

Post-Exploitation Evaluation of the “One Million Houses” Program in the City of Setif: Multiplicity of Forms and Variation of Spatial Distribution (Algeria)

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Abstract

Over the last thirty years, the city of Sétif has experienced an accelerated urban dynamic, reflected in the projects carried out, particularly those related to housing and accompanying facilities, in order to cope with the strong urban growth and the increasing demand for housing. All this was in the interest of the Algerian state within the framework of various housing programs divided into five-year plans (1999-2004, 2004-2009, 2009-2014, 2014-2019) called the ‘One Million Houses’ program.

However, these residential projects encountered many technical, architectural, urban and environmental problems that have affected the general appearance of the residential areas and the city as a whole, resulting in different forms of interventions that vary in size and distribution from one residential formula to another, and this is the subject that will be addressed in this research paper.

Key words: the “One million houses” program, the city of Sétif, spatial distribution, forms of intervention, field survey, urban growth, post-exploitation assessment.

RESUME

Au cours des trente dernières années, la ville de Sétif a connu une dynamique urbaine accélérée, reflétée par les projets réalisés, notamment ceux relatifs à l’habitat et aux équipements d’accompagnement, afin de faire face à la croissance urbaine et à la forte demande de logements. Tout ceci dans l’intérêt de l’État algérien dans le cadre de différents programmes de logements répartis en plans quinquennaux (1999-2004, 2004-2009, 2009-2014, 2014-2019) appelés programme “Un million de logements”.

Cependant, ces projets résidentiels souffrent de nombreux problèmes techniques, architecturaux, urbains et environnementaux qui ont affecté l’aspect général des zones résidentielles et de la ville dans son ensemble, ce qui a donné lieu à différentes formes d’interventions dont l’ampleur et la répartition varient d’une formule résidentielle à une autre, et c’est le sujet qui sera abordé dans ce travail de recherche.

MOTSCLES

programme «Un million de logement», ville de Sétif, répartition spatiale, formes d’intervention, enquête de terrain, croissance urbaine, bilan post-exploitation.

INTRODUCTION

The city of Setif is an ideal urban area for conducting urban and architectural research, particularly in the field of housing, especially since it has recently experienced increasing urban dynamism, rapid urban growth and spatial transformations in all areas, in addition to the strong demographic growth in the Eastern High Hills region (CHORFI, 2019), which has been accompanied by the realisation of colossal housing programs (MADANI, 2012), estimated at about 89,836 dwellings, distributed in various formats (social rental housing (MEZRAG, 2016, ABBAOUI, 2018), social cooperative housing (BOUDOUKHA, 2010), subsidised housing, rental housing, public promotion housing, and subsidised promotion housing) in order to meet the growing demand for housing and to implement the principle of social justice in housing ownership for all strata of society.

On the other hand, the inhabitants who benefit from housing in its various forms resort to various illegal modifications, internal or external, at varying levels and sizes according to their spatial distribution, which have considerably distorted the aesthetic appearance of residential areas (HIMA et al., 2018, TAHRAWI, 2013, BOUHLAL, 2017), all these illegal interventions which contradict urban management have led us to immerse ourselves in the post-exploitation evaluation (MILI et al., 2015, MEZRAG, MAZOUZ, 2013) of the program One Million Houses in Setif based on numerous questions which we will try to answer through the following main issue:

What are the forms resulting from the interventions of the beneficiaries of the "One million houses" program, and what is their spatial distribution?

And for reference, the "One million houses" program has multiple housing formulas and has been implemented in eight municipalities, all of which are part of the "PDAU INTERCOMUNALE" master plan for development and reconstruction between municipalities.

RESEARCH OBJECTIVES

This research aims to:

- 1- To clarify the different forms of interventions of the population on the beneficiaries of housing within the framework of the "One Million Houses" Program.
- 2- Highlight the role of the dominant social group in activating interventions in their area of residence.
- 3- Indicate the level and volume of interventions according to the multiplicity of housing formulas of the "One Million Houses" Program.
- 4- Clarify the level and size of interventions according to the spatial distribution of the "One Million Houses" Program in Sétif.

Firstly: Research Methodology

In order to achieve the established objectives, we adopted the descriptive analytical approach to study the variation in the spatial distribution of the "One Million Houses" program in the city of Sétif by revealing the mechanisms adopted by the guardians in its implementation. In order to obtain sufficient information, we conducted a field study at the level of a group of directorates represented within the Housing Department "D.E.L", Housing Improvement and Development Agency "A.A.D.L", Real Estate Promotion and Management Office "O.P.G.I".

We also carried out a field survey (ZEROUALI, ZEROUALI, 2020) among a group of the population benefiting from the "One Million Homes" program by distributing a questionnaire in three housing complexes of different formats and variable distribution in order to familiarise ourselves with the data to be obtained, through which we will reveal the level, extent and form of the population's interventions on the housing of the beneficiaries (GOUBAA, 2018) under the "One Million Houses" program in its various forms, in addition to highlighting the role of the dominant social group in activating these interventions.

Secondly: The Location of the City of Setif: An Important Strategic Location within the Urban Fabric of the High Plateau Region.

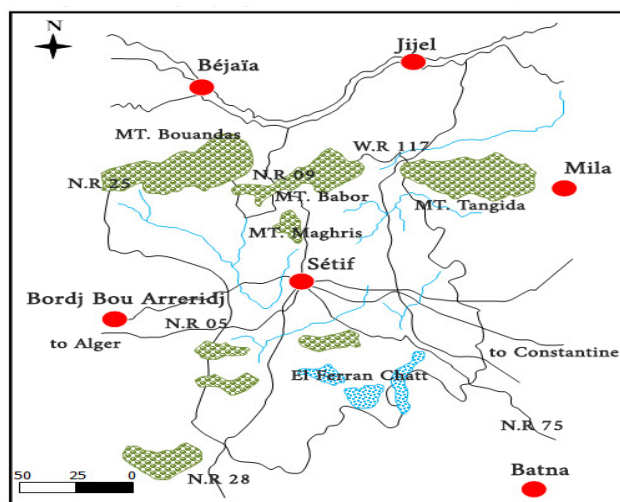
The city of Sétif is geographically located in the region of the Eastern High Plains, and is an important regional pole in the urban network because it mediates several important cities: It is bordered by Bejaia and Jijel from the north, Batna and M'sila from the south, Mila from the east and Bordj-Bou-Arredj from the west (Map. 01) (BENS DIRA, 2020) Between the north and the south, the east and the west, as it is the intersection point of the most important transport nodes linking the Algerian west to its east by the national road n° 05, the railway line and the "east-west Highway", and north and south by the national roads numbered : 28, 09, 79, which qualifies it to be the capital of the eastern highlands, in addition to its demographic and economic weight, and the multiplicity of development and housing programs.

Thirdly: The Urban Growth of the City of Setif

The demographic evolution of the city of Sétif and the increase in the demand for housing

The city of Sétif has experienced strong demographic growth that has exceeded the state rate, and it has not experienced

any interruption in its pace because of its strategic location and the suitable living conditions that its urban area offers to the population (BENGHADDBANE, DJAADJOU, 2017), as well as the diversity of the elements of attractiveness and stability of the population within it, According to the results of the 2008 General Census of Population and Housing, the population of the city of Sétif reached approximately 252127 people, which was estimated at 214842 people in 1998, an increase of approximately 37285 people, with a growth rate gap of 1.3%, while this number did not exceed 170182 people. In 1987, a growth rate differential was estimated at 2.10%. The population increase was estimated at about 44660 people, an increase of about 1/4 of the population over the period between 1987 and 1998 (Table 01), reflecting the increase in housing demand (OUARI, 2018).



Map1. The geographical situation of the city of Sétif. **Source:** Shoui et al., 2008, p.18 + researchers' treatment.

Table 1. Evolution of the population in the city of Sétif (1987-1998-2008)

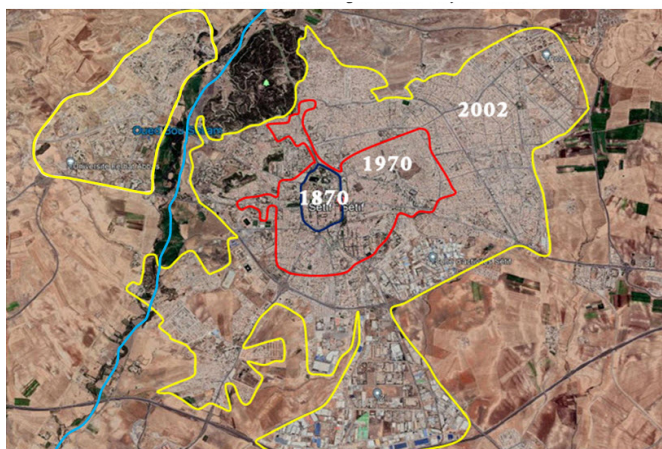
The year	Population (persons)	Annual growth rate (%)	National growth rate (%)
1987	170182	/	/
1998	214842	2,10	2,15
2020	252127	1,3	3,57

Source: National Statistical Office, Population and Housing Statistics 1987/1998/2008.

The Housing Stock and its Increase in the City of Sétif

Since independence, the city of Sétif has experienced an accelerated construction movement according to successive periods of time, the most important of which is perhaps what the city has gone through in the last thirty years (CHENGUERI, 2014); as the city of Sétif has become a large workshop for the production of housing of all kinds and its various public facilities and equipment. This is reflected in the figures recorded in the Constructivism zone, where the surface area of the city of Sétif was estimated in 1966 at 338 hectares, to be developed for 839 hectares in 1977, with a difference in surface area of 501.8 hectares. It was due to the great rural exodus recorded after the liberation revolution which was followed by the implementation of the Constantine project and the emergence of new housing programs (Z. When the area of the city increased to about 1,335.1 hectares in 1988, with a difference in surface area of 495.3 hectares, during which period the city of Sétif experienced the continuity of the installation of large residential complexes (Z.H.U.N) as well as municipal housing estates, while the construction of new housing estates (Z.H.U.N) continued. The surface area reached in 1998 about 2,285 hectares, with a difference in surface area of 950 hectares. During this period, the city of Sétif experienced a rapid expansion due to the liberalisation of the market economy system, which favoured the establishment of housing estates and promotions, in addition to the great rural exodus towards the city of Sétif, which is known to be the result of the security conditions in the north of the state and the lack of development projects in the south (YAALA, 2017), while the city of Sétif had a surface area of about 3 377 hectares in 2008, with an estimated increase to 1 092 hectares due to the implementation of major structuring projects such as the new university centres, the medical-sports centre, etc. ... To this can be added the emergence of new secondary centres with a capacity of over 10000 dwellings. Based on the spatial movement experienced by the city of Sétif, the reconstruction of the city

went through important stages, resulting in spontaneous growth and deformation of the urban fabric, following which densely populated residential areas appeared in the light of the growing demand for housing, and the stages of the reconstruction of the city of Sétif can be summarised in four important episodes of the reconstruction (Map. 02).



Map 2. Construction stages in the city of Sétif. **Source:** Chorfi, 2019 + Researchers' treatment.

As for the number of dwellings in the city of Sétif, it reached approximately 9121 dwellings in 1966, increasing to 10665 dwellings in 1977, at a rate of 155 dwellings/year. The number of dwellings doubled again in 1987, when the residential population of the city of Sétif underwent a great recovery, since the number of dwellings reached approximately 27767. An increase of 17102 dwellings, at a rate of 1710 dwellings/year, which is a very high rate compared to the rate recorded in the period from 1966 to 1977. The occupancy rate of houses was 6,69 persons/house in 1987, but this rate improved somewhat in 1998, when it decreased to 5,61 persons/house, which translates into an improvement in the housing sector, while the housing sector in Sétif recorded in 1998 about 42592 dwellings, an increase of 14825 dwellings. The estimated housing occupied by 4,65 persons/house, while the housing product increased to about 66518 houses in 2013. Table n°02 presents in figures the evolution of the housing stock in the city of Sétif, as well as the urban agglomeration of Sétif during the period; from 1966 to 2013.

Table 2. Development of the housing stock in the Staifi urban area from 1966 to 2013

Municipalities in the Staifi agglomeration	1966	1977	1987		1998		2008		2013
			number of dwellings	occupancy rate	number of dwellings	occupancy rate	number of dwellings	occupancy rate	
Sétif	9121	10665	27767	6,69	42592	5,61	61743	4,65	66518
El Ouricia	1835	-	1151	8,53	2387	6,07	3337	5,36	3960
Aïn Abessa		-	1805	6,64	2218	6,78	2846	5,82	3136
Aïn Arnat		2264	2170	8,16	4920	6,12	8375	5,12	10983
Mezloug	-	-	1264	7,40	2096	6,38	3005	5,70	3587
Guidjel	1513	1822	1916	10,10	4278	6,51	5556	6,03	6278
Ouled Sabor		-	1668	6,92	1657	6,03	2510	4,97	4504
Beni Fouda	935	1111	1667	7,82	2580	6,54	2464	7,13	2931
Total	13404	15862	39408	6,65	62728	5,85	89836	4,96	101897

Source: Revision of the master plan for development and inter-communal reconstruction – Sétif 2008 + Statistical yearbook of the Department of Setif 1966, 1977, 2013 + treatment by researchers.

Fourth: Presentation and Interpretation of Research Findings

Sample and Field Survey Process

In order to identify the size and levels of emergency housing interventions according to the spatial distribution of the one million housing program, as well as to know the characteristics of the dominant social group in the activation of

these interventions, we adopted the field survey as a means for this, where questionnaires were distributed to a random sample in three different localities with a total of 4500 dwellings distributed as follows (El-hidab site with a residential size of 3000 housing units, the Bir el-Nissa site with a housing size of 1000 dwellings, as well as the Chouf El Kadad site with a housing area of 500 dwellings).

The field survey process was conducted on a sample of 8,8% of the total housing units (4500 dwellings) over a period of 43 days from the date of 08 November to 20 December 2021, of which 247 forms were exploited at the site of El-Hidab, representing 62,37% of the total forms exploited, while 102 forms were exploited at the site of Bir el-Nissa', with a rate of 25,75%, while 47 forms were exploited at the site of Chouf El Kadad, with an estimated rate of 11,86%.

The field survey process took place under difficult circumstances due to the Corona virus epidemic (establishment of the necessary preventive measures and compliance with the health protocol recommended by the tutors), especially after the failure of the electronic process by adopting the program (Google Forms), which did not bear fruit due to the great reluctance to provide answers, which prompted us to disseminate questionnaires using the traditional method at the three study sites.

Presentation of Questionnaire

The questionnaire was filled in by the authors, and it includes many questions addressed to the user of the dwelling, whether he/she is the original owner or the tenant of the dwelling, in order to know the extent of the emergency interventions on the dwelling. Parts as follows:

Information related to the user (gender, age, education level, family and professional situation, income, original location before using the dwelling) (Fig. 01 "a, b, c, d, e, f").

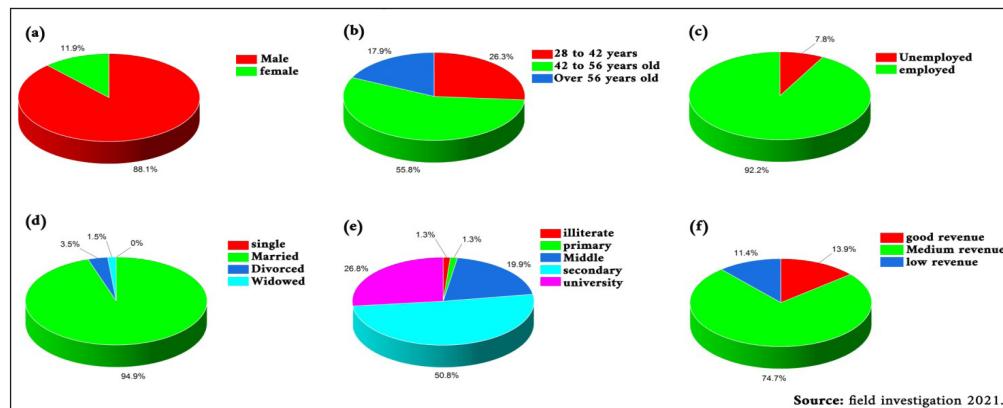


Figure 1. User Information

Information about the dwelling (the location of the dwelling and the year of use, the form of the dwelling and its real estate nature, the number of rooms in the dwelling and the floor of its presence, the mode of use of the dwellings) (Fig. 02 "a, b, c, d, e, f").

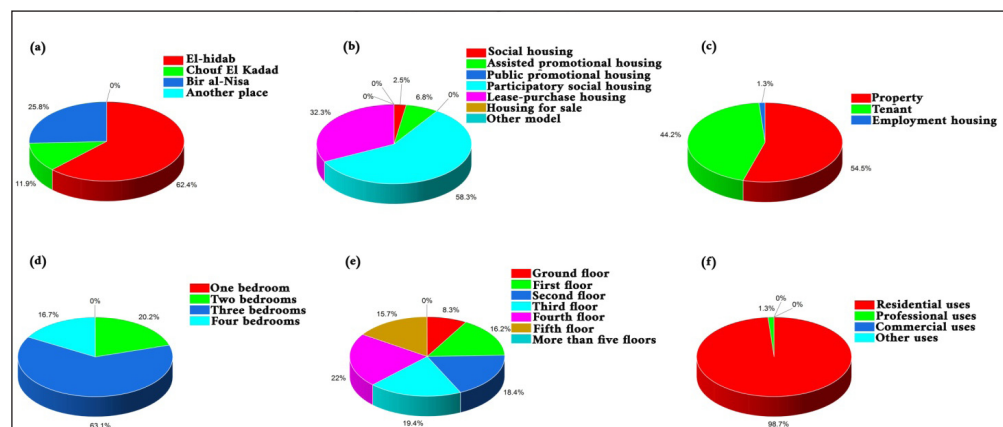


Figure 2. Dwelling information

Information on emergency housing interventions (different suggestions on internal and external intervention patterns with the possibility to choose several types, the real reasons behind the process of emergency housing interventions with the possibility to choose several reasons, a related question to highlight the main reason for these interventions).

The aim is to find out information about the user of the dwelling in terms of gender, age, level of education, etc. Add to this the knowledge of all the information related to the dwelling, the location, the year of use of the dwelling, the nature of the property, ... and above all it is a question of knowing the extent of emergency interventions on the dwelling, whether internal or external, and to identify the category of population concerned by these interventions, as well as the real reasons for the interventions that have taken place on the dwelling, and to underline the main reason.

After the end of the fieldwork period, which lasted 43 days, we immediately started the questionnaire sorting process. Out of 450 people targeted for interviewing, 405 people participated in the field survey process and 45 people did not want to participate. We returned 405 questionnaires, of which 09 were cancelled due to the lack of response. The results of the field survey will be based on 396 questionnaires, which represent 8.8% of the total dwellings in the study area, as the participation rate was estimated at 90%, which is considered a high percentage that reflects the success of the methodology adopted as well as the credibility in the field survey results.

RESEARCH RESULTS

The housing program "One million houses" in the city of Sétif experienced multiple interventions by the population benefiting from it at different sizes and levels in the three sites studied (Bir el-Nissa, El-Hiddad, Chouf El-Kadad), and these interventions varied according to their spatial distribution from one site to another, and the reasons for which it varied, and this is manifested in the following.

Forms of residents' interventions on housing in the framework of the "One Million Homes" program

The forms of residents' interventions on housing appear in the statements confirmed by the respondents throughout the field survey process, where we recorded 90.91% of the total number of respondents who made interventions on their homes (Fig. 03 "a"), which reflects the negative view of the population towards the "One million housing units" program in its different forms, as well as the great shortcomings of the housing projects included in it. That explains the failure of the adopted housing policy, which is based on the principle of quantity without achieving type and quality, in addition to the unsuitability of the designs to the size of the family due to the lack of citizen participation in the study and realization of this type of housing projects.

The interventions varied and varied according to their size and the residents' need for them in the following three forms (Fig. 03 'b'):

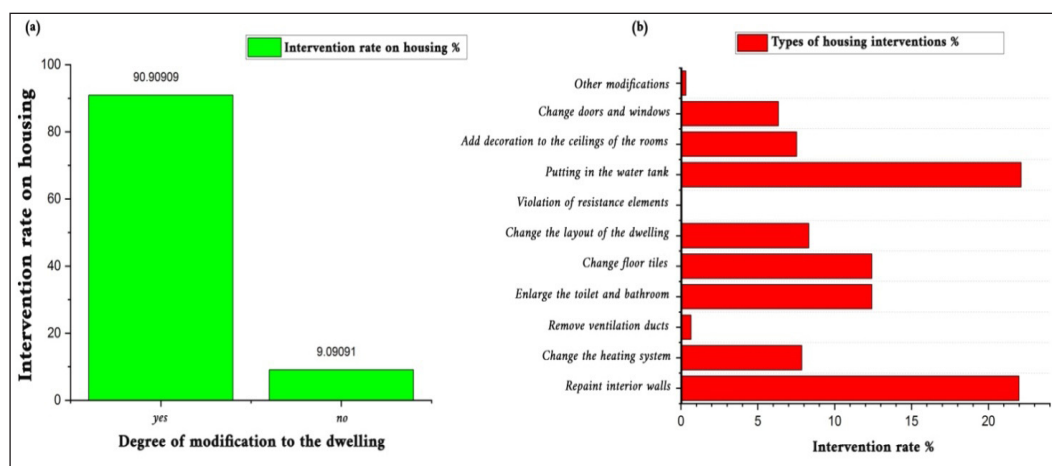


Figure 3. Forms and sizes of residents interventions in housing in the one million homes program

* The first figure (less than 7.71%): This level falls into the category of respondents who made changes to their dwellings, which affected both the removal of ventilation channels, the addition of decoration to the ceilings of rooms, the change of windows and doors.

* The second figure (from 7.71 to 15.42%): This level includes the forms of interventions carried out by residents on their dwellings, which included changing the heating system, adding and enlarging toilets and bathrooms, changing the layout of the dwelling and changing the floor tiles.

* The third figure (above 15.42%): This level includes forms of emergency interventions on the dwelling, such as repainting interior walls, placing a water tank.

The Role of the Social Group in the Activation of Housing Interventions

The social category variable plays an important role in the activation of housing interventions, especially since housing is the first brick that must be considered in all housing studies with regard to housing design. Within this variable we have dealt with two indicators that are considered of great importance and have a major role in increasing or decreasing the volume and level of housing interventions, and they are.

Professional Status of the User

The field survey process, according to the professional status of the user, revealed a clear disparity in the volume of interventions on housing. That because 94,06% of the total interventions on housing are associated with the category of the working population, while 5,94% of the total interventions on housing were attributed to the category of the unemployed population (Fig. 04 "a"). As for the volume of housing interventions according to the form of intervention, there is a clear variation from one form to another according to the professional status of the housing user as follows (Fig. 04 "b"):

* **For the unemployed population :** The largest percentage of interventions for them on the first level housing, estimated to be more than 15,48% of the total interventions, which included painting interior walls, enlarging toilet and bathroom and installing a water tank, while a percentage was recorded between 7,74 and 15,48% for each of tiling, window and door changes as the second level, while the rest of the forms of intervention on the house recorded low rates of less than 7,74% as the third level.

* **For the employed population :** the forms of interventions on the dwelling varied according to the category of the working population, since repainting walls and placing a water tank came as a form of intervention at the first level, with rates exceeding 21%, while average rates were recorded which varied between 8,01% and 12,71% for changing the heating system, enlarging the toilet and bathroom, changing the floor plan and changing the floor tiles, while the rest of the interventions registered low rates and were related to removing ventilation ducts, compromising resistance elements, changing windows and doors and adding decoration to the ceilings of the rooms.

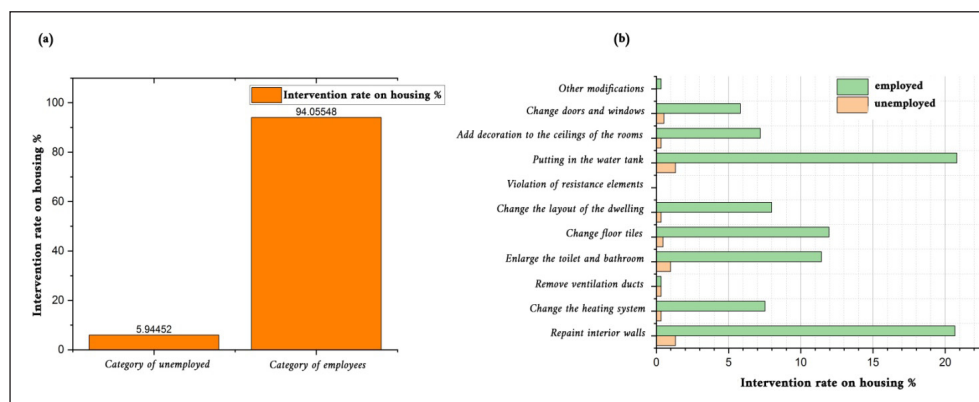


Figure 4. Forms and volumes of housing interventions by employment status

Family Income Status

The results of the field survey gave different forms of intervention according to the income status of the household, which we divided into three income levels: good, medium and poor (Fig. 05 «a» «b»).

Figure 05 shows a discrepancy in the rates of housing interventions according to family income level, as the middle income population is the largest housing intervention, with an estimated rate of about 73,84% of the total interventions, followed by the good income population category with a rate of 18,42%, while the rate of housing interventions was

estimated at 7,72% for the low income people. The reason for this is that the middle-income population is the largest group that has intervened in housing due to its ability to provide income for the purpose of improving the housing space on the one hand, and on the other hand, the housing formula that this group has been provided with does not meet its requirements.

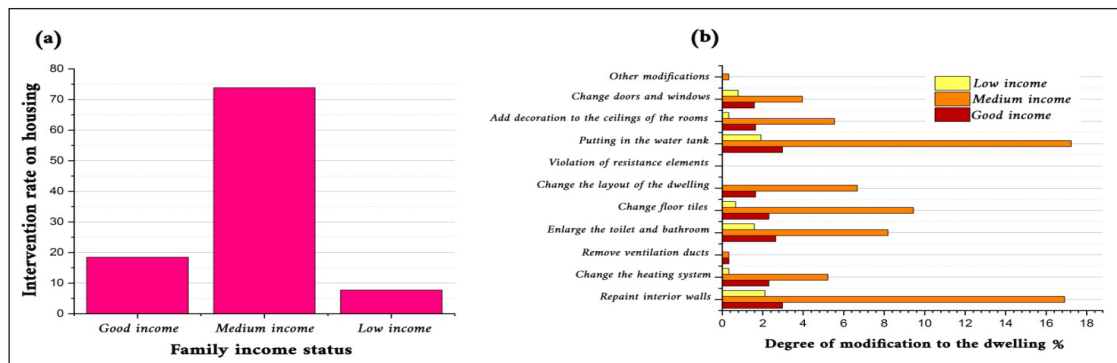


Figure 5. Forms and volumes of housing interventions by household income status

As for the form of intervention on the dwelling according to the level of family income, it is clear to us that most of the interventions are related to the painting of the walls and the installation of a water tank, which is due to the poor quality of the covering and the desire of the user of the dwelling to change it, as well as the fluctuation of the drinking water supply.

The degree and size of interventions according to the spatial distribution of the One Million Houses Program in Sétif

The results of the field survey revealed a discrepancy in the degree and volume of intervention on housing according to its spatial distribution, where the highest percentage of intervention was recorded in the site of El-Hidab with 58,65%, followed directly by the site of Bir El- Nissa with 30,77%, while the site of Chouf El-Kadad recorded a low rate of intervention. It was estimated at 10.56%. The reason for this discrepancy in the size of the interventions is due to the difference in the housing packages included within each site (Fig. 06 "a").

Level and volume of interventions according to the multiplicity of housing modalities in the «Million Houses» programs

The results of the field survey revealed a clear difference in the volume of interventions on housing according to its formula within the "Million Housing" program in the city of Sétif "Fair Housing" with an estimated intervention rate of 36,06%, while low intervention rates were recorded, varying between 1,32% and 6,27% in the two formulas "supported housing" and "social housing" (Figure 06 "b").

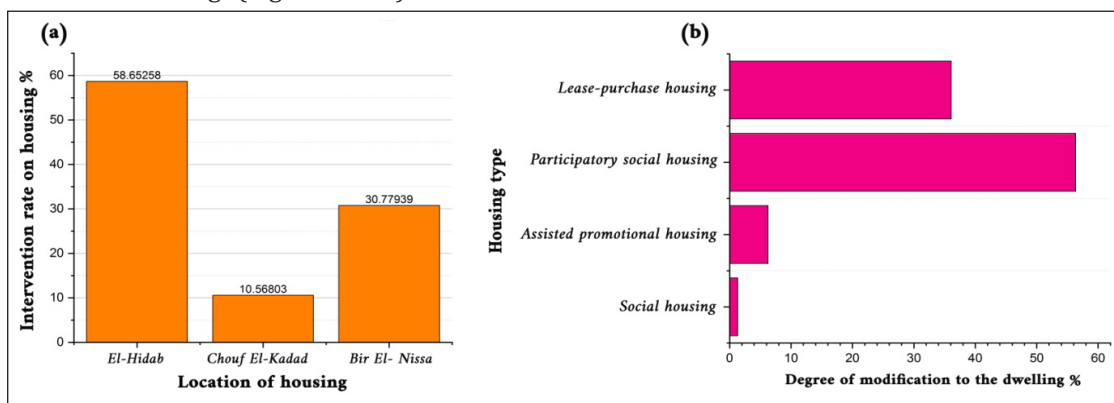


Figure 6. Forms and volumes of housing interventions by the Spatial distribution

The reason for the high volume of interventions in the housing with the formula "contributory social housing" and "fair housing" is due to the financial capacity of the user, which allows him to make modifications to the housing. Since these two formulas are aimed at the average population, in addition to the poor quality of the building materials and

the lack of perfection in the construction with this type of housing while the reason for the decrease in the volume of interventions in housing with the formula "supported housing" and "social housing" is the fact that supported housing is a new formula that came into force in line with the needs of the population, and social housing. Thus, the reason for the decrease in the volume of interventions is due to the low financial capacity of its users it is a housing formula intended for people with low incomes.

CONCLUSION

What we conclude through the process of post-operational evaluation of the "One million houses" program in the city of Sétif, and the presence of major housing interventions by the population benefiting from them reflects the serious technical defect in the implementation of the housing programs included in the "One million houses" program. This is mainly due to the failure of the housing policy adopted, which is based on the principle of quantity without achieving type and quality, and the unsuitability of the designs for family size. All these results are due to the lack of citizen participation in the study and realization of this type of urban project.

The role of the social group in activating housing interventions was clear through two main indicators, the first one related to the professional status of the user. It was found that the high volume of housing interventions associated with the working population category, due to the financial capacity of this group of the population to make changes to their housing. The second is related to the case of family income. The middle-income population is the most important interfering with housing due to the ability of this group to provide income for the purpose of improving their housing space on the one hand, and on the other hand, the housing formula that has benefited the middle-income population is not in line with their needs.

The results of the research also revealed the existence of a gap in the degree and size of housing intervention according to its spatial distribution, caused by the difference in housing formulas within the three study sites "Chouf El-Kadad", "El-Hidab" and "Bir El-Nissa".

In addition, there is a difference in the volume of interventions on housing according to its formula within the "Million Houses" program in the city of Sétif Changes in housing, given that these two formulas are aimed at the middle-income population in addition to the poor quality of construction materials and the lack of perfection in the construction of this type of housing, while the decrease in the volume of interventions on housing is coupled with the formula of "Supported Housing" and "Social Housing" as housing is Subsidized housing is a new formula that came into force according to the needs of the population and social housing. The reason for the low volume of interventions in this one is due to the low financial capacity of its users. It is a housing formula intended for people with low income.

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