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Article

Urban Pressure: Facing Climate Change and Social Vulnerability

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Abstract: The paper will analyze the pressures and vulnerabilities of the consolidated city from two perspectives: technical and social. Some design and pragmatic experiences conducted by the author in his teaching and research experience first at the Department of Urbanism of TUDelft in the Netherlands and currently at the PDTA Department of La Sapienza University of Rome will be introduced and analyzed. In the first research activity, whose case study is Rotterdam, all urban vulnerabilities related to climate change will be analyzed while in the second one, conducted in Viterbo, the vulnerability related to the hull of social inclusion, poor accessibility and psycho-social stress that plague our established cities will be treated. The two areas of study, different in size and spatial governance tools, are comparable because they allow deciphering the city's risks through lines of intervention that could serve as best practices and serve the urban planning disciplinary update also allowing to define a reflection on morphology and fabrics and on the shape of the city itself. Both teaching and research activities in which the author is involved allow the topic of urban vulnerability to be addressed with a broad exploratory scope that, in the final stage, hypothesizes design intervention on the neighborhood scale, identified as the most appropriate to provide plausible climate and social adaptation and mitigation responses.

Keywords: vulnerability; climate change; accessibility

1. Introduction

In the research paper, two thematic strands converge, that the author has dealt with in the last ten years of academic activity, through some research and teaching experiences conducted in the Netherlands at the Delft University of Technology and in Italy, at the Kore University of Enna first, and at the Sapienza University of Rome later. Both researches focus attention on the problems of the city, on the urban vulnerabilities and identify some design interventions defined at the same scale of investigation, that of neighborhood, and through a wide involvement of the local society towards which the research programs are directed; therefore, they start from the urban vulnerabilities related to the effects of climate change and the problems of urban accessibility and relate them mainly to the conformation of the city, morphology, fabrics, public spaces or public use that stand out as the identified vulnerable areas. In the final part, including discussions and conclusions, there is the definition of appropriate design actions and scales of intervention that will improve the effectiveness of urban design in an equlibrious and inclusive relationship with settled communities.

The paper, following this research approach, is divided in the introductory paragraphs into two sections related to Rotterdam's experiences on climate change and Viterbo's accessibility, which will go into the details of the research results and disciplinary insights carried out. The research project related to Rotterdam intersects urban planning, architecture, and water management; Rotterdam is an example of resilience and adaptation to climate change; “the Netherlands has a coastline of about 451 kilometers but has always been characterized by a difficult relationship with the sea; the name Nederland literally means "low country" due to the geomorphological conformation that places the country on average five meters below sea level (with peaks of 7 meters), at the mouths of

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three major European rivers (Rhine, Meuse and Schelde) and with about 60 percent of the territory proving vulnerable to flooding. The space of the water project, the waterscape" [1], is the place where there is an eternal confrontation between the present architectural forms and, depending on the scales of intervention, it is a project imbued with urban, social, economic, and political values, but it is also a space of cultural confrontation, a connective and connecting territory that also lends itself to play the function and role of a boundary, a separating limit, an impassable barrier. This is the case with Dutch water spaces where man-made embankments, whether dunes or dikes, symbolize the value of architectural and engineering design but are also evidence of a perennial struggle between man and nature and, in their essence as an impassable barrier, receive the highest form of human gratitude. The issue of urban resilience has been on the attention of the municipality for some 15 years now [2], and Legambiente has included the Dutch city as one of the examples to follow in its 2017 dossier "Cities to the Climate Challenge"[3]; moreover, in Rotterdam's central districts, urban retrofitting actions are being experimented with through new technologies and new functions applied to existing structures and in line with current climate change.

The Rotterdam Climate Strategy develops a deep involvement between private and public customers and the citizens are very important key actor for the climate vision. A very good work is done since primary school where scholars are used to interacting with the problems of urban resilience and where they are aware of the actions to be taken to improve their urban environment. Dutch children play an active and important role in defining urban resilience actions and in contributing to the formation of a less vulnerable city.

The research project related to the city of Viterbo is a three-year research project on the accessible city and social inclusion funded by the La Sapienza University of Rome with a SEED PNR Call. The research defines the concept of urban accessibility as an element and tool for interpreting the difficulties of accessing public spaces in the contemporary city and, in accordance with the regulatory requirements, seeks to define the minimum spatial elements for the conformation of quality and public paths and spaces. Among the expected results, it aims to define a path of urban and design quality that considers accessibility as a key to interpreting the contemporary city that also allows us to define a reflection on morphology and fabrics and on the shape of the city itself. The research focuses on a well-defined territorial area, the walled city of Viterbo, in which accessible itineraries and a methodological process of inclusive planning will be defined.

To understand such a delicate issue, also in accordance with the aims of the PNR 2021-2027, it was decided to make use of the skills deriving from neuroscience, psychiatry and clinical psychology in particular through the partnership of the School of Psychiatry of the Biomorf Department of the University of Messina and of the Italian Multiple Sclerosis Association (AISM) in its national and regional configuration. For some years now, the research proponent has been developing scientific collaborations with both of them on issues relating to the relationship between the city and health, in particular on the accessibility and well-being of public spaces. Territorial sharing events are planned through public opportunities for discussion and information such as some design workshops in which Sapienza students will be involved and some moments of confrontation with some schools present in the city or in the cities involved in the project.

The methodology is very pragmatic in that the research focuses on a well-defined territorial sphere, the city of Viterbo, which is also analyzable in the hypothesized timeframe because of its conformation as a walled city; it aims to investigate the problem within the historic center of the city on which planning aimed at building recovery and urban redevelopment is also being developed; it is an inclusive methodology in that from the initial analysis it envisages the collaboration of AISM and a number of city associations, and the city's Social Policies Department of the Municipality of Viterbo; several moments of inclusive democracy and social listening are planned, including through questionnaires drafted in collaboration with professors of psychiatry and clinical psychology at the University of Messina; territorial sharing is planned through public opportunities

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for discussion and information such as some planning workshops in which students of Sapienza will be involved and some moments of confrontation with some schools present in the city or in the cities involved in the project. Disability is a cross-cutting issue and as such it is expected to involve a wide pool of users filtered through the representative inclusion of some associations operating in the municipal area. The presence of an association of people as widespread as AISM with its 98 provincial sections guarantees the full involvement of the end user and the identification of the real needs of the population. AISM will contribute to the promotion of an inclusive society and its awareness of the issues of centrality, access, inclusion, quality of life, self-determination, personalization, and planning.

The different moments of inclusive planning planned make it possible to show more strongly the importance of developing interventions on such an important cultural heritage, having first defined together strategies of listening, confrontation, management and monitoring. "The issue of accessibility cannot be dealt with only at the building scale but, in order to make our cities and territories accessible places for all, it is necessary that operations to adapt individual spaces be framed within a planned process, as components of a coherent, larger-scale strategy."[4] In the definition of analytical strategies for the contemporary city, it has been deemed necessary to work alongside medical and psychiatric expertise, capable of aiding in the understanding of the deep, complex and heterogeneous dynamics that characterize the contemporary city and public space; in this regard, a reading method pioneered by Laurent Petit [5] in France and based on an assiduous use of urban analysis has been introduced; according to Petit, "a city can be laid on the couch to understand the fears, anxieties, schizophrenias with which it is characterized..." According to this analytical approach, based on cognitive analysis, the way citizens move is a crucial factor in the life of the city: form of space and mobility are two sides of the same coin. Infrastructure becomes, in many cases, merely the connective tissue within which urban movements take place, and cars become the vantage point from which the essence of cities is captured, as the 2003 Rotterdam Biennial [6] wisely highlighted. In continuity with the studies implemented in the 1970s by Kevin Lynch [7], the aesthetics of mobility thus helps to reconfigure the random and marginalized space around infrastructure; since the 1980s, design strategies have changed and efforts have been made to build places for the community, with a focus on the ways in which citizens interpret, use and transform urban space.

This study is important because it identifies, in completely different spatial contexts and experiences of teaching and research, a communal design horizon based both on the urban scale of implementation, that of the neighborhood, and on the collaboration and inclusion of civil society, especially the most vulnerable users, within the analytical and design process; "the city for all must be everyone's city"(8) is the phrase that best and most emphatically reassumes the design goals pursued in the different research experiences described here.

2. Materials and Methods

2.1. Rotterdam resilient city

The city of Rotterdam can be considered as an urban manifesto for resilience; in the city center, but also in the outskirts, are experimented buildings' design tools, based on the new technologies, that are very important for the urban retrofitting and well done to adapt the city and the urban districts to fluctuiting water levels.

In areas outside the levees, and the urban water system is also being made resilient with the creation of reservoirs to store excess rainwater. Through a number of programs, including the "Rotterdam Climate Initiative" (9), Rotterdam is trying to reduce polluttant emissions developing some urban design's tools as 1) floating houses; 2) water squares; 3) enhanced water harvesting systems; 4) green roofs; and 5) the sustainable harbor.

Rotterdam is also the only Dutch city razed to the ground during World War II; the 1946 reconstruction plan, the Basisplan, had provided a creative mechanism for

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rebuilding the city by which 4,500 dwellings were built, compared to the 25,000 existing before the bombing. In 2005, the "Regional Spatial Plan (2005-2020)" was approved, which had three main objectives: improving the quality of residential neighborhoods; strengthening and diversifying the urban economy; and increasing urban cohesion. In 2007 the "Urban Vision 2030" was approved and in 2010 the "Plan Building blocks for a child friendly city" (10).

Rotterdam in recent years has also had the proliferation of urban planning tools that had the aim of transforming it into a city for children; the *2010 Building blocks for a child-friendly city plan* it contained an urban strategy based on gentrification with the creation of public spaces, services and infrastructures dedicated to children that made the city attractive for families with children and for young couples.

The Building blocks for a child-friendly city includes a number of design actions to be implemented on residences, public spaces and services; for residences it calls for the creation of housing for the use of families with children, with a minimum area of at least 85 square meters, a direct correlation between public street and private entrance, the presence of an elevator, at least one room for each child present and outdoor play areas. For public space, the creation of outdoor playgrounds with consonant paving is desired, to be located especially adjacent to buildings lacking gardens or private open spaces, and the planting of tree and shrub essences that can be used safely by children. With regard to facilities, the presence of at least one school per neighborhood is necessary, allowing entry even in the afternoon hours for supplementary activities (sports, games...), which is characterized by the presence of a school environment that is safe both in accessibility and in fruition, and which provides for the presence of green areas for at least half of the built area.

Rotterdam's urban ecosystem is made of water; the city is surrounded by water from storm rainfall, soil, sea, and rivers; for this reason, the city is particularly vulnerable; rising sea and river levels and the danger of heavier rainfall expose the city to flood risk; in addition, most of the urban area is below sea level with the lowest point located at - 6.67 meters s. l.m. An ingenious hydraulic engineering system keeps the city safe from flooding; the polder on which the city is built consists of a set of dikes (such as the Maeslant storm surge barrier) and a system of canals and drainage and pumping systems that have protected the urban system for centuries, ensuring its resilience. Such a defense system is a masterpiece of Dutch technical engineering but needs constant attention because, a small breach in it could lead to disastrous consequences. Rotterdam is protected by a primary flood defense system consisting of dunes along the coast and dykes along the rivers; there are also many flexible barriers that can be closed, protecting the city, should the need arise. Within the system of dykes are many polders that are intended to drain excess water through canals and an additional system of secondary dykes that protect inland areas from flooding. All protection systems are calibrated to an "overtopping frequency," which indicates the water level that was used to build the dam as it provides probabilistic indications, based on time series, of its possible overtopping. The city is structurally divided into two parts, an inner part, the central area, defended by a system of dams and dunes and an outer part not protected by dams and therefore more vulnerable in case of adverse weather events.

The city has already experienced and taken many measures to protect itself from water to the extent that the city is considered one of the safest delta cities in the world. In the event of rising sea and river levels, there could be risks of flooding of the part outside the dykes (outer dyke), frequent closure of the Maeslant Dam and flooding of the part inside the dykes (inner dyke), the part that constitutes the heart of Rotterdam (Figure 1). The main priority in the climate strategy is to protect the city from flooding and strategic attention is paid to the port and some strategic infrastructure most at risk; in the most densely populated and densely built-up areas, some public space projects will be planned, such as water squares, water storage capacity will be increased through regulation of the city's canals, and the permeable surface area will be increased with an increase in green

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areas and a decrease in paved areas. A "blue and green" strategy will thus be implemented, which will also contribute to a more attractive and pleasant urban environment.

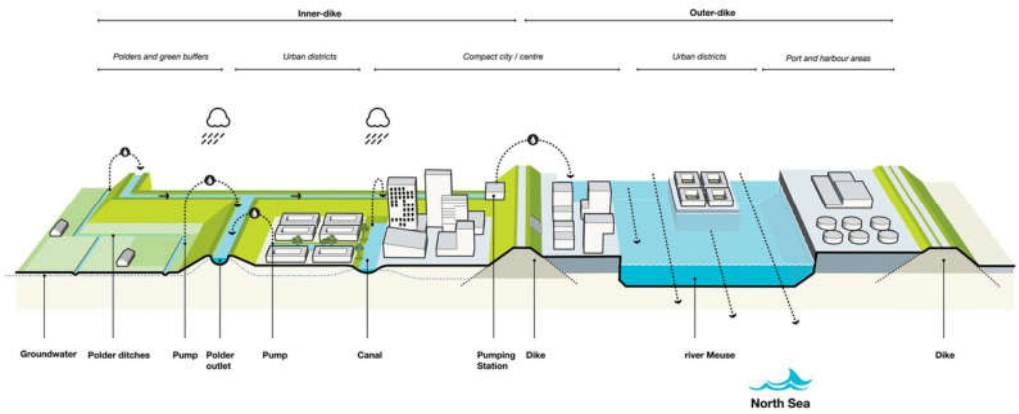

Figure 1. Rotterdam. The space of the city.

2.2. Viterbo: accessible city

The project presented was financed by La Sapienza University of Rome under SEED PNR call for proposals in December 2021 and will consist of three years of activities in the area; the first technical survey of the project sites, preparatory to the project that was later financed, was conducted in January 2019 and included the selection of some accessibility routes with the consequent enhancement of the related cultural and monumental heritage. Viterbo is a city of Etruscan foundation that had its maximum expansion in the late medieval period and is completely bordered, in its historic center, by perfectly preserved walls; this belt of peperino, a local stone, a cultural heritage of extreme importance, is protected by the presence of a double constraint: the first constraint ope legis with respect area deriving from the environmental constraint of the PTPR of the Lazio Region and the second one as a result of a punctual decree of the Superintendence of Cultural Heritage. The city walls, built starting in 1095 and concluded in 1265 with the welding of the entire historic core of the medieval city, have undergone only two limited gutting, both in the early decades of the 20th century, at Porta Fiorentina in the area delimited by Donato Bramante's Scuderie di Sallupara and to the east in the area of Via Fratelli Rosselli, to join the city with the Cassia in the direction of Rome. For the rest, the city, completely surrounded by walls and accessible through its 13 perfectly preserved gates, maintains its medieval and Renaissance cultural heritage unchanged, even enclosing the medieval quarter estimated as the largest in Europe with its fabric absolutely conforming to the layout of 1089 (Figure 2). The walls enclose a heritage of inestimable value, but they are also worth attention for the regeneration of the city and, above all, for the improvement of its accessibility and enclose the four Etruscan cities (defined by the acronym FAUL) whose unification defined the urban perimeters of the medieval city. Cultural heritage and urban accessibility are two often antithetical terms that in Viterbo want to be recomposed into a set of rules that tend to organize everything according to an accessible city project that aims to enhance the immense testimonial heritage of the Middle Ages; delicate archival studies have been conducted and are underway aimed at defining the historical stratification of the city starting with those traces of identity that, if not protected, could be lost forever.

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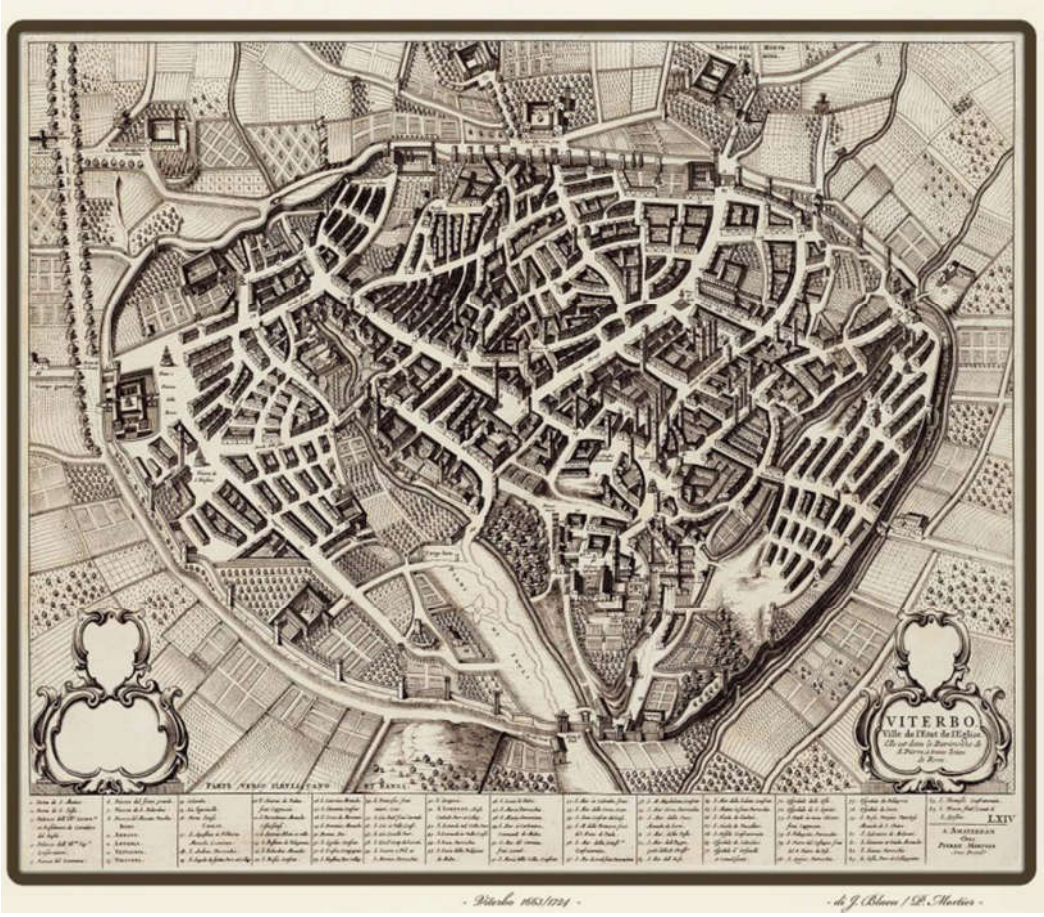

Figure 2. Viterbo, ancient map 1663-1705 by Johannes Blaeu Pierre Mortier. Source: Viterbo State Archives.

The walls constitute a guarantee of the historical testimony by virtue also of the delimitation and landscape constraint delimited by the Regional Landscape Plan. The historical and cultural heritage of the walled city is defined by the typical medieval houses built on tuff, without foundations, with a basement excavated in the rock, the facades entirely in local stone, with a system of accessibility defined, in the most valuable houses, by an external staircase, the profferlo that leads to the apartments on the second floor repairing the ground floor space intended for stores. It is a valuable urban and building fabric that is, however, affected by major accessibility problems and the presence of numerous architectural barriers. Intervening in these spaces, many with punctual constraints defined by decree, is a very complex operation that needs constant attention in the formation of an inclusive regeneration process that protects historical identity vulnerabilities by improving their use, including tourism, fostering a social revitalization, cultural and economic enhancement of the contemporary city. To do this requires not only having a great deal of knowledge of the traces of the past, here analyzed stratigraphically, but also assisting with the necessary skills to improve the effectiveness of the proposed actions. Never before has it been as necessary as in such valuable areas as this to define design actions that aim to improve the quality of life, leveraging cultural assets as key factors in urban regeneration processes, as the call itself emphasizes. In this research, as the project was interested in the topic of the accessible city in relation to the different forms of disabilities in our territory, the aim was to create a synergistic network of collaboration between universities and the third sector with a strong interaction with the relevant municipal departments. In order to understand such a sensitive issue, in accordance also with the objectives of the NRP 2021-2027, it was decided to make use of the expertise derived from neuroscience, psychiatry and clinical psychology in particular through the

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partnership of the school of psychiatry of the University of Messina and the Italian Multiple Sclerosis Association (AISM) in its national and regional configuration (Figure 3).

Figure 3. The Psycho Urbanism research manifesto in which the combination of accessibility-monumentality is highlighted.

The proposal defines the concept of urban accessibility as an element and tool for interpreting the difficulties of access to public spaces in the contemporary city and, in accordance with regulatory requirements, seeks to define the minimum spatial elements for the conformation of quality paths and public spaces and, among the expected results, aims to define a path of urban quality and design that considers accessibility as a key to interpreting the contemporary city that also allows for the definition of a reflection on morphology and fabrics and on the very form of the city. Places of mobility and public space are therefore two structuring systems of the contemporary city; the quality of the urban will depend on their interrelation and synergy. It is in the forms of new urban crossings, in the aesthetic identity given to transformed places, that the project must make concrete an attempt to respond to the dialectic between contemporaneity and the memory of places.

3. Results

The main and most important results of the research work, in both case studies, refer to the method and processes of social inclusion and how these innovative project approaches can then flow into updated and innovative urban planning prescriptions or master plan indications. Another interesting component to highlight relates to the role of the municipal administration and how it can be a spokesperson for a new urban governance capable of improving the effectiveness of its actions.

3.1. Resilient results

Rotterdam encourages the involvement of its inhabitants; for this reason Municipality promote some urban vision that aims the citizens' cooperation; CityLab010 is a municipal program encouraging the people of Rotterdam to participate in the Rotterdam Program on Sustainability and Climate Change as well as in other policies; the Air Quality City Lab is another example concerning this. Municipality needs to join forces and is in

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search of citizens' cooperation; Rotterdam needs to work with the people, business owners, the provincial authorities, central government, and all kinds of other (research and educational) institutions; commitment is required at various levels. Rotterdammer have been adapting their city to the ever-changing delta for centuries. La responsabilità per la gestione delle acque nei Paesi Bassi è affidata al Rijkswaterstaat (il ramo esecutivo del Ministero delle Infrastrutture e dell'Ambiente) e ai comitati di controllo delle acque; il Rijkswaterstaat (RWS) è responsabile della gestione delle principali acque, come il mare ed i fiumi, e garantisce che le autorità responsabili siano tempestivamente avvertite in caso di inondazioni o di mari in tempesta. Inoltre, RWS mantiene dighe, dune, gabbie e barriere di sovratensione e protegge la costa regimentando ed allargando le pianure alluvionali e costruendo canali secondari. Rotterdam is working together with public-private sectors, including research and educational insitutions; all parts involved are working on the elaboration of a city that will be climate proof and water resilient by 2025.

Rotterdam's climate adaptation strategy, is based on some actions of'optimizing the water defense system; improving resilience through adaptive measures to be implemented throughout the urban environment; on combined and agreed action with all urban stakeholders considering climate adaptation as a strategy that can innovate the city by making it more attractive and innovative. The strategy puts a lot of emphasis on some key actions such as building safe, flood-proof buildings, floating buildings such as those in the Rijnhaven project, or water-based public spaces that will increase the resilience of the system.

The municipality's aim is to achieve specific sustainability goals in its municipal property. Regarding social housing and public buildings, the aim is to achieve 40% energy savings in municipal property by 2030 and to install solar panels wherever possible. To enhance the sustainability of the existing housing stock, agreements are negotiated with housing associations that will form part of the performance agreements to be signed between the municipality and the housing associations. Sustainable, or green procurement is based on quality and sustainability, rather than on price. The municipality aims to achieve zero-emission supply by 2020 through emission requirements, more efficient ordering and pooling of deliveries.

There are also plans to enhance public areas used to store stormwater precipitation, some of which will be used for irrigation of urban greenery; underground water storage capacity will be enhanced; community water gardens will be implemented, which will be built in private communal areas; and green roofs will be implemented, which will allow storage of some stormwater. Sections of water squares, green roofs, and increased flow and cross section of canals are strategic elements for increasing urban resilience; these interventions has the aim to maintain low the water levels of the Schie and Rotte rivers. Some punctual interventions are also planned to increase resilience, for example in the MerweVierhavens dam, in Rozenburg and in some sections of the IJsselmonde; in addition, in the long term, the Hoek of Holland and Maasboulevard dams will have to be reinforced. The construction of new dikes to protect Rotterdam, in addition to the existing ones, could also be envisaged.

Water storage areas within the city also need to be enhanced by increasing the section of canals, implementing new canals and small lakes for water stagnation; blue lines within the city need to be upgraded and connected, in a reticular fashion, to the urban water system. In addition, Blue Corridors also serve another important function, that of attractive space for socializing and leisure. Measures to make the buildings more heat-resistant include using white and green roofs, installing easy-to-open windows, awnings, and blackout screens, and designing the interior distribution of housing so that bedrooms are located on the lower floors and north sides of the buildings. This climate adaptation strategy for the city of Rotterdam is expected to contribute to the creation of a resilient city by 2025 by reducing CO2 emissions by 50 percent; the strategy is currently being implemented with projects affecting different spatial areas in all six zones into which the city has been divided. With this strategic policy Rotterdam wants to anticipate climate change

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and already be structurally prepared for environmental emergencies, proving that it is still one of the safest cities in the delta metropolis system.

3.2. Accessible results

The main objective of the research carried out in Viterbo is to contribute to promoting an organization of public space that aims to enhance the cultural heritage, also from a touristic point of view, and to promote an inclusive city that allows fruition to all urban social categories and that also allows a-temporal use, expanding its safety and livability. To develop an interdisciplinary interpretive approach that combines research-didactics-experimentation by focusing on the correct relationship between plan and urban design, giving the urban plan, the correct programmatic dimension for maximum effectiveness and operability. An important objective of the research network is to promote urban design conferences, debates and workshops on issues pertaining to public space, urban welfare strategies, the use of space by the settled community, and especially to promote the creation, through urban design experiences, of public welfare spaces. These and other key aspects will be identified and discussed with the aim of designing public spaces that can improve the experience of urban life not only in individuals with mental and cognitive disabilities, but also in the able-bodied population. The project, which will also be implemented in some educational experiences, will involve two Urban Design workshops to be held in the same city at least six months apart; during the period between the first and second workshops, design issues will be developed within the university courses of some of the teachers involved.

The structure of the project, which will start in January 2022, will include the selection of study areas subject to site surveys with people with multiple sclerosis and motor disabilities and technical audits for the removal of architectural barriers, the construction of a digital platform for updating and disseminating knowledge, the organization of public meetings to present the research objectives to selected educational institutions, and a final scientific publication summarizing and synthesizing the innovations tested is planned. People with multiple sclerosis and representatives of the AISM Association experienced in accessibility will actively participate in the workshops in order to contribute practical applications and solutions to improve urban accessibility. During the workshops, AISM will present experiences and best practices that have been implemented and present some of the accessibility initiatives that the Association has completed and is also developing at the European level. The activities undertaken are not simply related to promotion and dissemination, but specifically aimed at further stimulating the development and transfer of knowledge and tourism enhancement of selected urban identity areas.

4. Discussion

In Rotterdam, the topic of urban vulnerabilities has been on the agendas of urban administration for several decades; aware that the very existence and survival of the land depends on the infrastructure that determines it, Dutch planners and designers have developed, especially in the 20th century, policies and strategies to develop and maintain a "sustainable" balance between urbanization, landscape, and infrastructure that have granted them recognized leadership in the field of water management and defense, with a system of dikes that is the most extensive in the world. Currently, the sea level in the Netherlands is rising and meteoric intensities are also increasing; land use is also changing so much that residential and commercial development is expected to continue in the coming decades. To cope with these changes, climatic, social and economic, in 2007 the national government issued its "Vision" regarding water policy entitled "Reclaiming the Netherlands from the future" (11), in 2008 was published, the Second Report of the Delta Committee entitled "Working with water"; in 2009 was designed, the "National Water Plan"(12), the slogan of which is "Move in accordance with natural processes where possible, offer resilience where necessary, and seize opportunities to promote prosperity and well-being."

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The problems related to the water sono presi in seria considerazione e le risposte per a creazione di una città waterproof devono essere costruite con grande collaborazione; there is a slogan that reads “United You’ll Succeed, Divided You’ll Fail” (13) and that stimulate and propagate a ‘participation society’ because, for Dutch inhabitants, people feel the responsibility to connect and care for others.

At the same time, the issue of accessibility and mobility, in a historic center like Viterbo, intersects aspects of priority importance such as movement in a fabric still preserved, fortunately, in its medieval layout conformation, unchanged over the centuries. In order to adapt such a precious city to contemporary urban rhythms and needs, it is necessary to promote an organization of public space that aims at enhancing the cultural heritage, also from a touristic point of view, and to promote an inclusive city that allows fruition to all urban social categories and that also allows a-temporal use, expanding its safety and livability. It is therefore a priority to act on social needs, on an inclusive project that aims to give back to the citizen, the resident, a key role in the design of their city so that everyone's spaces can also be everyone's spaces.

The U.N. Convention on the Rights of Persons with Disabilities, ratified by the Italian Parliament in 2009, accurately identifies disability as "the result of the interaction between persons with impairments and attitudinal and environmental barriers, which prevents their full and effective participation in society on an equal basis with others. According to a definition by Roberto De Rubertis, "accessible is the place that can be said to truly belong to everyone, the place that is non-discriminatory, non-selective, and non-alienating" (14) while it can be characterized as psychotropic that place that induces on the individual who is experiencing it conscious or unconscious feelings of discomfort and discomfort in crossing it. Studies have shown that living and growing up in the city, while it turns out to have greater advantages from a purely physical point of view, also makes individuals more vulnerable to certain alterations in the psychic framework. This happens mainly because the city produces in those who live in it a high amount of stress dictated by various factors such as the urban habitat, the sense of isolation and alienation, and the continuous exposure and proximity to unfamiliar faces. All of this causes so-called "psychosocial stress," which can have different effects depending on the individual experiencing it (mild in the normal-bodied, while they can become very pronounced, on the other hand, in those with previous psychiatric illnesses).

The dimension of city life has been studied in a timely manner by social psychologist Stanley Milgram (15) who, in an article published in 1970 in the journal Science, explicates the result of his research through the concept of "Urban Overload," that is, in the inability of a system to interpret external inputs either because there are too many of them or because they are too fast. Milgram's studies were precursors to research conducted between 1980 and 2000 in which the relationship between the individual and the qualities of the space around him or her is analyzed. Sensoriality in particular, as understood in the terms of the research, turns out to be crucial for individuals with psychiatric disorders and especially for individuals with autism spectrum disorder. What is needed, therefore, is a study, a cataloging, a proposal for improvement to transform these psychotropic places into truly more accessible places, in many ways. Understanding Milgram's overload not only from a psychosocial input point of view but also with purely physical, aesthetic inputs: seeking and living in beauty must be the primary goal of the accessible city (Figure 4).

Accessibility cannot only concern the historic center but must also question the more peripheral neighborhoods that are often penalized by a persistent tendency toward isolation and monofunctionality. Making the center and the periphery accessible means having a functional and interconnected idea of a city with clear priorities and resources to be mobilized in fundamental services such as the local public transport supply, the parking system, and appropriate incentives to favor public or sustainable mobility. The system of parking places, conceived in a park-and-ride, intermodal perspective, could improve urban accessibility but also have indirect effects on the mitigation of pollution, noise,

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congestion, and urban safety and act indirectly but very effectively on improving the quality of our public spaces.

Accessible is the place that can truly be said to belong to everyone, the place that is non-discriminatory, non-selective, and non-alienating; an accessible place possesses the capacity to be an attractor of activities and people; that is, to create what is commonly referred to as the "city effect¸ accessible is that place where everyone feels comfortable sensations." there is a need to reconcile the form of public space with the concrete experience of those who live it, in which the form of space and mobility are two sides of the same coin and, in the configuration of an accessible city project, actions that concern both public and private mobility must be recomposed; public transport can no longer be considered only as an alternative to individual transport, but must also be complementary to it, especially with reference to movements that affect different areas of the city such as historic centers and suburbs. Accessible Viterbo is a slogan that encompasses respect for historical identity, resident citizens, commercial operators, tourist flows, and the different sensitivities present arising from the special needs of people with disabilities, families with children, the elderly, the temporarily disabled, and the able-bodied. An accessible city is so to residents, to tourists, it is accessible to commerce and services, it is accessible to young people, to families, to the elderly. Accessible is an inclusive city project that addresses everyone, is intended for everyone, and allows for the full integration of every territorial need because, let us not forget, accessibility is a great inclusive project.

One of the most important results is to have succeeded in building a heterogeneous research network characterized by technical skills and medical expertise that, in the Italian panorama, few times have been characterized by collaborations on scientific research; it is a new research approach that broadens the professionalism involved, precisely to analyze diagnostic aspects that need additional expertise; in this research path, the network is also inclusive and makes it possible to broaden the tools available to interpret contemporary urban transformations (think, for example, of understanding hidden disabilities) by providing useful tools for quality design of urban spaces, at least with reference to the issue of accessibility.

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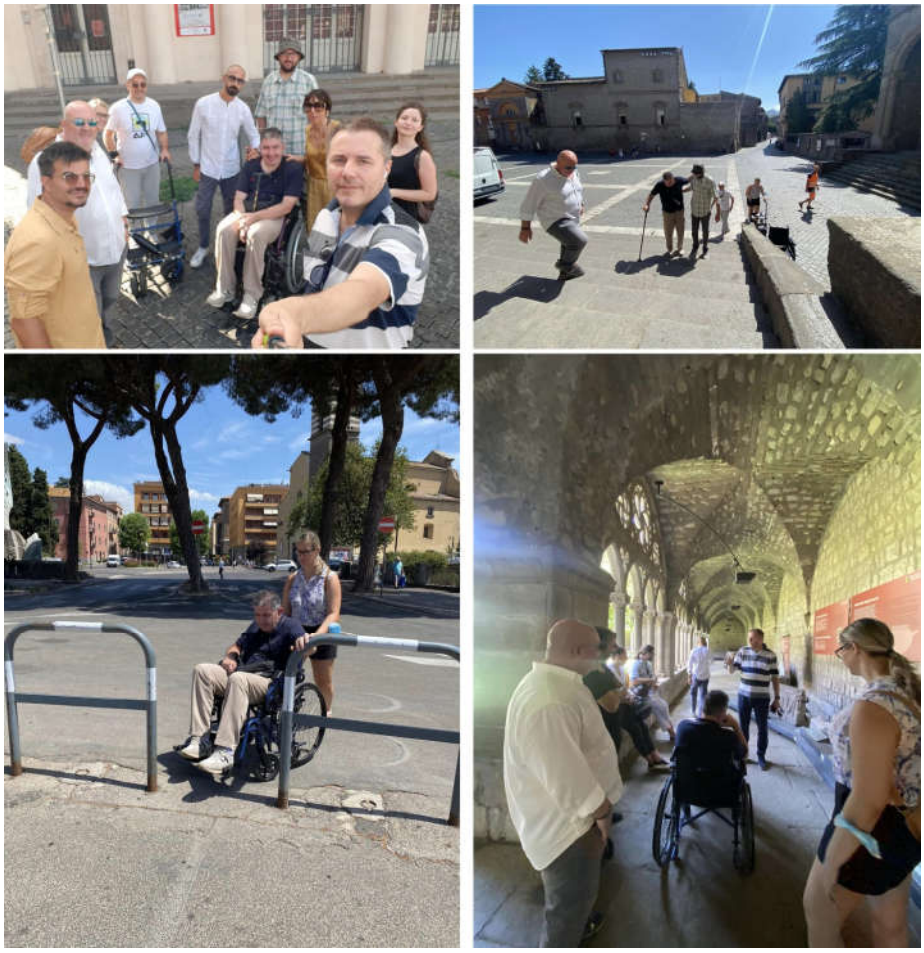

Figure 4. The accessibility inspections carried out in Viterbo.

Networking between institutional actors, planners, associations, but also businesses and individual citizens, is configured as a key move to enable the circulation of experiences, increase the visibility of individual actions, accumulate the lessons learned and encourage their replicability, and build that collaborative climate essential to the construction of more effective interventions.

5. Conclusions

The two described research experiences focus on two cities that are completely different in terms of population, density, urban fabric definition, spatial government instruments, and above all the historical conformation of the urban scenario. Rotterdam is a city designed from scratch after the bombings of 1940, since 1945 in most Dutch cities reconstruction programs and plans were initiated; the most important was the Basisplan Herbouw Biennenstad (Basic Plan for the reconstruction of the historic center) that the municipality of Rotterdam had drawn up.

Viterbo is a medieval city, a city encircled by a city wall of about 4 km that identifies the historic center perfectly preserved in its Medieval and Renaissance conformation with some hybridization of urban fabrics occurred as a result of the bombing of the Second World War and the approval of the Piraino Reconstruction Plan that almost doubled the indexes of buildability, maximizing the land rent and initiated the phase of building speculation, then concentrated in its suburbs and whose results are still evident in the historic center where the rebuildings assumed values of bodies extraneous to the consolidated fabric (in size and building quality). Viterbo, from the point of view of urban instrumentation, has seen the realization of several planning instruments (Pizzini Plan 1886, Caterina Plan 1912, Cristofori Plan 1919, Giovannoni Plan 1942, Mainardi Plan 1936) all of which were remained on paper and some instruments post Second World War that tried

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to govern the transformations of the city by adapting it to the changed situations of cintemporaneous society (Smargiassi-Salcini Plan 1956 and the General Variant of 1979 that still regulates urban planning activity).

We are therefore faced with two completely different realities: Rotterdam is a city of water, resilient in its contemporary conformation, the site of numerous contemporary architectural projects that have redesigned its face and given the city a new aesthetic; Viterbo is a historic, monumental, constrained city, in which urban transformation projects must be carefully evaluated on the basis of the spatial repercussions especially on its historical conformation.

Both cities, although very different, manifest comparable urban vulnerabilities: Rotterdam has difficulties of morphology, water management, resilience, Viterbo mainly of accessibility and social welfare but also and above all of obsolescence of the urban tools of territorial government; in both case studies urban vulnerabilities have been investigated in close contact with the communities, with the urban populations living the territories, and design actions and keys have been prepared that could flow into urban strategies (in some cases in Holland they already are) and in the innovation of the urban tools that regulate the different territorial government. In both cases, a cognitive analytical approach is promoted that starts from territorial listening, from the shared inspection, and tends to identify what are the problems to be solved and the situations of greatest risk trying to draw up an interpretative timeline of intervention priorities.

In both experiences there is the construction of a multidisciplinary research network that also incorporates disciplines that are new to the urban planning scene, e.g., psychiatry, but that provide new tools and new keys to better interpret all territorial vulnerabilities, even those that are hidden and more difficult to read. The Dutch and Italian experiences demonstrate the ability of the discipline of urban planning to be a science adept at coordinating and systemizing other disciplines, Edoardo Salzano argued that the urban planner should be "curious and humble, curious to know others' crafts well enough so as to know how to use them; humble in order to respect the specificity of other disciplines"; this attitude, strongly pragmatic, has been the design paradigm, the hypertext, through which the whole research path has been carried out, still in progress for the Viterbo experience, but which may lead to the achievement of those results that are at this moment desiderable and necessary.

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Figure 5. Urban vulnerabilities: Monumental Viterbo Vs Resilient Rotterdam.

As urban planners and promoters of urban civilization, we must continue to promote the formation of inclusive, multifaceted and multitasking cities that can capture in the diversity of sociality that inhabits them the strategic character that makes them different from others and unique, and experiment with models of welfare and social governance that enable the shared experience within the urban contexts analyzed; only by making diverse urban users protagonists of sociality and urban civilization can we build stainless cities that resist climate change and especially social change; to do this we need to develop the civilization of skills, develop and govern technicality and combine it with aspects of governance that provide, where needed, inclusive or exclusive democratic practices for managing choices and resolving conflicts; we need to act on the settlement fabric and public spaces, make them multifaceted, safe and usable, and take care of the maintenance and transformative practices of the territory under study. A contemporary challenge that needs to be addressed.

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