs). As the second most populous country, the success of India's development schemes has significant implications for achieving SDG targets worldwide. Efficient implementation with minimal exclusion errors and broad beneficiary coverage is essential for India to meet SDG targets in a timely manner.

The success of India in achieving the SDGs would signify progress for a substantial portion of the global population. Therefore, it is crucial for India to develop effective methods for not only implementing but also monitoring and measuring

the progress of SDGs. Collaboration, innovation, and sustained efforts in areas such as social protection, poverty alleviation, and inclusive development are essential for India to serve as a positive model and contribute meaningfully to the global SDG agenda.

Your study has effectively identified a category of welfare schemes known as Conditional Cash Transfers (CCTs) and highlighted their presence in the study village and in India as a whole. CCTs are designed to provide financial assistance to individuals or households upon meeting specific conditions or co-responsibilities (Lakshmi & Paul 2017). The study has outlined several schemes, including direct cash transfer to farmers, crop loan waivers, fees reimbursement for higher education, marriage assistance schemes, CM relief fund, and housing schemes, as falling under this category.

While CCTs are often considered effective in targeting the poorest segments of the population, your study sheds light on challenges related to their implementation. The inability of some households to fulfill the conditions or meet the co-responsibilities poses a barrier to accessing the benefits of these schemes. Issues such as lack of bank accounts, early marriage, limited educational opportunities, and insufficient collateral for loans are identified as factors preventing certain households, particularly from socially disadvantaged groups like SCs, from availing these benefits.

The study also draws attention to the exclusionary nature of some schemes, particularly the crop loan waiver, which may primarily benefit landowners while leaving out landless laborers and tenant farmers. This exclusion, especially in a context of skewed land distribution favoring higher castes, raises concerns about social and economic disparities. Additionally, the mention of farmer suicides among tenant farmers and landless laborers underscores the importance of addressing these inequalities in welfare schemes to ensure more inclusive and equitable outcomes (The Hindu 2018).

The study provides a nuanced perspective on the effectiveness and challenges associated with cash transfers, distinguishing between conditional cash transfers (CCTs) and unconditional cash transfers (UCTs) (Gulati, 2018). The analysis reveals the complexities in reaching the intended beneficiaries and the impact on various segments of the population.

Conditional Cash Transfers (CCTs):

Inclusivity Challenges: The study highlights challenges related to the fulfillment of conditions or co-responsibilities attached to CCTs, leading to exclusion for certain households, especially from socially disadvantaged groups.

Exclusionary Nature: The mention of exclusionary practices in schemes like crop loan waivers, which may primarily benefit landowners, emphasizes the need for a more inclusive approach in designing and implementing these schemes.

Unconditional Cash Transfers (UCTs):

Targeted Programs: UCTs, such as elderly and widow pensions, KRC kits for newborns and mothers, and public works programs (MGNREGS), are acknowledged for reaching poor households without co-responsibilities.

Accessibility Concerns: The study points out that while these UCTs are reaching poor households, certain limitations exist, such as only able-bodied individuals being able to participate in public works programs.

Cash Transfers as Safety Nets: Impact on Marginalized Farmers: The study highlights that cash transfers, particularly for smaller farmers from marginalized castes, serve as a vital safety net, especially in situations where the quality of government-assigned land may be inadequate for agricultural production.

This dual perspective on both the positive impact and challenges associated with cash transfer programs contributes valuable insights to the ongoing discourse on the design and implementation of welfare schemes. It underscores the importance of a nuanced and inclusive approach to ensure that the benefits of such programs reach those who need them the most.

The fourth category consisted of conditional in-kind transfers (CITs), which required some level of compliance. An example of this is the school feeding programs, such as mid-day meals, that offer on-site meals to enrolled children. The fifth category included unconditional in-kind transfers (UITs), involving the distribution of food and other in-kind assistance without any corresponding co-responsibility. An illustration of this is the provision of fortified food supplements to malnourished pregnant women and children, as seen in programs like AL and ICDS, receiving positive feedback from beneficiaries. Telangana has been surpassing central government norms by allocating additional state funds for nutrition among vulnerable populations. The establishment of the Telangana Foods company exemplifies a distinctive model dedicated to meeting the needs of government food distribution programs. This innovative approach highlights the state's commitment to bolstering the entire value chain, specifically targeting women and children from economically disadvantaged households (Parasar & Bhavani, 2018).

The sixth category encompasses the Public Distribution System (PDS), a significant in-kind transfer program that has proven successful in the village. Through the PDS, the Indian government ensures a minimum support price for specific agricultural products. It procures these products and subsequently releases them at subsidized rates to families below the poverty line.

The seventh category includes programs that offer subsidized consumer goods, particularly popular for agricultural input subsidies such as seeds, fertilizers, and energy. These subsidies are accessible to all households, with the exception of free electricity for irrigation pump sets, which is exclusively available to large farmers capable of installing tubewells on their farms. It's noteworthy that while cash transfers aim to enhance farmers' welfare by providing income support, input subsidization schemes have the potential to enhance the overall productivity of the agricultural sector.

Although further research is necessary to comprehend the intricate and context-specific interactions between household welfare benefits and social protection schemes, this study holds significance for programming purposes as it relies on primary data collected at the household level from beneficiaries. Addressing implementation issues is crucial, necessitating enhanced monitoring and accountability in the supply chain to prevent leakages. Targeting emerges as a key challenge for the successful execution of welfare programs. Social protection initiatives can provide additional support to vulnerable population groups only when exclusion errors are minimized.

The effectiveness of any government welfare scheme is measured by the extent to which benefits reach the poorest households. Focus group discussions reveal various challenges in the implementation of welfare schemes, particularly

concerning the identification of beneficiaries, delays in subsidy disbursement, underutilization of subsidized inputs, and misallocation of resources. These issues could be mitigated by raising awareness about the schemes through frequent visits by local officers and sensitization in gram sabhas. Engaging local educated youth and input dealers in appraising and assisting villagers with the application process and required documents, in a timely manner, could prove beneficial. Improving road infrastructure would address connectivity issues and facilitate the better dissemination of welfare benefits to villagers. It is evident that with successful targeting, these schemes can serve as effective tools for poverty alleviation.

Based on our findings, it is advisable to consider the integration of these welfare schemes to achieve more favorable outcomes. For example, incorporating investments in irrigation and soil/water conservation, such as tank rejuvenation, into the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGREGS) could provide crucial support for food production. Programs should be strategically designed to enhance synergies across different interventions, such as using MGREGS to improve infrastructure and service delivery for the Integrated Child Development Services (ICDS) program. Promoting cross-program synergies can lead to integrated and interdependent results.

Additionally, it's crucial to recognize that cash transfer schemes should be adequately complemented with other measures, including subsidies, crop loans, and minimum support prices. Despite their drawbacks, these measures bring their own benefits to agricultural welfare. A holistic approach that combines various interventions can contribute to more effective and sustainable outcomes in the realm of welfare programs.

The findings of this study carry significant implications for various stakeholders, including government authorities, executives, and beneficiaries. It offers valuable insights into the importance of developing guidelines to ensure the effective implementation of policies at the grassroots level, aligning them with the achievement of Sustainable Development Goals (SDGs). These guidelines can assist village governments in formulating more targeted policies tailored to each village's unique environmental and social conditions.

Furthermore, the study opens up a new avenue for research by utilizing data from the village level, providing a better understanding of SDG achievement at the country level. By measuring SDG achievement through village-level beneficiaries and disbursements in monetary units, the study introduces a novel approach. This underscores the need for more village-level studies to comprehensively grasp the nuances of welfare scheme implementation, including coverage, execution, and, most importantly, its role in contributing to the achievement of the SDGs. Such research endeavors can contribute significantly to refining and enhancing the effectiveness of development initiatives.

References

- Akenroye TO, Nygård HM, Eyo A. (2018). Towards implementation of sustainable development goals (SDG) in developing nations: A useful funding framework. Int Area Stud Rev. 21(1):3-8.
- The Hindu (2018). Most farmers who ended life were tenants: study Available at: https://www.thehindu.com/news/cities/Hyderabad/most-farmers-who-ended-life-were-tenants-study/article24175942.ece

- Lakshmi, V. V., & Paul, M. M. (2017) Effectiveness of social security networks-Myths and realities. J. Soc. Sci, 8(2), 374-378.

- Parasar, R., & Bhavani, R. V. (2018). Supplementary nutrition Programme under ICDS: case study of Telangana and Tamil Nadu. LANSA Working Paper Series, Volume 2018 No 30

- Directorate of economics and statics Telangana government. Annual reports of government of 2015-2022.

- DARPG. (2019). *National E Governance Service Delivery Assessment* *https://nesda.gov.in/publicsite/NeSDA_2019_Final_Report.pdf*

- D Amitha, C., Karthikeyan, C., & Nirmala Devi, M. (2021). Assessing the Impact of Rythu Bandhu Scheme in Warangal District of Telangana. Asian Journal of Agricultural Extension, Economics &Sociology 39(11): 335-340,

- Allen C, Metternicht G, Wiedmann T. (2018). Prioritising SDG targets: Assessing baselines, gaps and interlinkages. Sustain Sci. 14(2):421-438.

- Aubron, C., Lehoux, H., & Lucas, C. (2015). Poverty and inequality in rural India. EchoGéo, 32, in press. doi:10.4000/echogeo.14300.

- Bali Swain R, Yang-Wallentin F. (2020). Achieving sustainable development goals: predicaments and strategies. Int J of Sust Dev World Ecol. 27(2):96-106.

- Bednarska-Olejniczak, D.; Olejniczak, J.; Svobodová, L. How a Participatory Budget Can Support Sustainable Rural Development—Lessons From Poland. Sustainability 2020, 12, 2620.

- Beisheim M, H Lokken, aus dem Moore N, Pintér L, Rickels W. (2015). Measuring sustainable development: How can science contribute to realizing the SDGs? Working paper FG 8. Stiftung, Wissenschaft, und Politik, Berlin, Germany.

- Bhamra A, Shanker H, Niazi Z, Sharma B, Krishnaswamy S, Mehta R. (2015). Achieving the sustainable development goals in India. Development Alternatives Group. Accessed http://www.devalt.org/images/L3_ProjectPdfs/AchievingSDGsinIndia_DA_21Sept.pdf

- Breuer A, Janetschek H, Malerba D. (2019). Translating sustainable development goal (SDG) Interdependencies into policy advice: Sustainability. Bonn, Germany: MDPI German Development Institute (DIE).

- CAG. (2019). Report on Preparedness for Implementation of SDGs tabled in Parliament. Office of The Comptroller and Auditor General of India. [Accessed 2020 April 29]. https://cag.gov.in/sites/default/files/press_release/Press_8_of_2019.pdf

- Collste D, Pedercini M, Cornell SE. (2017). Policy coherence to achieve the SDGs: Using integrated simulation models to assess effective policies. Sustain Sci. 12:921–931.

- Costanza R, Daly L, Fioramonti L, Giovannini E, Kubiszewski I, Mortensen LF, Pickett KE, Ragnarsdottir KV, De Vogli R, Wilkinson R. (2016). Modelling and measuring sustainable wellbeing in connection with the UN Sustainable Development Goals. Ecol Econ. 130:350-355.

- De Miguel Ramos, C.; Laurenti, R. (2020). Synergies and Trade-offs among Sustainable Development Goals: The Case of Spain. Sustainability 2020, 12, 10506.

- Debnath, D., Babu, S., Ghosh, P., & Helmar, M. (2018). The impact of India's food security policy on domestic and international rice market. *Journal of Policy Modeling, 40*, 265-283. doi:10.1016/j.jpolmod.2017.08.006.

- Duggirala, A. & Kumar, R. (2021). The welfare state in India: from segmented approach to systems approach in social

protection. *Indian Journal of Human Development, 15*(3), 547-556.

- Ekholm, T., Krey, V., Pachauri, S., & Riahi, K. (2010). Determinants of household energy consumption in India. Energy Policy, 38(10), 5696-5707.

- Espey J et al. (2015). Data for development: A needs assessment for SDG monitoring and statistical capacity development. New York: Sustainable Development Solutions Network.

- Fukuda-Parr S. (2016). From the Millennium Development Goals to the Sustainable Development Goals: shifts in purpose, concept, and politics of global goal setting for development. Gend Dev. 24(1):43-52.

- Ghosh N, Saha R, Bhowmick S. (2019). SDG Index and ease of doing business in India: A Sub-national study. Observer Research Foundation (No. 199).

- Hasanuzzaman, M. (2012). Challenging the injustice of poverty: Agendas for inclusive development in South Asia. *Journal of South Asian Development, 7(2),* 203-206.

- Hörisch, J. (2021). The relation of COVID-19 to the UN sustainable development goals: implications for sustainability accounting, management and policy research. Sustainability Accounting, Management and Policy Journal. Volume 12 Issue 5. DOI 10.1108/SAMPJ-08-2020-0277

- International Labour Organization. (2012). *Social protection floor.* https://www.ilo.org/secsoc/areas-of-work/policy-development-and-applied-research/social-protection-floor/lang--en/index.htm

- International Labour Organization. (2017). *World social protection report 2017–19: Universal social protection to achieve the sustainable development goals.* International Labour Office. https://www.ilo.org/global/publications/books/WCMS_604882/lang--en/index.htm

- Jain G, Revi A, Koduganti J, Abbas A. (2018). Localising SDGs for India. Indian Institute of Human Settlements, Bengaluru.

- Kaul, T. (2018). Household responses to food subsidies: evidence from India. Economic Development and Cultural Change, 67(1), 95-129.

- Khalid AM, Sharma S, Dubey AK. (2019). Data Gap Analysis, indicator selection, and index development: A case for developing economies. Soc Indic Res. 148(3):893-960.

- Khalid, AM, Sharma S, Dubey AK. (2018). Developing an indicator set for measuring sustainable development in India. Nat Resour Forum. 42(3):185-200.

- Leal Filho W, Tripathi SK, Andrade Guerra, JBSOD, Giné-Garriga R, Orlovic Lovren V, Willats J. (2018). Using the sustainable development goals towards a better understanding of sustainability challenges. Int J of Sust Dev World Ecol. 26(2):179-190.

- Lu Y, Nakicenovic N, Visbeck M, Stevance A-S. (2015). Five priorities for the UN Sustainable Development Goals. Nature. 520(7548):432-433.

- Maiorano, D. (2014). The politics of the Mahatma Gandhi National Rural Employment Guarantee Act in Andhra Pradesh. *World Development, 58*, 95-105. doi:10.1016/j.worlddev.2014.01.006.

- Mensah J, Casadevall SR. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. Cog Soc Sci. 5(1).

- Nilsson M, Griggs D, Visbeck M. (2016). Map the interactions between sustainable development goals. Nature.

534(7607):320-332.

- NITI Aayog. (2019). *SDG India: Index and dashboard 2019–20.* New Delhi: NITI Aayog. https://www.niti.gov.in/sdg-india-index-dashboard-2019-20.

- O'Neill DW, Fanning AL, Lamb WF, Steinberger, JK. (2018). A good life for all within planetary boundaries. Nat Sustain 1:88-95.

- OECD. (2021). *The impact of COVID-19 on health and health systems.* Organisation for Economic Development and Cooperation. https://www.oecd.org/health/covid-19.htm

- Patnaik, U., & Das, P. K. (2017). Do development interventions confer adaptive capacity? Insights from rural India. *World Development, 97*, 298-312. doi:10.1016/j.worlddev.2017.04.017.

- Raszkowski, A.; Bartniczak, B. (2019). On the Road to Sustainability: Implementation of the 2030 Agenda Sustainable Development Goals (SDG) in Poland. Sustainability **2019**, 11, 366.

- Reddy, A. A., Rani, C. R., Cadman, T., Reddy, T. P., Battarai, M., & Reddy, A. N. (2016). Rural Transformation of a Village in Telangana, a Study of Dokur since 1970s. International Journal of Rural Management, 12(2), 143-178.

- Reddy, A. A. (2017). The case of improved Samba Mahsuri. Economic and Political Weekly, 52(39).

- Reddy, A.A.; Sarkar, A.; Onishi, Y. (2022). Assessing the Outreach of Targeted Development Programmes—A Case Study from a South Indian Village. Land **2022**, 11, 1030. https://doi.org/10.3390/land11071030

- Rani, C. R., Das, A., Reddy, A. A., Reddy, C. P., & Sneha, A. V. (2021). Mapping Welfare and Development Programmes with Sdgs in Indian Village. In *2021 Conference, August 17-31, 2021, Virtual* (No. 315279). 31st Annual Conference of International Association of Agricultural Economists. DOI: 10.22004/ag.econ.315279

- Sachs D. J. (2012). *From Millennium Development Goals to Sustainable Development Goals,* The Lancet, Volume 379, No. 9832, (pp. 2206–2211) doi: http://dx.doi.org/10.1016/S0140-6736(12)60685-0

- Saikia N, Kulkarni PM. (2017). An assessment of India's readiness for tracking SDG targets on health and nutrition. Observer Research Foundation (No. 108).

- Sharma V. (2015). Are BIMARU states still Bimaru? Econ Polit Wkly. 50(18):58-63.

- Siphambe, H., Bakwena, M., Setlhare, L., Kolobe, M., Oageng, I., Setlhare, K., & Motswagae, T. (2020). Sustainable Development Goals, Botswana: A Case Study of Gabane Village in Kweneng District.

- Suryanarayana MH, Agrawal A, Prabhu KS. (2016). Inequality-adjusted Human Development Index: States in India. Indian J of Hum Dev. 10(2):157-175.

- The World Bank. (2020). *The global economic outlook during the COVID-19 pandemic: A changed world.* https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world

- United Nations Development Programme. (2016). Human development report. Technical Report. New York: UNDP.

- Vandemoortele J. (2018). From simple-minded MDGs to muddle-headed SDGs. Dev Stud Res. 5(1):83-89.

- Zacharias, Ajit, and Vamsi Vakulabharanam. (2011). "Caste stratification and wealth inequality in India." *World Development* 39, no. 10 (2011): 1820-1833.