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[기본연구] 가나 정부 재개발 프로그램의 비용과 편익에 대한 평가:
아크라 로만 릿지 사례 연구

국제도시 및 인프라연구센터
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ASSESMENT OF THE COST AND BENEFITS OF GOVERNMENT OF GHANA REDEVELOPMENT PROGRAMME

: THE CASE OF ROMAN RIDGE, ACCRA

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ABSTRACT

The provision of affordable housing for public servants close to their place of work has been a constant challenge to Government due to financial constraints. The decision by Government to adopt the land swap model whereby Government partners with a private investor to construct a number of housing units in exchange for land would seem a good strategy for addressing the housing needs of the public servant. This redevelopment policy that involves developing lands previously occupied by a few rundown Government bungalows into more compact housing units to maximize the use of prime lands has started at Roman Ridge in Accra. It is this first phase of the redevelopment programme that has occasioned the current study which aims at assessing its impact, viability and sustainability.

The study has showed that the cost-benefit ratio of the first phase does not favour the Government. It, however, suggests ways in which the benefits to Government can be increased. These include the construction of more housing units within the available space, deriving continuous income from the land swapped to the private developer and adopting pragmatic measures to ensure a lengthy lifespan for the constructed housing units.

근무지 가까이에 공무원을 위한 저렴한 주택을 공급하는 것은 재정적 제약으로 인해 정부에게 끊임없는 난제였다. 정부가 토지 교환(land swap) 모델을 채택하여 민간 투자자와 협력하고, 토지 대신 다수의 주택 단지를 건설하는 결정은 공무원의 주거 필요를 해결하기 위한 좋은 전략으로 보였다. 이 재개발 정책은 이전에 몇 채의 낡은 정부 관사들이 있던 토지들을 활용하여, 주요 토지의 사용을 극대화하기 위해 보다 밀집된 주택 단지로 개발하는 것을 포함하며, 아크라의 로만 릿지에서 시작되었다. 현재 이 연구는 바로 이 재개발 프로그램의 첫 번째 단계를 대상으로 하며 그 영향, 실현 가능성, 그리고 지속 가능성을 평가하는 것을 목표로 하고 있다.

연구 결과에 따르면 첫 단계의 비용-편익 비율은 정부에 유리하지 않은 것으로 나타났다. 그러나 연구는 정부의 편익을 증가시킬 수 있는 방안들을 제시하고 있다. 여기에는 사용 가능한 공간 내에서 더 많은 주택 단지를 건설하는 것, 민간 개발업자에게 교환된 토지로부터 지속적인 수입을 얻는 것, 그리고 건설된 주택 단지의 긴 수명을 보장하기 위한 실용적인 조치를 채택하는 것이 포함된다.

I GENERAL INTRODUCTION

1.1. Introduction

Housing has been identified as a key contributor to economic, social and civic development (Kissick et al., 2006). The contributions of housing-related activities are directly linked to broader socioeconomic developmental goals. All around the world and especially in developing economies, the housing construction value chain is one of the largest employers and creates several job opportunities (Harris & Arku, 2006). Activities in the housing value-chain contributes directly to achieving macro-economic goals. Investment in housing for instance, drives economic growth as seen in the United States where housing contributes about 14% of gross domestic product (GDP) (Kissick et al., 2006). In low-income countries such as Ghana, housing-related activities serve as a source of employment for the teaming unemployed youths. Housing is also said to be, after food and medical care, the first need of vulnerable populations following natural or man-made disasters. The role of housing in any society therefore cannot be overemphasized.

Notwithstanding the vivid evidence of the linkages between housing and socio-economic development (Harris & Arku, 2006), many developing countries have not taken advantage of this to roll out policies to help address the ever-rising housing deficit and also, meet the future demand for housing. However, it is a well-known fact that housing financing is capital intensive and constrained by a number of factors including insufficient capital base of banks, difficulty of financial institutions to establish credit merit of prospective borrowers as well as unfavorable macro-economic settings (Teye et al., 2013) and these have resulted in its limited supply in most developing economies. Raising the needed capital to roll out these projects has proved particularly challenging for most developing economies. Consequently, other funding alternatives such as public-private partnerships (PPPs) have evolved as alternatives to offer governments an avenue to successfully meet their infrastructure gaps (Roumboutsos & Macário, 2013). Currently, the Government of Ghana has grasped the relevance of alternative financing modes such as Public-Private Partnership in financing critical infrastructure, such as housing, in bridging the infrastructure gap in the country.

Government of Ghana acting through the Ministry of Works and Housing (MWH), as part of its mandate to provide safe, secure, adequate and affordable housing for people living in Ghana, provides accommodation for public servants at affordable rate. As of September 2023, the Ministry has a total number of 1,113 Residential Accommodation, made up of 624 Bungalows, 477 flats and 12 Drivers' quarters scattered in various locations in Accra (Estate Unit, Ministry of Works and Housing, 2021). However, although these properties have been developed, the demand continues to outstrip the total number of housing supplied and this has further heightened the plight of the public servants, considering the fact that the average cost of assessing decent accommodation far outstrip what the average public servant can afford.

Overtime, the Ministry has observed that within the catchments of its developed residential properties, lie several parcels of land that have not been put to optimum use. In some cases, too, some of the properties on the lands in these prime areas are dilapidated and obsolete and need to be replaced. Accordingly, the Ministry in a bid to promote sustainable and optimum land utilization while promoting urban densification, commenced the implementation of the Redevelopment Programme (MWH, 2018). This programme is hinged on the principle of renewing old run-down neighborhoods to substantially improve the physical environment while increasing the housing density at virtually no additional infrastructural cost.

Consequently, Public-Private Partnership (PPP), which has evolved as a preferred mode for delivering public infrastructure projects to achieve value for money (Gunnigan & Rajput, 2010) became a preferred financing module for the implementation of the Redevelopment Programme. This was in recognition of the fact that traditional government finances, using its annual budgets, have proved to be inadequate and erratic in releases. Accordingly, the Ministry entered into a partnership arrangement with the Ministry of Lands and Natural Resources acting, through the Lands Commission, to embark on a land swap arrangement with the private partner. Under the arrangement, Government's equity for the investment is the land that is swapped for a number of newly built housing units.

As part of the implementation of the first phase of the revised Redevelopment Programme at Roman Ridge, nine (9) units of 4-bedroom residential bungalows were redeveloped into thirty-nine (39) units of 4-bedroom two-storey town houses with a one-bedroom outhouse and twenty-four (24) three-bedroom apartments on the same parcel of land. This initiative, though innovative and evolving, has left many to question its sustainability and relevance in meeting the overall objective of providing adequate housing for public and civil servants close to their workplace arguing that the cost of the transaction to government far outstrips the benefits.

1.2. Problem Statement

By 2030, the global population will reach 8.5 billion and almost 60% of the population will be living in urban areas. It is estimated that "by the middle of this century, 4 out of every 5 people might be living in towns and cities" (UN-Habitat, 2016, p. 66). Rapid urbanization is therefore putting pressure on housing delivery systems which are either informal or dependent on the state.

This rapid urbanisation has made housing one of the most critical development issues for the Continent. African Governments' inability to meet the demand has resulted in the huge housing deficit which has culminated in the springing up of areas of informal housing, overcrowding and slums, staring them in the face. Traditional methods of financing housing construction continue to be inadequate, calling for alternative financing schemes and programmes.

In the case of Ghana, the housing deficit is currently estimated to be in the region of 1,845,115

housing units and this continues to pose a significant threat to sustainable livelihood and development in the country (Ghana Statistical Service, 2021). According to the Population and Housing Census conducted in 2021 by the Ghana Statistical Service (GSS), the urban population showed a dramatic increase from approximately 35% in 1984 to a staggering 52% in the year 2010 and currently hovers around 57%. While available statistics has established that the annual housing supply rate ranges from 30,000–40,000 housing units (Ministry of Works and Housing, 2015), industry experts in Ghana have estimated that, the country needs a minimum of over 100,000 residential housing units each year to wipe out Ghana's climbing housing deficit.

It is worth emphasizing that the challenges of the housing sector are further heightened by the land tenure and administration procedures and processes in Ghana. It is important to note that central to housing development in Ghana is the issue of land. Land is one of the major production factors and is essentially indispensable and its administration is thus crucial for adequate housing production (Agunbiade et al., 2012). The cost of land has a direct relationship to housing cost. In most urban centres in Ghana, especially in Accra, land values have sky–rocketed over the years due to its limited supply. Then, also, there are uncertainties surrounding the land use and development restrictions, and land disputes that have resulted in a reported 80,000 legal cases (Mahama & Antwi, 2006).

On the other hand, most urban centres in Ghana such as Accra, are affected by the phenomenon of urban sprawl, the situation where the spatial extent of cities is growing at a higher rate than the population they host. This is caused by settlement of low–density urban forms (detached houses with private gardens) consuming large surfaces of land (EEA, 2016). To address this, most governments have championed policies that focus on urban densification. Urban densification of existing cities or the creation of compact city forms (Barbosa et al., 2007) implies an increase of the level of urbanization of a limited area thereby ensuring the optimum use of the land.

Although the redevelopment programme presents high prospects of ensuring the optimum use of land available in these prime areas while also, adopting alternative means of financing (i.e., using PPP under a land swap arrangement), this module adopted is causing government to lose a lot of its lands situated in these prime locations to the private sector. In the short to medium term, this could result in a situation where government may have limited access to land space to use for the construction of housing for public and civil servants in these prime areas. In the end, Government would lose precious land in these prime areas, and that would ultimately defeat the objective of providing decent accommodation to public servants close to their place of work.

Additionally, the ongoing situation may be likened to a poor public decision making as a result of inadequate project preparation underpinned by appropriate assessment of cost to benefit ratio to inform decision. Consequently, the transactional cost of this policy is perceived to be far above the benefits derived by government. For this reason, it is worth assessing the Benefit–Cost Ratio (BCR) for the module adopted in the implementation of the redevelopment programme.

1.3. Research Proposition

The study hypothesizes that the Cost of the land-swap module adopted in the implementation of the Government of Ghana Redevelopment Programme is higher than the benefits.

1.4. Research Questions and Objectives

This research specifically aims to answer three main questions:

i. What is the Financial Net Present Value of the first phase of the Government Ghana Redevelopment Programme?

ii. What are the Economic Net Present Value for the Government of Ghana Redevelopment Programme?

iii. What is the poverty impact ratio for implementing the redevelopment programme?

The main objective of this research is therefore geared towards the appraisal of the cost and benefits of the first phase of the Government of Ghana Redevelopment Programme and more specifically, the objectives are:

i. To evaluate the Financial Net Present Value for the Government of Ghana Redevelopment Programme

ii. To investigate the Economic Net Present Value of the Government of Ghana Redevelopment Programme

iii. To establish the poverty impact ratio for implementing the redevelopment programme

1.5. Scope of the Research

The main purpose of this study is to analyze the benefits and costs of the Government of Ghana Redevelopment Programme. Benefit-cost analysis (BCA) is a method for appraising a project or investment by comparing the economic benefits of an activity with the economic costs of the activity (Shively & Galopin, 2013). BCA allows one to consider all costs and benefits over time, even those beyond the length of the intervention. Among the measures of BCA is Benefit-Cost Ratio (BCR) which is calculated as the present value (PV) of benefits divided by the present value (PV) of costs. If the BCR exceeds one, then the project might be a good candidate for acceptance.

A recent study done by the National Development Planning Commission (NDPC) in collaboration with the Copenhagen Consensus Centre indicated that the Cost Benefit Ratio (BCR) for housing

development is often 1:1 where ultimately, the benefits derived from housing development is equal to the cost. However, considering the prime locations where this redevelopment programme is being implemented, coupled with the fact that a land-swap arrangement has been adopted as under the PPP module, there is the need to assess the BCR to provide empirical evidence as to whether the benefits derived from the redevelopment programme is equal or higher than the cost.

The study will therefore focus solely on evaluating the cost and benefits of the redevelopment programme in the Roman Ridge residential area. The study engaged a combination of the various stakeholders involved in the projects such as engineers, consultants, contractors, government officials from the Ministry of Works and Housingand Lands Commission.This was done to enable the researcher obtain input from contributors who possess valuable knowledge and experience in the field and will therefore be able to make the most meaningful contributions toward the study.

Review of literature relevant to the study by diverse scholars and researchers was also conducted. Areas incorporated included critical determinants of costs and benefits of housing schemes. Further, primary data was collected through the use of interview guides. This allowed for the data collected to be analyzed to answer the research questions and make recommendations.

1.6. Justification for the Research

It is an undeniable fact that housing poses a major challenge in the country and as such, the housing situation for the public and civil servants is no different. Considering the ratio of public servants in the Greater Accra Region as against the number of housing units that have been provided, it is clear that a lot more, in terms of innovative measures, must be put in place to address the housing situation. The Government of Ghana Redevelopment Programme has presented itself a plausible means to reaching this goal.

Nonetheless, the major asset (i.e. land) that is involved in this transaction is finite and particularly limited in the capital city of Accra. Accordingly, its importance of optimizing land use to the greatest of benefits cannot be overemphasized and justifies the cause for the study.

Similarly, there is the need to assess the sustainability of this initiative and see if the programme creates opportunities for future generations. This is because the implementation modality of the redevelopment initiative could possibly be likened to exploiting current resources to the deprivation of generations yet to come.

This research therefore provides a scientific means and a first step to determining the sustainability or otherwise of the module adopted towards the implementation of the programme. This paper also explored possible means to optimize the benefits and minimize the transactional cost of the programme to government and potentially, provide input into policy and positively affect evidence-based decision-making. Ultimately, the study has come up with findings and recommendations to add to the body of knowledge that exists on the subject-matter.

II LITERATURE REVIEW

2.1. Introduction

This chapter is devoted to the review of literature relevant to the study. The chapter presents a summary of previous research on Infrastructure, Housing and Development with specific emphasis on Housing in Ghana. The chapter delves into housing development and land acquisition in Ghana exploring access to Housing Financing and Urban Housing Supply within the Greater Accra Region. Government Policies to reduce the housing deficits in Ghana was also examined with more concentration on Government policy responses to the housing needs of public servants which culminated in the development of the Redevelopment Programme. Lastly the chapter investigates through literature, Benefit-Cost Analysis for the Housing Construction Industry in Ghana and finally zeroes in on the plausible Benefits and Cost of the Government Redevelopment Programme which formed the basis of analysis for ensuing chapters.

2.2. Infrastructure, Housing and Development

Infrastructure is one terminology that has been defined differently by several scholars. However, this study adopts the definition of Prud'homme (2004) who described infrastructure as a capital good that is consumed together with labour and other inputs to provide public services. He has further argued that such infrastructure may include transport (roads, bridges, rails, ports and airports), energy (power distribution and generation), water (water treatment and sewerage disposal), and social infrastructure (schools, housing, hospitals and prisons) (Saravanan, 2008).

To this end, the role of infrastructure in the development of the economies of the world cannot be downplayed. Specifically, several studies have demonstrated a strong correlation between investment in infrastructure and economic growth. Wylie (1996) discovered significant returns of infrastructure investment to productivity in Canada's goods-sector, and complementarity of infrastructure with goods-sector capital and labor inputs during 1964-1991.

In Africa, many studies have demonstrated such correlation. Over half of sub-Saharan Africa's improved growth performance has been attributed to infrastructure development (Foster & Briceno-Garmendia, 2010). For instance, Akinbobola and Saibu (2004) found that spending on infrastructure development leads to job creation opportunities, higher level of per capita income and a reduction in poverty. However, despite the positive relationship between infrastructure and economic development, investments in infrastructure in sub-Saharan African countries such as Ghana currently are woefully inadequate to bridge the infrastructure gap that will guarantee the kind of growth demanded globally (Bhattacharya et al., 2015).

On the other hand, housing has remained an essential part of human needs, as indicated in

Marlow's Hierarchy of Needs. Housing or shelter is considered a physiological or basic need of every man which means, in other words, that housing is important for man's survival. It is therefore not surprising that the United Nations identified adequate housing as part of the right to an adequate standard of living in the 1948 Universal Declaration of Human Rights (UN-Habitat, 2009).

The provision of adequate housing is an element of sustainable development, as is listed in the United National (UN) Sustainable Development Goals (SDGs) to be achieved by the year 2030. The Sustainable Development Goals (SDGs) Number eleven (11) outlines the provisions to be put in place to ensure that cities and other human settlements are made safe, resilient, and sustainable. This would then help provide exceptional opportunities for the accomplishment of shared and inclusive progress for the attainment of a sustainably developed world ((UNDP) U. N., 2018). During the 2017 World Habitat Day, the UN stated that affordable housing is a key for national development and social equality and this is significantly true as Housing is addressed in the Sustainable Development Goals (SDG) number eleven (11) (Habitat, 2018). Housing is important because it offers more than just accommodation; it also embraces all the societal processes that build a liveable community.

It is the responsibility of every Government to be concerned about promoting the wellbeing of its people and housing is considered as one of the critical needs of every human being aside food and clothing. To this end, several governments across the globe have enacted policies and frameworks to govern and regulate the housing sub-sector towards increasing access to various housing options (Henilane, 2016). Similarly, several governments have also put in place various policies and programs that have highlighted the provision of minimum housing standards as a contribution to the welfare of the people in the country (Donner, 2002). In the end, all these policies and programs are geared towards increasing access to adequate housing options to improve the wellbeing of the people living in the country.

However, for several governments across the globe, the challenge has mostly been providing adequate housing both in terms of quantity and quality. This situation is more prevalent in developing economies and emerging markets that are particularly constrained when it comes to financing these various housing options from traditional government finances using the annual budgets. This, in effect, limits the access of these governments to the various housing options.

The developing world has seen the most unprecedented phenomenon of rapid urbanization in the past few decades. This has overburdened many of its cities' capacity to accommodate the housing requirements of the ever-growing urban population notwithstanding the many innovative measures employed to curb the situation. According to the World Cities report (2020), the world will continue to urbanize over the next 10 years from the present 56.2% to 60.4% by 2030 and, as has already been indicated, the trend will be mostly seen in the developing world.

2.3. Housing in Ghana

Despite efforts made by successive governments over the years, there are still gaps between government interventions made through housing policies and the achievements attained so far. The housing shortage in Ghana remains the most critical challenge faced by the housing sector and it thus increases the need for the Government of Ghana to integrate measures to address these challenges.

Available statistics has shown that only five (5) percent of Ghana's population can acquire their own homes without any form of assistance, while sixty (60) percent require support that is facilitated by the state to access housing and the remaining thirty–five (35) percent requiring additional direct support before they can have access to housing (Sarfoh et al., 2016). The study further revealed that the assistance required by the households within the 60 percent band comes in the form of supportive regulations and competitively priced mortgages whereas the lower 35 percent band will need subsidies in addition.

The 2021 Population and Housing Census in Ghana has further revealed that approximately 12.7 percent of the total structures counted were vacant housing units (GSS, 2022), giving a clear indication that our housing supply has outpriced the average person in Ghana and failed to address the housing needs of a significant segment of our society. Consequently, housing accessibility and affordability have become the most critical issue confronting the housing Sector in Ghana and to date, the country continues to grapple with a housing deficit that is estimated in excess of 1.8 million housing units (GSS, 2022).

To this end, it has been argued that the challenges confronting the sector are multi–faceted both on the demand side and on the supply side and constrained by several factors. These factors include, but are not limited to, the high cost of land acquisition, inadequate housing financing institutions, high cost of building materials, and lack of continuity in housing projects through abandonment by succeeding Governments.

2.4. Housing Development and Land Acquisition

Land ownership in Ghana falls under two main categories: customary land, and Government or State land. Customary land, which constitutes about 78% of all lands in Ghana, falls under the control of traditional rulers and families, whilst the State owns 20% (Danso & Manu, 2013). The remaining 2% of the land is collectively owned by the Government and traditional authorities. This system of traditional rulers and families owning the greater share of lands in Ghana affects the housing sector tremendously. The high cost of acquiring land is not only based on the actual cost of the land, which gets higher the closer you get to the urban areas, especially Accra, it is also affected by the high rate of indiscipline in the unregulated customary land market. There are several instances of sale of the same piece of land to multiple people, and buyers having to pay money over and over again to multiple rival claimants. This has had a resulting impact on the cost of housing in the country. Owing to the high cost of land acquisition, most Ghanaians rely on renting as opposed to building their own houses.

It is however worth mentioning that since 2020, a new law has been passed (i.e. Land Act, 2020 (Act 1036)) that will inarguably be forward looking in nature, seeking to curb the existing challenges while advancing a more sustainable approach to the land administration and management system in the country.

2.5. Access to Housing Financing

Several factors restrain household access to home finance including limited financial market underpinned by high-interest rates and associated transaction costs. A study conducted by the Center for Affordable Housing Finance Africa (CAHF) relating to access to finance for affordable housing in Ghana has revealed that the financial market in Ghana is underdeveloped, with exorbitant cost of capital for the construction and housing sectors.

The study further revealed that the average lending rate for commercial banks in Ghana stood at 20.1% in 2020 and 31% in 2021. Similarly, the mortgage market has also been limited and less competitively priced with only nine (9) out of the twenty-three (23) commercial banks in Ghana offering official mortgage products with interest rates ranging from 18.7% to 31.7%. To this end, support for housing construction and accessibility has been limited.

Specific to the demand side of the housing market, available evidence has shown that many developed countries have developed their housing through robust and well-structured mortgages and housing finance systems to provide financing for citizens to own or rent decent houses. On the contrary, many developing countries, including Ghana have had limited housing financing institutions that are willing to provide cheap financing to the average Ghanaian to access various housing options as corroborated by the study conducted by CAHF.

On the supply side, the bulk of housing in Ghana is predominantly provided by informal homeowners who often lock up their lifetime saving in the construction of housing units. The high interest rates charged by the banks do not encourage homeowners to go for loans. Workers who build their own houses usually save up for a long time, sometimes for their entire working life and are only able to start building when they are near retirement.

The above, amongst others have led many to argue that the underdeveloped financial market in support of housing interventions has adversely affected housing affordability and accessibility in Ghana.

2.6. Urban Housing Supply in Ghana and Accra

Rapid population growth in major urban centers in Ghana, which has been attributed to rural-urban migration, has highlighted housing as one of the major issues confronting the country. Increasingly, issues of overcrowding, housing decay and blight characterized the housing situation in most neighborhoods in Ghana (Boamah, 2011). According to the 2011 Ghana Housing Profile, about

60% of urban households in Ghana occupy single rooms and only one-fourth of households own their dwellings with the three-fourths being either renters or living in a rent-free family house.

Additionally, urban housing is said to be very expensive with prices of dwellings having shot up significantly in major cities such as Accra, Tema, Kumasi and Takoradi due to a sharp rise in middle-class citizens as well as an unchecked rural-urban migration which has led to these cities outstretching their boundaries (Agyeman-Badu, 2017).According to the Centre for Affordable Housing Finance Africa (CAHF) 2021 Housing Finance Yearbook on Ghana, affordability remains a challenge due to the predominant low-income households which in turn limits access to housing. According to the report, the cost of the cheapest newly built house hovers around GH₵134 684 (US$22,938) and with the average annual household income of GH₵33,947 (US$5,781) it implies that the average household cannot afford these houses.

Access to basic mortgage facilities remains a challenge for many of the households in the low- and middle-income bracket and as such they cannot afford decent housing. Many of the banks providing mortgage loans set a debt-to-income ceiling not exceeding 45 percent of net income and borrowers are required to make a 15% down payment upfront with a typical monthly mortgage instalment assessed at 45% of household net income (CAHF, 2020). This, according to the IMF's definition of housing affordability, constitutes a relatively unaffordable housing to the average Ghanaian household. Despite Government announcement of increment of 12% in base salaries of public sector workers and a further 40% increment in some categories of allowances in 2019, the plight of public sector workers still lingers. Given the historically low levels of wages, the announced increments were hardly enough to cover housing costs (CAHF, 2020).

From the foregoing, it can be argued that urban housing delivery in Ghana is plagued with many challenges despite the efforts of both past and present governments. Housing industry experts in Ghana estimate that the country will need a minimum of over 100,000 residential housing units each year to curb the housing deficit currently estimated at 1,845,115 units which the current annual supply of housing units of about 35,000 to 40,000 units is unable to address (NPP Manifesto, 2016). The UN-Habitat holds the view that in order for Ghana to bridge the housing deficit gap, 3.8 rooms or more than one housing unit must be completed every minute (Gyamfi, 2018).

Specific to Accra, the 2021 Population and Housing Census has revealed that the Greater Accra Region has overtaken Ashanti as the nation's most populous region with 17.7% as against 17.6%. The rapid increase in population has exerted enormous pressure on housing facilities in the region and caused prices to generally go up; thus, the need to supply more housing units to meet the housing needs of the region, particularly for the low-to-middle income group. Relatedly, the Accra Metropolitan Assembly in 2011 estimated an annual housing supply requirement of 25,000 units to meet the present and future demand, out of which it is only able to provide 5,350 units annually representing 21.4% (Accra Metropolitan Assembly (AMA), 2011). This goes to emphasize the fact that the housing challenges of the country is particularly pronounced in the Greater Accra Region as a result of its high population growth rate and urbanization rate.

2.7. Government Policy Responses to Housing

Ghana has a history of national economic planning but has never had housing taking a central stage. During the colonial era, policies needed to deal with housing challenges were insufficient or non-existent and did not consider the indigenous people. It was only after gaining independence in 1957 that an extensive scheme was launched (Asabere, 1994). Government of Ghana then took over the responsibility of providing subsidized housing for people within the low-income bracket. This included housing for public servants and other government official closer to their workplaces. However, this policy could not be sustained and stalled after some time.

Governments and military regimes that ruled between 1966 and 1972 also introduced initiatives which had limited success. The initiatives focused on the provision of low-income housing under a liberal market economy and promoted home ownership with government financial support in urban centers targeting low-income households. This was largely unsuccessful as it left out low-income households that were not in urban centers. Again, between 1972 and 1978, a low-cost housing scheme was developed under a five-year Development Plan (1976 - 1980) which led to the development of experimental low-cost houses in Accra, Kumasi and Sekondi-Takoradi by the State Housing Corporation (SHC). However, this could not be sustained as the asset base of the State Housing Corporation got exhausted. Policy reform programmes such as the Structural Adjustment and Economic Recovery Programmes of 1983 were started to open the housing sub-sector to competition, improve efficiency in the housing finance system, and increase housing supply through commercial development, foreign investment, and self-building (ILO, 2019). This also had its limitations in addressing the housing needs of low-income households in Accra and other major urban centers.

The National Development Policy Framework in 1995 was launched and within this framework was low-cost housing which was geared towards improving the housing conditions of the urban and low-income households. Nevertheless, not one of the strategies was executed owing to lack of funds, lack of private sector participation, lack of political will and change in government that led to a change in policy directions (Acquaah-Harrison, 2004). Similarly, in 2001, the Ghana Poverty Reduction Strategy (GPRS) was launched which included policies to address the provision of affordable low-cost housing, but just as previous policies, could not address the housing needs of the urban poor.

Of significant mention is the fact that from 2005, the government initiated a new pathway to public housing adopting the programmatic approach to ensure continuity across governmental changes. This culminated in the Affordable Housing Programme with mass housing projects in six (6) sites (i.e. Borteyman, Kpone, Asokore-Mampong, Koforidua, Tamale and Wa). However, the programme stalled with the exit of the government in 2008 and an entirely new project commenced at Saglemi in 2015. Subsequently, the developments at Borteyman and Asokore-Mampong have been completed while work is ongoing at Kpone and Koforidua. That notwithstanding, the completed projects have failed to significantly address the affordability challenges with relation to housing supply

in Ghana as a significant number of the target population which are mostly public servants could not afford the completed units. Also, the location of these units obviously did not favour workers who wanted to reside in these properties and commute to work daily in the city center due to the distance.

The National Housing Policy, however, came into being in 2015 after considering lessons learnt from previous policies, and it laid emphasis on the provision of decent and affordable housing for the low-to-middle income group while highlighting the redevelopment of Government lands as a major policy shift (strategy) to increase access to and provide decent and affordable housing for public sector workers.

It is therefore on the basis of the above that government initiated the implementation of the Redevelopment Policy to increase access to safe, secure and affordable rental housing option for public servants in Ghana. However, considering the severity of the housing challenge in Accra, the Redevelopment Policy placed emphasis on redeveloping old and rundown neighborhoods located in prime areas within the Greater Accra Region to ensure the optimum use of the urban lands through improved housing supply and densification while optimizing the cost of infrastructure per household.

2.8. Benefit Cost Analysis

Benefit-cost analysis (BCA) is to help decision makers make informed choices on housing construction. Benefit-cost analysis (BCA) is a method for appraising a project or investment by comparing the economic benefits of an activity with the economic costs of the activity (Shively & Galopin, 2013). BCA is the ratio of project benefits set against project costs. It involves the addition of the total discounted benefits for a project over its entire duration or life span and dividing it over the total discounted costs of the project.

Benefit Cost Analysis is an instrument used to determine the value of a project, programme or policy (European Commission, 2014). The aim for adopting the benefit-cost analysis approach is to enable policy makers make informed decision as to invest in a particular project or programme. It is a quantitative analytical tool used by many to make judgement and appraise numerous options to select the most suitable one (European Commission, 2014).

The use of benefit cost analysis in appraising projects and programmes helps to, among other things, ensure the efficient allocation of resources as well as quantify the costs and benefits of projects and programmes thereby converting available data into manageable information (European Commission, 2014) while evaluating the desirability of a project by comparing its benefits to its costs. The result of the comparison could be expressed in various ways including internal rate of return, net present value and benefit-cost ratio (European Commission, 1997).

In applying the benefit-cost analysis approach in a project, the project's societal value is estimated by quantifying the societal effects and associating it to the costs and benefits in monetary terms

(Koopmans Carl and Mouter Niek, 2020). Most Government and big projects mostly rely on benefit–cost analysis as a tool for appraising these projects.

In essence, the benefit cost analysis measures the effects of a project, programme or policy through the willingness–to–pay of those who may be directly or indirectly affected by the project (Koopmans Carl and Mouter Niek, 2020).

2.8.1. Benefit Cost Analysis and Other Methods

The benefit cost analysis is not the only tool used to appraise a project, there are other tools that are used. The Economic Impact Analysis is also a widely tool used to access the economic impact of decisions taken by Government and other organizations in terms of project implementation (Koopmans Carl and Mouter Niek, 2020).

When using the Economic Impact Analysis, a range of economic impacts are calculated such as the country's GDP, competitiveness, employment, unemployment, profits and wages. Economic Impact Analysis would not be a suitable tool for assessing Government Housing Redevelopment Programmes because the effects of the economic impacts are presented separately and are not weighted like the benefit cost analysis that considers cost and benefit including societal benefits of Government projects (Koopmans Carl and Mouter Niek, 2020).

2.8.2. Benefit and Cost Analysis for Housing Construction

The National Development Planning Commission (NDPC) in partnership with the Copenhagen Consensus Centre conducted a study which indicated that the Benefit Cost Ratio (BCR) for social housing development is often 1:1 where ultimately, the benefits derived from housing development is equal to the cost. Therefore, for every One (1) Ghana Cedi spent on social housing there is an equivalent One (1) Ghana Cedi benefit. This BCR is not surprising given the relatively high cost of housing (Adjasi, 2020).

Housing forms an important proportion of all capital stock, as indicated by Philipott (1992), the estimated ratio of housing in New Zealand in 1989 was 23% of the total value of New Zealand's capital stock including infrastructure, plants and machineries (Johnstone I. M, 2004). As technology changes and the world population grows, there is the need to replace and/ or expand existing housing as well as provide additional housing to meet the growing demands (Johnstone, 2004).

The decision to replace or expand and provide additional housing is largely determined by the flow of resources involved in sustaining housing units (Johnstone, 2004). Therefore, before the decision is finally made to replace and add more housing to meet the growing demand, a simulation model to estimate the benefit–cost ratio must be developed (Johnstone, 2004). This would enable Governments to identify potential reductions in the total cost and the overall resources required to

sustain housing (Johnstone, 2004).

TThere has been numerous stock and flow model of housing over the years, these include the model proposed by (Woodhead & Rahil'y, 1986) which was aimed at the flow of new construction, (Glenck & Lahner, 1996) aimed at estimating the waste management requirements for the Upper Austria region (Johnstone, 2004). Similarly, Johnstone (2001a) dived into an exploratory approach to estimate the current and potential reductions in national cost in sustaining housing stock due to periodic cycles of full refurbishment (Johnstone, 2004).

2.9. Benefit and Cost of the Redevelopment Programme

There exist extensive studies in developed countries relative to housing modification process in which the motives for people moving houses or extending existing ones have been examined. In developing countries and in Ghana to be precise, there is an increasing demand for housing in the form of newly built houses as well as existing ones that have been modified or transformed. With the increase demand implies the adoption of strategies including moving to a bigger accommodation and, improving or transforming current properties to increase their intake capacity (Tipple et al., 1997).

Several studies have demonstrated the importance of social housing to developing countries. Governments in developing countries are faced with the herculean task of providing adequate housing for their increasing urban populations. It is estimated that over 25million households of developing countries' increasing urban population will need to be provided with adequate housing by the end of the century and thus, the need for programmes that aim at providing low-cost housing (Rondinelli, 1990).

Housing is generally seen to have a positive correlation with health. There have been several studies showing this linkage in many developing countries. In Ghana, Arku et al. (2011)'s comparative study of three suburbs of Accra showed that areas with poor and inadequate housing pose major health risk for their residents. As such, the worsening housing situation in terms of quality and quantity triggered by the expanding urban population raises alarm about possible health implications and hence, the need to address it by adopting affordable housing strategies such as the redevelopment scheme for public servants close to their offices.

The subject of affordable housing is at the forefront of many developing countries' governments' agenda to provide housing for the urban poor who are unable to afford decent and affordable housing at market prices and in Ghana, this has often included the public servants and other government workers. Hricová and Urban (2021)outlined the positive aspects of affordable housing to include among other things, having a rental agreement and housing security, having to live in a safe environment as well as the quality of housing in terms of apartment without mould and parasites, cleanliness in joint spaces and the vicinity of the houses, upholding night-time peace, living in an apartment of better quality, available shops and services in the living area, and available water and electricity supplies.

In the case of the redeveloped government housing units at Roman Ridge, the less time and cost of having to commute to work by public servants occupying the housing units because of the proximity of the housing units to their places of work underpinned by the general reduced stress levels in accessing affordable housing options can be seen as some of the benefits. Additionally, the revenue that accrues to government through the monthly rent payments from the occupants of government housing units also form a part of the benefits.

Housing provision in Ghana is also bedevilled with high cost of building materials and labour, cumbrous land acquisition processes, absence of mortgage financing as well as access to basic social infrastructure facilities. Thus, defeating the objective of delivering affordable housing by government to improve the quality of life of the urban poor (Appeaning Addo, 2014), including public servants.

Similarly, the redevelopment policy of government has assumed a land–swap arrangement as equity for the developer's investment for the redevelopment. Available literature has shown that landed properties such as houses and real estate will usually depreciate over time due to several factors including wear and tear, obsolescence, or time–limited rights of use among others (Gordon, 1998). To this end, some jurisdictions have assumed the concept of useful life where the amount of depreciation of the property is referenced to the determinable useful life of the property. For the purpose of the study, an annual depreciation rate of 10% as deduced by Adams (2020) for residential properties has been adopted for the study.

On the contrary, the value of land is noted to appreciate overtime due to factors such as the increasing need for the land among others. Mainaki et al (2020) and Rynjani and Ragil (2015) has indicated that land prices are mainly driven by several factors but would possibly increase in accordance with the occurrence of economic activity that is correlated towards infrastructure such as roads, government financial and other activities in centrals. To this end, the study assumes that the value of land that is swapped for the redevelopment of the old structures is a cost to government as the property largely appreciates significantly due to its location and proximity to the city centre.

More recently, the Ministry of Finance, Ghana in accordance with the provisions of the Public Financial Management (Public Investment Management) Regulations, 2020 (L.I. 2411) has introduced an Integrated Investment Appraisal (IIA) methodology that ultimately assesses the benefits and cost of a government project or programme from several perspectives, including financial, economic, stakeholder, and affordability analyses amongst others.

2.10. Definition of Terms

2.10.1. Urbanization

Urbanization refers to the rapid expansion of towns and cities beyond their original boundaries involving population, land use, economic activity and culture due to rural–urban migration. According

to Sanyaolu and Sanyaolu (2018), urbanization refers to the gradual increase in the proportion of people living in urban areas and the ways in which each society adapts to the change.

2.10.2. Urban Sprawl

Refers to the situation where the boundary of cities is growing at a higher rate than the population they host. It is the uncontrolled and uncoordinated expansion of a city or a metropolitan area (Johnson, 2001 as cited in Yiran et al, 2020).

2.10.3. Housing deficit

According to the Collins Dictionary, housing deficit refers to a deficiency or lack in the number of houses needed to accommodate the population of an area

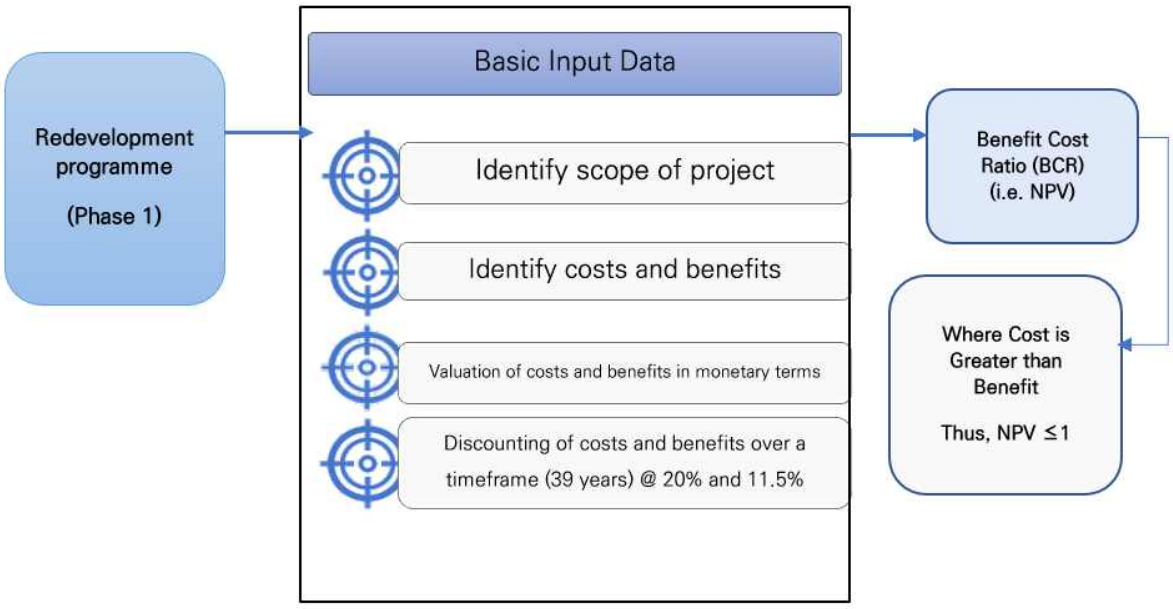
2.10.4. Slum

It is an overcrowded area of a city where living conditions and housing are very bad.

2.10.5. Housing / Shelter

According to the Oxford Dictionary, housing is a building for human habitation, especially one that consists of a ground floor and one or more upper storeys.

2.11. Conceptual Framework



III DATA DESCRIPTION AND METHODOLOGY

3.1. Introduction

This section discusses the research approach that was used in this study. It highlights the steps that was taken in conducting the study by discussing the methodology, data collection instrument, data analysis and presentation, and ethical considerations.

The study defined a hypothesis to guide the study and it centred on whether the cost of the land swap module adopted in the implementation of the Government of Ghana Redevelopment Programme is higher than the benefits.

The use of hypothesis in this research study was significant because it enabled the researcher to select facts and understand the relationships between the different variables that will be used in the study. It will also allow the researcher to draw logical conclusion on a predicted statement (Anupana K. Dayanand, 2018).

For the purpose of this research, the research sought to validate the fact that the cost of land swap module adopted by the Government of Ghana in the implementation of its Redevelopment Programme is greater than the benefits derived from the Programme.

3.2. Methodology and Model Description

The Integrated Investment Appraisal (IIA) methodology was used to assess the benefit and cost of the first phase of the redevelopment programme of the Ministry of Works and Housing. The IIA allowed for the consideration of diverse perspectives in the determination of the benefits and costs of the project and these entailed the economic, financial and stakeholder analysis. The process ultimately identified and quantified the following:

1. To cost of investment by the developer (i.e. the Cost of the Housing Units in 2016)

2. The Value of the land for the project

3. The value of government equity (i.e. land swapped for private sector investment)

4. The Benefit to Society and the impact on poverty reduction.

The IIA methodology facilitated the assessment of the financial and economic benefits and costs of the redevelopment programme while also allocating the costs, benefits and impacts to the appropriate stakeholders on an incremental basis. This allowed for the determination of the additional

net benefits and costs created as a result of the project interventions. To this end, positive incremental financial and economic returns are synonymous with additional net benefits, whereas negative incremental financial and economic returns indicate that the interventions lead to additional net costs rather than benefits.

In the use of the Integrated Investment Appraisal (IIA) methodology, Microsoft Excel was utilised to construct a model that compares the annual incremental costs and benefits of the redevelopment programme. The financial and economic benefits and cost were subsequently determined using the annual incremental resource flows which span a total period of 39 years from 2019 to 2058. However, 2016 was considered the base year considering that the project commenced that year. The model was utilised to derive nominal cash/resource flows, which are subsequently converted to real cash/resource flows through the use of price indices developed using World Bank inflation and exchange rate data.

In accordance with the guidelines for the utilisation of the IIA, the real incremental cash/resource flows were then used to compute various outcomes such as financial and economic net present value (FNPV and ENPV), internal financial rate of return (FIRR) and the economic rate of return (ERR) by discounting the incremental cash and resource flows using a real financial discount rate of 20% and economic discount rate of 11.50%. The difference between incremental cash and resource flows was utilised to identify and quantify the fiscal externalities accruing to the Governments of Ghana in the implementation of the redevelopment programme. Consequently, the incremental cash flows were used to assess the saving accruing to public servants who benefited from the project to determine the poverty impact ratio of the redevelopment programme. The net present values are determined as follows:

$$\mathrm{NPV} = \sum_{t=0}^{n} \frac{CF_t}{(1+\mathrm{r})^t}$$

Where:

NPV is the Net Present Value

CFt is the incremental net cash flows which could be negative, zero, or positive.

r is the discount rate equal to the cost of capital

On the other hand, Fisher and McGowan (1983, p. 82) define IRR as the discount rate that equates the present value of its expected net revenue stream to its initial outlay, and state (p.82) that IRR is the only correct measure of the profit rate for purposes of economic analysis. Formally the IRR is defined as r such that:

$$C_0 = \sum_{i=1}^{n} \frac{C_i}{(1+\mathrm{r})^i}$$

Where:

C0 is the initial investment outlays,

Ci is net cash flow in period i

r Internal Rate of Return (IRR)

In determining the Benefit–Cost Ratio (BCR) of the Redevelopment Programme, the formula discussed by Shively (2012) shall be adopted for the study. In his paper, Shively (2012) has indicated that the benefit–cost ratio (BCR) is calculated as the present value (PV) of benefits divided by the present value (PV) of costs and this is expressed as follows:

$$BCR = \frac{\sum_{t=0}^{T} \frac{B_t}{(1+r)^t}}{\sum_{t=0}^{T} \frac{C_t}{(1+r)^t}}$$

Where;

BCR is the Benefit–Cost Ratio;

Bt is the benefit at time t;

Ct is the measure of costs at time t; and

t=0 is the current time period

r is the discount rate for discounting future values

It is worth highlighting that this module is limited since it holds several other factors as exogenous to the module based on limitations of the BCR and other tools such as the NPV in project analysis. That notwithstanding, the analysis herewith explained provides some empirical basis to improve the implementation of the government redevelopment programme. Future studies may also consider quantifiable means of monetising some of the exogenous factors to enhance the robustness of the module.

3.3. Study Design

As an in–depth research design, the research methodology will be based on a mixed method of both qualitative and quantitative data to validate the stated research hypothesis. Primary data was obtained from the Ministry of Works and Housing who served as the Consultants for housing projects in Ghana as well as the Lands Commission and the property developers involved in the redevelopment project.

The primary data was obtained through interview with fifteen (15) respondents within the Built Environment Community of Ghana including officers from the Housing Directorate of the Ministry of Works and Housing, the Contractors for the first phase of the Government of Ghana Redevelopment Porgramme, members of the Ghana Real Estate Developers Association (GREDA), officers from the

Lands Commission and some general construction experts. The secondary data was also be obtained through examining project documents, Bill of Quantities (BOQs), land valuation reports and journal papers.

The above, herewith mentioned, provided the needed information for the determination of the Economic Net Present Value, Financial Net Present Value and the poverty gap ratio for the redevelopment project. Figure 1 below shows the research design and research stages for this study respectively.

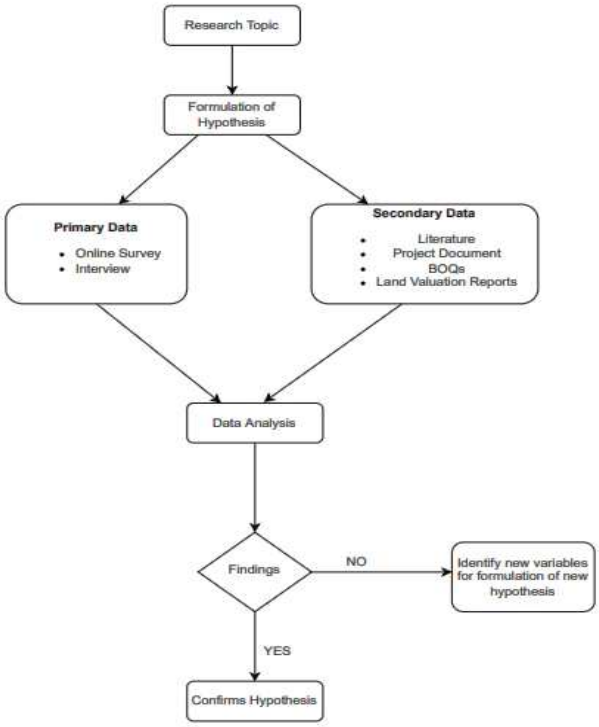
3.4. Sampling Procedures and Rationale

The sampling procedure that will be adopted for this study is the purposive and homogeneity sampling technique. This procedure enabled the researcher to identify and select groups of participants that have rich information and knowledge on the subject of interest which are relevant and effective to the research (Cresswell & Plano, 2011).

3.5. Method of Data Collection

In gathering material for this research, the researcher referred to both primary and secondary data sources. The primary data sources were collected from the staff of the Housing Directorate of the MWH, Lands Commission, and Contractors of the Government of Ghana Redevelopment Programme using interview guides. A copy of the data collection instrument used is attached as Appendix 1.

Figure 1: Research Design



3.6. Ethical Considerations

Ethical consideration in research constitutes an important aspect of any research especially when human subjects are involved (Orb et al., 2001). Hence, the issue of ethics is crucial in research (Trimble and Fisher, 2006).

The researcher sought ethical approval from all the relevant quarters before conducting the study. During the interview, participants were informed of the nature of the research and allowed to make their choice as to whether they want to participate or not (Binti et al., 2018). On the part of anonymity and confidentiality, the researcher used pseudonyms instead of the real names of the participants. Importantly, it was also communicated to the participants that the information they provided will used purely for academic purposes.

Ⅳ RESULTS AND DISCUSSION

4.1. Introduction

This chapter deals with the presentation of results, analyses and discussion of findings that were generated through the data collected. The findings and discussions were based entirely on data collected from the field.

The chapter also further presents the Financial Analysis and Economic Analysis focusing on the Financial Net Present Value (FNPV) and the Economic Net Present Value (ENPV) of the redevelopment programme respectively.

4.2. Data Description

Table 1 below details the various data that was collected for the purposes of analysing the Financial Net Present Value (FNPV) and Economic Net Present Value (ENPV) as well as the poverty impact ratio of the first phase of the government redevelopment programme which comprised the construction of thirty-nine (39) Townhouses and twenty-four (24) apartments at Roman Ridge, Accra.

Considering the fact that housing has a direct relationship with the economy, a number of the macroeconomic indicators such as the discount rates as well inflation and exchange rates were key factors in discounting and converting the nominal values to real values for the financial analysis. The model assumed that the asset lifespan is 39-years to be liquidated and replaced in the 39th year. To this end, the base year was established as the construction period and investment end date of the programme, which is from 2016-2018 while the operational period stood at 2019 to 2057

Further, the direct cost which was assessed to be the total cost of the housing units (as at 2016) which was financed by the private developer as their equity and the total cost of the land which was swapped as government equity for the private sector investment. Other operational and maintenance cost such as the cost of hiring labour, both skilled and unskilled, to undertake some operational and maintenance activities such as repairs of fixtures and fittings, major structural repairs among others were assessed under the Integrated Investment Appraisal methodology with their underlying assumptions defined.

Benefits to accrue to government assessed included the rent paid by the occupants of the housing units over the estimated 39-year lifespan of the housing units. Other factors such as the routine maintenance and other revenues from operational activities with their related underlying assumptions were all incorporated into the model to determine a more holistic benefit for the programme. A summary of the data collected is shown in Table 1 below and a detailed matrix is attached as **Appendix 2 and 3.**

Table 1: Data Description

CATEGORY	SUB-CATEGORY	DESCRIPTION	VALUE	UNIT
Macroeconomic Indicators	Discount Rates	Financial discount rate	20%	%
	Inflation and Exchange Rates	Real Exchange rate (GHS/US$) - 2016	4.30	#
		Exchange Rate Appreciation/Depreciation Factor	9%	%
		Domestic inflation rate	10.00%	%
		US inflation rate	2%	%
		Price Index for First Year (Base year)	1	Index
	By Law	Economic Opportunity Cost of Capital	11.50%	%
		Asset life for depreciation purposes	10.00%	years
Timing Assumptions	Project Definitions	Project start	2016	Year
		Investment period	2	Year
		End of investment period	2018	Year
		Start of Operations	2019	Year
		Operations period	39	Year
		Operations end	2057	Year
		Asset liquidation year	2058	Year
Investment Costs for the Project - With Project (Real)	Key Project Data	Old Houses Demolished	9	#
		New Houses Constructed	63	#
		Total Land Swapped for Developer	11.06	Acres
		Value of the land in 2016	19,913,400.00	$
		Cost of Housing Units (2016)	19,961,964.00	$
		Estimated Monthly Rent (2021)	18,230.93	GH¢
Financing of Project	Financing - Private Developer	Government Equity	49.94%	%
		Private sector equity	50.06%	%
		Total funding sources	100%	%
Revenues	With Project	Rent payment growth rate	10%	%
		Rent per apartment	6,049,334.60	GHS

Operating and Maintenance Costs	Operating Costs (Real)-Developer	Cost of Skilled labour (per month)	12,000.00	GHS
		Cost of Unskilled labour (Per Month)	2,000.00	GHS
	Post construction	No. of Skilled workers During Construction	140	#
		No. of Unskilled workers During Construction	1,760.00	#
		No. of Skilled workers During Operations	5	#
		No. of Unskilled workers During Operations	35	#
		Maintenance contract revenues	100%	%
		Maintenance contract cost	70%	%
		Occupancy	63	
Taxation Depreciation Assumptions	Housing Infrastructure contract	Timelines	39	years
		Routine Maintenance for Housing Infrastructure	5,972,400.00	$
		Periodic Maintenance for Housing Infrastructure	1,000,000.00	$
		Rehabilitation for Housing Infrastructure	1,500,000.00	$
	Details from GRA	VAT rate	19.30%	%
		Corporate income tax rate (% of taxable income)	25%	%
	Economic Life & Depreciation	Housing Units -Buildings	39	Years
	Tax Depreciation (Developer)	Tax Life of fixed assets	10	Years
Operating and Maintenance Costs savings, Value of Time Savings on Commuting	Savings	Operating and Maintenance Costs savings	969.57	USD
		Value of Time Savings	1,084.86	USD
		Income Savings from Rent	1,509.61	USD

Source: Authors Construct, 2023

4.3. Financial Analysis

4.3.1. Financial Net Present Value of the Redevelopment Project

The study revealed that the redevelopment programme implemented by the Ministry of Works and Housing has a negative Financial Net Present Value (FNPV) of −US$39,009,806.23 and a negative Financial Internal Rate of Return of −7.97% as well as a modified Internal Rate of return of 9.04% which is lower that the opportunity cost of capital estimated at 20% and used for the model. It may be added that for a social intervention initiative such as the Government of Ghana residential

redevelopment programme which ultimately seeks to increase access to safe, secure and affordable housing for public servants, a negative FNPV is likely to be revealed. However, the value herewith recorded for such a project is rather on the high side and suggests that financially, government losses more than it financially gain through these discussions. This ultimately suggests that the Government of Ghana redevelopment project is not financially viable.

Table 2: Financial Net Present Value (FNPV) of the Redevelopment Programme

DESCRIPTION	VALUES	Unit
Financial discount rate	20%	Percent (%)
Financial Net Present Value (FNPV)	- 39,009,806.23	US$
Financial Internal rate of Return (FIRR)	-7.97%	Percent (%)
Modified Internal rate of Return (MIRR)	9.04%	Percent (%)

Source: Authors Construct, 2023

4.4. Economic Analysis

4.4.1. Economic Net Present Value of the Redevelopment Programme

In computing the ENPV of the project, the real net benefits and costs of the project were further discounted to economic values using the conversion factors outlined in the model by the Ministry of Finance and attached as **Appendix 4.**

Here the study revealed that the project has a negative ENPV value of −34,089,751.67and a negative Economic Internal Rate of Return of −6.10%. The study further revealed that the modified Internal Rate of return was 3.70% which is lower than the project assumed economic opportunity cost of capital of 11.50%. The above tends to suggest that the project will not have the desired economic impact on the local economy and the country at large.

Table 3: Economic Net Present Value (ENPV) of the Redevelopment Programme

DESCRIPTION	VALUE	UNIT
Economic Opportunity Cost of Capital (EOCK)	11.50%	Percent (%)
Economic Net Present Value (ENPV)	- 34,089,751.67	US$
Economic Internal rate of Return (EIRR)	-6.10%	Percent (%)
Modified Internal rate of Return (MIRR)	3.70%	Percent (%)

Source: Authors Construct, 2023

4.5. Project Impact on Stakeholders and the Society

4.5.1. Externalities

Even though the study has revealed that the project has a negative net economic present value, the study revealed a positive value for the net externalities accruing to each stakeholder or the general society. Specifically, the study revealed that the unplanned benefits of the programme to the society is US$4,337,073.74 whose economic opportunity cost of capital was 11.50%.

Table 4: Economic Externalities accruing to key stakeholders and the Society

DESCRIPTION	VALUE	UNIT
Net Externalities	4,337,073.74	US$

Source: Authors Construct, 2023

From Table 4, it can be deduced that even though the redevelopment programme has a negative ENPV for which reason the project is not economically viable, several employment opportunities among others are created through the implementation of the programme and has a direct positive impact on the growth and development of the local economy in the project area. This finding supports available literature which asserts that the construction sub-sector is the largest employer in every economy and has direct impact on the development of the economy.

4.5.2. Poverty Impact Ratio

Housing has evolved over the years as key to poverty reduction and as such, the study sought to assess the poverty impact ratio. To this end, housing development in the country ought to assess the impact of such development interventions in alleviating the poverty situation of the primary and secondary beneficiaries of the project.

In view of the above, the study sought to establish the Poverty Impact Ration and in determining this, the present value of the externalities was used to determine the Net Externalities of the programme and this was subsequently juxtaposed against the proportion of the poor in the stakeholder group. It should be mentioned that as part of the Integrated Investment Appraisal Methodology, the ratios for the proportion of the poor in the stakeholder group was given and categorised among the government, labour, occupants and the developer. Details of the Poverty Impact Ratio of the Redevelopment Programme is indicated in Table 5 below.

Table 5: Economic Net Present Value (ENPV) of the Redevelopment Programme

DESCRIPTION	VALUE	UNIT
Net Externalities	4,337,073.74	US$
The proportion of Poor in the Stakeholder Group	2,621,504.12	US$
Poverty Impact Ratio	**60.44%**	**Percent (%)**

Source: Authors Construct, 2023

From the table above, it can be deduced that the poverty situation of the project beneficiaries is significantly reduced by approximately 60.44% and this could be attributed to the fact the project is a highly social intervention. In the case of the occupants, it is evident that the average cost per housing unit cannot be compared to the monthly income paid by the occupants such that the occupants are paying approximately six (6) percent of the cost of the housing unit monthly. As it stands, the marginal utility of the occupants is maximised, yet they barely have to pay anything to access it and this significantly improves their poverty situation.

V RECOMMENDATION AND CONCLUSION

5.1. Introduction

Throughout the course of this investigation, various issues have been identified about Infrastructure and Housing Development in Ghana particularly with access to housing financing, the urban housing supply in Accra and most importantly with the Government of Ghana Redevelopment Programme. The research addresses some of these issues with the commendation of key policy solutions discussed in this chapter as Policy Recommendations.

5.2. Policy Recommendation

The various findings of the study have policy implications for policy makers, as well as key knowledge worth noting by developers and the academia that seek to broaden the body of knowledge on the subject area. Although the redevelopment programme has resulted in the increased number of housing units available for public servants, the model currently being adopted presents some inherent challenges that may be enhanced to optimize government benefits from the programme in view of that, the following recommendations are made:

Government needs to optimize the design for the redevelopment scheme geared towards increasing the total number of housing units developed under the Scheme. To this end, it is recommended that the scheme prioritizes the construction of more apartments which ultimately enhance land use optimization. While the total number of housing units increases, more people are able to access housing units and this will have a direct impact and the rent to accrue to the government as income.

Added to the above, the government needs to adopt a policy shift that will seek to minimize the replacement time and maximize asset lifespan for critical infrastructure such as the government residential bungalows and apartments. To this end, facilities management and maintenance needs to be a foundational part of all government housing policies to optimize the asset value and expand its lifespan. Under such facilities management arrangement, government could potentially earn service fees apart from the regular rent that is collected for the housing units.

Also, considering the fact that the lands that are involved in these transactions are located in prime areas whose values almost double every five years, government could potentially earn taxable premium on the value of the land annually. This will ultimately enhance the revenue stream and optimize the transactional benefits derived from the project to the government.

Adding to the above, the redevelopment scheme can optimize the value to government by integrating some commercial and economic facilities in partnership with the private sector from which

taxable revenue could be generated. This will also improve the cash inflows to government and optimize the benefits of the project while increase the positive externality to the society.

5.3. Recommendations for Future Studies

The findings of this study go to augment the findings of several other bodies of knowledge that exist on the subject matter. Considering the fact that the methodology adopted a fixed inflation and other factors constant for the entire 39–year period of the project lifespan, future studies may develop proxies that may properly define possible shocks and improvement in determining the domestic price index and inflationary factors for the assessment.

Additionally, the findings of this study have established the potential for the redevelopment programme to address the housing challenges for public servants across the country through the optimisation of government lands in prime areas. As such, future studies could consider the potential impact of other alternative financing arrangements for the delivery of the programme.

5.4. Conclusion

The overall importance of infrastructure to sustainable development cannot be overemphasized. Further, globalization and urbanization trends have heightened the need to increase access to adequate and affordable housing options. More recently, growing budgetary constraints in financing infrastructure has limited ability for most developing economies to finance the provision of such critical housing options and this has called for the need to identify alternative means of delivering such critical infrastructure such as housing to achieve value for money.

Related to the above, access to land for housing has also constrained efforts to increase access to various housing options. While the government of Ghana has explored alternative means to increase access to housing for public servants and other government workers, the redevelopment policy has evolved as a plausible means to increase access to various housing options and optimize the use of prime land within the major cities across the country. The first phase of the redevelopment policy saw the redevelopment of nine (9) bungalows into thirty–nine (39) townhouses and twenty–four (24) apartments at Roman Ridge.

However, the current model for the implementation of the redevelopment programme involves a land swap arrangement where parcels of land are swapped as government equity for the investment in the redevelopment of the housing units. This has left many to question the sustainability of such an initiative towards the achievement of government's long–term goal of increasing access to affordable rental housing options for public servants close to their workplace.

This study was therefore geared towards assessing the financial net present value, the economic net present value and the benefit cost ratio of the redevelopment programme. The model therefore

converted all nominal values into real values for the financial analysis and further discounted them to economic values using the Ministry of Finance determined conversion factors for the economic analysis. Subsequently, the present value of the benefits was assessed against the present value of the cost to determine the benefit cost ration of the programme.

Overall, this study revealed that the first phase of the redevelopment programme was not financially and economically viable, depicting negative values for the FNPV and ENPV. Although these values were high the findings of the study can be attributed to the fact that the programme is a social intervention and does not ultimately seek to provide housing units to public servants at commercial or market rates but rather, discounted rates. The study further revealed that the project was beneficial to society through the creation of jobs for the society as it demonstrated a positive value in the calculation of externalities of the redevelopment programme. Ultimately, the study revealed that the transactional cost of the redevelopment programme was more than three (3) times higher than the benefits will accrue to government.

The above notwithstanding, it is expected that even though the project is a social intervention, the Ministry of Works and Housing can optimize the benefits of the project by optimizing land use through increased number of housing units constructed. This will have a direct impact on the revenues that are generated as rent through these housing units. Similarly, the government could earn annual income through taxable premium on the land swapped with the private developers due to the fact that the lands involved in these transactions are located at prime areas whose values almost double every five (5) years. Furthermore, a more comprehensive facilities management and maintenance regime may be adopted to enhance the asset lifespan and optimise the asset value (benefit) to government.

Finally, I acknowledge that the study may have limitations particularly in terms of the model specifications and the specific data that was used. Nonetheless, I believe the findings as have been outlined and discussed provide some significant insights that are worth considering in optimizing the benefits to be generated from the government redevelopment programme. Also, this study has contributed to adding to the body of knowledge that exists on the subject matter while providing a new line of direction for future studies.

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