



Article

Qualitative Methodologies for the Analysis of Intra-Urban Socio-Environmental Vulnerability in Barcelona (Spain): Case Studies

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Received: 19 October 2018; Accepted: 30 November 2018; Published: 3 December 2018



Abstract: The city of Barcelona, like other cities in the world, suffers strong internal socio-economic inequalities in its neighborhoods. Numerous works have sought to detect, quantify, characterize, and/or map existing intra-urban differences, almost always based on quantitative methodologies. With this contribution, we intend to show the importance that qualitative methodologies can play in studies on urban socio-environmental vulnerability. We consider aspects that are not quantifiable but that may be inherent to many such vulnerable spaces, both in the constructed environment and in the social ambit. These questions are considered through selected neighborhoods of Barcelona which have been shown (in prior works, mainly studies of quantitative manufacturing) to possess elements of vulnerability including a high presence of immigrants from less-developed countries, low per capita income, aging populations, or low educational levels. The results reveal the multidimensionality of vulnerability in the neighborhoods analyzed, as well as the essential complementarity among methodologies that detect and support possible public actions aimed at reducing or eliminating intra-urban inequalities.

Keywords: socio-environmental vulnerability; Barcelona; spatial analysis; qualitative methodology; vulnerable neighborhoods

1. Introduction

Urban socio-environmental vulnerability is a social phenomenon currently arousing much interest in the scientific community. The concept refers to the existence of intra-urban inequalities, established by differences in the social composition of a population through spatial distribution, as well as how this issue affects uneven behavior in the face of social, urban, economic, demographic, and/or environmental problems. From this perspective, it is important to investigate the factors, causes, and consequences being generated, as well as possible solutions, in order to improve the situation of those groups deemed most vulnerable to diverse threats.

In the orbit of vulnerability are found concepts such as exclusion, marginality, and poverty, which though not synonymous may be mutually reinforcing. Socio-environmental vulnerability is a broader concept that affects a potentially larger part of the population [1]. It is evident that the poor are by their very nature vulnerable in economic terms. However, here we are dealing in dynamic concepts, which are not necessarily always related. The present contribution is focused on the social approach to vulnerability: to show how socio-spatial structures and processes are indeed dynamic and may determine the daily lives of disadvantaged people and groups [2].

This contribution might be inserted in an even broader line concerned with the measurement of environmental injustices at the local level, focused on the unequal behavior of diverse externalities

vis-à-vis sensitive or vulnerable groups such as children or the elderly, or populations with lower educational levels or income. The multifaceted character of the conditions impacting the phenomena in question must always be taken into account.

This paper is a continuation of a series of prior works [3,4], fundamentally quantitative in nature. From these emerged a synthetic indicator of relative socio-spatial vulnerability, which was then applied to all neighborhoods in the city of Barcelona. In this particular contribution, we apply a qualitative methodology to that city's four most vulnerable neighborhoods, in order to detect non-quantifiable urban and social deficiencies.

The following section briefly addresses the question of urban socio-environmental vulnerability in the scientific literature, also highlighting sources of information and methodological issues. Next the qualitative analysis is presented, and finally some concise conclusions are offered.

Vulnerability in the Scientific Literature

Socio-environmental vulnerability is in itself a multidimensional and multifaceted concept [5,6], with its own long and complex history [7], and there is no consensus regarding its definition or measurement [2]. From a strictly etymological conception, it usually implies physical, economic, political, or social susceptibility; that is, the potential of a population to be affected by an external issue or destabilizing phenomenon, whether of natural or anthropic origin [8], and which, if not resolved, could lead to more critical levels of disadvantage, poverty, and exclusion [9].

However, it must be borne in mind that when social inequalities are analyzed in any area, reference is inescapably made to personal issues having to do with the individuals who live there. That is to say that vulnerability, like any similar phenomenon under study, has a clear social component. It does not affect all populations (individual, household, group, society) equally, but represents a factor of internal risk corresponding to the susceptibility or predisposition of each to suffer harm [8]. It is this incapacity or difficulty of certain people or groups in the face of threat (risk) and/or propensity for later recovery that we understand as socio-environmental vulnerability. As noted by Mateos [6], based on prior studies and from a social and economic perspective, vulnerability is not a supervening condition, but rather a dynamic state. It influences diverse factors such as the unequal distribution of resources, the action or inaction of individuals, and historical patterns of domination and social marginalization. In fact, the most persistent cases of vulnerability reveal profound deficiencies in public policies and institutions, historical exclusions, and cultural practices, and long-established social norms.

Although anyone may be vulnerable at some point in their lives, some groups are more sensitive than others. The United Nations establishes three large groups: (1) the poor and informal workers; (2) women, migrants, minorities, young people, the elderly, and persons with disabilities; and (3) entire communities or regions.

The absence of a single definition demonstrates the variety of causes that may motivate or encourage vulnerability. Its relationship with risks and threats is evident, and this in turn may be the cause of its origin. The literature reveals two categories of hazards: those of natural origin (environmental hazards) and those of human origin (social hazards). The latter are of greater interest to the social sciences but are less defined or consolidated. In addition, they are precisely the hazards that appear in urban areas, linked to those groups most sensitive to the impacts mentioned above. The diversity of causes that motivate human vulnerability would also explain why it has been studied from many perspectives, with different approaches, definitions, and methodologies that depend on the particular risk being considered [1]. From this plenitude, various types of vulnerability (socio-demographic, socio-economic, environmental, residential, subjective) have been discerned. However, the unfixed definition of the term has led authors like Alexander [10] to distinguish more types of vulnerability (technological, residual, delinquent, new, and total). Subirats and Martí-Costa [11] have added to these vulnerability in relation to governance, and to habitat (the latter measured through indicators such as population density of artificial area, the percentage of displacements on foot, and the volume of electricity consumption).

With regard to the measurement of vulnerability, the intra-urban scale has not been prioritized until relatively recently by urban studies scholars [12]. Nevertheless, numerous attempts have been made in recent years to create indicators and measures from different perspectives and methodologies (in Wisner, cited above, in-depth analysis is made of the concept, its bibliometric review, and distinct forms of measurement). In the academic literature, approaches are common that analyze inequalities through variables and dimensions of demographics (age, race, sex, country of birth, education, occupation, etc.), economics (social status, income, savings, etc.), or another type (housing, endowments, social networks, security, etc.), usually referenced at the individual or household level. The contributions of Cutter et al. [13] and Cardona and Carreño [14] may serve as examples. Many studies opt for analytical methodologies that transform and combine the variables used, building indices of socio-economic status or social vulnerability [15]. Some of the references cited thus far offer extremely valuable statements on the use of quantitative methodologies over time.

Less often, works that seek to measure vulnerability have been complemented by qualitative methodologies. In such publications as by Birckmann and Wisner [16], or Anderson and Woodrow [17], tools have been created for the qualitative assessment of vulnerability and capacity in communities, as a form of cooperation between local and external experts, and as an aid to local communities.

In Spain we would highlight, for example, the Catalog of Vulnerable Districts, included in the Observatory of Urban Vulnerability, developed jointly by the Ministry of Development and the Department of Urban Planning of the Polytechnic University of Madrid. Elsewhere, a working group at the University of Granada led by Carmen Egea has long experience in the use of mixed methodologies. More recently, geo-demographic analysis has been incorporated into urban social geography, which (beyond providing a general index) focuses on the formulation of a specific geo-demographic classification to typologies of hazard and place, more heavily weighting the most significant variables to a specific geo-historical context, and based on mixed methodologies.

2. Objective, Materials, and Methods

Starting from the above considerations, our objective here is to show the role that qualitative methodologies can play in studies on urban socio-environmental vulnerability when detecting deficiencies or non-quantifiable social and urban problems.

The information sources used in the quantitative analyses pre-dating this work [3,4] were the statistical data provided by the Statistics Department of the Barcelona City Council (Municipal Register) and, occasionally, data from regional organizations. The year of reference is 2015.

The digital geodata layers of the city, with their respective divisions, were likewise facilitated by the municipal administration. The selected scale of analysis was the neighborhood and the “populated urban area” (AUP). The latter indicates the residential or mixed-use urban space where the population has greater presence in their daily lives (see Figure 1).

The facets or components of vulnerability considered (eight in total) were diverse and varied, depending on incidence and the availability of data. Seventeen variables were combined related to: *education*, given that persons with low or no training show limited capacities for self-protection and personal care, or limited recourse to existing defense facilities; *age*, which makes some people more fragile than others in the face of external factors; demographic *mortality* indicators that reflect living conditions and are an expression of extreme vulnerability; *income and professional status*, key to assuaging the vulnerability of individuals and certain groups; *immigration status*, supposing the individual has moved geographically; and *size of household*, in the number of members that compose it, reflective of housing shortages. All these facets can greatly impact on the intensity with which socio-environmental vulnerability is manifested. More information can be found relative to the quantitative information used in the publication by Moreno et al. [3].

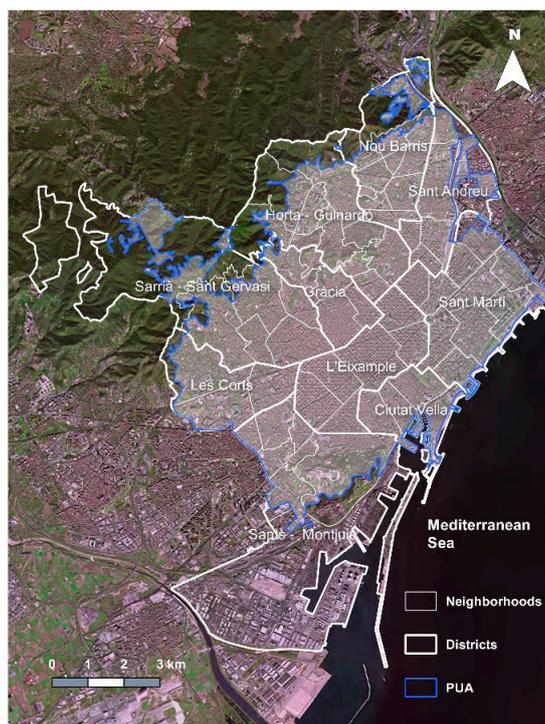


Figure 1. Territorial delimitations in Barcelona. Source: [3].

The research crystallized in a synthetic index of relative socio-spatial vulnerability (ISVuSAR), resulting from a principal component analysis (PCA) with a Varimax rotation, and in normalization of the variables linked to each of the above facets by matching amplitude and eventual transposition. This allowed for classification of the neighborhoods of the city (see Figure 2).

Taking this index as a starting point, the main contribution of the work here is essentially to show the results obtained in the qualitative analysis of the four most vulnerable neighborhoods of Barcelona to confirm, support, and verify that actually, these areas accumulate deficiencies and problems of a diverse nature.

The underlying idea, already raised by other authors [18], is to overcome the statistical vacuum that limits the information necessary to perform in-depth studies of this nature. Thus, intensive fieldwork was carried out by the authors during October 2017 in the selected case studies (the four most vulnerable neighborhoods of the city). This fieldwork consisted mainly in visual analysis of deficiencies, by numerous routes throughout the targeted urban spaces.

The results obtained were supplemented with relevant information from scientific publications, reports, press releases, and relevant websites. Alongside all this, interviews were conducted with the neighborhood associations involved (Trinitat Nova, El Raval, and Barceloneta) in order to verify the information collected, or to expand it based on the opinion of persons best acquainted with the spaces studied—the inhabitants.

Based on this information, detailed files were assembled by theme and by neighborhood, collecting certain non-quantifiable aspects which nonetheless represent facets or components of socio-environmental vulnerability. The aspects can be presented as belonging to one of two categories: the built environment and the social environment. The first includes issues such as deficiencies in infrastructures, in green spaces, in public spaces, in public transport, or in housing, whether in terms of status, age, or degree of deterioration, among others. To this should be added possible deficiencies derived from the difficulty of physical mobility in the neighborhood, or from environmental problems (air or noise pollution, for example). The social aspect, on the other hand, would refer to problems linked to endowments and equipment, to levels of association, to the presence of ethnic groups with integration difficulties, to the physical exclusion of the environment, to the presence of marginal

activities, to the lack or closure of economic activities, to physical and/or social uprooting, or to latent or explicit insecurity, among other issues.

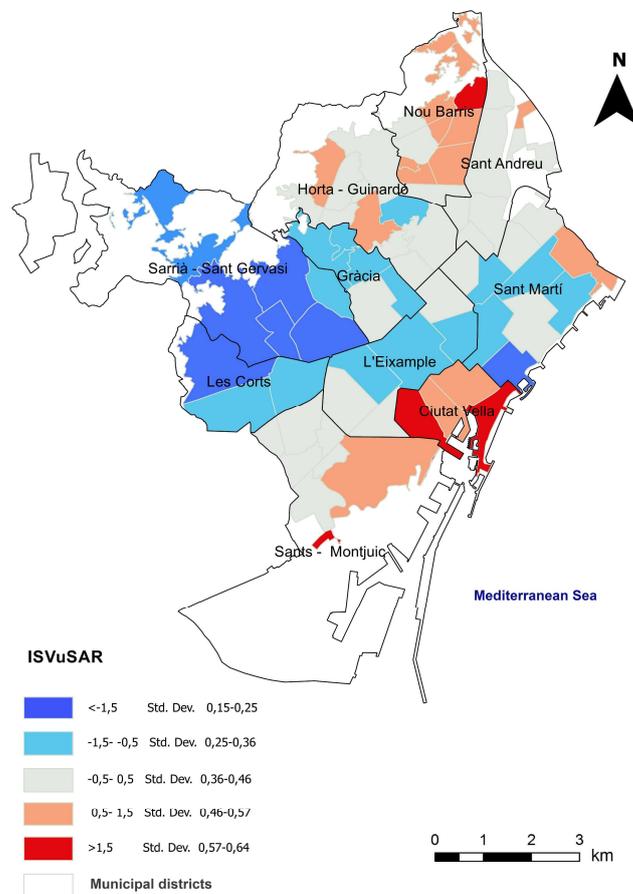


Figure 2. Map of the ISVuSAR results by neighborhood (AUP) of Barcelona. Source: [3].

3. Results and Discussion—The Most Acute Dimension of Vulnerability: Case Studies

Socio-environmental vulnerability manifests in different intensities, as we have seen. It would be impossible here to rigorously detail the many investigations into vulnerability in Barcelona carried out in recent decades. An article by Sargatal [19] gives a very complete review of the main contributions focused on the historical center, and the methodologies used. There is noticeable and increasing interest from diverse disciplines in the approach to, and knowledge around, socio-spatial reality. Similarity to our topic moves us to highlight works by Martori and Hoberg [20,21], Martínez et al. [22], Domingo and Bayona [23], and Subirats and Rius [24], which by using diverse methodological approaches have deepened knowledge on the reality of the city.

In this work, we focus on four neighborhoods to which the ISVuSAR has ascribed higher values (1.5 times the deviation). These are the Trinitat Nova, Raval, Marina del Prat Vermell, and Barceloneta neighborhoods. For these areas, aspects or qualitative problems stemming from both the constructed environment and the social sphere have been analyzed using the proposed methodology.

Trinitat Nova is a neighborhood of the Nou Barris district, located on the northeastern periphery of the city, on the mountain slopes of Collserola and on the left bank of the Besós (Figure 3). The neighborhood occupies an area of 0.80 km² and numbered 7257 inhabitants in 2016 (down from 8110 in 2008). Its physical boundaries coincide with the streets Aiguablava, Via Favència and Garbí, and Avenida Meridiana.

This dormitory quarter (monofunctional) is a clear example of massive collective social housing from the Franco regime. Its poor construction quality (aluminosis and carbonatosis), together with the

gradual socio-economic and environmental deterioration of the site (Figure 4a), were the bases for two major urban interventions carried out in recent decades (Figure 4b). The first, in 1997, followed the city's Urban Plan and involved area remodeling through special planning (PERI), improvement of accessibility via the metro, and integration into the ECO-City Project (financed by the European Community within its Fifth Framework Program for Research and Development). The second intervention, the Trinitat Nova Urban Initiative of 2007–2013 (20 million euros) continued the process of integral urban regeneration supported by European and municipal funds. Currently, the Barrios Plan of 2016–2020 (<http://pladebarris.barcelona/es>), promoted by the Barcelona City Council, consists of ten plans involving 16 city neighborhoods in the city, targeting integrated actions in education, social rights, economic activity, and urban ecology, with a planned investment of more than 150 million euros. Of the four cases analyzed here, three (Trinitat Nova, Raval, and La Marina del Prat) are featured in some of these plans. Trinitat Nova will, without a doubt, see the reduction or elimination of a good many existing problems.



Figure 3. Location of the Trinitat Nova neighborhood. Source: own elaboration.



Figure 4. Trinitat Nova: (a) housing pending demolition, and (b) new homes.

The Trinitat Nova neighborhood, largely populated by the working class and immigrants, exhibits socio-demographic characteristics that could clearly be improved, as repeatedly demonstrated by historical and current association and protest movements. The Community Plan of Trinitat Nova

(and its corresponding diagnoses), launched in 1996 on the initiative of the Neighborhood Association, has led to development of an innovative instrument and integrator of concerned social agents. Blanco [25] offers an interesting comparative analysis of the urban regeneration policies developed in the Raval and Trinitat Nova neighborhoods, two areas of Barcelona where family income is the lowest. Trinitat Nova presents a very high percentage of population without education (8.6%), a low rate of population with higher education (5.7%), a high percentage of foreign residents (around 24%), an unemployment rate around 18%, and the highest rate of teen pregnancy in the city.

Qualitative analysis reveals problems linked to the urban environment, including: the presence of architectural barriers; noise and pollution from road transport infrastructures; deterioration of public spaces, especially in the vicinity of the Les Freixes urban gardens; and problems (currently being addressed) related to the antiquity, the poor state of conservation, and lack of basic facilities within residential buildings. Special attention is needed to resolve issues deriving from a substantial increase in the property tax (IBI) borne by tenants of new officially protected housing (three or four times the prior rates).

The social environment is further defined by the physical exclusion of the neighborhood with respect to the city as a whole (barrier effect), derived from its geographical position and the layout of large transport infrastructures (Meridiana and Dalt Avenues). The lack of youth-oriented, sports facilities, and economic activities is also significant. The latter are present only in the commercial spaces of new buildings constructed during regeneration, or in the traditional market. According to *El Diario*, “While Barcelona averages one commercial establishment for every 28 inhabitants, in Trinitat Nova there is one for every 180 inhabitants” (eldiario.es, January 21, 2016). Added to this is the persistence of marginal activities, and latent insecurity near the housing blocks to which relocation of inhabitants affected by demolition of old structures is pending, as well as the difficulties of integration of certain groups (Gypsies from outside Barcelona and mainly Pakistanis).

For its part, the Raval neighborhood, long regarded as the Chinese neighborhood (denomination coined by journalist Paco Madrid in an article published in the weekly *El Escándalo* newspaper, in reference to the “chinar” technique employed by many pickpockets of that time) or a rogue area, is located in the Ciutat Vella district (Figure 5). Its defined boundaries are Parallel Avenue to the south (dividing it from the Poble Sec neighborhood); Sant Pau and Sant Antoni Avenues (separating Raval from the Sant Antoni district); and Pelayo Street and La Rambla, marking the division from the adjacent Gothic Quarter. Two large urban projects, Rambla del Raval and Illa Robadors, are located within the zone.



Figure 5. Location of the Raval neighborhood. Source: own elaboration.

The Raval presents two significant demographic features. On the one hand, it has a very high population density (around 44,000 inhabitants per km², or 47,000 inhabitants within an area of 1.07 km²). On the other hand, almost half of the population (47%) is of immigrant origin, coming from less-developed countries. Furthermore, analysis shows that more than half of the houses are of small size (56.5%) and that around 40% of persons over 75 years of age live in one-person homes.

From the social perspective, this complex neighborhood is an authentic laboratory for urban studies [22], characterized by its curious socio-economic mix, with more-or-less differentiated areas tending to correspond to the country of origin of the inhabitants. Thus, areas of higher income tend to coincide with inhabitants of national origin, along with a significant number of European immigrants of fairly recent arrival. On the other side, the percentage of extra-European immigrants is extremely high, with a clear predominance of Filipinos, Pakistanis, and Moroccans.

This neighborhood first emerged as a suburb beyond the medieval wall, and it is rich in cultural and architectural heritage (Mercado de la Boquería, Contemporary Art Museum, Contemporary Culture Center, Güell Palace, etc.); however, this is currently marred by marginal activities linked to drugs and prostitution (traditional, perhaps), as well as notorious “narco-flats.” Furthermore, given its central location, it is undergoing gentrification at high magnitude, served by intense tourist activity (festivals, fairs, congresses, cruises, etc.). This has led to the dispersal of longtime residents to the city’s peripheral zones, and to a gradual denaturalization of the neighborhood’s traditional character [26].

Our qualitative analysis reveals multiple problems linked to the urban environment such as: the lack of green spaces (the Jardins de Sant Pau del Camp and Rubió i Lluch being exceptions, in addition to the Plaza de Josep Folch); noise pollution and garbage (Figure 6a); difficulty in physical mobility due to the layout and narrowness of streets, and to problems derived from the scarcity of parking; and housing issues including superannuation, poor maintenance or reform, overcrowding, lack of basic facilities and, more recently, tourism outsourcing. Regarding the social environment, the main problems detected here include: difficulty of immigrants to integrate, with clear spatial differentiation by group; the gradual orientation of economic activities towards tourism, with the consequent loss of traditional trade; explicit insecurity, evidenced by robberies of tourists; the marginal activities described above; and the increase in real-estate pressures driven by gentrification (Figure 6b).

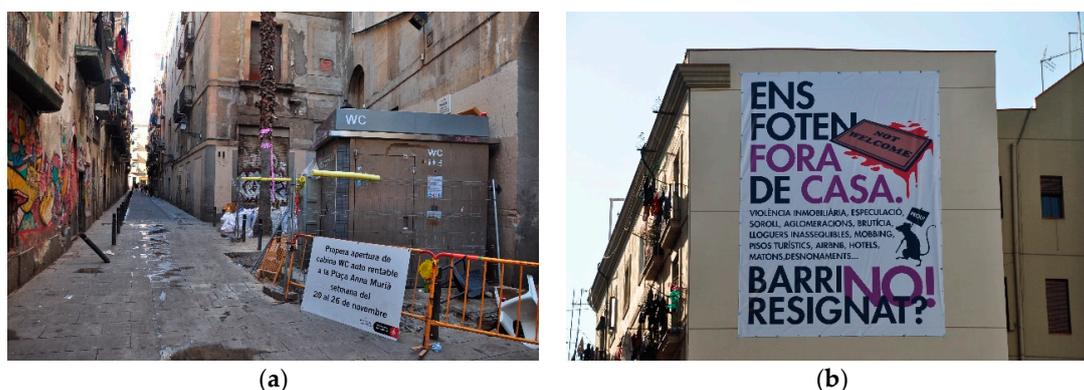


Figure 6. El Raval: (a) rubbish and deterioration, and (b) neighborhood demands.

The third neighborhood under analysis, La Marina del Prat Vermell, is located in the Sants-Montjuïc district (Figure 7) and presents certain singularities. It is currently inhabited by only a thousand people (1143 in 2016), of whom approximately one fifth are immigrants, and with much lower density (around 80 inhabitants per km²). It is among the neighborhoods with the highest percentage of residents without education (7.8%), and of the four most vulnerable neighborhoods discussed here, it suffers the highest rate of unemployment (19.4%). Also high is the proportion of undersized houses (77.1%), mitigated by the city’s lowest rental and sales prices, per square meter (396 euros and 684 euros, respectively).



Figure 7. Location of the La Marina del Prat Vermell neighborhood.

This small neighborhood's origins were oriented to agriculture and livestock, and it is located between Montjuïc mountain and the Zona Franca industrial sector. The stamp of the Primo de Rivera regime was visible in the promotion of cheap "Eduardo Aunós" houses of 1929, the demolition/relocation of which in the 1990s made room for today's constructions. Some historic industrial (often obsolete) buildings survive, along with scattered residential nuclei (Figure 8a).

With other nearby neighborhoods (Polvorín, Can Clos, Can Tunis), La Marina del Prat Vermell represents a fragment of Barcelona's urban history, about which an interesting urban transformation project is under consideration by Barcelona Urban Planning Management (BAGURSA). The project was initially proposed in 2004 as part of a major urban renewal drive that included 22@ (Innovation District), La Sagrera, Plaça de les Glòries, and Can Batlló [27]. The new resultant neighborhood will cover 80 hectares and feature 11,000 homes (slightly less than half of them public) to accommodate 30,000 potential residents (<http://www.bagursa.com/lamarina/proj.html>). This process has been made possible thanks to modifications to the Metropolitan General Plan of 1976, through requalification of the land from industrial to mixed-use. The urban renewal project will mean development of the area around the inhabited nucleus, favoring the location of economic activities, along with significant additions of public facilities and spaces to help unite the old Free Trade Zone socially and urbanistically. This project's lack of sensitivity to architectural and industrial heritage is perhaps its most controversial aspect, with the Bausili and Santiveri colonies and the Bertrand and Serra factories [28] slated for removal.

Today, problems linked to the urban environment are mainly to do with the scarcity and poor accessibility of urban transport (currently accessible only by bus, with plans for metro extension), and to the lack of parking and poor quality of certain buildings, despite their fairly recent construction (Figure 8b).

In terms of the social perspective, the neighborhood's problems are expressed in: a lack of endowments and facilities (there are no schools or nurseries); the physical exclusion of the area, given its distance from the core city; the social uprooting of inhabitants, many of whom had been relocated

from other areas; and latent insecurity and the presence of marginal activities linked to drugs, despite the adjacent Mossos de Esquadra Police Station.

Finally, the neighborhood known as La Barceloneta is also located in the Ciutat Vella district (Figure 9), but its population volume and density, although quite high (16,000 inhabitants in 1.24 km², or 12,900 inhabitants per km²), are lower than in nearby Raval. The percentage of foreign residents (31.3%) is the second highest among the neighborhoods analyzed.



Figure 8. La Marina del Prat Vermell: (a) homes of the Bausili Colony, and (b) deterioration of modern buildings.



Figure 9. Location of the Barceloneta neighborhood.

This old seaside district (the beach neighborhood), traditionally popular and working class, is strong in character. Urban contrasts exist between the maritime front (the promenade and beaches of San Miguel, San Sebastián, and Barceloneta-Somorostro), and the western border (Moll), and between large corporate headquarters buildings (Gas Natural or Mapfre), casinos, and hotels (Arts) and the residential nucleus, where traditional housing coexists with novel social housing (the MTM (Maquinista Terrestre y Marítima) project, Figure 10a). All of this shares an area limited by the sea and by urban

pressures to densify the use of space. Notable are successful drives by local associations (the Ostia and the Platform in Defense of Barceloneta, now united as “La Barceloneta diu prou”) to halt projects deemed harmful to the neighborhood [29].

Worthy of further note is recognition of the important role of the public space as useful and consistent, and the existence of facilities including schools, sports centers, and hospitals, all of which condition the urban impact or more traditional buildings of lower height, whose progressive growth contrasts with the narrowness of the streets.

Within the neighborhood, problems related to the urban environment include: the lack of green spaces (only Barceloneta Park, located at one extreme, is significant); difficulty in physical mobility, both for vehicles and pedestrians, given the narrowness of streets in the residential nucleus; the small number of surface parking spaces; housing concerns related to antiquity, poor maintenance, lack of facilities, and sometimes over-occupation (infamous “houses of rooms,” Figure 10b). The excessive supply of tourist homes in the core neighborhood is also a current concern, driving out traditional residents and prompting fierce neighborhood protests (2014 saw many mobilizations under the slogan “La Barceloneta is not sold,” seeking to publicize the proliferation of tourist apartments derived from transformation of older housing into modern flats destined exclusively for rental by tourists). Finally, as elsewhere, the neighborhood has experienced a significant increase in housing prices (a more detailed analysis of the evolution of this market in La Barceloneta can be found in Pareja and Simó [30]).



Figure 10. La Barceloneta: (a) social housing in MTM, and (b) small houses.

Problems linked to the social environment are here fundamentally due to intensive tourism, which the neighborhood supports, also reflected in the commercial tertiarization towards this sector (hospitality) and in the lack (or expulsion) of local commerce. As a consequence, the (latent, at least) social uprooting of the residents is another growing concern.

In line with the above, Alamilla [31] offers an interesting analysis of the costs and benefits derived from tourism among a residential population. Chief among the costs would be a rise in consumption of alcohol, increased noise and crowding in public spaces, increases in the prices of goods and services, and mounting crime. Among the benefits would be the growth of commercial activity and employment and the conservation of typical local cuisine.

Summarizing, Table 1 shows the existence of urban and social problems more or less common to all the neighborhoods analyzed. Among them are those related to housing (low maintenance, age or lack of basic equipment), the existence of architectural barriers, the lack or “touristification” of economic activities, as well as those related to insecurity and the presence of marginal activities. On the other hand, there have been no problems or shortcomings related to infrastructures, spaces between buildings or the low degree of associationism.

Table 1. Indicators used in qualitative research (X means that the problem exists). (1: Trinitat Nova; 2: El Raval; 3: La Marina del Prat Vermell; 4: La Barceloneta).

Problems Linked to the Urban Environment									
	1	2	3	4		1	2	3	4
Infrastructures					Public spaces	X			
Obsolete					Low conservation				
Low general condition					Lack of cleanliness				
Inadequate					Deterioration	X			
Problematic					Public transport				X
Green spaces		X		X	Scarce				X
Absence and/or lack		X		X	Bad accessibility				X
Low conservation					Environmental	X	X		
Lack of cleanliness					Difficulty of physical mobility	X	X		X
Deterioration					Spaces between buildings				
Housing	X	X	X	X	Difficulty of access				
Self-construction					Deterioration				
Age	X	X		X	Others	X	X	X	X
Low maintenance and/or reform	X	X	X	X					
Overcrowding		X		X					
Lack of basic equipment	X	X		X					
Problems Linked to the Social Environment									
Endowments and equipment	X		X		Low degree of associationism				
Insufficient					Difficulty of group integration	X	X		
Lack	X		X		Economic activities	X	X		X
Unsuitability to the demand					Lack of activities	X			
Deterioration					Closure and/or expulsion		X		X
Physical and/or social uprooting			X	X	Latent or explicit insecurity	X	X	X	
Physical exclusion	X		X		Presence of marginal activities	X	X	X	

4. Conclusions

Urban socio-environmental vulnerability is a problem that must be addressed by public stakeholders, supported by logical and operational methodologies [32]. The scientific community has undertaken the important challenge of detection, measurement, and analysis and there are already abundant works in this regard, especially from quantitative perspectives, and not so much qualitative. The use of these last ones has been object of our main interest, and for this we have resorted to the use of certain simple but decisive techniques for the detection of urban and social problems, difficult to demonstrate in another way. From the empirical point of view, the qualitative analysis developed allows us to propose the following reflections. In the Trinitat Nova neighborhood, time will tell whether the integral regeneration plan being undertaken is effective or not. The most colorful and evident urban transformation are already clearly visible. However, these sorts of urban operations have been practiced time and again in many other cities, without managing to significantly improve the living conditions of inhabitants in terms of employment, education, ecology, economy, etc. We hope that this will not be the case in Trinitat Nova, and that European and municipal resources will serve to reverse current imbalances vis-à-vis other neighborhoods of the city, as the slogan of the Neighborhood Plan promises.

In Marina del Prat Vernell, interventions have tended toward urban renewal, ignoring the neighborhood's past and seeking to bring it in closer alliance with the city center. It remains to be seen whether the zone's geographical location makes it a target location for hotels and offices, which could serve as an economic boost and help diminish its traditional isolation.

Raval, an archetypal space characterized by a mixed uses and social collectives, is among the most studied of Barcelona's neighborhoods, from various perspectives. The diversity and multidimensionality of the socio-spatial phenomena in this neighborhood presents the main obstacle to the adequate and consensual implementation of urban policies. Here, more than anywhere in

Barcelona, the participation of all relevant agents is necessary. This is no small challenge, but it must be confronted to alleviate the neighborhood's persistent vulnerabilities.

Like Raval, La Barceloneta is today characterized by a confluence of well-differentiated social groups, including immigrants, tourists, new urban tribes, and traditional residents. This is an example where urban processes and interventions have driven changes to the neighborhood's traditional residential function, mostly due to the increase in its tourist attraction. As recognized by Pareja and Simó [21], its potential as a gentrifiable space is very high, and this is seen clearly in the protests and demonstrations of residents carrying banners.

In this work, we wanted to carry out an analysis of the multidimensionality and growing vulnerability of these neighborhoods, from a geographic/territorial perspective rather than a quantitative one. This seems to infer a further need to undertake (or to continue, in some cases) actions aimed at improving both the constructed environment and the social ambit, to ensure the right of people to the city itself, and a better quality of life to those who live there.

Author Contributions: All the authors have contributed in similar proportion to the development of this work. The sections have been developed jointly and coordinated among all authors. The supervisory task corresponded to the first signatory author.

Funding: This research has been funded by the Ministry of Economy and Competitiveness of Spain, within the framework of the Research Project "Air pollution, vulnerable populations and health: analysis of environmental injustices based on geotechnologies" (Ref CSO2014-55535-R).

Conflicts of Interest: The authors declare no conflict of interest. The funding organisation had no role in the design of the study; in the collection, analysis, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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