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Construction sites and subjective Quality Of Life assessment: case of Ali Mendjeli, Algeria

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Abstract

The Quality Of Life (QOL) is a multidimensional concept defined as individuals perception of the living conditions including subjective evaluations of their well- being in different aspects. These perceptions may be intensified in complex urban settings. Furthermore, the existence of construction sites in an urban context distorts its characteristics, which may affect QOL. In this article, a subjective assessment method is conducted, in the new city of Ali Mendjeli, to evaluate the impact of the tramway construction site on (QOL). Results show that the construction sites have negative impacts on the (QOL) of the city inhabitants and users in different aspects.

Keywords: Construction sites; quality of life; negative impacts; subjective assessment

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Résumé

La qualité de vie (QDV) est un concept multidimensionnel défini comme la perception par les individus de leurs conditions de vie, y compris les évaluations subjectives de leur bien-être sous différents aspects. Ces perceptions peuvent être intensifiées dans des environnements urbains complexes. De plus, l'existence de chantiers de construction dans un contexte urbain déforme ses caractéristiques, ce qui peut affecter la QDV. Dans cet article, une méthode d'évaluation subjective est menée, dans la nouvelle ville d'Ali Mendjeli, pour évaluer l'impact du chantier du tramway sur la QDV. Les résultats montrent que les chantiers ont des impacts négatifs sur la (QDV) des habitants et des usagers de la ville sous différents aspects.

Mots clés: Chantiers de construction ; qualité de vie ; impacts négatifs ; évaluation subjective

ملخص

جودة الحياة هو مفهوم متعدد الأبعاد يُعرَّف بأنه تصور الأفراد للظروف المعيشية بما في ذلك التقييمات الذاتية لرفاهيتهم في جوانب مختلفة. هذه التصورات يمكن أن تكون أكثر كثافة في البيئات الحضرية المعقدة. إضافة لذلك ، فإن وجود مواقع البناء في المجال الحضري يشوه خصائصها ، مما قد يؤثر على جودة الحياة. في هذه المقالة ، يتم إجراء طريقة تقييم ذاتية ، في مدينة علي منجلي الجديدة ، لتقييم تأثير موقع إنشاء الترامواي على جودة الحياة . تظهر النتائج أن مواقع البناء لها آثار سلبية على جودة حياة سكان المدينة ومستخدميها في جوانب مختلفة.

الكلمات المفتاحية: مواقع البناء؛ جودة الحياة؛ اثار سلبية؛ تقييم ذاتي

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I- Introduction :

Construction sites can have an impact on the environment and adjacent facilities, this leads to discomfort for the residents surrounding construction areas, which affects their QOL. In order to improve the life quality of citizens and maintain the environment, taking into consideration the construction site impacts in an early stage are a clever step by policymakers.

Among the solutions that government policies have pursued in order to reduce the congestion of old cities, the establishment of new ones, which requires great efforts in order to obtain ideal cities, livable and respect the principles of sustainable development, thus facilitate the presence of city residents the public domain and in the heart of the city, Sasanpour (2017)[1]. However, the creation of a new city is a long and complicated process that is continuous, efforts are needed to avoid encountering new problems that make life difficult or unbearable.

Meanwhile, several projects are included for the sake of the resurrection in these cities and the improvement of their situation, which means that the citizen will find themselves practicing their daily life and expecting to collide with projects in his daily surroundings, routinely throughout the duration of the projects.

With the emergence of several problems in the city caused by the tramway construction project, such as, traffic jams, deterioration of roads and other potential impacts of the construction sites, that leads to ask the question for the purpose to demonstrate how construction sites may impact the QOL. This study is intended to assess subjectively these impacts on the QOL of the Ali Mendjeli city residents and users. Main results show that the construction site is affecting the QOL of Ali Mendjeli city with important impacts according the participants assessment.

However, few studies in literature which address the impact of the construction site on the quality of life. Thus with the data optimization regarding the city life, studies on quality of life became necessary to achieve residents well-being satisfaction, and to better measure QOL of citizen, the use of this data is required and beneficial. Zou et Ergan (2018,2019)[2,3], used the available city datasets to measure and predict the impact of construction projects on selected objective indicators of urban QOL. Moreover, the subjective assessment of the QOL is less undertaken in the literature, what prompting to do this study.

The purpose of this paper is to promote the design of an impact assessment model using this study results, in addition to more results in the future that uses the same method, that will be a benchmark for predicting the impacts of construction sites on QOL, that the authorities and stakeholders must take into consideration in order to, minimize the impact of construction sites, and work to improve the quality of life (QOL) level of city citizens and users during the construction site phase.

II– Potential adverse impact of construction projects :

Undoubtedly, construction site projects have negative impacts on the city, as several studies have shown. Related studies dealt with the negative impacts of construction projects into different aspects. Some research has addressed the issue of the assessment of environmental impacts of construction projects (Couto,2007; Teixeira, 2005; Cole, 2000; Tam et al., 2006)[4,5,6,7]. Couto (2007) stated that the most frequently mentioned are, environmental issues by producing residues and contaminating the soil and water, traffic and mobility problems by increasing the traffic volume, visual impacts by the deterioration of landscape and public spaces.

Furthermore other studies deals with the social cost caused by construction (Gilchrist et al., 2005; Çelik ,2017)[8,9]. Gilchrist et al ., (2005) grouped the potential adverse impact and social cost indicators into four main categories namely: traffic, economic activities, pollution and ecological/social health.

Based on previous studies, four main categories of adverse impacts of construction sites have been extracted for this study, namely: mobility, environment and security, aesthetic and visual comfort and economy. Thereafter, will be illustrative of each category separately.

II.1. Mobility :

One of the most important problems that arise while conducting projects is mobility within a city, as these projects, and according to the nature of the project, have an impact on movement due to the resulting traffic jams and road closures (Jiang 1999 , Lee et al., 2005 , A Gilchrist et al., 2005, Çelik et al 2017)[10,11,8,9] .

During the construction phase, the supply of construction materials and equipment is often conducted through the main accesses of the city. These routes will face a load of heavy vehicles, which accelerates the degradation of the main road. Additionally, the need to use an outdoor space other than that on the construction site, for the movement of various trucks and supplies, in some cases, the construction site is the road itself, generates traffic congestion in this area that can spread to other areas of the city.

Moreover, the disruption of road traffic is especially due to the movement of construction site trucks and heavy traffic on the road. In addition, projects negatively affect traffic flow for roads with larger or closer traffic flow capacity (lee et al., 2005)[11]. Gilchrist et al., (2005)[8] grouped the negative impacts on traffic into 3 categories: prolonged road closures, detours and various network works.

Consequently, these impacts force road users to take side streets which causes degradation of the roadway due to overloading. Apart from this, other secondary impacts appearing during works period reflected in the loss of parking spaces, delays caused to the user as well as increased travel time, which leads to increased fuel consumption.

II.2. Environment and Security :

In the past few years, the impact of the construction industry on the environment has been increasingly recognized. Many countries resort to evaluating environmental impacts according to the law, but this does not apply to those that take place in urban areas, as the matter is limited to mega projects only (Teixeira, 2005)[5]. However, one of the most important adverse impacts of construction sites is the environmental damage, that constitutes one of the main pillars of sustainable development, and any disruption of the environment prevent the achieving of a sustainable development goals.

Air pollution has become an increasingly serious problem in some urban areas, particularly in places that experience continued development and urbanization. In the vicinity of the site and during the work, the air quality is often deteriorated by the emission of dust and gases.

Moreover, Construction activities generate a large amount of dust, which has a significant effect on the air quality of surrounding areas. It was found that dust is one of the most known sources of air pollution, the main source of dust in the air and in the city are construction sites (Yan et al.,2019)[12]. Consequently, citizens, and adjacent buildings and spaces are directly affected by the amount of dust produced from these construction sites.

In addition, various studies have shown its negative effects, dust pollution, one of the most serious issues at the construction stage, is very damaging to the protection of the environment and especially to human health (Mao et al., 2017)[13]. Furthermore urban PM2.5 pollution comes mainly from construction dust, in return an effective control of PM2.5 can significantly improve urban air quality (Du et al.,2016)[14]. Consequently, controlling construction dust and pollution damage has become a problem and finding a solution has become an urgent necessity for any field of construction and environmental protection.

Apart from this, construction fields generate an amount of waste and uses natural resources. A considerable quantity of construction materials (concrete, gypsum,

asbestos, etc.) can come into contact with the water table and eventually lead to changes in the chemistry of the soil water. Not only that, but also the sources of soil pollution on site during the construction phase are the storage or transport of hydrocarbons and oils, that are used in construction work and equipment maintenance operations. In addition, some of the site operations, such as the uncontrolled oil changing of site trucks, outside the specific designed areas, as well as the supply of machinery with fuel can cause leaks and accidental spills (Mirsal, 2008)[15]. Accordingly, preventing the soil from being contaminated is a crucial mission that need to be part of the construction impact's mitigation.

Thus, achieving road safety is a crucial step in the construction phase. Pedestrians are particularly vulnerable to accidents and injuries during construction work, so it is necessary to have clear and secure workspace to allow citizens to move around without any incident. Besides,the establishment of a project is characterized both by a public space where many users and multiple uses coexist, but also by the intervention of a multitude of actors, Bilton (2012)[16] stated that during the project construction phase in an urban environment, pedestrians must be taken into account, two important objectives need to be considered: the safety must be guaranteed in regards to the danger associated with the traffic and different work tasks, and to ensure the continuity and fluidity of traveling chain by maintaining the accessibility.

II.3. Aesthetic and Visual comfort :

During the construction phase of the project, visual and landscape impacts will occur due to construction activities along construction corridors. Teixeira (2005)[5] stated that the visual impact generated by construction site fences is also an important aspect to consider. It may be considered a form of environmental aggression if it is in poor condition. Nia and Plugbenga (2020)[17] stated that urban planners need to consider aesthetics as the main environmental policies which require implementation in planning of cities.

It is indisputable that any site distorts the landscape values of its environment, but these impacts are can be are on a large scale depending on the environment close to the work area, i.e. the larger the project and occupies more space, the greater the extent of visual damage. Therefore, the visual effects of work areas are mainly related to their extent. Thus, the work site equipment, also the movement of machines inside and outside the construction site can lead to a temporary modification in the perception and atmosphere of the site, which affects the visual comfort of the city and the surrounding of the project area, and make more artificial landscapes through the presence of these temporary structures, construction machines, various storage facilities and temporary roads. Honarkhah et al (2020)[18] confirm that what makes people unsatisfied with the lack of appropriate and attractive urban spaces, pollution of the environment, the miss coordination between activities and creation of some of them which are not compatible with the environment.

Therefore, Souni (1912)[19] indicated the necessity of the first determination of the important impacts of the project on the landscape and the aesthetics of the region is mandatory. That may come through the collection and organization of information in order to reduce the impacts on the landscapes on a large scale. It is important to note that competitions may be a tool for obtaining qualified urban environments and constructions, (Sirel et al 2019)[20]. Moreover, a better landscape aesthetic lead to better visual comfort for residents and passengers and keep a good perception of the space.

Hence, construction sites are part of the city-making process. They punctuate and mark a specific space-time of the city depending on how the project is run and how it affects landscape aesthetic. Thus, construction sites mark by the inhabitant's memory strong landmarks, and an image of the city that is constructed all along the project duration. Consequently, any disturbance of the visual comfort leads to a decrease in the QOL of the city users and citizens.

II.4. Economy :

Construction projects contribute to the development of new commercial activities and services, and thus the rise in land prices as a result of the economic and social benefits that have emerged. On the other hand, as mentioned Gilchrist (2004)[21], construction activities may have a negative impact on economic activities within a defined area around a construction site, which is called the "influence zone" of the project.

During the project, the difficulty for clients to reach the activity areas located on around the construction sites due to road closures or the deterioration of roads will affect these activities. Construction can also negatively affect employee productivity due to inconveniences related to construction sites, which makes some activities or companies lose their income. Also, the decrease in tax revenues due to the loss of some companies affects the economy of the government. Thus,real estate around the area can be affected as well, residences are losing value due to the lack of aesthetics and the increased levels of noise and dust, Çelik (2014)[22]. To persume, the economic side is an important aspect of the city which is affected by the construction sites, it causes significant losses to individuals or companies and even the government by reducing taxes revenue.

Gilchrist et al (2005)[8], divided the impacts related to construction into four categories, and each category includes social cost indicators, figure (1) demonstrates the relevant impacts in urbanized areas.

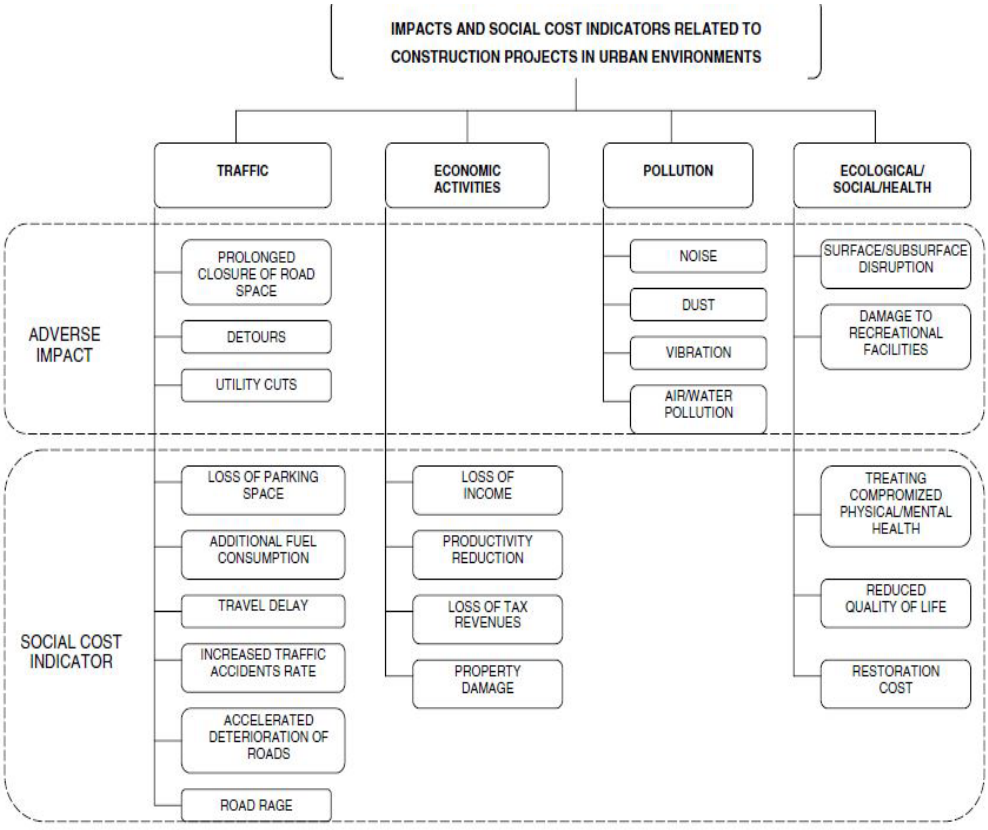

Figure 1. Breakdown of potential impacts and social cost indicators associated with construction activities (source: Gilchrist et al 2005).

To sum up, it is very clear by exploring the previous impacts of construction sites that quality of life is affected throughout the inconveniences caused. However, the mitigation of these effects has become a necessity and a better control of it makes people's lives more appropriate and easier during construction periods. At this time,

laws must be applied, and contractors play a key role in enhancing the image of the city by presenting and respecting the best practices in regards the construction sites.

III- Quality of life in urban environment :

Quality of life (QOL) is such an all-encompassing and unifying concept that it can be used to combine from environmental factors to income levels to habits and everything: environmental factors, income levels, habits and lifestyles (Schalock, 1993)[23]. The development of cities and their extension in the twenty-first century leads to the necessity of conducting studies on the quality of life in order to obtain important supports helping for planning and managing livable and sustainable cities.

Cities face major challenges in terms of the negative aspects of urban development, such as physical and environmental degradation, social deprivation, insecurity, unemployment, housing shortages and traffic congestion, (Rezvani et al., 2012)[24]. Based on people specific living environment, particular characteristic are formed, depending on people's living conditions, (Mojdeh et al., 2020)[25]. People's perception is different from a person to another to these characteristics, while quality of life can be viewed as a global judgment, a more reductionist approach is commonly adopted. The concept is divided into components or dimensions which can be divided into a number of questions or items that can be answered on a scale (Cox et al., 1992)[26]. Mulligan (2004)[27] interpret QOL as the satisfaction that a person receives from surrounding human and physical conditions.

Thus, many cities have applied quality of life QOL indicators as a way to understand and deal with local issues. This does not require that the residents' priorities have been taken into account despite efforts to develop QOL indicators, as these indicators are in most cases generated by local governments (Nakanishi, 2013)[28]. Moreover, three pillars of quality of life include social, economic and environmental aspects that can be assessed using subjective and objective measures (Türkoğlu et al., 2011, Chen et al., 2016, Mojdeh et al., 2020)[29,30,25]. These dimensions are close, the more sustainable development is achieved, the higher the quality of life will be, without achieving QOL indicators, sustainable development cannot be achieved.

Simultaneously QOL assumes one is able to describe crossed tests and make judgments. QOL Necessarily includes a descriptive aspect, and a normative aspect: the subject's appreciation of what he experienced, (Launois ,1995)[31]. Consequently the experience is an important point that helps assessing lived situations.

Now it's important to notice that in literature, results of Quality of life studies differ due to differences in the groups of variables chosen, the weighting pattern of the variables, the methods used, the methodologies used, the people from whom the data were collected, and the homogeneity of the geographical units of the analysis on which the research is based , (Ulengin, 2001)[32]. In figure (2), Ulengin, (2001)[32] set a hierarchical structure of urban QOL that contains four main aspects: physical environment, social environment, economic environment and transportation and communication.

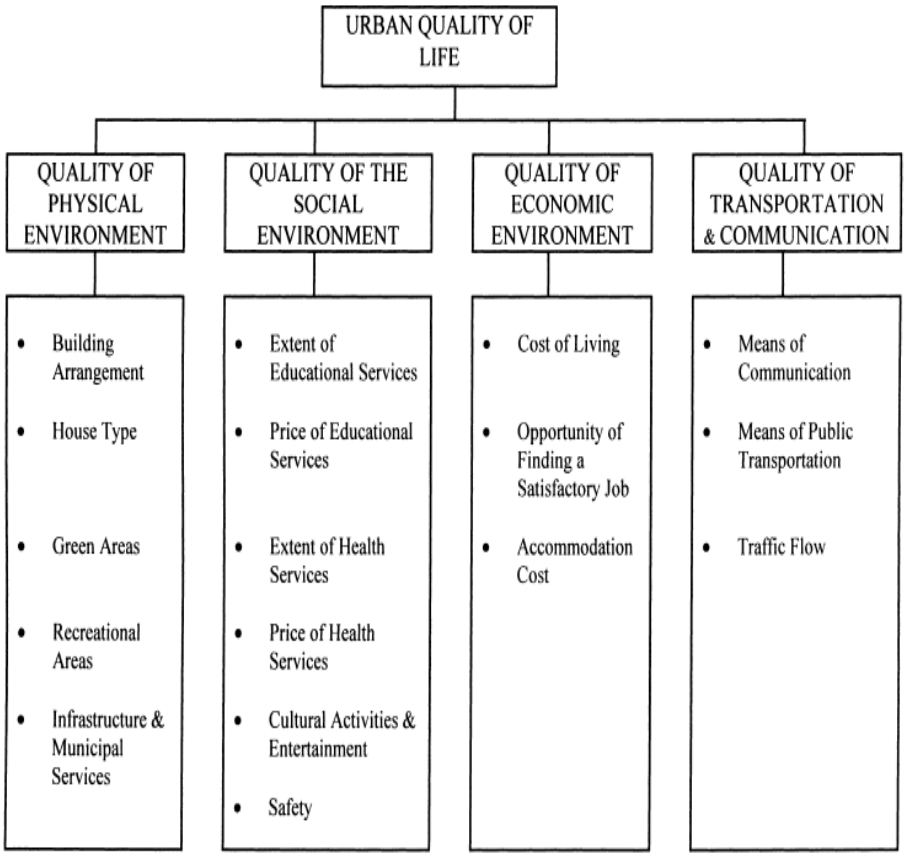

Figure 2. The Hierarchical Structure of QOL Model (Source; Ulengin et al., 2001).

According to Ulgen (2001)[32], quality of life is a concept that includes different dimensions of life: quality of the physical, social and economic environment, and the quality of transport and communication. Each of these aspects includes sub-categories which constitute a measure of quality of life (QOL). The quality of the physical environment contains components of the observed physical environment: green spaces, building arrangements, recreation spaces and other infrastructure. Any deformation of any of these components affects visual comfort and reduces the quality of the physical environment. From there, we conclude that any defect in the physical environment induced by a construction site leads to a decrease de quality of physical environment, what affects the QOL of the citizens.

This is therefore the case for the quality of the social environment, which contains components relating to education and health services, cultural activities and security, and if a construction site compromises the performance of these components by creating security, safety and health issues during the period of work, that decrease the quality of social environment which affect the QOL.

Furthermore, the quality of the economic environment is also an important component of the quality of life: the cost of living, the cost of housing, the opportunity to find a satisfactory job, are criteria that can be affected by construction sites. Noise, vibrations, roads and buildings deterioration reduces the income of property developers and shops, and can lead to reducing or even stopping some activities in the vicinity of the construction site, this makes it difficult to find a satisfactory job, and decrease people's financial capacities compared to the cost of living and accommodation, which reduce the QOL of the construction site area.

Finally, the quality of transportation and communication is an essential aspect that that must be improved to achieve the required (QOL). The presence of

construction sites evokes traffic problems and disrupts the road transport network, and sometimes generates communication problems due to utility cuts, that leads to decrease the quality of communication and transportation which affect directly the QOL of construction site neighboring residents and users.

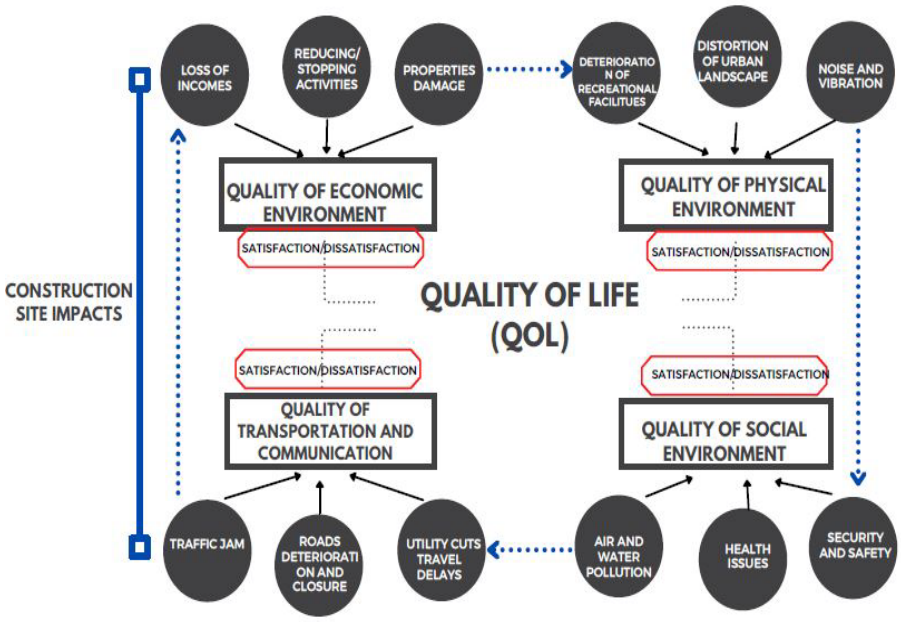

Figure 3. Relation between (QOL) and Construction sites (Developed by authors)

This study aims to measure, from the city residents and user's assessment, to know if the tramway construction site affects theirs QOL, aspects of the previous four main dimensions: mobility aspect for transportation and communication, the aesthetic and visual comfort aspect for the physical environment, the economy for economic environment, and finally the environment and security for the quality of social environment. Figure (3) show the relation between construction site impacts and different dimension of QOL. Each dimension is affected by a series of adverse impacts of construction, level of satisfaction is decreasing or increasing according to the effects of construction site on his daily life.

IV- Methods and Materials :

IV.1. Case study :

Among the numerous ongoing projects in the new city of Ali Menjdeli, the tramway construction site as a mega structuring project, crosses the core of the city from the north east to west south over a lenght of about 4 Km an 30m of width. Given its position, its size and exposure to the entrance of the city, it is remarkable by the city users and visitors, consequently a large number of equipment and residents are facing its impacts on a daily basis. Since the beginning of the construction works, a disturbance has been observed in the city and around the construction site, traffic, noise, deformation of the roadway, and several impacts that led us to ask a main question: how did the tramway construction site affect the quality of life(QOL) of Ali Mendjeli citizens and users? Therefore, and based on these previous reasons this construction site has been chosen as a case study.

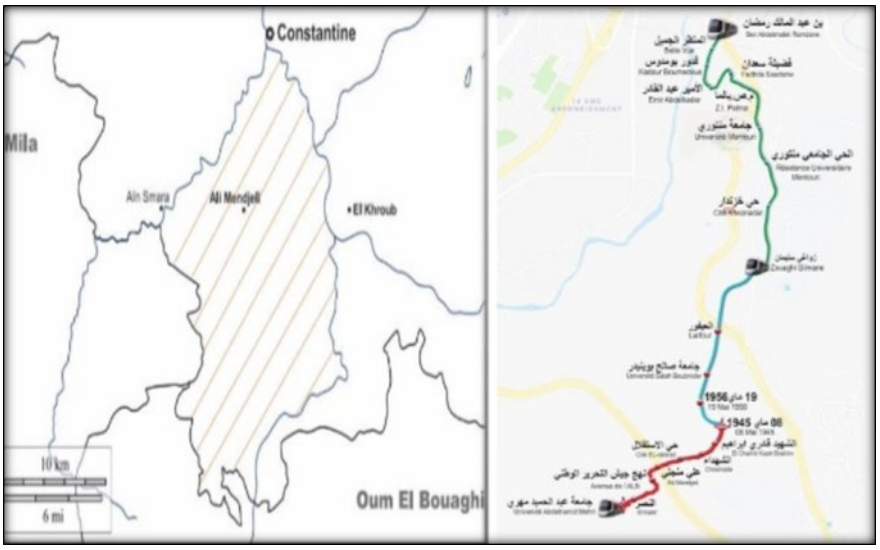

Figure 4. Tramway line, New City Ali Mendjeli Source: d-maps,Wikipedia Edited by authors

IV.2. Methodology:

This paper proposes part of a study that uses a subjective assessment approach, it attempts to evaluate the perceived level of satisfaction of the living environment of people. It's a subjective point of view, and in a similar and identical way, it shows aspirations, levels of satisfaction and benchmark lifestyles (Cicerchia 1996)[34]. It involves the subjective assessment of the quality of community life with respect to environmental, economic and social domains to show the satisfaction of the residents (Turkoglu et al., 2011)[29]. The quality of life (QOL) assessment demands that a person is able to describe crossed experiences and make a judgment about their sense of the things. It includes a descriptive aspect, and normative aspect: the subject's appreciation of what they experienced. Data was collected through a social survey. The survey focused on levels of satisfaction with aspects of urban living, resident's perceptions, and their behaviour and experiences in their living environment (Turkoglu et al., 2011)[29].

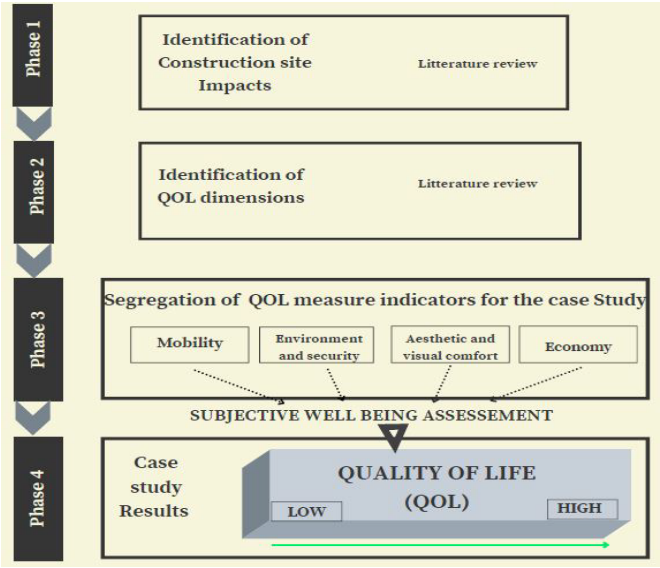

Figure 5. Structure of the Study Source: Developed by Authors

The questions pertaining subjective dimensions include the physical, social and economic domains. Attributes that define the effect of construction site impact on QOL were determined through literature review. Four main dimensions were taken namely: mobility, urban aesthetic, environment and security and economy. Each of these dimensions contain series of subjective indicators, the participants assessment is to know whether the project of the tramway extension is affecting their daily life with focus on their perception and level of satisfaction. Total of 400 respondents took part in this study. 346 significant responses were received, the collected data was analysed using descriptive statistics, IBM SPSS statistic V22 is used to analyse results.

V- Results and discussion :

Based on the dimensions selected before, a survey was conducted with the inhabitant and the users of Ali mendjeli new city, single-answer multiple choice question is used to classify and reveal a lived situation of participants, according to Geer (1988)[35] they are generally used to measure a public opinion, then, a descriptive rating scale is used to assess a specific impact, Van Herk (2004)[36] stated that the face value often represents different scores. Furthermore, polar question is for verifying simple statements (Akiyama,1979)[37], it is relied on to affirm or deny a direct effect of construction site and verify a simple statement. Each dimension includes elements to be measured according to sub-measures, that have been judged by the respondents. Consequently, the frequency of responses will allow a direct subjective assessment of the dimension with quantitative data analysis. Results are presented in the next table, depicts the frequency of answers of participants.

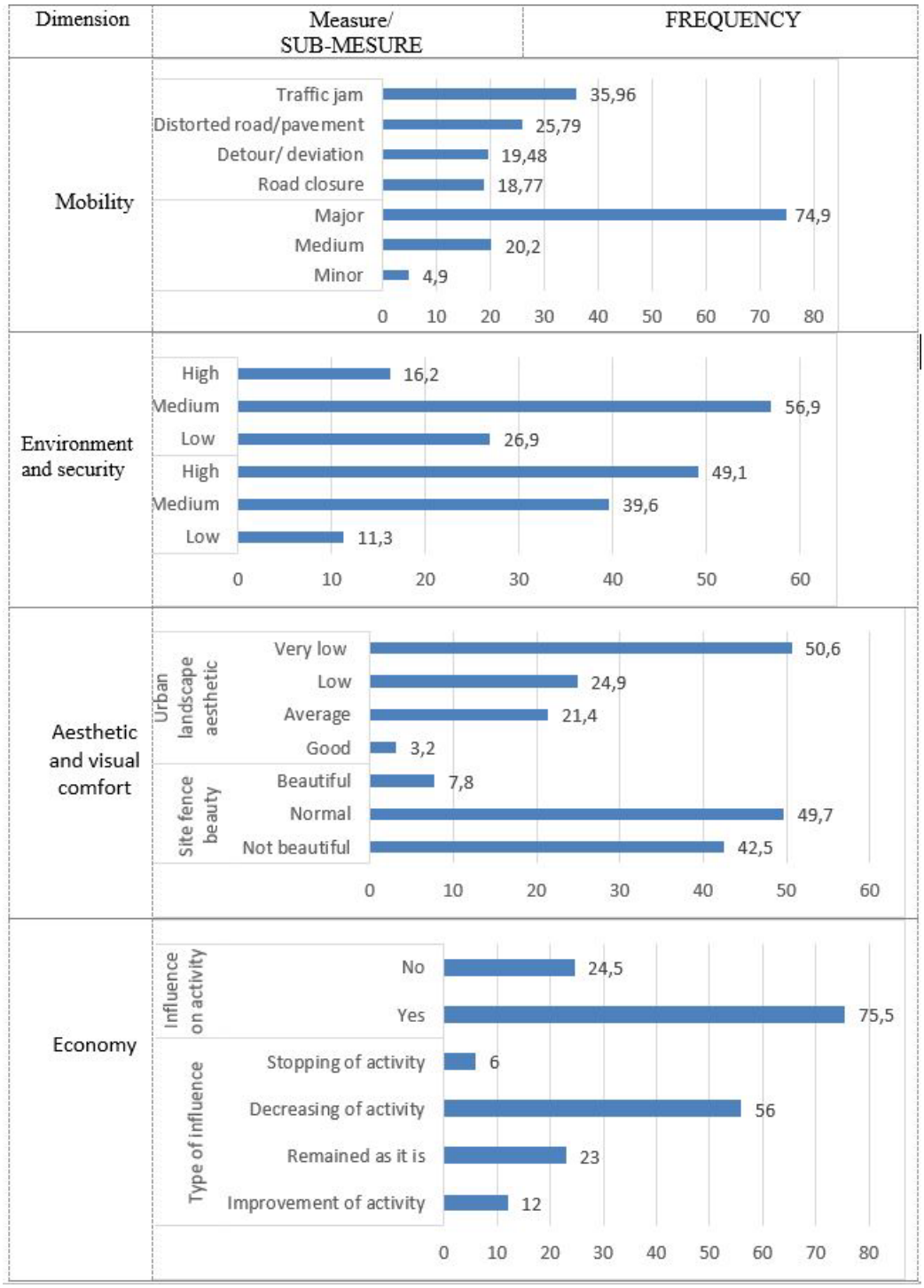

Table.1 Survey results

V.1. Mobility :

In this section of the questionnaire, the respondents were asked to know which case is faced the most in their daily routine during the project period, traffic jam is the most faced case where 35 % of the participants are dealing with this issue, 25 % of the participant are facing the distorted roads, 18% run into closed roads they used to pass through, and 19% find deviations or detours on their used roads. Traffic jam is the most frequent problem which is qualified by almost 75% of participants as major problem; the reason is that the traffic congestion leads to delays due to reduced speed, lane closures and changing traffic lanes it may cause irritation due to disrupting people. In

this category of projects Gilchrist et Al (2005)[8] stated that construction of public services and the renovation of highways have a direct impact on roads and often generate delays due to traffic and lane closures. From the previous data we conclude to the necessity to prepare countermeasures for the traffic impacts in urban development areas, Limapornwanitch et al (2005)[38]. It is very clear from the answers that a large majority face the impact of the construction site, classifying congestion as the biggest problem. This causes them delays, generates rage and can even cause health problems by while stopping in the jam due to inhaling car exhaust smoke. Consequently, the QOL is reduced throughout the period of construction site.

V.2. Environment and security :

Results showed that over 49% of the participants considered the amount of dust generated by construction site activities as high, whereas 39% considered the level as medium, which can be explained that the location of respondents is farther, but they still get affected by the produced dust from the tramway project. What was identified in this study correlates with the sources reported in other studies (Du et al 2016, Yan et al 2019)14,12. The quantity produced of dust leads to the degradation of the quality of air due to the increase of PM .several studies have shown that negative health effects, such as respiratory diseases and other pulmonary diseases, can be caused by the high amount of PM 2.5 in the air, due to air pollution.(Mao et al 2017)[13] , the reason why governments should specify funds for cleaning and maintenance because of the high amount of dust generated during construction, this can cause damage to electronic and mechanical equipment as well.

V.3. Urban Aesthetic :

In this part of the study participant were asked about the beauty of the site fence, only 7% find it beautiful , two other categories found it normal with 49%, and not beautiful with 42% . Therefore the construction site is perceived in a normal to mediocre way by the majority of participants, due to the lack of beautification process by the authorities and the project deciders as it's an important aspect to consider Teixeira (2005)[5].

For the other part of the aesthetic dimension , respondents are required to assess the urban landscape. 50% of the answers refers to their unpleasant perception of the landscape of the city of Ali mendjeli during the construction site period, when only 3% judges the landscape as good, the rest of the answers were divided between the low and average. The direct effect of the construction site on aesthetics of the city's landscape, and on visual comfort and urban space perception of citizens is clear.

V.4. Economy :

In order to get a specific answer concerning whether the respondent's activity is influenced by the tramway project a polar question (yes/no) has been used. The respondents' answers indicate that about 75 % of their activity was affected by the construction site, where 12 % get their activities improved, while 56 % suffered from decreasing the activity and even stopping the activity to 6 % which means the loss of their income. This decrease in income and sometimes the loss of income is due to a few number of reasons: the high level of noise, dust, the low productivity, the traffic congestion, which affect directly the economy whether the commercial activities or the reduction of taxes revenues by reducing or stopping the activities. Ozcelebi (2011)[39] confirms that the construction have an impact on the subsectors and other sector of economy, It is necessary to work to reduce the inconvenience for the residents around the construction sites to minimize the social costs resulting from these sites, Celik(2014)[9]. On the other hand, some activities have been improved by the disorientation of customers and clients from the most impacted areas of the city to the less affected by the construction site . Obviously, the financial comfort of participants is decreasing and sometimes lost, which drops downs their QOL due to affecting their financial well-being.

VI- Conclusion :

This research was aiming to evaluate the construction site impacts on the QOL. Following a subjective methodology, a survey has been conducted in the new city of Ali Mendjelli, in order to explore and assess the users and residents' perceptions about the impact of construction site of the tramway line on the QOL. The results confirmed that the construction site negative impacts affect city residents and users QOL. They affect several dimensions in their daily life routine: the mobility with a high traffic, the urban aesthetic with an unpleasant landscape of the city, the environment and the security with a huge amount of dust and a less security around the construction site, and the economic situation with the decreasing of incomes of some participants.

This research is expected to enhance the existing knowledge and data on construction site assessment as well as its relation to QOL issues in Algerian cities. The outcomes of this study can help better construction sites management, being an influential assessment tool to assist construction practitioners and decision makers in improving the on-site performance within the project 's impacts assessment process.
It would be helpful to further explore more impacts on QOL from different projects and situations and how residents assess them subjectively. Moreover, additional methodological work is required to fill the gap in studies concerning the subjective assessment of the quality of life, as well as to promote an assessment model for construction sites in an urban environment.

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