iDE Powering entrepreneurs to end poverty.

IDinsight

Improving Sanitation Subsidy Targeting: Comparing Methods for Identifying Vulnerable Households in Rural Ethiopia

Research Brief, May 2025

Executive Summary

Introduction

Targeted sanitation subsidies can play a transformative role in increasing access to improved latrines and reducing open defecation among the poorest households. However, a persistent challenge is identifying eligible households in a way that is fair, accurate, and cost-effective.

This research brief, developed by IDinsight in partnership with iDE, compares three targeting approaches: 1) **Community-Based Health Insurance (CBHI) exemption lists**, 2) the **Poverty Probability Index (PPI)**, and 3) **food insecurity measures** to evaluate their effectiveness in identifying vulnerable households in rural Ethiopia. The analysis draws on data from more than 3,200 households across 104 villages in the Wolaita Zone and assesses each method's accuracy, overlap, and operational feasibility.

Key Findings

- The three approaches capture different segments of the poor population with limited overlap. Only 22% of CBHI-exempt households were classified as poor by PPI, and 71% of PPI-poor households were not on CBHI lists.
- **CBHI** appears to capture the most visibly vulnerable households, such as those experiencing acute hardship, social isolation, and food insecurity. The **PPI**, which relies on asset-based indicators, may miss households facing short-term shocks or less visible forms of vulnerability.
- Importantly, this does not suggest that either method is ineffective in targeting poor households. Instead, **CBHI and PPI reflect different dimensions of poverty**. CBHI, grounded in community knowledge, often prioritizes households experiencing immediate or observable hardship, such as illness, disability, or lack of social support, that may not be captured by standardized poverty metrics. PPI offers more consistency and scalability but may overlook marginalized groups.
- **Food insecurity indicators**, especially whether households went a day without eating or experienced hunger due to a lack of money, were helpful in identifying ultra-poor households that may fall outside standard poverty lists.
- **Operational challenges with CBHI**, including outdated or incomplete records, were mitigated through local verification processes.

Recommendations

To improve the accuracy and equity of subsidy targeting:

1. **Use CBHI exemption lists as the primary targeting mechanism.** CBHI is low-cost, widely recognized, and aligned with existing government systems. It captures critical forms of deprivation often missed by statistical poverty tools.
2. **Supplement CBHI with two simple food insecurity questions** to reduce exclusion errors. Specifically, identify households that report either (a) going a whole day without eating or (b) experiencing hunger due to lack of money in the past four weeks. These indicators highlight extreme deprivation and can help reach those who may be left out of CBHI.
3. **Incorporate latrine ownership status** to ensure subsidies are directed toward households lacking access to improved sanitation.
4. **Local leaders and health workers should be involved in verifying CBHI lists before rollout** to minimize inclusion errors and build community trust in the process.
5. **Where resources are limited**, **prioritize CBHI-exempt households who are also food insecure or have larger household sizes.** This ensures the most vulnerable benefit first when subsidy pools are constrained.

Conclusion

A combined targeting approach grounded in existing administrative systems, strengthened by simple household-level indicators, and validated through community engagement offers a practical, scalable, and context-appropriate strategy for identifying poor households in sanitation programs. The findings and recommendations presented here are relevant for Ethiopia and other low-resource settings aiming to design more equitable and effective WASH subsidy schemes.

Motivation

Targeted sanitation subsidies can increase latrine ownership and reduce open defecation among the poorest and most vulnerable households (Guiteras, Levinsohn, & Mobarak, 2015). However, a persistent challenge in the sector is how to accurately and affordably identify who should receive these subsidies. While targeting has long been a central concern in social protection and poverty reduction programs, there is comparatively little evidence in the sanitation sector on the performance of different targeting approaches - particularly about accuracy, inclusion and exclusion errors, and scalability (USAID, 2021; Schnitzer & Stoeffler, 2021).

Subsidy programs in the Water, Sanitation and Hygiene (WASH) sector often define eligibility based on a household's latrine ownership, poverty status, or broader social vulnerability. While latrine status is relatively easy to verify and directly linked to program objectives, identifying poor or vulnerable households is more complex. Measures of poverty and vulnerability can be subject to local interpretation and political influence, and even widely used government systems may miss large shares of the population in need (WSSCC, 2019; Van Domelen, 2007).

In many settings, implementers face a trade-off: government-administered identification systems, like Ethiopia's Community-Based Health Insurance (CBHI) exemption lists, are low-cost and scalable but may suffer from high targeting errors - mainly exclusion of poor households who fall outside administrative records. More data-intensive approaches, like proxy means testing (PMT) using the Poverty Probability Index (PPI) or measures of food insecurity, can better capture household-level vulnerability but are costlier to implement and harder to scale (Poulin et al., 2021; Hillebrecht et al., 2020; Alatas et al., 2012).

Understanding these trade-offs is essential to designing a subsidy program that is both equitable and feasible. This brief draws on recent sanitation program data from Ethiopia to explore three key questions:

- How do different poverty targeting methods - CBHI, PPI, and food insecurity - compare to identifying vulnerable households?
- What are the implications of each method in terms of inclusion and exclusion errors?
- What can we infer about the feasibility and potential scalability of these targeting approaches, and which combination may be most suitable in the Ethiopian context?[1]

[1] Data were collected in a single region, which may limit the generalizability of the findings to other parts of Ethiopia.

This brief contributes to ongoing efforts to strengthen national and sub-national sanitation policy by examining how different targeting mechanisms perform in identifying vulnerable households. While previous reviews have highlighted the risks of targeting errors and underscored the importance of community acceptability (Alatas et al., 2012; Trémolet et al., 2010), few sanitation programs have systematically assessed multiple targeting approaches using real-world data. Drawing on recent evidence from Ethiopia, this analysis provides comparative insights into the accuracy, scalability, and practical trade-offs of common poverty-targeting strategies - offering lessons relevant to Ethiopia and other low-resource settings grappling with similar questions of equitable subsidy design.

Methods

Study Overview

IDinsight, in partnership with iDE, is currently conducting a randomized controlled trial (RCT) to assess the impact of poverty-targeted subsidies on latrine uptake and sanitation outcomes in rural Ethiopia. As part of this RCT, a comprehensive household listing/baseline exercise was conducted across 104 villages in the Wolayita Zone of the South Ethiopia Region. Data collection took place over three weeks in October 2024, covering the three woredas of Bayra Koyisha, Duguna Fango, and Kindo Koyisha. In total, 3,211 households were surveyed.

The household listing collected poverty and welfare indicators to determine eligibility for a sanitation subsidy program, focusing on two key criteria: (1) latrine ownership status and (2) household poverty status. Villages were then randomized into treatment and control groups to measure the effects of subsidy delivery on latrine uptake and usage.

Figure 1: Map of the study area showing the distribution of study woredas within the Wolayita Zone, South Ethiopia Region; red dots indicate the woredas included in the evaluation.

Eligibility Criteria for Subsidies

Subsidy eligibility for households in this study was determined by two criteria: 1) latrine ownership status and 2) household poverty or vulnerability status. Households were considered eligible for the subsidy only if they met both criteria.

1. Latrine ownership status

Eligibility based on latrine ownership status required that a household lacked access to basic sanitation, which is defined as not owning and using an improved toilet facility that is not shared with other households. This definition aligned with standards from the WHO/UNICEF Joint Monitoring Programme (JMP)[2] and guidance from Transform WASH. We used

[2] According to the JMP, "unimproved" latrines are "pit latrines without a slab or platform, hanging latrines or bucket latrines." Meanwhile, "improved" latrines are "those designed to hygienically separate excreta from human contact" and comprise three categories: "limited" (improved facilities shared between two or three households), "basic" (improved facilities not shared with other households), and "safely managed" (improved facilities not shared with other households, and where excreta are safely disposed in situ or treated offsite) (WHO & UNICEF, 2023).

household-level latrine data collected during the baseline listing and classified sanitation status according to JMP criteria to apply these standards.

A latrine was considered "improved" and therefore rendered the household ineligible if it met all of the following conditions:

- It was not shared with other households;
- The pit was fully covered, with a single drop hole;
- The area surrounding the drop hole (approximately a 30 cm radius) was constructed with washable materials, such as concrete, bricks, stone, fiberglass, ceramic, metal, or durable plastic.

The latrine ownership status was selected because it is widely recognized as a practical and verifiable approach to targeting sanitation subsidy programs (Trémolet et al., 2010; USAID, 2021).

2. Household poverty or vulnerability status

Eligibility based on poverty or vulnerability status primarily relied on Community-Based Health Insurance (CBHI) exemption lists as the default targeting approach. This method aligned with guidance from the Federal Ministry of Health (FMoH), which emphasized that subsidies should reach households identified as poor and vulnerable through existing social protection schemes. According to the National Sanitation Subsidy Protocol (FMoH, 2022), CBHI exemption (granted to households unable to pay contributions) is a proxy for poverty. The use of this existing system was also intended to support the scalability of the subsidy program.

However, acknowledging previous experience by Transform WASH, which suggested limitations and potentially high inclusion errors, solely relying on CBHI lists, the study collected data using the Poverty Probability Index (PPI) in all study villages. The PPI served as a primary point of comparison to the CBHI approach and would be considered for supplementing or adjusting criteria if CBHI-based targeting resulted in unacceptably high targeting errors. Furthermore, two food insecurity indicators were collected during the household listing exercise. These were included as a potential means to distinguish a sub-population of "most vulnerable" households facing acute consumption needs,[3] informing a decision on whether to offer a higher subsidy discount to this subset of the households.

a. CBHI Exemption Lists

The Government of Ethiopia's Community-Based Health Insurance (CBHI) scheme exempts specific low-income households from premium payments. These exemptions are determined at the kebele level, based on community-level assessments of household needs. While no nationally documented standard for exemption exists, common criteria include lack of land or livestock, advanced age or illness, and extreme poverty (Bantie et al., 2020; Transform WASH, 2023). Because local health authorities already maintain these lists, they are widely viewed as a scalable and low-cost targeting tool (USAID, 2021).

[3] For the purposes of the subsidy RCT, households experiencing food insecurity in the treatment villages were given a 100% subsidy on the monetary value of the product. They were still required to contribute in-kind via labor and installation costs.

b. Poverty Probability Index (PPI)

The PPI is a 10-question, survey-based tool designed to estimate the probability that a household falls below a specified poverty line. It relies on observable indicators such as household assets, housing materials, education level, and employment and has been widely used in the WASH and social protection sectors (USAID, 2019; Hillebrecht et al., 2020). The PPI used in this study is specific to the Ethiopian context.[4] While the PPI often delivers more accurate and comparable poverty estimates than community-based methods (Alatas et al., 2012; Premand & Schnitzer, 2021), it requires additional data collection, making it more resource-intensive than administrative targeting.

In our study, we classified households as "poor" if their poverty likelihood score was 51% or higher, indicating a ≥51% likelihood of being below the poverty line

c. Food Insecurity Measures

Food insecurity measures were included as a potential means of identifying the "most vulnerable" households within the group already identified as eligible based on primary criteria like CBHI exemption and PPI. We included questions adapted from the Household Food Insecurity Access Scale (HFIAS) to identify households that went a whole day without eating or lacked the means to purchase food within the past four weeks. Such measures are beneficial for identifying ultra-poor households who may fall through the cracks of more traditional poverty assessments (WSSCC, 2019; Schnitzer & Stoeffler, 2021). However, food insecurity data is typically not collected at scale and may vary by season or local context.

Table 1: Summary of targeting approaches

Targeting Approach	Description	Strengths	Limitations
CBHI Exemption Lists	Community-determined exemptions from health insurance premiums based on perceived vulnerability	Low-cost, already in use by local authorities, scalable	Criteria are not standardized; prone to local bias, outdated records, or inconsistent implementation across kebeles/woredas

[4] It was created by Innovations for Poverty Action and its indicators are based on data from the Ethiopia Socioeconomic Survey 2015/16, which was produced by the Central Statistical Agency of Ethiopia.

Poverty Probability Index (PPI)	Survey tool estimating poverty likelihood based on household assets and demographics	Objective, comparable across contexts, widely validated	Requires additional data collection; more resource-intensive
Food Insecurity Measures	Identifies households experiencing recent food shortages using tools like HFIAS	Highlights ultra-poor households often missed by other methods	Data not routinely collected; sensitive to seasonal variation

Key Findings

1. Household Sanitation Status

At baseline, most households do not have access to improved sanitation. According to the WHO/UNICEF Joint Monitoring Programme (JMP) sanitation classification ladder, only 7% of households used a basic latrine or an improved facility that was not shared with other households. Notably, no households had access to safely managed sanitation, which includes the safe disposal or treatment of excreta.

The majority of households (85%) relied on unimproved sanitation facilities, such as pit latrines without a slab or platform, which do not adequately separate human waste from human contact. In addition, 1% of households used improved latrines that were shared with others, placing them in the limited category. A further 7% of households reported practicing open defecation, with no access to any sanitation facility.

These findings underscore a critical gap: while latrine coverage may appear high at first glance, the quality, safety, and sustainability of existing facilities remain very low. With more than 90% of households relying on either unimproved, shared, or no sanitation at all, there is a strong rationale for targeted sanitation subsidies and infrastructure support to promote the adoption of improved and safely managed sanitation solutions. A breakdown of household sanitation status is provided in Table 2 below.

Table 2: Household sanitation status at baseline (JMP Classification)

Sanitation status (JMP)	% of households
Open defecation	7%
Unimproved	85%
Limited	1%
Basic	7%
Safely Managed	0%

Note: *Sanitation status figures were derived from* ***household-level baseline data*** *using JMP classification standards, not national JMP data.*

2. Poverty Identification Across Targeting Methods

Different targeting methods identify varying proportions of households as poor. Using the Community-Based Health Insurance (CBHI) exemption lists, 32% of households were classified as poor.[5] In comparison, 23% met the Poverty Probability Index (PPI) threshold (≥51% likelihood of being below the poverty line), and 17% were identified as food insecure. This variation suggests that each method captures a different subset of the population, likely reflecting different dimensions of vulnerability. Notably, there was minimal overlap between the groups identified by each method, underscoring their distinct targeting profiles. Table 3 summarizes the proportion of households identified as poor by each method.

Table 3: Proportion of households identified as poor by different targeting methods

Poverty Measure	% of Households Identified as Poor
CBHI-exempt	32%
PPI-poor (≥51% poverty likelihood)	23%
Food insecure	17%

3. Socioeconomic and Sanitation Characteristics by Targeting Method

Across most indicators, households identified as poor by CBHI, PPI, or food insecurity appear more economically and socially vulnerable than those not flagged by these methods. For instance, these households tend to have larger household sizes, higher dependency ratios (more children under 14), and a higher likelihood of experiencing food insecurity or going a whole day without eating in the previous month. Employment patterns also suggest greater vulnerability, with higher unemployment rates or informal work.

In terms of sanitation, poor households show slightly worse outcomes: open defecation is more common, latrines are more often shared, and facilities are less likely to meet improved

[5] The 32% CBHI exemption rate reported here is based on household survey data and kebele-level exemption lists collected during fieldwork in selected rural kebeles of Wolaita Zone. This figure may appear higher than national averages due to localized targeting or more complete records. According to an official letter from the Federal Ministry of Health (Ref: E/M/H/1012/04/2024, dated September 9, 2024), the proportion of CBHI-exempt households is estimated at 24% in rural areas and 16% in towns. The higher local figure may reflect local poverty concentration or administrative variations in exemption classification. For the purposes of this study, subsidy eligibility was defined as meeting both of the following criteria: (1) lacking access to a basic improved latrine and (2) being listed as CBHI-exempt and other poverty indicators, such as meeting the PPI threshold or being food insecure.

standards (e.g., fully covered pits). Notably, households identified by the food insecurity criterion show the highest levels of deprivation across several dimensions.

Table 4 presents descriptive statistics comparing households identified as poor by each method (separately) against those identified by none. This breakdown allows a more precise assessment of how each method corresponds with key socioeconomic and sanitation indicators.

Table 4: Socioeconomic and sanitation characteristics by poverty targeting method

Variable	Mean, CBHI-Eligible	Mean, PPI 51% and Above	Mean, Food Insecure	Mean, None of the former
Household head is Female	0.30	0.25 *	0.36 **	0.29
Respondent's age	41.02 ***	40.54 ***	42.02	43.20
Household Size is 4 or less	0.44 *	0.03 ***	0.47	0.47
Household Size is 5 to 6	0.28	0.27 *	0.26 *	0.30
Household Size is 6 or more	0.29 ***	0.70 ***	0.27 **	0.22
HH members 14 years of age or below	2.10 ***	2.65 ***	2.13 ***	1.95
HH is member of PSNP	0.23 **	0.21	0.31 ***	0.19
HH has close family members and/or friends who support them financially and/or in kind	0.03 ***	0.07 ***	0.05 ***	0.14
Probability of Poverty Based on PPI Score	0.37 ***	0.62 ***	0.42 ***	0.31
Land ownership	0.94 **	0.97	0.97	0.96
Cattle ownership	0.75 ***	0.84 ***	0.72 ***	0.91
No employment	0.16 ***	0.14 **	0.30 ***	0.10
Self-employed	0.77 ***	0.79 **	0.64 ***	0.83
Part-time employment	0.01 ***	0.02	0.02	0.02

Full-time employment	0.06	0.05	0.04	0.04
Open defecation	0.10 ***	0.08	0.10 ***	0.06

*Note: The p-value symbols in the table are when the mean is different from None of the former: as follows: '***' for p ≤ 0.01, '**' for 0.01 < p ≤ 0.05, and '*' for 0.05 < p ≤ 0.10. No symbol denotes p > 0.10.*

4. How Does PPI Compare to CBHI-Exemption in Terms of Targeting?

The baseline data reveal minimal overlap between households identified as poor by our two primary targeting measures: CBHI exemption status and the Poverty Probability Index (PPI). Among all CBHI-exempt households, only 22% were classified as poor using the PPI. Assuming the PPI provides a more reliable benchmark for identifying poor households, this suggests a potential inclusion error of 78% - that is, CBHI may be wrongly including a significant number of households that are not considered poor by PPI standards. Conversely, among households classified as poor by PPI, only 29% were also CBHI-exempt, implying a potential exclusion error of 71% for CBHI. Out of the 509 households who were deemed food insecure, about half were also CBHI-exempt (50.6%).

Table 5: Cross-classification of households by CBHI exemption status and PPI poverty status

	CBHI Poor	Not CBHI Poor
PPI Poor	202	487
Not PPI Poor	732	1519

- **Inclusion Error**: 732 / (732 + 202) = **78%**
- **Exclusion Error**: 487 / (487 + 202) = **71%**

The high exclusion error is understandable (CBHI appears to focus on the most acutely poor, particularly those with visible vulnerabilities such as chronic illness, disability, or extreme destitution), as perceived by community stakeholders. These criteria, while valuable, likely miss households that fall below the poverty line on economic indicators but do not present as visibly poor.

However, the high inclusion error (CBHI identifying many households not considered poor by PPI) raises a valid concern. This discrepancy reflects the fundamental differences in what each method captures. The PPI is an objective proxy means test (PMT), a tool built on

quantifiable economic indicators such as asset ownership and housing characteristics. The Ethiopia-specific PPI used in this study was developed using data from the Ethiopia Socioeconomic Survey (ESS) 2018/2019, a nationally representative dataset. PMT-based methods, such as the PPI, are more accurate for targeting economic poverty than community-based targeting methods (CBT), which are more susceptible to social biases or local politics (Coady et al., 2004; Alatas et al., 2012).

The interpretation does not suggest that CBHI targeting is ineffective. Instead, it indicates that CBHI and PPI reflect different dimensions of poverty. CBHI, grounded in community knowledge, may prioritize households facing immediate or observable hardships, including health shocks or social isolation, factors not easily captured by asset-based indices. While more consistent and scalable, PPI may miss transient shocks or socially marginalized groups.

To unpack this further, we looked at how CBHI-identified and PPI-identified households compare on household variables we collected at baseline: household demographics, household sizes, food insecurity, livestock and land ownership, whether the household is part of other government safety net programs, and sanitation indicators.

Both groups show similar characteristics in terms of sanitation indicators, such as latrine ownership and usage. Both groups are also similar in terms of the proportion of female-headed households and the proportion of households that are part of the Productive Safety Net Program.[6] However, CBHI-exempt households consistently appeared more vulnerable across several other dimensions. They reported higher rates of food insecurity, including hunger and days without eating; had smaller household sizes and fewer children; owned fewer cattle; and were far less likely to receive financial or in-kind support from friends or relatives - just 3% reported such support, compared to 17% among PPI-poor households.

Importantly, the analysis did not identify any indicators on which PPI-poor households appeared worse off than CBHI-exempt households. This reinforces the idea that CBHI exemptions tend to capture a subset of poor households facing more severe or visible deprivation, even if not always aligned with economic poverty as measured by the PPI.

Table 6 presents a detailed comparison of household characteristics between CBHI-exempt and PPI-poor households.

Table 6: Household characteristics between CBHI-Exempt vs. PPI-Poor

Variable	Mean, CBHI-Exempt Households	Mean, PPI-Poor Households	Difference, CBHI-Exempt- PPI-Poor
Household Head is Female	.30	.28	0.017
Household Size is 4 or less	.44	.09	0.347 ***

[6] The Productive Safety Net Programme (PSNP) is Ethiopia's flagship social protection initiative, established in 2005 to combat chronic food insecurity and strengthen the resilience of vulnerable rural households. As one of the largest and longest-running safety net programs in Africa, the PSNP delivers predictable cash or food transfers to millions of households residing in chronically food-insecure areas, aiming to reduce reliance on emergency aid and promote long-term stability.

Household Size is 5 to 6	.28	.29	-0.009
Household Size is 6 or more	.29	.63	-0.338 ***
HH members 14 years of age or below	2.1	2.5	-0.399 ***
HH head has close family members and/or friends who support them financially and/or in-kind	0.03	0.17	-0.137 ***
Probability of Poverty Based on PPI Score	.37	.56	-0.192 ***
Land ownership	.94	.95	-0.018
Cattle ownership	.75	.9	-0.152 ***
HH a member of the Productive Safety Net Program	0.23	0.18	0.046
No employment	.16	.12	0.038
Day without eating in past 4 weeks	.3	.12	0.171 ***
Hungry in past 4 weeks	.47	.23	0.234 ***
Open defecation	.1	.07	0.030
Dry pit latrine	.9	.93	-0.031
Number of households using toilet/latrine	2.93	3.29	-0.359

Note: *The p-value symbols in the table are as follows: '***' for p ≤ 0.01, '**' for 0.01 < p ≤ 0.05, and '*' for 0.05 < p ≤ 0.10. No symbol denotes p > 0.10.*

5. Challenges in Using CBHI for Targeting and Lessons for Future Programs

Despite CBHI's value as a recognized proxy for poverty, several challenges emerged during implementation that are relevant for future targeting efforts:

- **Incomplete or outdated administrative records:** Many CBHI lists were missing, handwritten, or not aligned with the current exemption status. In our study, two-thirds of households that self-reported exemption were not on official CBHI lists.
- **Limited documentation:** Less than a quarter of self-reported exempt households had CBHI cards, and even fewer could physically produce them.
- **Operational burdens:** Field teams and local officials invested significant time verifying records, cross-checking survey responses, and translating handwritten lists to create usable eligibility rosters.
- **Verification gaps**: Community-led reviews helped catch some inclusion errors (e.g., merchants and salaried workers), but these processes depend on strong local engagement.

To mitigate these challenges, we recommend combining CBHI lists and simple local verification. CBHI as a targeting tool would have improved reliability with digitized recordkeeping, regular list updates, and close coordination with local health offices.

Recommendations

We recommend using **CBHI exemption lists as the primary targeting mechanism** for latrine subsidies in this context, supplemented by **simple food insecurity questions** and measures of latrine ownership. CBHI is widely recognized and accepted by community leaders, regional governments, and health offices due to its established role in identifying vulnerable households. While overlap between CBHI and PPI is limited, CBHI captures critical dimensions of poverty, such as acute hardship, limited assets, and weak social support, that are not fully reflected in asset-based measures. Integrating food insecurity indicators can further reduce exclusion errors and ensure that highly vulnerable households not captured by CBHI are included. With basic verification, this combined approach offers a practical and context-appropriate strategy for poverty targeting in rural sanitation programs.

Effective usage of CBHI requires local validation and periodic updates. To maximise the effectiveness of CBHI-based targeting, it is essential to involve local leaders and health workers in validating exemption lists before subsidy rollout to minimize errors of inclusion. Programs should also advocate for regular updates to CBHI records to reflect current household conditions and plan for additional verification steps, such as including food insecurity indicators, where CBHI data may be outdated or incomplete.

To improve the accuracy of targeting, we recommend supplementing CBHI exemption lists with two simple food insecurity questions. In addition to targeting CBHI-exempt households, programs should also consider including households that report having (1) gone a whole day

without eating or (2) experienced hunger due to lack of money in the past four weeks. These questions help identify extremely vulnerable households that may not appear on CBHI lists, thereby reducing exclusion errors. Food insecurity is a direct indicator of immediate economic hardship and, when used alongside CBHI and latrine ownership status, can enhance the effectiveness of subsidy targeting.

If resources are limited, prioritize larger and food-insecure households within CBHI. When subsidy budgets are constrained, prioritizing CBHI-exempt households with larger household sizes (four or more members) and signs of food insecurity can ensure that assistance reaches the most vulnerable. Applying these additional filters within CBHI can improve the likelihood of reaching those who are most in need, when faced with a more limited subsidy pool.

References

Alatas, V., Banerjee, A., Hanna, R., Olken, B. A., Purnamasari, R., & Wai-Poi, M. (2012). *Targeting the poor: Evidence from a field experiment in Indonesia*. American Economic Review, 102(4), 1206–1240.

Bantie, G. M., Mekonnen, C. K., & Tadesse, M. M. (2020). *Community-based health insurance and associated factors in Ethiopia: A systematic review*. Frontiers in Public Health, 8, 577816.

Coady, D., Grosh, M., & Hoddinott, J. (2004). *Targeting of transfers in developing countries: Review of lessons and experience*. Washington, DC: World Bank.

Guiteras, R., Levinsohn, J., & Mobarak, A. M. (2015). Encouraging sanitation investment in the developing world: A cluster-randomized trial. *Science, 348*(6237), 903–906.

Hillebrecht, M., Kedir, A., & Stoeffler, Q. (2020). *Community-based versus statistical targeting of anti-poverty programs: Evidence from Burkina Faso*. Journal of African Economies, 29(3), 271–305.

FMoH (Federal Ministry of Health). (2022). *National Sanitation Subsidy Protocol.* Addis Ababa.

Poulin, C., Delaire, C., Trimmer, J., Kisiangani, J., & Peletz, R. (2021). *Comparing methods for targeting water subsidies to the poorest households*. Aquaya Institute.

Premand, P., & Schnitzer, P. (2021). *Efficiency, legitimacy, and impacts of targeting methods: Evidence from an experiment in Niger*. The World Bank Economic Review, 35(4), 892–920.

Schnitzer, P., & Stoeffler, Q. (2021). *Targeting for social safety nets: Evidence from nine programs in the Sahel*. World Bank.

Transform WASH. (2023). *WASHPaLS Ethiopia subsidy targeting inception report* [Unpublished internal report].

Trémolet, S., Kolsky, P., & Perez, E. (2010). *Financing on-site sanitation for the poor: A six country comparative review and analysis*. The World Bank.

USAID. (2019). *Research on the impact of targeted subsidies within open defecation free (ODF) communities: Inception report*. United States Agency for International Development.

USAID. (2021). *Identifying households eligible for a targeted sanitation subsidy in rural Ghana*. United States Agency for International Development.

Van Domelen, J. (2007). *Reaching the poor and vulnerable: Targeting strategies for social funds and other community-driven programs*. The World Bank.

WSSCC. (2019). *Equality and non-discrimination handbook for CLTS facilitators*. Water Supply and Sanitation Collaborative Council.