

# Social Network Centrality and Sanitation Investment

*A Survey of Village Savings and Loan Associations in Freetown's Informal Settlements*

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## ABSTRACT

In informal settlements, where formal sanitation infrastructure is lacking, household investment in improved facilities is critical for public health. The role of social capital, particularly within community-based financial groups like Village Savings and Loan Associations (VSLAs), in influencing such investment decisions is underexplored. This study investigates the relationship between an individual's centrality within their VSLA social network and their propensity to invest in private or shared sanitation facilities. It aims to determine if higher network centrality correlates with a greater likelihood of investment. A cross-sectional survey was administered to a stratified random sample of VSLA members across multiple informal settlements. Social network analysis quantified individual centrality measures (degree, betweenness) within each association. Logistic regression models analysed the correlation between centrality and sanitation investment, controlling for socio-economic variables. A strong positive correlation was found: members with the highest quartile of degree centrality were 2.3 times more likely to have invested in an improved sanitation facility compared to those in the lowest quartile. Betweenness centrality also showed a significant, though weaker, positive association. Social network position within a VSLA is a significant predictor of sanitation investment in informal settlements, suggesting that social influence and trust mechanisms within these groups facilitate capital allocation towards public goods. Sanitation programmes should actively engage with existing VSLAs and leverage central members as potential change agents. Financial product design for VSLAs could incorporate targeted sanitation loans, recognising the social dynamics that underpin investment decisions. social network analysis, sanitation finance, informal settlements, Village Savings and Loan Associations, Sierra Leone This paper provides novel empirical evidence linking quantifiable social network metrics within community finance groups to tangible investments in household sanitation, offering a new mechanism for targeting and enhancing public health interventions.

**Keywords:** *Social capital, Social network analysis, Sub-Saharan Africa, Informal settlements, Household investment, Sanitation, Village Savings and Loan Associations*

### Article Highlights

- Quantifies how social position within savings groups influences sanitation investment.
- Reveals network centrality as a stronger predictor than some socio-economic factors.
- Proposes leveraging central VSLA members as change agents for public health.
- Suggests designing financial products that account for these social dynamics.

### Policy Implication

Sanitation programmes should actively engage with Village Savings and Loan Associations, recognising them as existing channels of social influence and trust for capital allocation.

*This study offers a novel empirical link between social network metrics and tangible household investments.*



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