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DETERMINING THE FACTORS AFFECTING THE EXTENT OF COMPLIANCE WITH RESIDENTIAL PLANNING STANDARDS: CASE STUDY OF BENGHAZI, AL-FATAH DISTRICT, LIBYA

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Abstract

This study aims to determine the factors that influence the extent of compliance with residential planning standards and regulations in an authorised urban area of Benghazi, in Al-Fatah district, Libya. Combined quantitative and qualitative methods are used in this study. Based on survey results of 359 heads of households, the statistical software PLS-SEM via Warp PLS 6.0 is used to determine the significant factors affecting compliance level, supported by semi-structured interviews with five officials from planning authorities. Compliance level with residential planning standards is relatively low in Benghazi. Nine factors include the monitoring system, staff training, corruption, bureaucracy, financial facilities, housing provision, and social and physical infrastructure all have significant effects on the extent of compliance with residential planning standards. However, only the enforcement system has no noticeable effect on the compliance level. The study found that the primary driver for low compliance is economic in nature, followed by administrative considerations. With the continued availability of authorised housing and housing schemes, even without infrastructure, it is possible to achieve a high level of compliance in the future.

Keywords: planning standards, compliance, urban area, planning violation, Libya: Benghazi

INTRODUCTION

Non-compliance with planning standards is a widespread issue in most developing countries. (Arku, Mensah, Allotey, & Addo Frempong, 2016; Fuladlu, 2019; Ochieng Omollo, 2020). Non-compliance with planning standards or planning violations occur when a building, layout, or project violate the planning standards, the zoning regulations, or the master plan land-use standards (Sundaresan, 2017). Planning standards and regulations specify the appearance of the settlements in terms of quality. In other words, planning standards are rules that regulate what activities are allowed or disallowed on a plot or in a given area (Adamolekun, M. O., A. J. Isiwele, 2017; Lusugga Kironde, 2006). A high level of compliance with planning standards is critical to the success of the planning system. The welfare concept of planning and its standards is to direct urban development and land use requirements in a way that is beneficial to society (Baffour Awuah & Hammond, 2014). Many studies have investigated and continue to determine the factors affecting the extent of compliance with planning standards. These factors are often classified as economic, social, administrative, and demographic factors, in addition to those directly related to the planning standards themselves (Abrabba, Badarulzaman, Mohamad, & Kadi, 2021; Abubakar, Lizam, & Yassin, 2013; Alnsour & Meaton, 2009; Atamewan, 2019). Non-compliance with planning standards is a serious dilemma, as it affects not only those who breach the standards but also complying individuals who live in the same area, as violations have a negative economic impact on housing and land values (Addai, John, Bediako, & Gyimah, 2012). As a result of the above insights, this study aims to identify the factors that affecting the level of compliance with residential planning standards through a case study of Benghazi's Al Fatah district. To achieve this goal, the study developed nine hypotheses limited only to the administrative and economic factors based on a careful review of the relevant literature:

H1. Monitoring of the construction process has a positive impact on the extent of compliance with residential standards.
H2. Enforcement of planning standards has a positive impact on the extent of compliance with residential standards.
H3. The level of trained staff has a positive impact on the extent of compliance with residential standards.
H4. Corruption has a negative impact on the extent of compliance with residential standards.
H5. Bureaucracy has a negative impact on the extent of compliance with residential standards.
Economic Factors
H6. Residential financial facilities have a positive impact on the extent of compliance with residential standards.

H7. Housing provision has a positive impact on the extent of compliance with residential standards.
H8. The social infrastructure provision has a positive impact on the extent of compliance with residential standards.
H9. The physical infrastructure provision has a positive impact on the extent of compliance with residential standards.

RESEARCH BACKGROUND

The review of the literature demonstrated that non-compliance with planning standards has an adverse impact. This impact extends from individuals to neighbourhoods, towns, cities, nations, and even the world as a whole. Non-compliance also affects zone typology, which shifts from rural to urban zones without consideration for regional and spatial objectives (Wunarlan, Soetomo, & Rudiarto, 2020). Numerous researches have been conducted to determine the factors that influence the extent of compliance with planning standards (Abrabba et al., 2021; Abubakar et al., 2013; Alnsour & Meaton, 2009; Atamewan, 2019).

Administrative factors

The administrative effect as a main factor consists of several sub-factors including the monitoring system, enforcement, and staff training level, corruption and bureaucracy. Firstly, a weak monitoring system has shown to have adverse effects on the compliance level with planning standards (Arimah & Adeagbo, 2000; Ochieng Omollo, 2020; Offiong, 2017). The monitoring system's function is to detect any act of planning violation at an early stage (Ioannidis, Psaltis, & Potsiou, 2009). Secondly, the enforcement task is to remove any development that violates the planning requirements or bring the work into line with the residential standards (Alnsour & Meaton, 2009). Financial constraints, a lack of staff and social ties all contribute to the enforcement system's incapacity (Omollo, Hayombe, & Owino, 2018). Thirdly, the level of staff training has been indicated as one of the factors affecting the compliance level. The lack of skilled planning staff has a detrimental effect on the entire planning system in terms of poor decisions that result in increased density and the destruction of green spaces (Hajialirezalou, 2018). When reviewing the reasons for non-compliance with planning standards in previous studies, it is clear that corruption plays a role in the fall in compliance levels (Adamolekun, M. O., A. J. Isiwele, 2017; Jones & Vasvani, 2017). Bureaucracy and complex procedures have made it difficult to maintain a high compliance level (Dambeebo & Jalloh, 2018).

Economic factors

According to the literature, the economy plays a significant role in the compliance level, which is reflected by the income level(Alnsour & Meaton, 2009; Monkkonen & Ronconi, 2013), difficulties related to financial resources and

funding, and financial facilities (Aliyu, Kasim, & Martin, 2011) that affect housing and infrastructure provision. The term "housing provision" here does not apply exclusively to housing; rather, it refers to any legal access to housing units or plots. Housing shortage has been identified as one of causes that increase the planning violations (Ochieng Omollo, 2020; Srkheylai, Sharifi, Rafieian, Bemanian, & Murayama, 2012). Usually, the subsequence of urbanisation is the shortage of housing (Arimah & Adeagbo, 2000; Mohd Ariff Mohd Daud, Saiful Azhar Rosly, 2022). Only a small number of plots provided for development compared to the quantity of plots applications, which refers to the land shortage that encouraged the planning violations (Kombe, 2005).In most developing countries, the absence of physical infrastructure and services has been a critical concern, as governments are unable to handle the high cost of infrastructure provision (Djafri Riadh, 2021; Sundaresan, 2017).Regarding the social infrastructure, scholars indicated that there is a relationship between the social infrastructure and the extent of compliance with planning standards (Mohammad, 2006).

Study location

Benghazi is Libya's second-largest city and economic capital. Benghazi is located on Libya's eastern coast. The case study Al-Fatah district is located in the centre of Benghazi, consisting of two types of housing that are allocated in two distinct ways: firstly, through the cooperative housing system; and secondly, by providing a plot of land with loans and allowing owners to construct their dwellings under their supervision. Additionally, it contains two distinct types of residential housing, low and middle density.

Theoretical context

This study's theoretical framework was constructed using a variety of theories and multivariate behavioural models. Numerous attempts have been made to characterise both regulatory compliance and pro-environmental activities using a variety of major behavioural drivers. While non-compliance is traditionally viewed as a deliberate act motivated by risk assessment (Becker, 1968; Thomas, Milfont, & Gavin, 2016). By providing an instrumental perspective on compliance, Becker's model considers non-compliance as a result of the expected net benefit of law violations, the risk of detection, the possibility of conviction, and the severity of the penalty (King & Sutinen, 2010; Thomas et al., 2016).

RESEARCH METHODOLOGY

This study employed a mixed-methods approach to determine the factors affecting the level of compliance with planning standards. The questionnaire was distributed to household heads, while the semi-structured interviews were conducted with officials from the planning authorities of Benghazi. Using

quantitative methods to gather accurate answers to the research questions, responses on the questionnaire survey were obtained from the heads of households who were living in residential areas that violated the planning standards. The selected area has a total of 1115 residential units. Each housing unit represented one questionnaire as the target population are the household heads. The minimum sample size for this study was 298, which was determined on the basis of the Morgan schedule (Krejcie & Morgan, 1970) . A total of 400 questionnaires were received from the household heads. After eliminating biassed responses, the remaining 359 questionnaires were analysed. Convenience sampling was used as a sampling technique. The questionnaire data were analysed using the statistical software PLS-SEM via Warp PLS 6.0.

RESULTS AND FINDINGS

The model constructs' reliability has been assessed, and loading factors less than 0.7 have been removed (Hair et al., 2011; Oliver G¨otz, Kerstin Liehr-Gobbers, 2010). Results showed that factors (exogenous variables) of Monitoring, Enforcement, Staff training level, corruption, Bureaucracy, Finance, Housing provision, social infrastructure, Physical infrastructure all have composite reliability (CR) greater than 0.7. As a result, the findings indicated that the measurement model is internally consistent and reliable. The R-square (R2) measure of endogenous constructs and the path coefficients should be examined to get a preliminary assessment of the structural model (inner model) and hypothetical framework (Chin, 2010; Hair et al., 2011). The endogenous construct (Compliance level) in this study has an (R2) value of 0.31 (Figure 1), which is regarded to be a moderate value. As demonstrated in Table 1, eight of the nine path coefficients are also highly significant. A common interpretation is to refer to effect sizes as small (0.2), medium (0.5), and large (0.8) based on Cohen benchmarks (Cohen, 1988). Cohen's d is best interpreted by comparing it to other effects in the literature and explaining its practical implications. No clear recommendations are given (Fidler, 2002). The results indicate that the effect size of all factors is small, yet, the majority have significant P values. Positive connections indicate that both variables either increase or decrease together. Consequently, the factors (IVs) affect the compliance level (DV), indicating that the compliance level may improve once these factors are addressed.

Table 1: Results of path coefficients and hypotheses testing.

	Hypotheses			Path coefficient	p value	Effect size	Supports
1	Monitor	=>	Compliance Level	0.08	0.05	0.02	Yes
2	Enforce	=>	Compliance Level	Factor was deleted			No
3	Training	=>	Compliance Level	0.07	0.08	0.01	Yes
4	Corrupt	=>	Compliance Level	-0.13	<.01	0.03	Yes

5	Bureau	=>	Compliance Level	0.09	0.03	0.02	Yes
6	Finance	=>	Compliance Level	0.07	0.07	0.01	Yes
7	Housing	=>	Compliance Level	-0.08	0.05	0.01	Yes
8	S-Infra	=>	Compliance Level	-0.29	<.01	0.12	Yes
9	Ph-Infra	=>	Compliance Level	-0.22	<.01	0.08	Yes

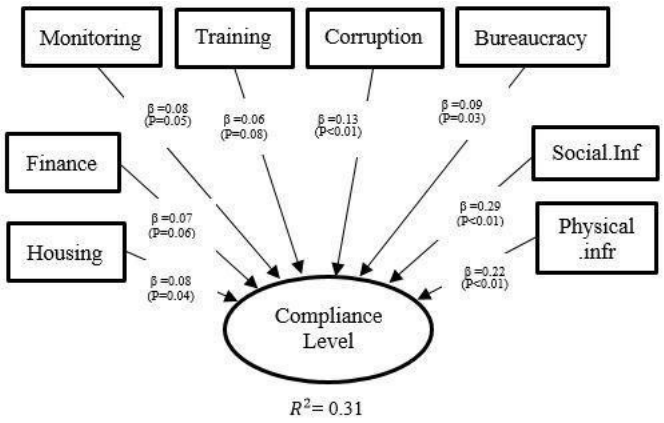

Figure 1: Results of the structural model

The Administrative Aspects

Monitoring

The survey indicated that an ineffective monitoring system contributes to non-compliance with residential planning standards. Participants stated that the lack of modern techniques is one of the main reasons for the system's inefficiency even for existing and new buildings. Based on the interviewees, social barriers that hinder people from reporting any form of planning contraventions also thwart the traditional monitoring system, which relies on neighbours' complaints to detect planning violations. Moreover, the difficulty of visiting existing buildings due to social considerations obstructs the field patrols. As a result, the traditional method is ineffective. Aside from that, there are no new modern techniques. As a result, the monitoring system in Benghazi's planning system does not exist. A further issue of debate is the complete absence of databases and information. The information available is only aerial images, satellite images, and blueprints of planning schemes. This finding is consistent with empirical findings from (Kombe, 2005) and (Rakodi, 2001), which demonstrate that planning violations are a result of an insufficient monitoring system. The more skilled the monitoring staff were, the more compliant the buildings were (Offiong, 2017).

Enforcement

According to the survey, enforcement has no discernible influence on compliance. Participants cited obstacles to planning authorities enforcing

planning standards, including a lack of government financial support, the large scale of violations, and foreknowledge of the lack of options except for illegal buildings. The lack of a significant effect of the enforcement system is surprising given Alnsour (2009) and Olufemi (2018)'s findings that enforcement has a considerable impact on the compliance levels. Additionally, these findings contradict those of Dambeebo and Jalloh (2018) and Wahab and Ojolowo (2018), who found that insufficient enforcement enabled non-compliance, resulting in disorganised spatial growth. Interpretations of this contradiction can be suggested that enforcement had no substantial influence in the research region because household heads believe that the planning violation was only related to flagrant infractions, such as breaches of public places such as public parks. The majority of inhabitants in the study region believe they have the right to expand their dwellings within the bounds of their plots as long as they do not go beyond the plot boundaries.

Staff's training level

According to the findings, the level of training of planning department staff has a substantial impact on compliance. P Value is a certain trend toward significance (0.08). A proportion of interviewees indicated that the planning department staff is unskilled. Technical skills, well-advised decisions, and monitoring by using new modern devices and technologies are the most significant characteristics related to the training and skills of the planning staff that scholars identified as affecting compliance levels. Offing (2017), Arku (2016), and Hajialirezalou (2018) findings corroborated the analysis of this hypothesis. The skills and training level of the planning staff got evaluated on a variety of criteria, including their expertise in managing the city, their ability to update standards, their communication skills with agents and citizens. Thus, based on these perspectives, the findings suggested that the levels of training and skills of planning authority staff affect the extent of compliance. Additionally, these findings were supported by interviews with planning authority officials.

Corruption

Corruption is one of the elements affecting the extent of compliance in the study area. Corruption in this context typically pertains to favouritism, nepotism and social pressure from relatives and friends that influenced staff' ability to treat applicants fairly. Other corruption forms such as the bribes is not common as bribery is characterized by shame in the Libyans' society. This finding confirms Alnsour's (2009) assertion that corruption encourages planning deviation. Similarly, related research indicated that one of the reasons that facilitated non-compliance was corruption (Makato, 2016; Omollo et al., 2018).

Bureaucracy

The bureaucracy is evaluated in terms of time, fees, and the procedures for acquiring building approval and title. According to the interviewers, bureaucracy may not be one of the primary factors, as apathy toward obtaining a building permit may result from a lack of monitoring and enforcement. As long as the monitoring and enforcement mechanism is weak, people tend to disregard getting permission. As a result, bureaucracy may contribute significantly to planning breaches through the delaying and issue of new layouts, rather than through the delaying and issuance of building permits and permits for housing extensions. These results agree with the finding of Arku et al. (2016), who found that bureaucracy in terms of rigorous and series of procedures and filed documents to earn a title encourages people to build illegally. In a similar context, Dambeebo (2018) determined that bureaucracy has hampered efforts to achieve a high level of compliance.

Economic Factors

Residential financial facilities

The hypothesis predicting a relationship between the financial facilities and compliance level is fully supported. P-Value approached the borderline of significance (0.07). The interviewees identified the following issues with these facilities: (i) Lack of approved residential plots. (ii)The difference between the loan amount and the actual construction costs. (iii)Housing loan complications in terms of requirements. These data confirmed Alnsour's (2009) assertion that a lack of financial resources often results in substandard design and construction.

Housing provision

As expected, housing provision has a sizable impact on compliance levels. All participants agreed that a lack of housing and authorized residential schemes was the main reason for planning violations and informal settlements. The literature on housing shortages and illegal housing supports these findings. For example, Arimah and Adeagbo (2000) found that housing shortages led to informal settlements. According to Jawaid, Pipralia, & Kumar (2018), housing shortages together with shrinking buildable land, are serious issues to urban planning and the environment.

Social and physical infrastructure

The study indicated that both social and physical infrastructure had an impact on residential planning standards compliance. These results agree with the findings of Mohammad (2006), who found a moderately positive association between social infrastructure and compliance level in Old Salt, Jordan. Physical infrastructures were discussed with the planning officials, surprisingly the majority of interviewees asserted that there is no relationship between

infrastructure provision and noncompliance with planning standards. One of the managers made an intriguing argument regarding infrastructure and the planning violation, adding that the only relationship was that the planning encroachment damaged existing infrastructure. Libyan infrastructure projects face challenges such as a lack of coordination and hierarchy among different types of infrastructure, whether during installation or maintenance. Additionally, it was expected that infrastructure might contribute to planning violations by attracting citizens to build illegally to benefit from the infrastructure. This assumption was incorrect, as over 80% of Benghazi's urban area lacks infrastructure, either partially or totally, and planning violations occurred in both serviced and unserviced areas. According to the survey findings, physical infrastructure has an effect on compliance levels. These findings contradict the findings of the planning authorities' staff. This discrepancy may be explained by the notion that planning officials evaluate the issue in a broader context for the entire country, rather than simply for a specific area. The survey results reflect Zegarac's (1999) conclusion that one of the causes for illegal construction is a scarcity of available sites and parcels for individual housing with basic utility provision. According to Omollo's (2020) recent study, there is a link between disregarding planning standards and infrastructure, with the planning violation affecting a variety of factors, including pressure on infrastructure facilities.

DISCUSSION

Since non-compliance with planning standards was investigated from two distinct perspectives, namely household's heads and planning officials, the findings were sometimes consistent from both sides and at other times inconsistent. Most findings of the administrative factors were in line with the households' heads and planning officials, such as monitoring, bureaucracy, and corruption. The probability of the justification for the consistency between residents and staff in urban planning is that these factors are clear from both sides and there are no hidden aspects for either residents or officials and even that the issues stem from these factors occur by direct contact between residents and staff. Interpretations of the contradiction in the enforcement effect can be provided by observing that household heads believe that the planning violation is only associated with flagrant violations such as breaches of public areas such as public parks. Economics issues were the most significant compared to other groups of factors. Both household heads and planning staff agreed on the effects of these factors except for physical infrastructure, where planning staff explained that infrastructure doesn't encourage planning violations. This discrepancy may be due to officials' viewpoint built on infrastructure for the whole country, while residents' viewpoint built on their neighbourhood infrastructure.

CONCLUSION

In the study area, the inefficiency of the monitoring system impacted the compliance level. Corruption in terms of favouritism has a detrimental influence on compliance and the planning system in general. There is a lack of skills and training among the planning authority employees, especially in technical skills on monitoring by new modern technologies. The bureaucracy also bears some of the blame for planning violations due to their rigid rules and processes. Besides other economic factors such as residential financing facilities and infrastructure provision, the primary reason for non-compliance with residential planning regulations is a housing shortage. The problem of planning violation has not addressed by planning authorities at the beginning of the 1990s. Even if the issue was purely economic, planning authorities were supposed to issue new subdivisions, even if there were difficulties with infrastructure provision or housing loan availability, in order to encourage everyone to build a home legally rather than illegally. This is because informal settlements take place in the absence of infrastructure and housing loans. Accordingly, it was supposed that these settlements occurred under the supervision of planning authorities and in line with planning standards. Moreover, if this had been done, some would not have resorted to violating the standards in the approved schemes.

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