While Kenya's highly centralised political system has resulted in the widespread social-economic marginalization of rural areas, very little attention has been focused on analyzing the relationship between socio-economic marginalization and popular participation in management of constituency development funds (CDF) geared towards rural poverty alleviation. The underlying principle has been distribution of resources to the grassroots to complement efforts geared towards developing rural communities in Kenya. The main objective of this paper is to analyze the influence of socio-economic factors on the levels of households' participation in CDF projects in efforts to alleviate rural poverty. Using a quantitative survey research design, 100 respondents were interviewed using a semi-structured questionnaire. The raw data from the field was analyzed using descriptive and inferential statistics. The study found that while most respondents had high literacy levels, they also suffered severe socio-economic deprivation. CDF projects had contributed to setting up of school bursaries, dispensaries, creating employment opportunities and efficient transport. Furthermore, respondents were aware of the role of CDF funds. Yet, participation in CDF projects, seminars, workshops or educational tours was generally low. Lack of transparency was mentioned as the major factor influencing low participation levels. Finally, respondents seemed to agree that while CDF was on course in addressing the country's development challenges, they were least satisfied with its achievements so far. Among others, the study recommended CDF projects be harmonized with the local development priorities/needs and the need to establish community based institutional mechanisms to make easy community participation in various projects.