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Evaluation Of The Effectiveness Of Social Assitance Programs On Poverty Reduction In A Post-Tsunami Reconstruction Region : A Case Study Of Gayo Lues District, Aceh

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Abstract

This study evaluates the effectiveness of government social assistance programs — the Family Hope Program (Program Keluarga Harapan/PKH), the Non-Cash Food Assistance (Bantuan Pangan Non-Tunai/BPNT), and the Village Fund Direct Cash Assistance (BLT Dana Desa) — in reducing poverty in Gayo Lues District, a highland district of Aceh Province that falls within the province-wide post-tsunami reconstruction and poverty-alleviation mandate established after the 2004 Indian Ocean tsunami. Using a descriptive quantitative approach, the study combines a fourteen-year (2010–2024) secondary time-series analysis of district poverty indicators published by the Central Bureau of Statistics (BPS) with a cross-sectional assessment of beneficiary-perceived program effectiveness. Findings indicate that the poverty rate in Gayo Lues declined from 19.09 percent in 2010 to 17.93 percent in 2024, following a temporary rise to 19.91 percent in 2017 that coincided with falling coffee commodity prices and limited off-farm employment opportunities. The subsequent downward trend corresponds with the expansion of PKH and BPNT coverage after 2018 and the introduction of BLT Dana Desa. Beneficiary assessments suggest that the programs are perceived as moderately effective, with the strongest perceived impact on household welfare and comparatively weaker performance in benefit adequacy. The study concludes that social assistance programs have contributed to poverty reduction in Gayo Lues but that structural factors — commodity dependence, geographic isolation, and limited economic diversification — continue to constrain the programs' long-term impact. Strengthening targeting accuracy, benefit adequacy, and complementary livelihood support is recommended.

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INTRODUCTION

The 2004 Indian Ocean earthquake and tsunami caused unprecedented human and economic loss in Aceh Province, killing more than 150,000 people and displacing hundreds of thousands of residents (Cole, Elliott, & Liu, 2019). In response, the Government of Indonesia established the Agency for the Rehabilitation and Reconstruction of Aceh and Nias (BRR NAD-Nias), which coordinated one of the largest disaster reconstruction programs in the developing world and extended its poverty-alleviation and infrastructure mandate to all twenty-three districts and cities of Aceh Province, not only those directly struck by the tidal wave (World Bank, 2008). Provincial poverty rose only modestly in the immediate aftermath of the disaster, from 28.4 percent in 2004 to 32.6 percent in 2005, before falling below pre-tsunami levels to 26.5 percent by 2006 as reconstruction spending flowed into the province (World Bank, 2008).

Gayo Lues District, situated in the mountainous Central Highlands of Aceh, was not directly inundated by the 2004 tsunami wave. It was, however, incorporated into the province-wide post-tsunami reconstruction and poverty-reduction framework administered by BRR NAD-Nias, and it subsequently experienced its own major disaster — the 2006 Aceh floods — which triggered a comparable humanitarian and social-assistance response coordinated with agencies such as the International Organization for Migration (IOM, 2009). Gayo Lues therefore represents a district shaped by the same reconstruction-era social protection architecture that emerged from the tsunami response, even though its own exposure came primarily through flooding rather than the tidal wave itself. This distinction is made explicit here because it is central to how the district's poverty trajectory should be interpreted.

The district's economy remains heavily dependent on smallholder agriculture, particularly Arabica coffee cultivation, making household income highly sensitive to commodity price fluctuations and limiting opportunities for off-farm employment (Rusdiana & Wibowo, 2025). Official statistics from the Central Bureau of Statistics (BPS) show that poverty in Gayo Lues declined from 19.09 percent in 2010 to 17.93 percent in 2024, but with a notable interruption: poverty rose to a peak of 19.91 percent in 2017 amid falling coffee prices, rising basic-needs costs, and constrained non-agricultural job opportunities, before resuming a steady decline from 2018 onward

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alongside the expansion of national social assistance programs including PKH, BPNT, and BLT Dana Desa (Rusdiana & Wibowo, 2025).

Despite this apparent association between program expansion and poverty decline, the extent to which social assistance programs have genuinely contributed to poverty reduction in Gayo Lues — as opposed to other concurrent factors such as agricultural recovery or infrastructure development — has not been systematically evaluated at the district level. Most existing assessments of Aceh's post-tsunami recovery focus on coastal districts most severely affected by the 2004 wave (Rahayu, 2021), leaving highland districts such as Gayo Lues comparatively understudied despite their inclusion in the same reconstruction-era social protection mandate.

This study therefore aims to: (1) analyze the trend of poverty indicators in Gayo Lues District between 2010 and 2024 in relation to the rollout of major social assistance programs; and (2) assess beneficiaries' perceptions of the effectiveness of these programs across dimensions of targeting accuracy, timeliness, benefit adequacy, welfare impact, and transparency. The findings are intended to inform local policymakers on how social assistance design might be strengthened to accelerate poverty reduction in geographically isolated, agriculture-dependent districts within Aceh's broader post-disaster development framework.

This study conceptualizes poverty reduction in Gayo Lues as jointly influenced by (1) structural economic conditions, particularly commodity price cycles and geographic accessibility, and (2) the coverage, targeting, and adequacy of social assistance programs. The framework guides the dual analytical strategy adopted below: a time-series assessment of the poverty trend against program rollout, and a beneficiary-level assessment of perceived program effectiveness.

METHODS

This study employs a descriptive quantitative design combining secondary time-series analysis with a cross-sectional beneficiary survey.

Data and Variables

Secondary data on the annual poverty headcount ratio (P0), poverty depth index (P1), and poverty severity index (P2) for Gayo Lues District from 2010 to 2024 were obtained from BPS Aceh Province and BPS Gayo Lues District publications. Data on program coverage were compiled from Ministry of Social Affairs (Kementerian Sosial)

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and district social-service office reports on the number of registered PKH, BPNT, and BLT Dana Desa recipient households by year.

Survey Design

To assess perceived program effectiveness, a structured questionnaire was administered to a sample of social-assistance beneficiary households across Gayo Lues' sub-districts (kecamatan), selected using proportionate stratified random sampling based on program-recipient registers, with sample size determined by the Slovin formula at a 95 percent confidence level. The questionnaire measured five effectiveness indicators — targeting accuracy, timeliness of disbursement, benefit adequacy, perceived welfare impact, and transparency of program information — using a five-point Likert scale (1 = strongly ineffective, 5 = strongly effective).

Analytical Technique

Poverty trend data were analyzed descriptively and compared against the timeline of program introduction and expansion to identify temporal association. Survey responses were summarized using mean scores and categorized following standard Likert interval ranges (1.00–1.80 = very ineffective; 1.81–2.60 = ineffective; 2.61–3.40 = moderate; 3.41–4.20 = effective; 4.21–5.00 = very effective). This dual approach allows the study to triangulate objective poverty outcomes with subjective beneficiary experience, addressing a limitation common to studies relying on either data source alone.

Note on data: The poverty figures for 2010, 2017, and 2024 in Table 1 are drawn directly from published BPS statistics. Intervening-year figures marked with an asterisk are illustrative interpolations included to show the general trend shape and should be replaced with the exact published BPS figures for the years the author intends to analyze. Likewise, the beneficiary survey results in Section 4.2 are presented as an illustrative dataset to demonstrate the intended analytical format; they should be replaced with the author's actual field survey results prior to submission.

DISCUSSION

Poverty Trend in Gayo Lues, 2010–2024

Table 1 presents the trend in Gayo Lues' poverty headcount ratio alongside key contextual developments. The district's poverty rate declined overall from 19.09 percent in 2010 to 17.93 percent in 2024, but this decline was not linear. Poverty rose to a peak

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of 19.91 percent in 2017, a period associated with falling global and domestic coffee prices — the district's dominant cash crop — combined with rising costs of basic necessities and limited employment opportunities outside the primary agricultural sector (Rusdiana & Wibowo, 2025). From 2018 onward, poverty declined steadily, a period that coincides with the expansion of PKH and BPNT coverage and, from 2021, the introduction of BLT Dana Desa as a response to broader economic shocks.

Table 1. Poverty Rate Trend in Gayo Lues District, 2010–2024 (Source: BPS Aceh Province, 2025; author's compilation. *Illustrative interpolated values — replace with published BPS figures.)

Year	Poverty Rate (%)	Key Contextual Note
2010	19.09	Post-tsunami reconstruction period (BRR NAD-Nias winding down)
2013	18.6*	Fluctuating coffee commodity prices
2017	19.91	Peak poverty; decline in coffee prices, limited off-farm employment
2018	19.1*	Expansion of PKH and BPNT coverage begins
2021	18.4*	BLT-Dana Desa introduced in response to economic shocks
2024	17.93	Continued decline; strengthened village-level cash assistance

This pattern is broadly consistent with province-level findings that Aceh's poverty trajectory has been shaped more by macroeconomic and structural conditions — commodity prices, employment diversification, and the pace of reconstruction spending — than by disaster exposure alone (World Bank, 2008; Gassebner et al., 2019). It also suggests that the post-2018 acceleration in poverty reduction in Gayo Lues occurred alongside, and plausibly benefited from, the expansion of social assistance coverage, though establishing a causal relationship would require a counterfactual or difference-in-differences design beyond the scope of this descriptive study.

Beneficiary-Perceived Program Effectiveness

Table 2 summarizes beneficiary assessments of program effectiveness across five indicators. Perceived contribution to household welfare received the highest mean

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score (3.6, moderate–high), suggesting that beneficiaries generally view the assistance as meaningfully supporting household consumption. Benefit adequacy received the lowest score (2.9, moderate–low), indicating that while programs reach households, the transfer amount is widely perceived as insufficient relative to the cost of living, a concern also raised in national evaluations of PKH benefit levels (TNP2K, 2017).

Table 2. Beneficiary-Perceived Program Effectiveness by Indicator (Illustrative sample data, n = 100 — replace with actual field survey results.)

Indicator	Mean Score (1–5)	Category*
Targeting accuracy (right beneficiaries reached)	3.4	Moderate
Timeliness of disbursement	3.1	Moderate
Adequacy of assistance amount	2.9	Moderate–Low
Perceived contribution to household welfare	3.6	Moderate–High
Transparency of program information	3.2	Moderate

Targeting accuracy and timeliness of disbursement both scored in the moderate range (3.4 and 3.1 respectively), reflecting mixed beneficiary experiences that likely relate to Gayo Lues' dispersed, mountainous settlement pattern, which can complicate both the identification of eligible households and the logistics of timely disbursement. These findings echo broader concerns in the Indonesian social-protection literature regarding exclusion and inclusion errors in geographically remote areas (Alatas, 2011).

Taken together, the secondary and primary findings suggest that social assistance programs have plausibly contributed to the post-2018 acceleration of poverty reduction in Gayo Lues, but that their effectiveness remains constrained by two structural factors specific to the district's post-tsunami highland context. First, continued dependence on coffee as the dominant income source leaves poverty outcomes vulnerable to commodity price cycles largely outside the reach of cash-transfer programs, implying a need for complementary livelihood diversification and agricultural value-chain support alongside direct assistance. Second, the district's mountainous geography and dispersed settlements — conditions that also shaped the humanitarian response to the 2006 floods — appear to constrain targeting accuracy and disbursement

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timeliness, pointing to a need for strengthened local data systems and distribution logistics rather than program expansion alone.

These findings are broadly consistent with the view that Aceh's post-tsunami poverty reduction has depended on the interaction of reconstruction-era institutions, social protection expansion, and local economic structure, rather than on any single instrument (World Bank, 2008; Gassebner et al., 2019). For Gayo Lues specifically, this implies that the reconstruction-era social protection architecture established after the 2004 tsunami — of which PKH, BPNT, and BLT Dana Desa are contemporary extensions — continues to shape poverty outcomes in districts that were not directly struck by the tsunami wave but were nonetheless integrated into its long-term development legacy.

CONCLUSION

This study evaluated the effectiveness of social assistance programs in reducing poverty in Gayo Lues District, a highland Aceh district situated within the province's post-tsunami reconstruction and poverty-alleviation framework. Poverty declined overall from 19.09 percent in 2010 to 17.93 percent in 2024, with a temporary rise to 19.91 percent in 2017 linked to coffee price volatility, followed by a sustained decline coinciding with the expansion of PKH, BPNT, and BLT Dana Desa. Beneficiary assessments indicate moderate overall program effectiveness, with the strongest perceived impact on household welfare and the weakest performance in benefit adequacy. The study concludes that social assistance programs have made a meaningful but partial contribution to poverty reduction in Gayo Lues, and that their long-term impact depends on addressing structural constraints related to commodity dependence and geographic isolation. Local government and program administrators are encouraged to pair cash and food assistance with livelihood diversification support and to strengthen beneficiary data systems to improve targeting accuracy in remote sub-districts. Future research should incorporate a larger primary household survey and a quasi-experimental design, such as difference-in-differences or propensity score matching against comparable non-recipient districts, to establish a stronger causal basis for program impact.

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