

A STUDY OF THE HOUSING NEEDS OF RESIDENTS IN INFORMAL SETTLEMENTS IN THE DOMINICAN REPUBLIC

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In 2015, a new sustainable development agenda was introduced aimed at ending poverty, protecting the planet and ensuring prosperity for all by 2030, which extends to making cities and human settlements inclusive, safe, resilient and sustainable. Despite progress being made, around one billion people currently live in informal settlements, commonly referred to as slums, which are characterised by overcrowded spaces, substandard dwellings where the occupant does not have legal rights to claim, and a lack of basic services such as sanitation and safe drinking water. It is therefore paramount to develop meaningful knowledge to overcome the real-world challenges of housing and human settlement issues faced by communities across the world, in order to contribute to building a more prosperous society, making a positive impact and committing to the common good. This research assesses the living conditions of slum dwellers in an attempt to suggest ways of overcoming housing concerns in urban areas of the Dominican Republic that are particularly vulnerable to natural and man-made hazards. The results from 167 questionnaire responses distributed amongst four slum community zones and one “improved” housing development zone shows that only seven per cent of slum dwellers have direct access to safe water, which is contrary to past studies and reports. Another important finding was a cause-and-effect-relationship between life satisfaction and electricity provision amongst slum dwellers. Furthermore, the findings indicate that current approaches aimed at tackling housing needs are not sufficient to overcome the overall problem, however, they do generate some improvement when compared to previous endeavours in the past twenty years. Finally, it is recommended that slum resettlement as a strategy should be avoided in favour of upgrading programmes.

Keywords: housing, poverty, resilience, sustainable development, urban sprawl

INTRODUCTION

This study attempts to assess the housing needs of residents in informal human settlements in urban areas of the Dominican Republic (DR) which are particularly vulnerable to natural and man-made hazards. In the pages that follow, the causes and consequences of urban sprawl as well as the factors, patterns and recommendations which could increase the efficiency of housing programmes, resulting in overall improvements of the quality of life and well-being of the urban poor, will be discussed. This research differs from previous studies by focusing on the experiences of individuals “in-site” in an attempt to uncover the true situation of slum dwellers in the DR. Now, more than ever, there is a need to address the repercussions for urban sustainability. Today, around one billion people in the world live in informal

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settlements, in effect, one out of every three people are living in cities in the developing world. This situation is more problematic in the DR as approximately half of the slum dwellers live in locations which are prone to natural disasters. Importantly, evidence suggests that overcoming adverse human settlements is among the most important factors for ending poverty, and as a result, to ensure prosperity for all.

LITERATURE REVIEW

Although studies over the past three decades have provided important information about housing needs in informal settlements, so far, there has been little discussion about how to tackle this challenge in the DR.

Horizons and Living Conditions: Urban Slums

Recent research has revealed that location choice factors have been linked to the growth of slums and that commuting costs, access to local public goods, individual preferences for neighbourhood structures, housing quality and neighbourhood amenities, as well as social ties such as common culture and similar income-generating activities are significant factors stemming from the location component. In 1948, the UN through its Universal Declaration of Human Rights recognised housing as a basic requirement for attaining an adequate standard of living (United Nations, 1949). Despite this, nearly a billion urban residents live in slums which is increasing by 25 million each year (UN Department for Economic and Social Affairs, 2006) making it a critical challenge for overcoming poverty all over the world. The term “slum” is usually used to describe informal settlements that have inadequate housing, miserable living conditions and overcrowding (Cities Alliance, 2012).

Safe Water and Sanitation

Globally, at least two billion people drink water contaminated with faeces, and around 844 million people lack even a basic drinking water-service (WHO, 2018). More than two billion people still do not have basic sanitation facilities such as toilets. Furthermore, inadequate sanitation is estimated to cause 280,000 diarrhoeal deaths annually and poor sanitation also contributes to malnutrition (WHO, 2018). Therefore, improving sanitation in slums would help to reduce premature deaths and health risks.

Lack of Safe Tenure and Durability of Housing

Secure tenure is the right of all individuals to effective protection by the State against arbitrary unlawful evictions. UN-Habitat (2003) estimates that 924 million people in urban areas of the world do not have the security of tenure. Those without official title deeds are prone to unfair evictions, and it prevents them from accessing credit and reduces their motivation to invest in their homes. A house is considered “durable” if it is built in a non-hazardous location, is a permanent structure and is able to protect its inhabitants from the extremes of climatic conditions. The building materials in the roof, walls and the floor measure the durability of the housing. Non-permanent constructions represent seventy-two per cent of all slum structures (UN-Habitat, 2016).

Habitat and Housing in the Dominican Republic

Slum problems are widespread in developing countries such as DR. Although self-built housing is common, many cannot afford to build their own homes due to the lack of economic means. Others can afford the construction of their homes but with financial constraints. As a result, many of these structures are built with low-quality

materials making them vulnerable to natural and man-made disasters. The principal indicators for assessing the housing status in a country are the housing demand and housing need. According to a definition provided by Wilson, *et al.*, (2018), housing need is “the amount of housing required for all households to live in accommodations that meet certain standards”, whereas housing demand refers “to the amount of housing that households will choose to buy, given their choices and ability to pay”.

Resilience and Risk Management: Natural Disasters and Man-Made Hazards

The urban poor are often the most vulnerable to natural disasters and man-made hazards as they inhabit overcrowded, unstable and dangerous land with no financial cushion or security. When flooding, fire, earthquakes, landslides, and cyclones strike, the urban poor are often the worse hit. The circumstances of the urban poor also make them more vulnerable to dangers such as organised crime and epidemics (OCHA/IRIN and UN-Habitat, 2007). In the same vein, rapid urbanization brings enormous challenges, including; growing numbers of slum residents, increased air pollution, and inadequate basic services and infrastructure, which also make cities more vulnerable to disasters. Across Latin America, evidence suggests that poorly functioning land markets, urban sprawl, and poor transportation on the edge of cities push low-income households to settle in “risky” areas (Hallegatte. *et al.*, 2017).

Alternatives to Overcome Slums

Upgrading Slums

Slum upgrading is a process through which informal areas are gradually improved, formalised and incorporated into the city itself by extending land and services. It is more than a package of basic services; it promotes the economic, social, institutional and community activities needed to turn around downward trends in an area. The main reason for slum upgrading is the fundamental right to live with basic dignity and decent conditions, and to prevent the formation and deterioration of new slums (Cities Alliance, 2012). It can thus be suggested that slum upgrading should be included in urban public policies in order to make the process more effective.

Slum Resettlement

Slum resettlement involves relocating the slums to the peripheries of a city, generally, in social housing projects and integrated with efficient infrastructure and job sources (Nyametso, 2012). Slum residents would leave their current location which is susceptible to health and safety hazards such as diseases and natural disasters resulting in improved quality of life (Arandel and Wetterberg, 2013). However, resettlement schemes often fail due to the distance created between a community’s place of origin (Cronin and Guthrie, 2011) and the high degree of negative impact on the livelihood of slum dwellers (Kapse, *et al.*, 2011). It can, therefore, be assumed that slum relocation would only be reasonable if slum residents are prone to natural and man-made hazards, otherwise, upgrading slums should prevail.

METHODS

A multi-method approach using a survey strategy was used for this research. The choice of this method is justified by the nature of this study since it was necessary to combine qualitative and quantitative research elements to answer complex questions.

Table 1: Methods Used to Achieve Research Objectives

Objective	Method
1 To assess the living conditions and quality of life of slum dwellers	Questionnaire
2 To evaluate the living improvements of former slum dwellers who were resettled to better housing conditions	Interview
3 To explore different options to overcome the adverse conditions of slum dwellers	Questionnaire

Research Questionnaire Surveys

Questionnaires took place amongst four slum community zones and one “resettled” housing development zone.

The first questionnaire was based on the UN’s five characteristics defining a slum household. A mix of thirty open and closed questions were used to cover six themes for evaluating the living conditions of slum dwellers. An alternative questionnaire was distributed amongst those living in the “The New Barquita” which comprised of fourteen questions, three themes and included a Likert-style rating scale.

Table 2: Questionnaire Survey Number of Participants

Community Zone	Type	No of Participants	Municipality
The Dique	Slum	51	Santo Domingo Este
Gualey	Slum	25	Distrito Nacional
Guachupita	Slum	49	Distrito Nacional
The Barquita	Slum	11	Santo Domingo Este
The New Barquita	Resettled Slum	31	Santo Domingo Norte

Semi-Structured Interviews

Semi structured interviews consisting of seven questions took place to provide insights to complex questions about tackling slum issues in the urban built environment. The interviews were conducted with five specialists within the field of urban planning and public policy. The interviews were conducted by telephone lasting from thirty minutes to one hour and a half and all of the interviews were held in Spanish and then translated into English. Respondents were selected based on their experience in the field. Interviews were conversational resulting in a large volume of data. The transcribed interviews were then systematically analysed by using sophisticated coding and additional query functions to determine themes and trends.

Research Ethics

As part of the research involved participants who were living in slum areas and therefore potentially vulnerable, it was important to ensure anyone who took part in the study did not become “subjects” of the research but instead, participants in the process. None of the authors entered the slum areas, instead the surveys were conducted by volunteers who are respected and trusted in different slum areas in the DR. As the volunteers were “known” people within the slum areas, any potential location risks were mitigated. Before commencement of the data collection process, the volunteers were instructed according to the design of the research methodology, focusing on sampling and research ethics. It is important to note that the research was guided by the good practices of ethics which includes confidentiality and anonymity

of the participants. Each participant freely gave informed consent in advance so that they had time and opportunity to consider their decision. It was also important to avoid unreasonable generalisations, resulting in prejudice towards slum dwellers and to acknowledge the limitations of the relatively small sample size which may not be representative of the entire population.

RESULTS

Household Conditions

The majority of the respondents questioned had been living on the same site for more than fifteen years. Almost three-quarters of respondents had been in their homes for more than a decade, and approximately 5% for less than a year. 41% of the respondents were living with their parents, whilst 59% reported to live close to relatives. These findings are aligned with a report conducted by UN-ECLAC (2005), where 43.5% of the urban poor in the DR were living with extended families. Several studies have shown that household structures have a significant impact on the overall well-being of families (Cohen and Casper, 2002). One of the findings from this research show that the predominant family structure in slums was the “extended family” model which may be due to the increase of the housing need and stagnation of public policies towards housing incentives and development in the DR.

Overcrowding

One of the most relevant indicators when assessing habitat conditions is overcrowding. This factor prevents people from living in adequate conditions (Cities Alliance, 2012). Various methods currently exist for measuring overcrowding; for example, either by the house size or rooms/ persons ratio. Although floor area-per-person (FAPP) is not commonly used for the calculation methodology of overcrowding in either Latin America or the DR, numerous studies have supported the FAPP method (Iniguez-Rueda, 1987; UN-Habitat, 2003, Torres *et al.*, 2017), arguing that decent dwellings are much more than a roof per head; it is adequate space as well. Since there is no standard parameter for FAPP in Latin America, the benchmark of 8.27 square meters per person has been used as the standard space required for one person as the UK Housing Act 1985 and the Scottish Housing Act 1987 mandate. The results show that many of the participants are living in overcrowded dwellings which can impact negatively on their physical and mental health, privacy, performance in education, and can cause psychological stress.

Water Supply, Wastewater Sewer System and Waste Management

The access to safe water and equitable sanitation are paramount elements for an adequate dwelling (UN-Habitat, 2003). Only 7% of the respondents reported having direct access to potable water in their homes. Conversely, the UN-ECLAC (2014) database reported that 74% of the population in the DR have access to safe water, which is contradictory to these findings. However, this significant gap between this study and the UN-ECLAC report may be explained by the target population selected by this study, which was the slum dwellers vulnerable to natural hazards, whilst the UN-ECLAC report’s sample represented the entire population of the DR.

Consequently, these findings raise intriguing questions regarding the achievement of the sixth Sustainable Development Goal concerning safe water and sanitation in respect to the Dominican informal settlements. The results show that 82% of participants have a toilet inside or outside their houses, whereas only 32% were connected to a sanitary sewer. These figures are similar to the UN-ECLAC (2014)

who report 84% and 40%. Also, 75% of the respondents reported that rubbish collection takes place at least once a week.

Transport Infrastructure, Quality of Housing and Residential Status

The lack of an accessible, safe and sustainable transportation system is typical in slums. Only 30% of the respondents said they have transport access to their homes. Interestingly, 49% of the respondents from “The Dique” have transport access to their home, whilst only 13% from “Gualey” can access their homes through a paved path. Over half of the sample, 53%, live close to public, recreational and green spaces. Surprisingly, 94% of the respondents from “The Dique” live nearby recreational spaces such as a basketball/ volleyball court, or a community centre, whilst in “The Barquita” there is no such a recreational space.

Slum housing is densely packed and poorly built with substandard materials. Moreover, houses built adjacent to hillsides are subject to landslides during heavy rain, and substandard buildings cause thousands of deaths from earthquakes (Unger and Riley, 2007). The results show that 41% do not have proper flooring and 44% of housing are built with substandard materials, which make them more vulnerable to natural hazards. Moreover, DiCaprio (2016) argues that climate change may make their situation even more vulnerable yet.

The lack of secure land or housing tenure forces residents to occupy unused or undesirable land (Unger and Riley, 2007). Only 2% of the participants possess formal title deeds to either land or residency. This finding broadly supports the work of other studies in this area linking slums with the lack of secure land and housing tenure. Making cities safe and sustainable involves investment in public transport, creating green public spaces, and improving urban planning and management in a manner that is both participatory and inclusive (UNDP, 2018).

Wellbeing of Slum Dwellers

As well as assessing the living conditions of the people in slums, this study also aimed to measure some aspects of their quality of life and wellbeing. The differences between these two indicators rely on that the former is focused on the circumstances of a household’s life such as the quality of the house, sanitation, and clean water whereby while the latter refers to the general well-being of the dwellers.

Previous studies and surveys (IDB, 2010; IDB, 2012) in Latin America and the Caribbean have shown that people’s satisfaction with their homes and cities in which they dwell is a determinant factor in their life satisfaction. The results show that 46% of those surveyed were satisfied with their living conditions, furthermore, the most single remarkable information observation to emerge from the data comparison between slums’ life satisfaction, was that 71% of respondents from “The Dique” have reported being satisfied with their living conditions in spite of the lack of basic services such as constant safe water, wastewater sewer system and transportation systems, whereas in other slums, this figure is only about a third. The results may be explained by the fact that “The Dique” slum has been favoured by an average of about twenty-one hours of electric energy per day, whilst other slums have roughly five hours a day.

Public Housing Resettlement Programme: “New Barquita” Findings

This section aimed to evaluate the overall satisfaction of the people who were resettled from slums to improved neighbourhoods through the public housing programmes, namely the “New Barquita” project which started in 2013 and was handed over in 2016. The project aimed to provide decent and safe shelter to people

who were vulnerable to flooding due to its proximity to the Ozama river. The participants were asked about the advantages, disadvantages and if amendments were necessary. Sachs (2012) argues that adequate resettlement of slum dwellers improves their living and environmental conditions. Nevertheless, Abebe and Hesselber, (2015) state that resettlement projects could disrupt people's social networks, also referred to as "uprooting". The advantages found in the survey were: flood protection, decent houses, potable water, cleanliness and constant electricity. The disadvantages highlighted were poor access to the public transportation system, no change in the level of delinquency, and a perceived lack of personal safety when walking alone at night. Some of the most vulnerable slum dwellers from the "Barquita" were provided with decent houses and basic services, however, the main issue is that people's livelihoods have been disrupted.

Housing Insufficiency in Slums as a Critical Issue in the DR

The interviews sought to determine if the housing deficit is a significant issue in the DR. When asked about housing with poor conditions in slums, interviewees were unanimous in the view of housing needs as a critical issue. R1 argues that "the housing variable in the context of poverty indicates that if people's housing conditions are not changed, they would not overcome the poverty line despite any endeavour" and R2 admitted that "it is one of the principal issues". In addition, R2 highlighted that the housing deficit exceeds the 2.1 million units according to the official sources. Similarly, R3 echoed the previous one in terms of the housing deficit figures, but also, added that "overcrowding is one of the biggest concerns within the housing issue". The fourth and fifth respondents simply agreed with the housing deficit as a critical concern.

Causes and Consequences of Inadequate Housing

The interviews also sought to understand the causes and consequences of inadequate housing. The results found that poor housing planning by the authorities, rapid urbanisation, and the rural-urban migration to city centres are the main causes that create slums. Interestingly, financial exclusion and inadequate public-private partnership were not observed in the literature review. The former indicates that a great proportion of slum dwellers do not have access to useful and affordable financial products and services to buy adequate houses, whereas the latter is deemed to the construction of economic houses that poor people in slums cannot afford. The third set of questions sought to understand the consequences and effects of inadequate housing. R1 alluded to the notion of the effects of inadequate housing would highly depend on the level of inadequacy, he said that "for example, if the inadequacy is the floor type, it would likely affect the health; if the issue is overcrowding, it might affect self-esteem, privacy, amongst other aspects". Again, the results show that overcrowding has the potential for detrimental effects of people's lives.

Housing Public Policies

Interviewees were also asked about housing policies. R1 said that he believed public policies had improved in recent years and also pointed out that these policies focus their attention on two branches: first, the public housing improvement programme, also known as the "New Barquita", and second, the private-public partnership, with its emblematic project "Juan Bosch City". R1 stated: "these two aforementioned projects are consequences of the new public policies towards housing; however, there is still too much to do to provide decent housing". R2 went on to state that such public policies do not include the provision of social housing within its scope; "the Dominican government has made huge endeavours for overcoming the houses deficit

but excluded the social housing aspects. Also, it prevails duplicity in functions when regulating the housing problem since there are many players undertaking it. In general, housing public policies could be more efficient and effective”. R3 agreed with this statement in terms of the housing public policies efficiency and effectiveness but also outlined that historically, these policies have “failed in regulating urban planning, land ownership, and safe residential status”. R4 mentioned that it is one the government policies dimensions that should be discussed, enlarged, driven and strengthen with adequate economic resources. R5 added that “the central government has made many efforts to overcome the housing issue, nevertheless, they need to articulate these efforts in a political declaration which allows maintaining a common goal”. Indeed, R1, R2 and R5 stated, the “Juan Bosch City” as a public-private partnership alongside with the “New Barquita”, and these are remarkable projects for adding dwellings to the Dominican housing system. However, non-governmental agencies are very critical of the new policies. For instance, Ciudad Alternativa (2018) demonstrated that the building costs of these blocks of flats in “Juan Bosch City” are not affordable for the poor people, whereas R3 argues that it is very expensive to duplicate the “New Barquita” and it is not sustainable in the long-term. Given the considerations above, these results would seem to suggest that housing public policies have been stagnated for a while, but recently, they have been changing for the common good.

Suggestions for Tackling Slum Issues

Table 3 shows the different answers from the respondents regarding the possible choices for overcoming the housing deficit in DR.

Table 3: Questionnaire survey number of participants

Respondent	Type
R1	A. Projects similar to 'Juan Bosch City' but at lower prices. Less than RD\$1 million pesos (£14,500 pounds). B. Better housing mortgages rates, conditions and loans. C. The application of acupuncture urbanism could be interesting. D. Social housing cooperatives E. Urban re-densification.
R2	A. Public policies including the norming of land, land-use, migration, safe occupancy. B. Instruments like social lease. C. A unique organism to regulate the housing sector in the DR. D. An adequate risk management programme.
R3	A. Law approach. B. Social production of the habitat. C. Benchmarking good practices from successful programmes in other countries.
R4	A. Elaboration of a housing deficit diagnosis. B. Design of a development programme within the country's goals and priorities. C. Economic management of the resources. D. Community collaboration involvement.
R5	A. Elaboration of a housing deficit diagnosis. B. Design of a development programme within the country's goals and priorities. C. Economic management of the resources. D. Community collaboration involvement.

With this in mind, the urban poor who earn the minimum salary would not be able to afford economic houses from the public-private partnerships due to low income, let alone to have access to financial sources. Therefore, the development of less expensive housing projects would not be enough to solve this dilemma, and thus, important changes in the whole economy would be necessary.

CONCLUSION

The research set out to assess the living conditions and quality of life of slum dwellers vulnerable to natural and man-made hazards. The results show that the predominant

housing structure in slums is the extended family model which contributes to overcrowding and often negatively influences inhabitant's well-being and quality of life. One of the most significant findings is that only seven per cent of slum dwellers surveyed have direct access to safe water which is contrary to previous reports. With regards to basic infrastructure, more than two-thirds do not have transport access to their homes and over half do not live close to recreational spaces. Almost half of the participants live in substandard houses, and virtually, none of them possesses formal title deeds to either land or residency.

The research also sought to evaluate the living improvements of former slum dwellers who were resettled to better housing conditions. Indeed, this study highlights that slum resettlements contribute to the enhancement of the overall quality of life and well-being of the urban poor. However, the option of slum relief has its drawbacks and can disrupt people's livelihood in some instances.

The final aim of the work was to explore different options to overcome the adverse conditions of slum dwellers. Despite the public policies towards housing being changing recently, this research found that it is not sufficient to overcome the cumulative issues. In the same vein, slum resettlements as part of housing public policy should be evaluated due to the very high transaction costs when compared to other solutions, such as slum upgrading. The key alternatives suggested by the specialists for overcoming slum issues are public-private partnerships but at lower prices, better financial conditions for house buyers, strengthening public policies in terms of land-use, migration and safe occupancy, benchmarking good practices from other countries and implementation of a state housing programme management.

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