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Residential Satisfaction in a Mining-Induced Displacement and Resettlement in Ghana

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Abstract
Housing challenges associated with Mining-Induced Displacement and Resettlement have not been examined in literature as much as relocations due to physical development projects like the construction of dams. This study, therefore, endeavours to fill this gap by contributing to discussions on displacements and resettlements communities due to mining activities from the perspective of residential satisfaction. A questionnaire survey was administered to 229 household-heads at Salman, a rural community in the Ellembelle District of the Western Region in Ghana, to investigate the determinants of residential satisfaction in a Mining-Induced Displacement and Resettlement. Residents' assessed their satisfaction based on the physical features of the dwelling units, community facilities, social/neighbourhood environment, and infrastructural services. Data were analysed using mathematical equations to attain residential satisfaction and habitability indices. The study revealed moderate residential satisfaction with the overall resettlement housing. Satisfaction with physical features of the dwelling units was high, while satisfaction with community facilitates and social/neighbourhood environment was moderate. The satisfaction level with infrastructure services was, however, shallow. The study avers that there exist opportunities for real residential satisfaction after permanent mining-induced relocation of communities.
Keywords: Residential satisfaction, Mining-Induced Displacement and Resettlement, Dwelling units, Community facilities, Neighbourhood.
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1 Introduction

Development projects, such as urban renewal, natural resource extraction or mining and infrastructure projects usually trigger the displacement of communities and such dislocations worldwide result in the resettlement of about ten million people annually (Downing, 2002; Cernea, 2004; Owen & Kemp, 2015, 2016). Thus, development-induced displacements and relocations continue to be a significant issue. However, housing issues in Mining-Induced Displacements and Resettlements (MIDR) have not attained as much attention in scholarly literature as those related to physical development projects, such as the construction of dams (Asthana, 1996; Cernea & McDowell, 2000; Stanley, 2004). Specifically, there is a scarcity of current research on residential satisfaction in MIDR from the residents' perspective, even though community displacements and resettlements caused by natural resource extraction projects are always associated with housing challenges (Li & Wu, 2013; Sonter, Barrett, Soares-Filho & Moran, 2014).

In Africa, for example, few researchers have explored MIDR (Mkuzi, Mwaguni & Danda, 2013; Schueler, Kuemmerle & Schroder, 2011). Similarly, research on resettlements in Ghana has focused more on state-developed relocations caused by the construction of dams than on mining-induced resettlements developed by the private sector (Mettle, 2011). As stated by Mettle (2011) and Obour, Owusu, Agyeman, Ahenkan, and Madrid (2016), these resettlement studies emphasised on issues relating to planning, implementation processes, livelihood sustainability, compensation packages and the management of social impacts. The few studies on residential satisfaction in Ghana focussed on urban housing (Baiden, Arku, Luginaah & Asiedu, 2011), disaster-induced resettlements (Danquah, Attippoe & Ankrah, 2014), and low-income multi-habitation in metropolitan areas (Addo, 2016).

Therefore, to enhance policies and practices in MIDR programmes, there is the need to investigate residential satisfaction in MIDR, which is a risk to the resettlement of mining-affected people. This study contributes to the existing literature on MIDR by examining the level of residential satisfaction of the Salman MIDR housing scheme, eight years after the permanent relocation of the inhabitants. The objective of the study was to explore the key factors that influenced residential satisfaction in the Salman resettlement. Besides fulfiling a research need, the outcome of the investigation is essential in shaping strategies for future resettlement housing policies, especially for low-income rural communities in developing countries.

2 Overview of Literature

2.1Displacements and Resettlements

'Resettlement' refers to involuntary permanent relocation by way of the provision of houses and services triggered by disaster or large-scale development projects (Asthana, 1996; De Wet, 2000). Natural resource extraction projects trigger MIDR, which result in the loss of direct control of the vast extent of land previously occupied by the people. Thus, MIDR continues to be a significant issue (Askland, 2018; Owen & Kemp, 2016; van der Ploeg & Vanclay, 2018), since they always generate land use, resettlement planning and housing challenges (Sonter et al., 2014).

The success of resettlement schemes, especially for rural communities, depends mainly on the integration of socio-cultural values of the displaced persons in the design of the houses and the township neighbourhoods as a symbolic link and identification with the new sites (Adu-Aryee, 1993). Danquah et al. (2014) supported this assertion by postulating that social and cultural ties with neighbours is critical for resettled people to nurture adaptation with relocations. Related to people and their socio-cultural system's responses to resettlements, Scudder and Colson (1982) proposed that any involuntary permanent relocation must pass through four different stages of relocation to be deemed successful. The four-stage model involves recruitment (formulation of development and resettlement plans), transition (informing affected persons of their future displacement), potential development (occurrence of physical relocation), and handing over or incorporation (resettlement in a new community). The Scudder-Colson model, however, does not expound the consequences of forced resettlements relating to the residential satisfaction of the project-affected populations.

2.2 Satisfaction Model and Theory

Contemporary researchers have theorised that satisfaction is the extent to which the performance of a product meets a client's expectations (LaTour & Peat, 1979; Parker & Mathews, 2001). Jiang, Klein and Saunders (2012) defined satisfaction as the "effect of a judgment of the difference between what is expected or desired, compared to what is experienced about a product or service" (p. 357). In other words, satisfaction is the relationship between a perceived fulfilment of anticipation. According to Parker and Mathews (2001), this satisfaction construct is traceable to the Discrepancy Theory. The Discrepancy Theory can assist in predicting or explaining satisfaction but has limitations to its application (Klein, Jiang & Cheney, 2009). For this reason, the Discrepancy Model is scarcely used in measuring the magnitude of satisfaction (Jiang et al., 2012) and this has led to the use of other satisfaction models, such as the Contrast Theory and the Expectancy-Disconfirmation model (Jaafar & Hasan 2005).

The Contrast Theory posits that consumers overstate the contrast between their expectations of a product and the product assessment (Howard & Sheth, 1969: cited in Parker & Mathews, 2001). The Expectancy-Disconfirmation Model, on the other hand, hypothesises satisfaction as a functional relationship between consumers' expectations and the obtained performance of a product or service. Clients are positively disconfirmed or satisfied when the performance of a product or service meets or exceeds their expectations. Conversely, they are negatively disconfirmed or dissatisfied when the actual performance is less than their perceived expectations (LaTour & Peat 1979; Oliver, 1981: cited in Jaafar & Hasan 2005). Because of inconsistencies in the various satisfaction paradigms, satisfaction indices, such as the American Consumer Satisfaction Index (ACSI) and the European Customer Satisfaction Index (ECSI), have been developed to harmonise customer satisfaction in the respective nations (Jaafar & Hasan 2005). Notwithstanding, Al-Eisa and Alhemoud (2009) contended that an individual's satisfaction could be assessed based on specific contextualised determinants.

2.3 Residential Satisfaction

Various authors (Galster, 1985, 1987; Mohit, Ibrahim & Rashid, 2010; Morris & Winter, 1975, 1978) have postulated different theoretical and conceptual frameworks to explain the concept of residential satisfaction. Residential satisfaction, defined as the fulfilment one has in a house or housing environment, is based on one's requirements, expectations, goals and or accomplishments (Hui & Yu, 2009; Jiboye, 2012; Mohit et al., 2010). Galster (1987), Hashim, (2003), Ibem and Aduwo (2013), also described residential satisfaction as the degree of the occupants' gratification with their housing units and the social environment. According to Djebuarni and Al-Abed (2000) and Mohit et al., (2010) residential satisfaction is a significant predictor of one's discernment of overall quality of life and an indicator of residents' perception of the quality of their housing environment. Residential satisfaction is, therefore, a tool for measuring the success or failure of housing projects and the extent of residential mobility and neighbourhood change (Amerigo & Aragones, 1997).

Morris and Winter (1975, 1978) introduced the 'housing deficit' model to explain residential satisfaction and mobility practices. They opined that households assess their housing conditions according to their personal and cultural norms, which may be independent of each other. Thus, residential satisfaction depends on the level of congruity between the housing conditions and the individual behavioural and cultural norms, to the extent that inconsistency results in a housing deficit that in turn leads to residential dissatisfaction or vice versa. Housing

deficits generate housing adjustments, either by improving the housing environment through remodelling or by the relocation of a household to a different housing setting (Morris & Winter, 1975, 1978).

Another perspective of the residential satisfaction concept is Galster's (1987) two complementary empirical models, namely the purposive approach and the actual-aspiration gap approach. Concerning the purposive approach, Galster (1985) explained residential satisfaction as an indicator of the extent to which one's housing environment is perceived to enable the realisation of one's goals based on the specific aims. Housing, therefore, is regarded as a facilitator for achieving one's aspiration in life, with residential satisfaction being a measure of the notable performance of housing in facilitating the overall achievement of one's goals. Regarding the actual-aspiration gap approach, residential satisfaction evaluates the difference between residents' actual housing conditions and the ideal housing and neighbourhood environments they aspire to have (Galster, 1987). However, households' housing needs and aspirations change across the stages of the family life cycle resulting in residential dissatisfaction and subsequently residential mobility or migration with the intent to increasing one's level of residential satisfaction (Mohit et al., 2010).

The underpinnings of the reviewed concepts suggest that residents' assessment of their residential satisfaction largely depends on three factors, namely, their preferences, their aspirations and their needs. These elements reflect the conceived ideal housing environments they desire to facilitate the achievement of their goals. Thus, many empirical global studies measured residential satisfaction using various variables representing dwelling units, municipal facilities, infrastructural services and neighbourhood environment (Baiden, Arku, Luginaah. & Asiedu, 2011; Ibem & Aduwo, 2013; Lane & Kinsey, 1980; Lu, 1999; Mohit et al., 2010; Rohe, Zandt & McCarthy, 2013; Salleh, 2008; Sinai, 2001). The effects of these fundamental variables as factors of residential satisfaction or dissatisfaction are inclined to variation depending on the type of housing, home-ownership or tenancy, location or context, and culture (Andersen, 2008; Lu, 1999).

For instance, Lane and Kinsey (1980) concluded from a study on residential satisfaction in the United States that housing features influenced residents' satisfaction levels. Savasdisara, Tips and Suwannodom (1989) also opined that occupants in low-cost housing in Bangkok, Thailand, were much more satisfied with the physical structure and appearance of their houses than with the environment and municipal facilities. Similarly, Ha (2008), Ibem and Amole (2013), Ilesanmi (2010), Jiboye (2009) and Salleh (2008) posited that public housing occupants tend to be more satisfied with their housing units than the neighbourhood environments. In contrast, a study conducted in Hong Kong revealed that residents in public housing were somewhat dissatisfied with the building structure, in addition to the environmental cleanliness (Liu, 1999). Mohit et al., (2010) also unveiled from a study on low-income public housing in Kuala Lumpur, Malaysia, that while the residents were delighted with the housing support services, they were moderately satisfied with the physical features of their houses and dissatisfied with the neighbourhood environment of the area.

Similarly, Salleh (2008) observed that residents in Penang and Terengganu in Kuala Lumpur, Malaysia, rated their satisfaction levels high with features of the housing units and services. Still, they were disappointed with their neighbourhoods because of insecurity, lack of recreation and civic amenities, and infrastructure for people with disabilities. Residents of public housing estates in South Korea also expressed profound dissatisfaction with their neighbourhood environment due to inadequate parking facilities and poor landscaping (Ha, 2008). Parke, Kearns and Atkinson (2002), on the other hand, observed from a survey on housing in the United Kingdom that housing neighbourhoods relating to appearance, noise levels, security, and community friendliness, were a significant fundamental factor of high residential satisfaction. In the less affluent neighbourhoods, crime and unfriendliness negatively affected residential satisfaction while owner-occupiers were dissatisfied with the locality where their share of occupancy was relatively low.

Elsewhere in Africa, Ogu (2002) concluded from a study on urban housing in Benin City, Nigeria, that variables relating to the features of the houses influenced residential satisfaction positively as against environmental factors. In the same way, results from studies by Ilesanmi (2010), Jiboye (2009), Olatubara and Fatoye (2007) on public housing in Lagos, Nigeria, indicated that the physical features and spatial configurations of the housing units were the significant determining parameters of residents' high level of satisfaction. They were dissatisfied with the management and maintenance of facilities and the overall planning of the townships, including proximity to community facilities. In another study on public housing in Ogun State, Nigeria, Ibem and Aduwo (2013) concluded that the residents were generally not satisfied with the overall conditions of the neighbourhood environment. Their level of satisfaction was, however, much higher for the dwelling units than community facilities and the neighbourhood milieu. However, in Abuja, Nigeria, the residential satisfaction among occupants of public housing was much higher with community facilities, especially regarding proximity to such facilities, than the physical features and spatial arrangements of the dwellings, management and maintenance of facilities (Ukoha & Beamish, 1997).

In Ghana, Baiden et al. (2011) revealed that the physical characteristics of houses were vital factors that influenced residential satisfaction in three different neighbourhoods in Accra, the capital city. Research on residential satisfaction among residents of three disaster-induced resettlement townships in the Keta Basin revealed

that the inhabitants were satisfied with the housing units and infrastructure services, which were perceived to be considerably better than those in their original communities, were. They were, however, not contented with the sizes and number of bedrooms and the sizes of land allotted to each household (Danquah et al., 2014). Addo (2016), on the other hand, established that housing features negatively affected residential satisfaction of multi-habited low-income households. Still, community services and neighbourhood characteristics exhibited high positive and moderate satisfaction impacts, respectively.

In summary, it is evident from the preceding reviewed literature that residential satisfaction is a complex construct that is influenced by factors that are directly related to housing features and the environs. Most of the reviewed research, therefore, dealt with the measurement of residential satisfaction through an objective approach. This approach examined respondents' appraisal of the objective attributes of housing relating to the physical characteristics of the dwelling units, community facilities, neighbourhood and social environment and infrastructure services. The effect of the determinants of residential satisfaction, however, differ by the type of housing, countries of locations, residents' culture, tenures and or modes of acquisition, as propounded by Theodori (2001) and Ogu (2002). Thus, from the perspective of the relocated Salman residents, this study measured the residential satisfaction, as a composite of the characteristics of the houses, the community facilities, the neighbourhood environment and infrastructure services. The study attempts to fill a knowledge gap in assessing the feelings of residents of MIDR about their residential settings.

3.0 Study Setting, Materials and Methods

3.1 Study Setting

The study explored a practical example of a MIDR in the new Salman town located in the Ellembelle District of Western Region in Ghana, as shown in Figure 1. The resettlement was commissioned in 2012 to relocate 2,154 people displaced because of commercial extraction of gold ore near the old Salman town depicted in Figure 2. A thirty-member resettlement negotiation and implementation committee, comprising representatives of the project-affected persons, statutory agencies and the private mining company, was constituted to negotiate the resettlement package. The output of the committee's consultations was a resettlement action plan that became the blueprint for the implementation of the project.

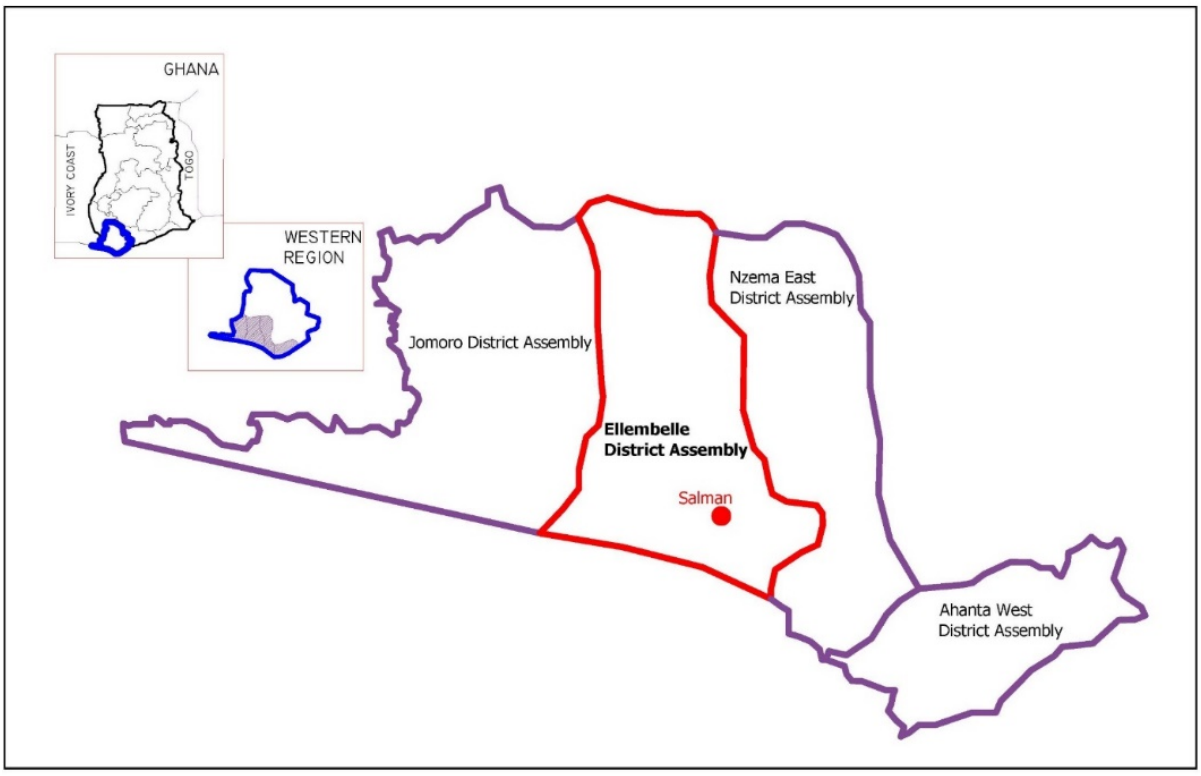

Figure 1: Location of the New Salman Town (Source: Authors' construct)

Figure 2: The old Salman Town (Source: Ellembelle District Assembly)

The physical layout of the resettlement, which involved the spatial planning of a 101.17-hectare land located about 1.5 kilometres east of the old Salman town, is illustrated in Figure 3. The basis of the replacement of the buildings was "room for a room" or "structure for structure". For example, a house with one room was replaced with a one-room structure, and an owner of a house with two-rooms had a two-room apartment as a replacement. The new homes had standardised room sizes of 3.66m x 3.66m for all existing rooms that were 3.66m x 3.66m or less, whereas old apartments, which were larger than 3.66m x 3.66m, were substituted with standardised sizes of 3.66m x 4.57m. The dimensions of the land allocated for each house ranged from 3.66m x 3.66m to 21.34m x 30.48m, depending on the number of rooms in the old house.

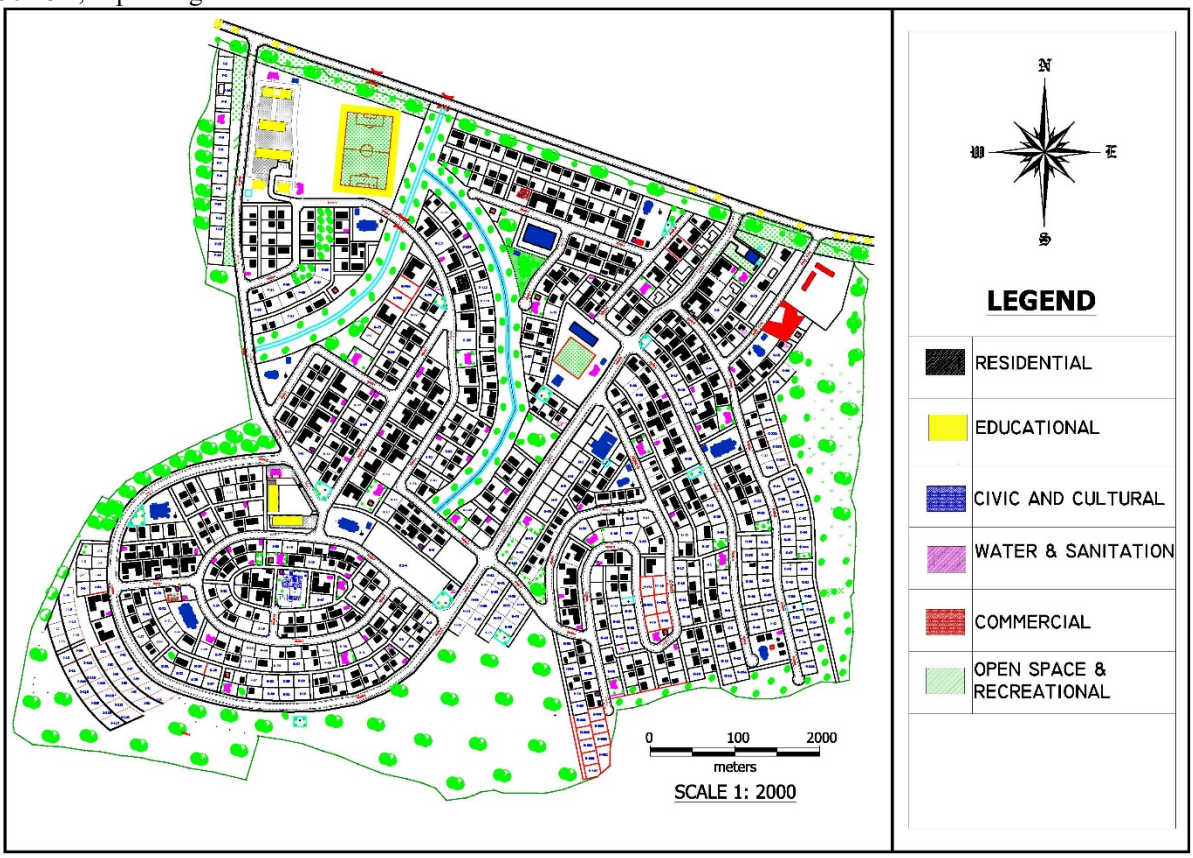

Figure 3: Layout of the New Salman Town (Source: Ellembelle District Assembly)

In addition to the replacement of 724 residential dwellings, other structures and infrastructure built to replace existing facilities included three schools, two churches and a mosque, 18 public toilets, electricity, streets and boreholes. The private developer also constructed additional facilities, which did not exist in the old village. These included a marketplace, a community centre, a palace for the chief of the town, a clinic and a police station with staff quarters, landscaping, refuse collection pads, stormwater drains and street lights. Figure 4 shows street views and standard dwelling units in the new Salman town.

Figure 4: The new Salman Town (Source: Authors' Field Survey, 2020)

3.2 Material and Methods

Direct household survey data were collected in Salman with the complement of informal interviews. A sample of 258 houses (n = 258) was generated from 724 housing units (N = 724), based on the formula, $n = N / 1 + N (e^2)$ (Yamane, 1967: cited in Singh & Masuku, 2014), with a confidence level of 95%, and a margin of error of 5%. At the end of the survey, 229 valid questionnaires, representing 88.76%, were obtained and used for the analysis.

As recommended by Fowler (1993), structured questionnaire, containing mostly 'closed' questions and a few 'open-ended' ones, was used to gather data because the population was within the low-income and low-education brackets and was located in a rural area. For each house, the head of the household, or in his absence an adult, was selected as the respondent for the survey. The questionnaire consisted of 28 satisfaction variables comprising the physical attributes of residential units (8 items), community facilities (8 items), social and neighbourhood environment (6 items) and infrastructure services (6 items).

Data were obtained using a five-point Likert-type scale ranging from (1) for 'Very Dissatisfied', (2) for 'Dissatisfied', (3) for 'Neutral', (4) for 'Satisfied', and (5) for 'Very Satisfied'. The respondents' tallies for each variable were summed up for the computation of the satisfaction indices. By dividing the summation of the scores generated from the Likert scale by the potential maximum full score and multiplying the result by 100, the respondent's percentage satisfaction index was obtained (Addo, 2016; Ogu, 2002). The following formula (Ogu, 2002; Mohit et al., 2010) was used to calculate the satisfaction index for the components of residential satisfaction:

$$SIc = \frac{\sum_{i}^{N=1} y^{i}}{\sum_{i}^{N=1} Y^{i}} \text{ X } 100$$

Where SI is a respondent's satisfaction index in respect of factor c of the housing environs; c is a component of the residential environment; N is the total of variables grouped under factor c; yi is the respondent's score on the ith variable, and Yi is the highest possible tally that i could earn on the scale used. The satisfaction indices were subsequently calculated for the dwelling units, the community facilities and the neighbourhood environment and divided into the following quartiles of satisfaction levels: very low (0–25%), low (25.1–50%), moderate (50.1–75%) and high (75.1–100%).

Similarly, the residential satisfaction index was derived as the summation of the component satisfaction indices. To determine the specific variables that contribute to the extent of the respondents' residential satisfaction, or otherwise, Habitability Index (Ogu, 2002; Mohit et al., 2010) was computed using the mathematical expression below:

$$HIx = \frac{\sum_{i=1}^{N} ay' x}{\sum_{i=1}^{N} Ay' x} \text{ X } 100$$

Where "HIx is the Habitability Index of x variable and N represents the sample size while ay' x is the actual score on the five-point by the yth respondent on the xth variable. 'A' represents the maximum possible score that respondent y' could give to variable x on the five-point scale" (Mohit et al., 2010, p. 22).

4 Findings and Discussions

As shown in Table 1, the majority of respondents (69.43%) were males (male-headed households), and females (female-headed families) accounted for 30.57% of the population. The highest proportion of the respondents (42.35%) were within the age range of 41-50, while the age range of 51-60 recorded the second-highest frequency of 25.33%. The household size of 5-6 members constituted 37.12%, followed by the household size of 3-4, representing 33.19%. About 44.54% of the respondents had monthly incomes of less than GH500.00 ($100.00), and 40.17% of respondents had no education, but 25.33% of them had attained primary education. Most of the respondents (85.15%) had lived in the new township since its relocation in 2012, and 58.52% of them owned the houses they lived in, while 25.76% of respondents lived in inherited houses.

Table 1: Socio-demographic Features of Respondents

Socio-demographic characteristics of Respondents		Frequency	Percentage
Gender	Male	159	69.43
	Female	70	30.57
	Total	229	100
Age Range	21 – 30	7	3.06
	31 – 40	34	14.85
	41 – 50	97	42.35
	51 – 60	58	25.33
	Above 60	33	14.41
	Total	229	100
Size of Household	1-2	24	10.48
	3-4	76	33.19
	5-6	85	37.12
	Above 6	44	19.21
	Total	229	100
Monthly Income Levels GHC (US$1.00 = GHC5.00)	≤ 500	102	44.54
	501 – 1000	60	26.21
	1001 – 1500	59	25.76
	Above 1,500	8	3.49
	Total	229	100
Educational Level	No Education	92	40.17
	Basic Education	58	25.33
	Senior High School	34	14.85
	Tertiary	45	19.65
	Total	229	
Length of Residency	Less than a year	6	2.62
	1 - 3 years	28	12.23
	4 – 6 years	195	85.15
	Total	229	100
Tenure status/Property Ownership	Owner Occupied	134	58.52
	Inherited	59	25.76
	Rented	36	15.72
	Total	229	100

Source: Authors' Fieldwork, 2020

The satisfaction index for each of the 28 attributes and the habitability indices for the corresponding four components (residential satisfaction index) are presented with means and standard deviations in Table 2. The study established that the residents perceived a moderate level of residential satisfaction (70.43) with their overall housing quality. Out of the four residential components, the habitability index for physical features of dwelling units was highest at 80.33%, followed by a moderate level of 77.85% for community facilities. Similarly, neighbourhood environment achieved a moderate habitability index of 72.13%, compared with the lowest habitability index of 38.86% for infrastructure services.

All the attributes of dwelling units had moderate to high habitability indices ranging from 62.45 (the type of construction materials, fittings and fixtures used) to 95.98 (aesthetic appearance of the residences). Similarly, the habitability index for social/neighbourhood environment ranged from a moderate 62.97 (proximity of the home to a place of work) to a high 87.88 (design of township consistent with cultural values). For the community facilities, six of the eight variables attained moderate to high habitability indices ranging from 64.19 (public toilet facilities) to 95.63 (Primary and Junior High Schools). Still, one variable (market/shopping facilities) achieved a low index of 28.03. Whereas the habitability index of one infrastructure services variable was high at 87.08 (road network and pedestrian walkways), it was deficient at 24.37 for garbage/waste collection/disposal systems and 22.45 for management and maintenance of facilities. The results indicate that the respondents' satisfaction is pronounced in the dwelling units, community facilities and neighbourhood environment components while their dissatisfaction is evident in the infrastructural services component. Table 3 shows the rank-ordered habitability indices of all the physical attributes of residential satisfaction in Salman.

Table 2: Determinants of Residential Satisfaction

Code	Items	Habitability Index	Mean	Standard Deviation
FDU	**Satisfaction with Physical Features of Dwelling Units (8)**	**80.33**		
FDU6	The aesthetic appearance of the residences	95.98	4.80	0.83
FDU1	Size of living room spaces	89.52	4.48	1.34
FDU8	Design of the house with occupant's cultural way of life	88.30	4.41	1.33
FDU7	Natural daylighting and airflow in rooms	86.38	4.32	1.45
FDU5	Adequacy and efficiency of electrical services and water supply	78.52	3.93	1.71
FDU4	Location of the dwelling unit in the township	72.05	3.60	1.90
FDU2	Size and location of the kitchen	69.43	3.47	1.45
FDU3	Type of construction materials, fittings and fixtures used	62.45	3.12	1.97
SCF	**Satisfaction with Community Facilities (8)**	**77.85**		
SCF5	Primary and Junior High Schools	95.63	4.78	0.88
SCF6	Public Medical/Healthcare facility	95.37	4.77	0.64
SCF2	Places of worship/religious buildings	92.84	4.64	1.09
SCF8	Open spaces for community gatherings and recreation	88.82	4.44	1.34
SCF1	Community Centre	87.07	4.35	1.48
SCF4	Dedicated lorry/bus/taxi station or transit points	70.83	3.54	1.85
SCF3	Public toilet facilities	64.19	3.21	1.97
SCF7	Market/shopping facilities	28.03	1.40	1.18
SNE	**Satisfaction with Social/Neighbourhood Environment (6)**	**72.13**		
SNE5	Design of township with cultural values	87.77	4.39	1.38
SNE2	The proximity of the home to various community facilities	81.57	4.08	1.61
SNE1	The site for the relocation of the new town	72.40	3.62	1.87
SNE6	Nearness to immediate neighbours in the old township	64.19	3.21	1.98
SNE4	Security of life and property	63.84	3.19	1.96
SNE3	The proximity of the home to a place of work	62.97	3.15	1.82
SIS	**Satisfaction with Infrastructural Services (6)**	**38.86**		
SIS1	Road network and pedestrian walkways	87.07	4.35	1.45
SIS2	Quality and availability of potable water supply/boreholes	62.62	3.13	1.95
SIS4	Street lighting	48.99	2.45	1.87
SIS5	Sanitary services/cleanliness of the neighbourhood	28.38	1.42	1.12
SIS3	Garbage/waste collection/disposal systems	24.37	1.22	0.82
SIS6	Management and maintenance of facilities	22.45	1.12	0.64
RSI	**Overall Residential Satisfaction Index (28)**	**70.43**		

Notes - (FDU: Features of Dwelling Units; SCF: Community Facilities; SNE: Social/Neighbourhood Environment; SIS: Infrastructural Services)
Source: Authors' Fieldwork, 2020

The resultant overall moderate residential satisfaction of the residents, which is similar to previous studies (Ibem & Amole, 2013; Li & Song, 2009; Mohit et al., 2010; Savasdisara et al., 1989), was facilitated by the positive contributions of dwelling units, community facilities and neighbourhood environment components. The high indices of habitability obtained by the three elements can be attributed to the involvement of the project-affected persons and relevant statutory agencies in the formulation of the resettlement package for the implementation of

the project, as opined by Shaw and Ahmed (2010).

The high habitability index recorded by the dwelling unit component over the other components is akin to previous findings in Ghana (Baiden et al., 2011; Danquah et al., 2014), Nigeria (Ibem & Amole, 2013; Ilesanmi, 2010; Jiboye, 2009; Ogu, 2002; Olatubara & Fatoye, 2007), South Korea (Ha (2008), Michigan, USA (Lane & Kinsey, 1980), Malaysia (Salleh, 2008) and Thailand (Savasdisara et al., 1989). However, the findings contradict other studies which indicated that residents in public housing were more satisfied with neighbourhood environments than dwelling units characteristics (Ha, 2008; Mohit et al., 2010; Ukoha & Beamish, 1997). In this study, all the variables in the dwelling unit component made positive contributions to residential satisfaction because residents received better replacements for their houses even though the designs were standardised. The attainment of moderate to high indices by all the attributes of the community facilities and social/neighbourhood environment components, except for the market and shopping facilities, is somewhat inconsistent with some previous residential satisfaction studies (Ibem & Aduwo, 2013; Mohit et al., 2010; Ogu, 2002; Salleh, 2008; Savasdisara et al., 1989). The residents were pleased with the provision of the community facilities either because such amenities did not exist, or were perceived to be significant improvements of what existed in the old village. The inhabitants were, however, very dissatisfied with the market and shopping facilities because these amenities were remotely located at the periphery of the town.

Table 3: Ranking order of Residential Satisfaction Determinants

Components	Description of Variables	Satisfaction Indices	Rank
FDU6	The aesthetic appearance of the residence	95.98	1
SCF5	Primary and Junior High Schools	95.63	2
SCF6	Public Medical/Healthcare facility	95.37	3
SCF2	Places of worship/religious buildings	92.84	4
FDU1	Size of living room spaces	89.52	5
SCF8	Open spaces for community gatherings and recreation	88.82	6
FDU8	Design of the house with occupant's cultural way of life	88.30	7
SNE5	Design of township with cultural values	87.77	8
SCF1	Community Centre	87.07	9
SIS1	Road network and pedestrian walkways	87.07	10
FDU7	Natural daylighting and airflow in rooms	86.38	11
SNE2	The proximity of the home to various community facilities	81.57	12
FDU5	Adequacy and efficiency of electrical services and water supply	78.52	13
SNE1	The site for the relocation of the new town	72.40	14
FDU4	Location of the dwelling unit in the township	72.05	15
SCF4	Dedicated lorry/bus/taxi station or transit points	70.83	16
FDU2	Size and location of the kitchen	69.43	17
SCF3	Public toilet facilities	64.19	18
SNE6	Nearness to immediate neighbours in the old township	64.19	19
SNE4	Security of life and property	63.84	20
SNE3	The proximity of the home to a place of work	62.97	21
SIS2	Quality and availability of potable water supply/boreholes	62.62	22
FDU3	Type of construction materials, fittings and fixtures used	62.45	23
SIS4	Street lighting	48.99	24
SIS5	Sanitary services/cleanliness of the neighbourhood	28.38	25
SCF7	Market/shopping facilities	28.03	26
SIS3	Garbage/waste collection/disposal systems	24.37	27
SIS6	Management and maintenance of facilities	22.45	28

Notes - (FDU: Features of Dwelling Units; SCF: Community Facilities; SNE: Social/Neighbourhood Environment; SIS: Infrastructural Services)

Source: Authors' Fieldwork, 2020

The negative contribution of the infrastructure services component to the habitability index was typical in a low-income rural community of a developing country. The high dissatisfaction with the infrastructure services in Salman was strongly influenced by the limited amenities for sanitary services, garbage disposal systems and poor management and maintenance of facilities by the local government agencies. This trend was observed in the assessment of residential satisfaction elsewhere in Ghana (Danquah et al., 2014) and Nigeria (Ibem & Aduwo, 2013; Ilesanmi, 2010; Jiboye, 2009; Ogu, 2002) where inadequate provision and non-maintenance of infrastructure services by the local authorities prevailed.

5.Conclusion, Policy and Managerial Implications

The study has applied and deliberated residential satisfaction as an approach for the assessment of MIDR, with Salman in Ghana as a case study. It offers an empirical indication of the main determinants of residential satisfaction in the MIDR. It is concluded from the findings of the study, that the relocated Salman community was satisfied with their residential environment, based on their satisfaction with three components, namely, dwelling units, community facilities and social/neighbourhood environment. The study identified infrastructural facilities as the critical component the community was highly dissatisfied with, in addition to the location of the market and shopping facilities. While the residents' high overall residential satisfaction was attributable to their involvement in all stages of the resettlement development, poor management and maintenance of facilities accounted for their dissatisfaction with infrastructure facilities.

The identification of the factors that influenced the residential satisfaction in this study reveals essential intuitions policy that makers can use to achieve residents' expectations in MIDR and to establish standards for public housing. For instance, the policy implication of the lowest satisfaction index recorded for the infrastructural services component is that residential satisfaction in rural resettlements can be enhanced through improved management and maintenance of public facilities. Therefore, there should always be specific policies for the transfer and expansion of infrastructure and maintenance responsibilities, in addition to enforcement of local government by-laws on sanitation and solid waste management within resettlements developed by private entities. Besides, since beneficiary participation has an increased tendency to improve residential satisfaction, project affected persons should always be consulted during the project layout planning, architectural design, specifications and construction of the buildings and public infrastructure.

Further studies are required to ascertain the extent and the types of modifications made to the existing prototype houses by house owners and the reasons for the alterations. The research is necessary to enhance the standardisation of buildings in resettlement housing schemes by making provisions in the design of the homes for future incremental extensions, remodelling and modifications to accommodate the varying needs of house owners.

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