ISSN 2385-1031 [Testo stampato]
ISSN 2385-0671 [Online]

Housing Policies and Urban Economics

HoPUE

Vol. 7 - Dicembre 2017

Housing Policies and Urban Economics – Vol. 7 (Dicembre 2017)

ISSN: 2385-1031 (print)
ISSN: 2385-0671 (online)

Preface

In the current issue of HoPUE the authors deal with the themes of Public space and urban regeneration, Building quality and energy saving.

The first section includes five contributions. In the first one by Alshoubaki, the urban dimension of the refugee camps is described: in many cases the camps have become permanent structures, losing the character of contingent emergency, with an evident impact on infrastructures, services and urban economy. The author emphasizes the need for a reflection by planners, sociologists, politicians and technicians about the organization and expansion of refugee camps, from the early stages of emergency. The contribution by Bosco offers an approach to the analysis of the landscape, founding the study on emotional intelligence: the technical and compositional choices of the final project cannot fail to consider the emotional sphere of the users. In the third paper, the authors Clemente, Chiavaroli and Girasante address the issue of urban cycle networks. The research deals with slow mobility and urban accessibility, paying particular attention to the complex relationships established by cycle paths with the environmental context. The work also underlines the need to rethink the minor transport network, paying renewed attention to urban identities and public space, safety and technological, functional and sustainability aspects. The paper by Violano and Perez focuses on the importance of union between art and architecture, and on the aspects of well-being and happiness that derive from it. Artistic productions on an urban scale create better living conditions in the streets and squares, characterizing anonymous public spaces. Artistic exhibitions offer quality, culture and beauty to the urban environment, becoming the engine of economic and social development. In the paper by Zazzara it is pointed out that the urban metabolism processes raise the need to exploit the existing spaces by more attentive solutions to the quality of life in urban areas; in particular, the author emphasizes that the redevelopment of public space cannot be separated from a substantial reform of urban mobility, whose critical aspects are more evident in historical urban landscapes.

For the Building Quality and Energy Saving section, the first article titled “New urban quality of via Sopramuro” is in the frame of the international research “Rediscovering the Urban Realm and open space” (RUROS), focused on the quality of open spaces to be analyzed both in relation to the physical environment (microclimate, thermal, visual and acoustic comfort), and considering the social environment (needs and user satisfaction). The assumption of the research is that the systematic knowledge of these aspects can contribute to the sustainable development of cities of the future. In this context, the article proposes a study on some areas of the historic center of Naples. The second article, titled “Daylighting and solar control in school environments” is part of a research carried out in Campania and aimed at defining guidelines for the functional and energy requalification of school buildings in the Mediterranean area. Light becomes an essential element to ensure the visual and thermal comfort of living spaces; a suitable planning has to take into account multiple factors and specific indicators derived from the current regulatory framework for the various building types. In this article the author presents a study on the natural lighting conditions of a Technical Institute of the city of Aversa. The third article, titled “Su (n) stainable System”, describes a proposal presented at an international competition for the reconstruction of the facade of the Met Life Building in New York. The architectural challenge underlying the competition - aimed at preserving the original aesthetics of the building by improving its energy performance - is part of the always complex and current debate on how to reconcile conservation and innovation.

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I temi affrontati in questo secondo volume del 2017 riguardano le sezioni sullo Spazio pubblico e rigenerazione urbana, Qualità edilizia e risparmio energetico.

Nel primo contributo l’autrice Alshoubaki descrive la dimensione urbana dei campi profughi. I rifugi temporanei dei migranti sono divenuti ormai in molti casi strutture permanenti, perdendo quel

carattere di emergenza contingente, con evidente impatto sulle infrastrutture, i servizi e l'economia urbana. L'articolo sollecita la riflessione di urbanisti, sociologi, politici e tecnici in merito all'organizzazione e all'espansione di tali insediamenti, sin dalle prime fasi di emergenza.

Il contributo di Antonio Bosco offre un particolare approccio all'analisi del paesaggio, come tentativo di fondarne lo studio sulla intelligenza emozionale: le scelte tecniche e compositive del progetto finale non possono prescindere dalla considerazione della sfera emozionale degli utenti. Paesaggio, territorio e ambiente urbano coinvolgono la nostra sfera affettiva e sono pertanto indagati attraverso la Psicologia ambientale per poter osservare non solo il visibile, ma anche l'anima dei luoghi.

Gli autori Clemente, Chiavaroli e Girasante affrontano il tema delle reti urbane ciclabili, considerate alla luce dei recenti Regolamenti e Linee Guida ministeriali. Il contributo è incentrato su una ricerca svolta dal Dipartimento di Architettura dell'Università "G. d'Annunzio" di Chieti-Pescara, finalizzata ad individuare criteri guida per la qualificazione degli interventi di realizzazione delle reti ciclabili per il Comune di Montesilvano (Pe, Italy). La ricerca affronta le questioni della slow mobility e della accessibilità urbana attraverso approcci innovativi, ponendo particolare attenzione alle complesse relazioni che i percorsi ciclabili stabiliscono con il contesto attraversato. Il lavoro sottolinea altresì la necessità di ripensare le reti infrastrutturali minori, prestando una rinnovata attenzione alle identità urbane e allo spazio pubblico, alla sicurezza e agli aspetti tecnologici, funzionali e di sostenibilità delle soluzioni realizzative . Tali aspetti sono stati discussi anche nell'ambito dell' edizione di UrbanPromo Green (Venezia, 2017) sui temi della pianificazione urbana e dello studio delle condizioni di vita nelle città.

Il contributo di Violano e Perez è incentrato sui temi del connubio tra arte e architettura, e sugli aspetti di benessere e felicità che ne derivano. Le produzioni artistiche a scala urbana creano migliori condizioni di vita nelle strade e nelle piazze, caratterizzando spazi pubblici altrimenti anonimi; in tal senso, le manifestazioni artistiche – nelle loro varie forme - offrono qualità, cultura e bellezza all'ambiente urbano, divenendo motore di sviluppo economico e sociale. L'articolo affronta il tema della città creativa con riferimento alla metropolitana di Napoli, come esempio singolare di creatività urbana.

La sezione termina con il contributo di Zazzara. L'articolo è incentrato sui temi della trasformazione e rigenerazione delle città, affrontati nella prospettiva del riciclo urbano. Le città, centri di cultura, lavoro e innovazione, sono anche il luogo in cui emergono le questioni di efficienza energetica, prevenzione dell'inquinamento, controllo dell'uso del suolo e qualità del trasporto pubblico. I processi di metabolismo urbano pongono la necessità di sfruttare gli spazi esistenti progettando soluzioni più attente alla dimensione della qualità della vita nelle aree urbane; in particolare, l'autore sottolinea che la riqualificazione dello spazio pubblico non può essere separato da una sostanziale riforma della mobilità urbana, le cui criticità si ravvisano maggiormente nei paesaggi urbani storici.

Per la sezione Qualità edilizia e risparmio energetico, il primo articolo dal titolo "New urban quality of via Sopramuro" si colloca nel contesto della ricerca internazionale "Rediscovering the Urban Realm and open space" (RUROS), incentrata sulla qualità degli spazi aperti, da analizzare sia in relazione all'ambiente fisico (microclima, comfort termico, visivo e acustico), sia considerando l'ambiente sociale (esigenze e soddisfazione degli utenti). Il presupposto della ricerca è che la conoscenza sistematica di tali aspetti possa contribuire allo sviluppo sostenibile delle città del futuro. In tal senso, l'articolo propone uno studio su alcune aree del centro storico di Napoli.

Il secondo articolo, dal titolo "Daylighting and solar control in school environments" si inquadra nell'ambito di una ricerca svolta in Campania e finalizzata a definire linee guida per la riqualificazione funzionale ed energetica degli edifici scolastici nell'area mediterranea. La luce diventa un elemento di progetto essenziale per assicurare il confort visivo e termico degli ambienti di vita; una corretta progettazione deve tener conto di molteplici fattori e ricorrere a specifici indicatori derivati dall'attuale quadro normativo per le varie tipologie edilizie di riferimento. In questo articolo l'autrice espone uno studio sulle condizioni di illuminazione naturale di un Istituto Tecnico della città di Aversa.

Il terzo articolo, dal titolo "Su(n)stainable System", descrive una proposta progettuale presentata ad un concorso internazionale per il rifacimento della facciata del Met Life Building di New

York. La sfida architettonica alla base della competizione - volta a preservare l'estetica originale dell'edificio migliorandone la performance energetica - si inserisce nel quadro del dibattito, sempre complesso e attuale, su come conciliare conservazione e innovazione.

Barbara Ferri

*Housing Policies and Urban Economics Vol.7 (Dicem*bre 2017), pp 5 - 15

The Temporary City: the Transformation of Refugee Camps from fields of Tents to Permanent Cities

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Abstract

Refugee camps are a widespread urban phenomenon in 21st century. The emergency settlements are urbanizing since the demographic explosion and the hazardous expansion over long period of time play an essential role in transforming their temporary character into a permanent one, which generates deep modifications on the city's territorial structure shaping a new identity and creating a contingent change in the city's form and history. This study deeply reviews different refugee camps discussing their transformation into urban areas and how the implemented urban policies of designing and planning refugee camps impacted the territorial structure. Therefore, it is quite important to recognize the emergency settlement from the start as cities and to shift the refugee camps planning policies from the temporary solutions to more sustainable one and to apply long-term strategies in which architects, urban planners, emergency managers, refugees and host communities are sharing the responsibility to better cope with emergency.

Keywords: Refugees camp, temporary city, territorial transformation, long-term strategies.

1. Introduction

The world now is witnessing a great acceleration in the numbers of uprooted people because of -local, regional, national and international-armed conflicts or natural disasters like earthquakes, volcanos, hurricanes, tornados. This kind of events leads the cities to be confronted with an urban phenomenon, the refugees' camps, which is not a new phenomenon but it has gradually taken a great attention from individuals, organizations and governments, because of the negative consequences of perceiving refugee camps as a temporary solution to provide lodging for those who are seeking a safe haven using very light structures and temporary materials, as mentioned by Jahre et al (2018) places where refugees receive humanitarian relief until durable solution can be found to their situation (Ramadan, 2013, p.65). In fact, there are no quick fixes for the refuge causes, therefore, the destiny of these zones is to be a new part of the urban fabric of the neighboring cities. As well, the camps' residents take roots in the land thus giving birth to troublesome slums. It is essential to mention that the average duration of major refugee situations has increased from nine years in 1993 to seventeen years in 2003 (UNHCR, 2004).

Refugees' camps are mostly established in "Extemporaneous manner" which means that they are designed without appropriate preparation, focusing on the emergency situation and keeps fastened to it. The top-down design approach applied on planning refugee camps deeply impacted the receiving states urban identity, form the site selection which isolates the refugees' community from the host communities up to the "military like" grid planning and residential units design and materials (Jahre et al, 2018). This traditional approach is pointing towards helping refugees to get their basic needs onmarginalized lands granted by hosting countries which are usually impoverished, underprivileged and environmentally fragile where basic social services and economic infrastructure are missing or incompetently developed (Vemuru & Raina, 2016). Refugees then find themselves in a strange and an unexpected situation, as Italo Calvino (1972) said "The traveler stops and comes back full of doubt: he cannot distinguish between the different places of the city; his own mental categories get mixed up". Refugees in the initial stages of emergency are looking for safe zones. They receive tents as a kind of sheltering which provide them with a minimum level of safety, security and protection from harsh weather conditions. In time, refugees look beyond survival and temporary solutions and fields of tents transform into hard-structured places.

From a historical point of view, accommodations similar to those in modern refugee camps were used in the ancient Rome to accommodate the inhabitants from unexpected Tiber river's floods in "Campus Martius" (Hailey, 2009). Refugee camp was defined in UNHCR policy as special zones with specific characteristics to provide secure and safe environments where refugees can live (UNHCR, 2015). Refugee camps are short term living solution for massive numbers of people who are fleeing and gathering in one

place to feel safe and secure, (Gale, 2008) providing them with lodging units, health and hygiene facilities, infrastructure and educational serviceby host government and nongovernmental organizations (NGOs). These units come in different shapes and light structures. Agamben described the quintessence of refugee camps as the "materialization of the state of exception" (Agamben, 2008).

The emergence of refugee camps was coupled with the Second World War and become much more notable after the Cold War (Gale, 2008). The greatest number of refugees was 60 million during the Second World War (1939-1945). The second largest number of refugees is a result of the Syrian civil war (2011-now) when 11.6 million people are forced to leave their homes; 6.5 million were internally displaced and the rest has fled to their neighboring countries like Jordan, Iraq and Lebanon. The third largest number of displaced persons was in 1948 according to Israeli-Palestinian conflict. There are around 5.1 million registered Palestinian refugees in 60 camps in the middle east (Zampano, Moloney and Juan, 2015). Accordingly, the world is always examined different internal conflicts or/and wars which increase the number of refugees. Therefore, the numbers of refugees' camps and provisional cities has increased more and more. In fact, by 2015, the global refugee population reached 65.3 million (UNHCR, 2015). Clearly, Syrian crises is considered as one of the most prolonged crises since the Second World War and one of the worst humanitarian catastrophes in our times (SBS, 2013).

Currently, there are more than 31 major active conflicts that have an impact on the increase in number of refugee camps (Magrina, 2006). This means that people are always suffering from being refugees or internally displaced (IDP) because of unceasing conflicts. The camps vary according to their size, shape and life span. Some camps have been constructed to lodge around 50 people like the settlements for the Sri Lankan refugees in India, other camps accommodated more than 150.000 people such as Burundi refugees in Tanzania (Magrina, 2006).Refugee camps also have different life span, as an example the Palestinians refugee camps that are lasting after more than 65 years.

As (Bauman, 2001) said that "If common consent and history books establish the seventeenth century as the age of reason, the eighteenth century as the age of enlightenment and the nineteenth century as the age of revolutions, the best name to describe the twentieth century is the age of camps".

2. Like a "temporary city"

Refugee camps have the state of "accidental cities". The response to catastrophic events has been the same since the Second World War: to construct refugee camps under the arc of short-term solutions, focusing on emergency strategies in order to cope with refugee crises quickly and with low-cost. The provisional character of those settlements has transformed into permanent environment with poor living conditions, lack of access

to clean water, inadequate water supplies and sanitation, poor housing and home conditions, inadequate personal hygiene, crowded spaces.

Even though no one (whether the United Nations, host communities or even the refugees themselves) wants a permanent character for refugee camps, they last for years, sometimes for generations (Dunn, 2015). For example, the Palestinians are now getting in their 70 years in exile, the Somalians are entering their 27 years of displacement and the Syrians have been suffering since 2012.No one knows the time of return.

It is clearly notable that those provisional settlements are expanding, and they are not freezing to the status of their inception. The Zataari refugee camp in Jordan, opened on July 28, 2012 after the Syrian civil war, has developed rapidly to accommodate more than 79.000 Syrian refugees (UNHCR,2017). The camp that was instituted as a temporary shelter, it is now considered the fourth largest city in Jordan (McGhee, 2017). The camp covers 5.3km2 with 24,000 pre-fabricated caravans, 29 schools (14 facilities) where 21,587 school-aged children are enrolled, 27 community centers providing psychosocial support and recreational activities, 2 hospitals with 55 beds and 9 health care centers, and 1 delivery unit. (UNHCR, 2017).

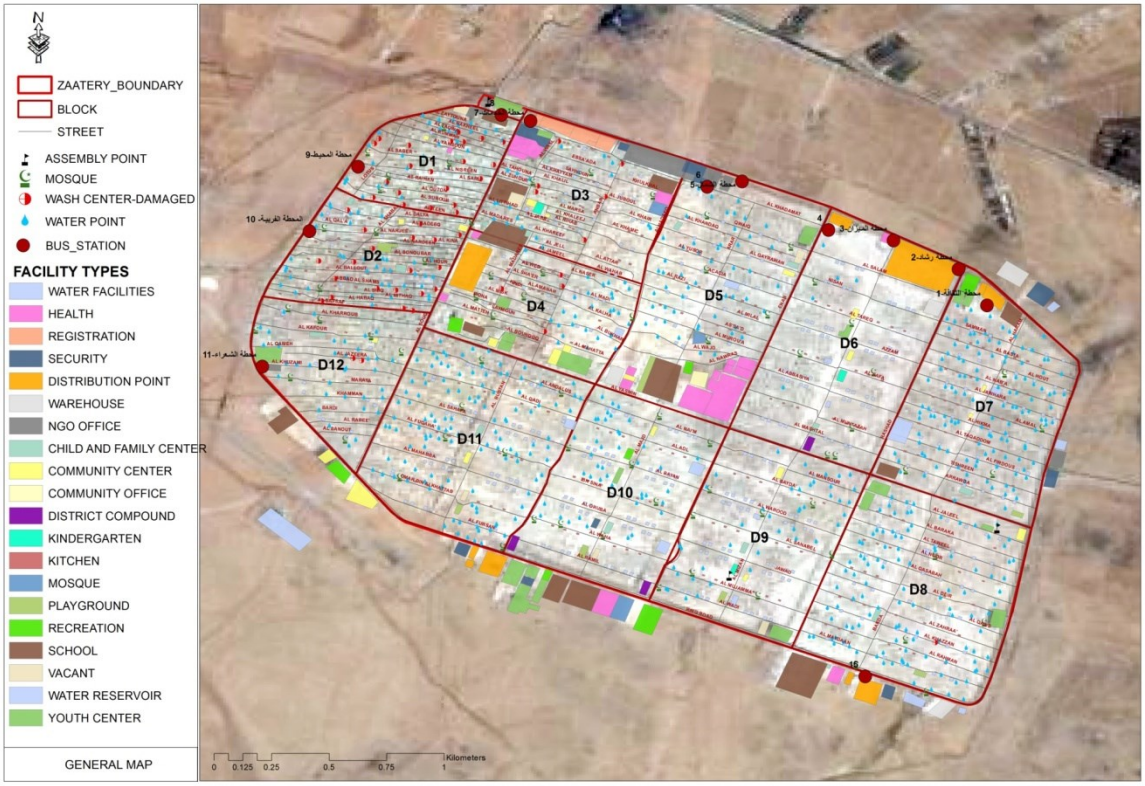

Fig 1: Services distribution inside Za'atri refugee camp.
Ref: Alshoubaki,2016 *data source :UNHCR,2016*

The desert is transforming from bare land to city; what started as temporary sheltering is now having a definite character of permanent city. The establishment of Zataari refugee camp has been impacting the whole region around. According to Zataari Municipality,

the built-up area of Zataari Region has increased by 60% since 2013. Despite the fact that the area of the camp is not extendable anymore, the camp is solidifying and integrating with the current spatial configuration.

Fig.2: The transformation in Zaatari village and Zataari refugee camp.
Ref: Map created by World Bank Group Staff. Satellite image and data from Google Timelapse.

Taking a glance into Dadaab refugee campin Garissa county in Kenya, it is divided into five sections (Dagahaley, Ifo, Ifo2, Hagadera and Kambioos) constructed between 1990 and 2011. By January 2017, the complex is considered the largest refugee camp in the world (UNHCR, 2014) with 19 primary schools and 6 secondary schools to serve 156.000 school-aged children and one referral center with 100-beds offering special and secondary services, most of refugees inside Dadaab complex participate in different activities such as: farming, fishing and trading (UNHCR, 2014).

Due to the fact that refugee camps are cities of tomorrow, where the average lodging is around seventeen years, (Kleinschmidt, 2015) Kleinschmidt (2015) expressed that camps are designed as facilities storages for people, but refugees were building their city.

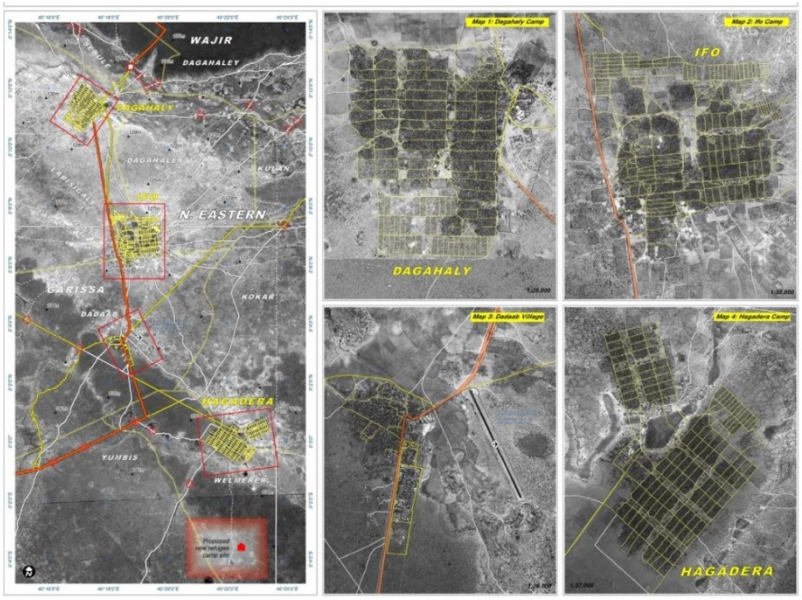

Figure 3: Dadaab Refugee camp in Kenya. Ref: UNOSAT, 2009

3. The transformation of refugee camps into urban areas

It is clearly notable that refugee camps are urbanizing and trying to become cities and part of the urban fabric or themselves evolve into urban centers according to refugees' demographic structures, socio-economic activities and cultural background (Dorai, 2010). Urbanization is a complex process generating enormous and notable changes on the environment, economy, socio-cultural relationships (UNFPA, 2017). As Joseph (1998) stated "The city is never simply the spatial organization of the mosaic of territories: territories of second settlements upset sooner or later this organization, to produce more confused moral, composed of cultural hybrids themselves produced by successive migrant population belonging to the same community or to different ones".
The question to be raised now is how does urbanization take a place in refugee camps? Considering the urbanization measure, one can notice that refugee camps tend to be urban zones in terms of gradual growth in population density and consequent modifications implemented by the refugees themselves. The first factor is the density of population inside refugee camps that not only depends on the birth and death ratios but also on the continuous decampment of those who are seeking safety far from disastrous events. For example, Zaatari camp was officially opened on July 2012 to accommodate around 30,000 Syrian refugees, the camp has received 1500 refugees every night who crossed the borders seeking safety (UNHCR, 2016).At the same time, 13-15 babies are born every day (Ibrahim,2013), now the camp population increased to 78,994 persons (UNHCR, 2018). In the same vein, the population density in Al-Baqa'a camp in Jordan is extremely high, with more than 100,000 persons living over an area of 1.4 km^2 (Ammannet, 2015). It seems to have higher density rates than Mumbai and Kalkota, where the density is less than 30,000 persons per km^2. This is because, due to Government regulationsto maintain its temporal character, the area of the camp is not extendable (UNRWA, 2017). It seems that in terms of population density, those provisional settlements are cities.
The second factor is the physical transformation, occurred through implementation of more durable and hard structures. A representative example is the Palestinian refugee camps in Jordan where in Baqa'a camp, the refugees refused, in the beginning, any kind of infrastructural development as they believe that they will soon return, and they rejected the idea of analternative homeland. Since, they have gradually accepted the fact that their dream of returning not only is very far, but also it is unknown when it will happen and, in the meantime, their needs as humans have increased. Consequently, they replaced the tents with more durable structures and materials such as mud, concrete, stone, iron, zinc and asbestos (UNRWA, 2017) with hazardous expansions over the land creating narrow pathways, congested areas without public zones, spaces without natural light or ventilation. The result was a vertically and horizontally exhausted environment with visible irregular order in the city urban fabric.

Fig 4: The evolution of Baqa'a camp.

It is not only a matter of demographic explosion or hazardous growth, but the decisive factor is time and a light can light up the ancient Greek mythology of" Kairos and Kronos". Refugees roots are in the distant past, but they have gradually detached themselves from it while they are growing into a new life. Since refugees reside in camps, it is not only an issue of chronological sequence of days, months and years but an issue of catching their Kairos moment, of having the best of "here and now". When refugees start recovering from the trauma of displacement, they construct a new life within new spaces and new relationships thus an accumulation of both Kronos and Kairos moments to create a new history not only for themselves but also for the hosting city. As in the Palestinian case, at the beginning they did not have the courage of change for a fear of bursting the soap bubble of their distant history and roots, the Palestinians refugees refused any kind of resettlement by UN because they strongly believe in their "right of return" to their homeland but time passed and they realised that their dream of quick return has faded (Hattar & Benhaida, 2017) and their needs required more than what the initial camp plan provides. This means that refugees must not be abandoned in their Kairos but helped to be much more into Kronos where they could learn to adapt and to take the advantage from change and accidental circumstances.

It is clearly remarkable that, a primordial form of city is born when the fields of canvas are begin to be replaced by more durable structures. It is not only a matter of materials, but rather of the beginning of a historical process representing the time and the sedimentation of the habitat: the history of the city. History as a continuous change is the most important dimension of a city; it is the measure of its greatness, of its culture and absolutely of its identity.

4. Shanty towns or pre-planned cities

The provisional settlements start sprawling in hazardous manner shaping maze-like cities with no proper order, inadequate sanitation, overcrowdings and bad housing conditions. Due to the high-density population inside camps and the lack of infrastructures, refugee camps are mostly unhygienic zones shaping unhealthy environments with different kinds of infectious diseases. When the standards of camp

planning are below the minimum and definitely by time they are deteriorating. This will absolutely create what so-called "shanty towns" and this will lead to increase crime rates, suicide, drug use and diseases.
Hasty decisions in bringing relief to refugees with temporary solutions and short-living conditions will increase the risk of those provisional settlements. Humanitarian aid has managed, designed and planned refugee camps in terms of numbers where it released list of minimum standards of living conditions according to cost and budget (Scavino, 2014). The familiar language to deal with displacement is sewing a bare land with canvas tents in rows as a very quick response to provide a temporary lodging for those who will return to their homeland soon, but they are hanging in this emergency phase for years and years. They are not only losing their civic rights and human rights but also residing in a temporary station waiting for the unknown to happen.
To provide emergency settlements within short period does not mean temporary material, provisional character or "makeshift cities".

5. Conclusion

The sprawling camps in Jordan, Kenya, Uganda, South-Sudan and other countries are ringing urgent alarms to change the conception of refugee camps as temporary cities since they last long periods of time and because of their prolonged existence takes a permanent character in terms of material, expansion, urban economic and spatial layout resulting in a deep impact on the urban tissue around them. The shift occurring on those provisional settlements must be reflected with an urban lens in shifting the policies of dealing with such kind of phenomena because, as Agier said (2002),"Due to their very heterogeneity, camps may become the genesis of unexpected cities, new social environment, relationships and identification".
Thinking and dealing with refugee camps in a "Three-Dimensional" way is not a solution anymore since the time, which is the fourth dimension, plays an important role in reforming those provisional settlements into more permanent cities.
Refugee crisis is turned into an urban crisis because the refugees who are living in provisional cities over a long period of time are reformulating an urban mark on the city image annihilating its infrastructure, services and economy (Baeumler, Shah&Biau, 2017). While refugee camps have all the characteristics which shape a city, they are, until this moment, planned in temporary manner.
The issue of refugee camps planning required from planners, architects and emergency managers to think from the beginning and in the preliminary stages of emergency in the organization and the expansion of those temporary settlements. The ultimate aim is to reimagine and to rethink these provisional cities since their inception as probable permanent cities able to get in deep transformation and development towards more creative, flexible and dynamic cities. It is important to focus on their co-existence

within the surrounding neighbourhoods because their destiny is to be sooner or later part of this urban tissue and that was proved by experience and history. As United Nation High Commissioner for Refugees Filippo Grandi said: "Inclusion is the name of the game" (Katz, 2017). Those "temporary cities" must be highly integrated within the urban tissue and that requires, again, to plan camps as cities from the beginning.

The enrolment of architects and urban planners is essential in the preliminary stages of emergency in order to prepare comprehensive studies to the "New-born" cities, their location and design, analysing the context with a vision of their definite expansion to the surrounding urban fabric. They must think in a sustainable way not only in terms of materials but also in planning rules, methods and techniques which must be, as well, sustainable. Shifting the emergency policies from temporary stand-alone solutions to proposals for future scenarios to provide safety, security and protection in the new emergency settlements and long-term policies. Because the temporary "canvas cities" keep people alive but without proper living conditions.

Promoting new strategic plans for those new spaces, able to develop new economies, would be of great benefit for hosting countries. According to the World Bank, Zataari refugee camp, for example, costs around $500,000 per day to run but what is the maximum end value? Refugees are still passive aid receivers even though they have skills, abilities and qualifications: an important source of economic growth for hosting countries if provided with a proper environment.

Outlining a comprehensive urban planning theme will produce a balance between refugees needs and host communities' potentials, following a bottom-up approach seeking to highly involve the displaced persons during the whole stages of emergency from preliminary assessment of their needs and aspiration to their active participation in building their new cities, taking in consideration the local context opportunities, threat, strengths and weaknesses with a clear vision to future developments

Refugees need: permanent settlements not just shelter; to live in homes not in incubators; to have cities not prisons; to be integrated not marginalized and to become self-sufficient not dependents. Also host communities need to: plan cities not slums; to have a peaceful environment not to bring conflict; to have clean and clear environment not to generate pollution and diseases; to live in well-planned cities far from any hazardous expansion to their city urban fabric.

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Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp 17 - 25

The child, the shaman and the sense of the place

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Abstract

Whenever we are going to analyze and evaluate an environment, a site, a territory, we must free our minds from preconceptions and preclusions, trying to face them with an uncorrupted spirit, proposing to find conclusions only after systematizing data and information about the morphology of the place, its current state and its historical happenings that have changed it over time. Observers must have the shaman's "educated" attitude and the child's "naïve" one, at the same time, contemplating the possibility of observing not only what is visible, but also the soul of the place, that vital pulsation that we perceive with difficulty because overwhelmed by the deafening din of a semantic "Babel". Thus, considering the emotional sphere of the user can help to understand the nature of places and to plan their transformation in an appropriate way.

Key words: landscape, architecture, technology, environment, place, territory.

> "*... once you begin to realize that we are not superior to the rest of the cosmos, but that we are simply a part of it, this creates a more compassionate and ethical orientation. If you know that the material reality is not the only one existing, you can leave your interest in getting everything that you can in this reality before dying*."[1]

1. Introduction

The title of this paper intends to be evocative of an unusual approach to the landscape analysis, but as it could lead to some misunderstanding, it is clarified immediately that it does not prelude to the formulation of a dreamlike or, even worse, an esoteric approach to the study of the territory and landscape. Much simpler, it is an attempt to combine the numerous and rigorous studies on the issue with some considerations, based on emotional intelligence, which are rarely considered within the scientific field. In fact, one of the objectives in the field of architectural technology is to rationalize the design process; for this reason, at the meta-design stage, a series of topics to be addressed in anticipation of the final choices are established. Among the requirements to be considered before formalizing the technical and compositional choices of the final project, those relating to the emotional sphere of users are still little investigated so here we intend to help fill this void, referring to the indications from environmental psychology and pedagogical studies on child learning. That is why we hope in the 'reader's attention for ideas that, hopefully, can open to new readings and different approaches to design, on both an urban and a landscape scale.
The reference to the child, whose ability to analyze and understand the space for recreational and knowledge purposes is considered, and, on the other hand, the reference to the shaman, whose emotional adhesion to the phenomena of nature is appreciated, makes us go along unusual paths to interpret those complex realities that are shown before us as landscape, territory or urban environment, time after time.
The deep characteristics of territory and city involve our affective sphere and depend on the emotional bond that links man with his environment. For operational purposes, it consists in reading the invisible that pervades the territory, which is made up of history, dreams, aspirations and objects, too, inextricably bound together, considering that such aspects, in their whole, are not always considered for design purposes.

2. Listening to the place

Whenever we are going to analyze and evaluate an environment, a site, a territory, we must free our minds from preconceptions and preclusions, trying to face them with an uncorrupted spirit, proposing to find conclusions only after systematizing data and information about the morphology of the place, its current state and its historical

happenings that have changed it over time. Observers must have the shaman's "educated" attitude and the child's "naïve" one, at the same time, contemplating the possibility of observing not only what is visible, but also the soul of the place, that vital pulsation that we perceive with difficulty because overwhelmed by the deafening din of a semantic "Babel" (Pinto de Faria et al, 2013).

The skill to separate the intense signs from the mute and misleading ones depends on the depth of the analysis and the ability to put the acquired information in the right relationship. Inevitably, the character of the place (its "genius loci")[2] is not uniquely determinable as a plural, and differently perceived by the numerous subjects involved. The external observer (the critic, the scholar, the scientist), the resident (the one who lives in the place, with more or less firm roots), the fluctuating visitor (who knows the place and attends it for work or leisure, but who has no roots there) and the new citizen (the migrant for work or necessity, who struggles to identify him/herself with a space that is stranger to him).(Norberg-Schulz C., 2007)

Each one of these subjects tends to create a different image and define a specific knowledge of the place where he/she is, suggested by different needs, memories and backgrounds often in contrast one against the other.(Lynch K., 1981).

If the purpose of the analysis is the urban space design, then the synthesis between reasoning and needs can be achieved only through design, which must be respectful and "determined" at the same time. That is why the various sensitivities and actors must be put into operation, including economic, business and administrative stakeholders. (Cirafici et al, 2017).

Fig.1 - the character of the place (its "genius loci") is not uniquely determinable as a plural, and differently perceived by the numerous subjects involved

3. The disinterested approach from the child

The broader look that a child may have of a place perhaps does not overcome the size of the courtyard where he/she plays, yet he/she perceives every little detail of that courtyard; what is not perceived by the "distracted" look from the adult, is perceived by the patient and analytical look from the child. His/her innocent and "disinterested" vision captures aspects that are invisible to adults because the symbiosis between children and space contemplates an animistic relationship destined to disappear over time. For the child the relationship with things goes beyond the border of vigilant consciousness, establishing a singular and deep empathy with them. The stone, the leaf and the insect appear bigger and more vivid than they actually are, as if they were emphasized by a sort of mental "macro-photograph". The young developing mind captures material, tactile and chromatic aspects that can be perceived by adults only through hyper - aware analytical methods. The child is, instead, a sort of involuntary scientist who, by virtue of his/her extraordinary learning skills, can perceive aspects of the world that are invisible to us. (Piaget J., 1973)
The child observes tangible things driven by an innate curiosity that makes him/her overcome every fear and hesitation in order to acquire knowledge. Most of images and judgments related to space and environment depend, therefore, largely on the data and sensations developed by each of us in the first years of life.

Fig. 2 - The child observes tangible things driven by an innate curiosity that makes him/her overcome every fear and hesitation in order to acquire knowledge.

I think, as well as Piaget does, that the children's mind is not a tabula rasa on which adults and educators are the only ones able to deposit knowledge and skills. (Piaget J., 1966) Every little man has got, however, his own creative capacity of knowledge and is able to create and independently verify his own theories of the world. In adulthood, we will have relationships with the others, according to happy or traumatic experiences, lived with the adults during our childhood, as well as we will have relationships with the environment, assessing its aspects, according to a variety of information acquired and elaborated when we were children.[3]

On the base of what said above, we can identify, at least, two aspects of childish learning that can be usefully applied in environmental and landscape research. First of all, we must carefully evaluate the curious but, at the same time, light and disinterested attitude that the child shows in observing the space around him/herself, considering that in childhood the curiosity for “things” is incomparably more developed than in adults, not only for the need to learn, but also by virtue of an animistic relationship that the child establishes with the world around him/her (animals and things are sentient beings in all respects for the child). It must be considered, then, the meticulous and analytical look with which the child instinctively “captures” things images, even the smallest ones, to enrich his/her memory, a store from which he/she will draw later not always and not necessarily only for utilitarian purposes, but also just to support particular emotional conditions (Bosco A., 2011).

According to our reasoning, the scholar must, therefore, try to implement in his/her studies and observations of design sites, during preliminary investigations, but also in decision-making, this freedom of attitude because this is the only way to observe reality without any preconceived ideas or interpretative hypotheses previously elaborated. In fact, it would be appropriate for every professional “observer" to be able to mitigate the rigidity of the technical look on the territory with the empathy, typical of the child playing in his/her courtyard.

4. The transcendental approach from the shaman

The shaman is a figure, now disappeared in the "technological" contemporary society, who was considered by the members of a tribe able to get in touch with the hidden forces of nature, through an initiatory path (descent to the underworld and cathartic revival). In the ancient communities, the shaman was, therefore, the privileged depositary of the mysteries of the unknown, that transcended the visible and the knowable, but which ineluctably influenced men’s life. It was the link between the earthly and supernatural world, able to heal from the evils and show the right way of living in the world in harmony with the primordial forces of nature, without offending or contradicting them. He was a spiritual master and a guide to adopt the wisest choices in everyday behaviors.

Today, according to the criteria already outlined, the scholar should therefore retrieve the attitude of the shaman towards the environment, considering and understanding its deepest valences, thereby exacerbating his/her ability to get in harmony with the elements and the environmental dynamics. Each specialist may thus prefigure the behaviors that stakeholders must adopt to preserve the territory and defend it from inappropriate interventions.

Going on with the metaphor, we can underline how the study of the altered states of consciousness, closely linked with that one of a shamanic culture, quite always results ambiguously charming for many of us. Similarly, each of us puts into effect severe mechanisms of setting aside these conjectures of a transcendental character, as they are deeply in contrast with our deep-rooted rational culture. The Oriental people seem to have less hesitation in considering the coexistence of immanent and transcendent in the real world, without denying in advance the possible presence of magical and irrational in everyday life. In other cultures, therefore, the difference between rational and irrational is sometimes so subtle that it completely disappears when we must explain behaviors and potentialities of the man and his own mind.

As we have already said, it is precisely the infantile trait of our Western way of thinking that must be nurtured to deal fully with the question of the spirit of the places. Therefore, the shamanic way of reading the diseases of the body and human soul, opportunely transposed, can help us to experience a non-banal reading of places meant as an extension of our inner world.

We put all our skills in territories, when the man inhabits a territory; it becomes integral part of his inner and outer life, ineluctably. That is why only a pragmatic and technical analysis of the territory is limited in comparison with the complexity of the interactions established between the place and the man who lives there. It becomes important to read everything that goes beyond the physical appearance of places, starting from history and memory to get to the myth, art and symbolic meanings of anthropic spaces and artifacts.

Fig. 3 - When the man inhabits a territory, it becomes integral part of his inner and outer life, ineluctably

The reading of a territory that does not consider the "effectiveness" of the intangible meanings will always be incomplete and inadequate to support any kind of decision, both if they aim at preserving the state of things as long as possible and if they aim at creating transformations that meet new needs (Bosco A. et al, 2012).
Finally, we can borrow the open attitude towards the intangible values of the places from the shaman, that are not immediately perceptible, but that can be perceived only through an initiation process of identification with their deep aspects.

Fig.4 - It becomes important to read everything that goes beyond the physical appearance of places…

Obviously admitting of not being able to put into action initiatory paths of any kind by a professional, we can alternatively consider some analytical and rational practices that lead us to investigate the spirit of the place through the comparative study of history, culture, art and social phenomena, which have characterized the examined site over time. (Violano Perez, 2018)
We can understand the man's character and feelings through the careful observation of his behavior, as well as we can understand the places through the analysis of morphological and environmental aspects immediately perceptible showing the holistic nature of the system of spaces and relationships of the place at the same time.

5. Conclusions

What has been exposed in this article, even if with obvious omissions and inevitable synthesis, intends to be a contribution to the definition of new paradigms for the bio-cultural landscapes design that involves our country, both for the huge diffusion of territories with beautiful landscapes, and for the remarkable and now sadly established fragility of the territories themselves. For these and other reasons, this issue is

increasingly taking a central position in the philosophical-cultural debate that currently involves the technological design of architecture and landscape.
The technological culture of the design has freed itself from the narrow disciplinary links, imposed by the commitment mono-oriented to analysis and innovation in the field of building elements and systems. The scientific community of architecture technologists has felt the need to make it explicit, with greater and greater commitment, the deep relationships that link the building and technological choices in construction with the destinations of landscape and territory that are more extensive and delicate. (Bosco A. et al, 2017). That's why the disciplinary boundaries have been expanded up to include issues and sensitivities typical of other knowledge fields, never forgetting the fundamental status of Technology of Architecture, which is represented by the essential need to give practical substance to theoretical assumptions. The achievements in the theoretical field are, in fact, for architecture technologists, always functional to the creation of new analytical and/or operative instruments useful to designers and operators in their daily activities of transformation and maintenance of the territory.

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[2]Speaking of places, we cannot avoid mentioning Christian Norberg- Schulz and his "Genius loci", especially for those who are profoundly indebted to his illuminating analyses and insights into the history and character of the city, as the writer is.

[3]See Jean Piaget's studies on the psychological development of the child.

Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp 27 - 44

Bicycle network is an opportunity to design the public space. The case study of Montesilvano

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Abstract

The Research Convention between the Department of Architecture of Pescara and the Municipality of Montesilvano has as its purpose the identification of an Agenda of Guidelines for the Qualification of Bicycle Routes. After about a year, the first results suggest to conceptualize some issues differently. First, you have to define the terms correctly. In Europe, reflection on slow mobility is linked to the rationalization/reduction of traffic and is always linked to both sustainability and ecology. The urban fabric of Montesilvano was heavily influenced by the relationship with the large territorial and urban infrastructures. And it is part of a more general story: the one regarding traffic engineering which, since the postwar period, conceived the idea that we should invest only in large network infrastructures for solving mobility problems. It is not enough. You need to come back to think about smaller networks and, in particular, on bicycle routes. Working on the hypothesis that cycling mobility networks are the potential matrices of a new land project that regenerates urban space, triggering processes of retraining of crossed contexts, forces us to think differently. To be more careful about the specifics. To assume the notion of public space as central.

Keywords: Public space, bicycle network, slow mobility, intermodality, storm water, sustainable urban development.

1. Introduction

Slow Mobility, Soft mobility, Sustainable mobility, Zero-traffic mobility, Mobilitédouce, Mobilité durable, Eco-movilidad. Although each of these denominations tends to emphasize particular aspects, there is a substantial convergence in making specific reference to the mobility of human force. The Research Convention[1]between the Department of Architecture of Pescara and the Municipality of Montesilvano has as its theme the relationship between Slow mobility and cycle/pedestrian networks. This field of investigation presupposes a definition of terms in order to better focus on the analytic field. In Europe, the reflection on Slow mobility is linked to the rationalization/reduction of traffic and is always closely connected to both the concept of sustainability (environmental, social and economic) and the ecological dimension. In Italy, Slow Mobility themes and objectives clearly emerge from the extraordinary production of Guidelines[2]. And they show that the areas of study are substantially five: network identification, signposting, safety, materials and dimensional characteristics of the route. The aims of the guidelines are to spread the use of the bicycle as a means of transport for home-work/school trips; in clarifying the environmental, social and economic benefits related to the use of the bicycle compared to the traditional forms of motorized mobility; ensuring a high standard of safety while minimizing the risk of accidents or any other form of danger for the cyclist; in defining which is the most effective signposting; in identifying the geometric standards of the various types of route.
The field of interest of sector regulations in urban areas is similar. Already in 1995, with the Directives for the drafting, adoption and implementation of the Traffic Urban Plans, the main concern, regarding pedestrians and cyclists, was to "foresee all the useful and necessary interventions to guarantee their safety"[3]. Subsequently, in 1998 the *Norme per il finanziamento della mobilità ciclistica*[4] hope, on the one hand, the intermodality between bicycles and means of public transport and, on the other hand, identify the priority areas for the construction of cycle paths, in the area of sediment of disused railways and river banks. The following year, the Minister of Public Works in agreement with the Minister of Transport issue a regulation laying down rules for defining the technical characteristics of cycle paths[5]. In 2013 the strategic objectives for urban cyclomobility of the Regione Abruzzo[6] are: the increase of the existing cycle network (privileging the networking), its safety, also through specific signaling and the connection with the system of collective mobility. Nor can the rules for drafting the Biciplan be ascribed to a very different register.

2.First indications to design the public space

In light of these brief considerations it is possible to state that Guidelines and Sector Regulations are placed within a hypothesis quantitative, whose almost exclusive priority is to realize as many kilometers of cycle paths as possible in which security, functionality of the track and intermodality are guaranteed. Numerous studies and research show that this is not sufficient, not only because there is no directly proportional relationship between the kilometers of cycle paths and the number of cyclists who actually use them, but also (and above all) because a series of project actions, planning acts and transport policies that must support and, in some cases precede, the realization of the tracked, are indispensable. Of course, the importance of the Guidelines and the Regulations is not in question, because it is clear that they contain essential indications that, however, remain linked to an abstract cycle network, deprived of references to the specifics of the places, to the peculiarities of the territories and of the landscapes that crosses. This work perspective brings out a plurality of issues that require a different conceptualization. Three main ones.

First of all, the cycle network is not just a topic linked to mobility. But also accessibility: "mobility represents the capacity of an individual, or an object, to make movements in space while accessibility identifies the characteristic of who or what is accessible"[7]. The problem, therefore, does not consist solely in permitting quick and safe moves from one point of origin to one of destination but also to have the possibility to enjoy the spaces in condition of safety and autonomy; to move in every direction, according to your own choices; to reach any destination, by the vehicle considered most suitable. It is a conceptual itinerary that involves the interdependence between the individual characteristics of the cycle path (and of the network) and the relationship with the contexts crossed. On the other hand, "to access a place or a service of the territory is not enough to move because, similarly to other abilities of relationships, accessibility calls into question all the elements involved in the relationship: the characteristics of the moving subject, the way it does and the ownership of the good or service of the territory that is reached"[8]. And this is precisely the passage that must be done in Montesilvano. A virtuous municipality that, after having realized the entire stretch of the Adriatic Cycle and a significant number of kilometers of other cycle paths, it is now called to take the next step: build the network. The passage from tracks to the cycle network is of extraordinary importance: only in this way the city can become a permeable body within which accessibility to schools, to the main facilities and places of urban excellence can be guaranteed. And more generally to all territory. Certainly it is a long-term scenario, considering that the urban fabric of Montesilvano has been strongly influenced by the relationship with the large territorial infrastructures (Railway, State Road 16, Highway A 14) and urban (Asse Attrezzato). And it's part of a more general story: that of traffic engineering that, from the second post-war has conveyed the idea that to solve the problems of mobility and accessibility one had to only invest in large networks infrastructure. Italian cities have shown that it is not enough. It is

necessary to return to reflect on minor networks and, in particular, on the cycling ones. So far it has not been this way.

A second question is about a commonplace that concerns the whole Adriatic city. Montesilvano is compressed between the coast line, the large infrastructure and the Saline river and, at a superficial glance, it appears only like a compact figure. It is not so. Working on the hypothesis that the cyclenetwork is a relational work attentive to the characteristics of the contexts crossed, forces us to think differently; to be more attentive to urban identities; to assume the notion of public space as central. And it is precisely in this way that the potentialities of some areas seem clear. Areas such as the market street of Corso Umberto I that reaches the beginning of via Vestina, the pedestrian cross that is created by the San park John Paul II to the sea, the area between the Town Hall and the Station railway, the area of the big hotels with the Palacongressi and the Multisala, the area of Stella Maris and Villa Delfico. It is the wait of a project that, also through the cycle network, is able to focus on the possibility of conferring urban quality to open space.

Another relevant topic, which is often on the sidelines of the debate, regards the construction methods of the cycle paths. Sometimes, it seems that by just making as many kilometers as possible it is sure that a sustainable result has been achieved. Quantitative perspective is only the first step. Which, however, is not enough. We must also focus on the sustainability of materials and the functions that a track can play, in addition to the one supporting cycling mobility. We show below an example of great importance for Montesilvano, mostly in relation to the frequent allegations of the last years.

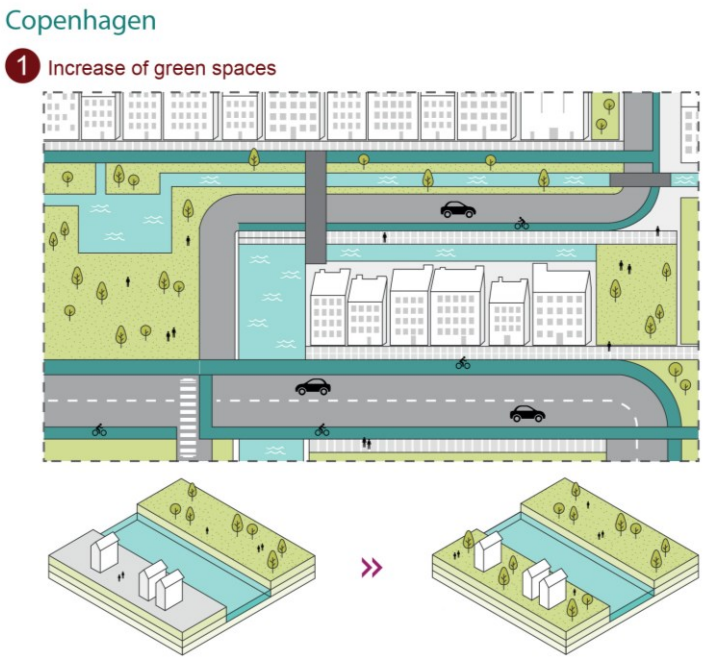


Figure 1. COPENHAGEN: *The Copenhagenize Current - Stormwater Management and Cycle Tracks* is the strategy used for the rainwater collection. This strategy is composed of three principal actions. Here the first one: Increase of green spaces

Near green spaces only permeable materials should be used in order to obtain two positive results: allow a rapid outflow of water and not contributing to the waterproofing of the soil. Good practices are not lacking. Approved in2012, the Climate Adaptation Plan aims to make Copenhagen the first carbon neutral capital by 2025. Within the plan are provided a variety of actions, including integrated measures on mobility and on the collection of first rainwater on public and private land. One of the strategies is called *The Copenhagenize Current – Stormwater Management and Cycle Tracks* which consists in creating, below a part of the cycle network, water drain tanks of meteoric waters in order to collect them from the most exposed areas to floods and convey them to the river. These are concrete channels prefabricated with a cover composed of lightweight modular panels in order to allow both a fast installation and a quick maintenance. Along with these measures, there are also grids of drainage both from the side of the sidewalk and from that of the road to allow the drainage of the water, blocking, at the same time, the passage of debris. Another action considered by the plan defines a new way to integrate urban water in relation to hydraulic aspects, biological and social. The idea is to create green areas for water storage holding rain water in order to channel it outwards of the city or to use it, thanks to underground reservoirs for irrigation.

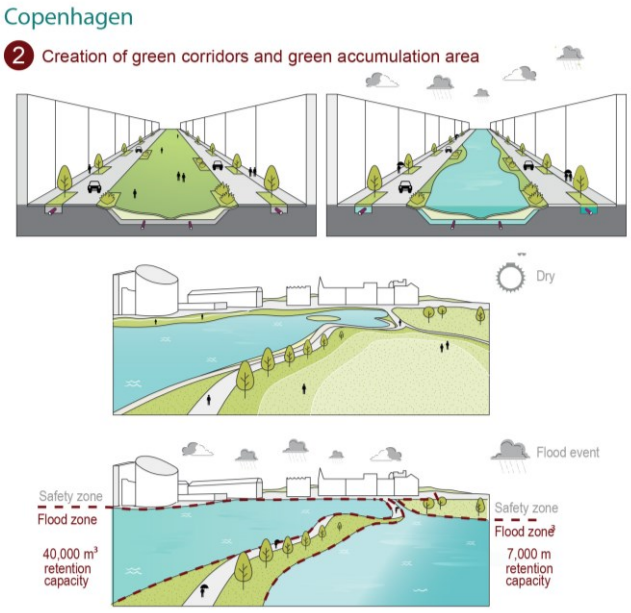


Figure 2. COPENHAGEN: *The Copenhagenize Current - Stormwater Management and Cycle Tracks*. Here the second strategy: creation of green corridors and green accumulation area

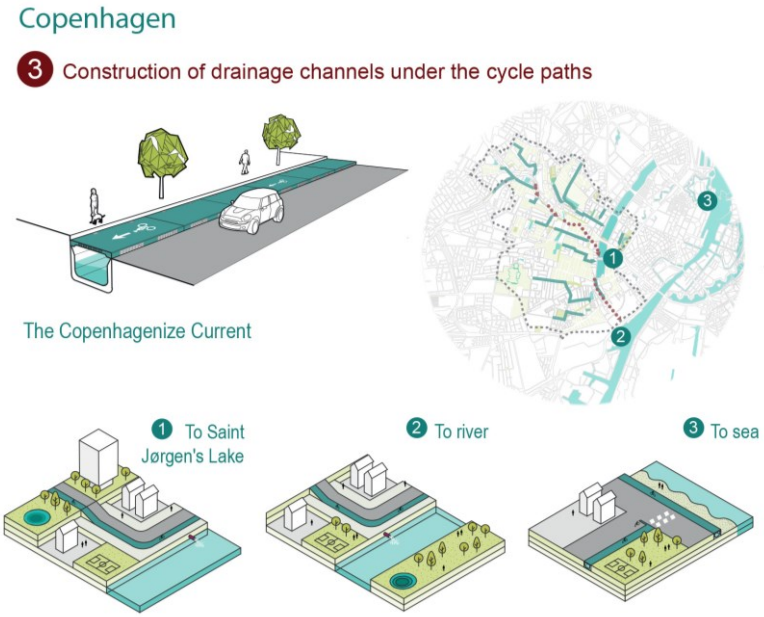


Figure 3. COPENHAGEN: *The Copenhagenize Current - Stormwater Management and Cycle Tracks*. Here the third strategy: Construction of drainage channels under the cycle paths

3.Cycle mobility for sustainable urban development

Lewis Munford in 1938 warned of the consequences of the uncontrolled development of the city: "in the new economy biotech hygiene occupies a dominant position, it implies not only public defense against disease; it also means positive steps to make whole the environment conducive to health, animal joy, long life".

The eighty years' observation is that the environment is no longer able to guarantee acceptable "minimum hygienic conditions", so much so that the vital cycles in the ecosystem are compromised and any equilibrium in the territory is precarious: territory is not only identified in the natural earth-water-air-fauna-flora system, but necessarily involves built habitat, especially when the transformations produced by human activity in the environment are not previously evaluated and appropriately controlled.

All this, with the relative differentiations, is placed at the territorial scale for the interventions that can have an important environmental impact both on the urban scale both for any intervention that in any case produces alterations in its environmental system.

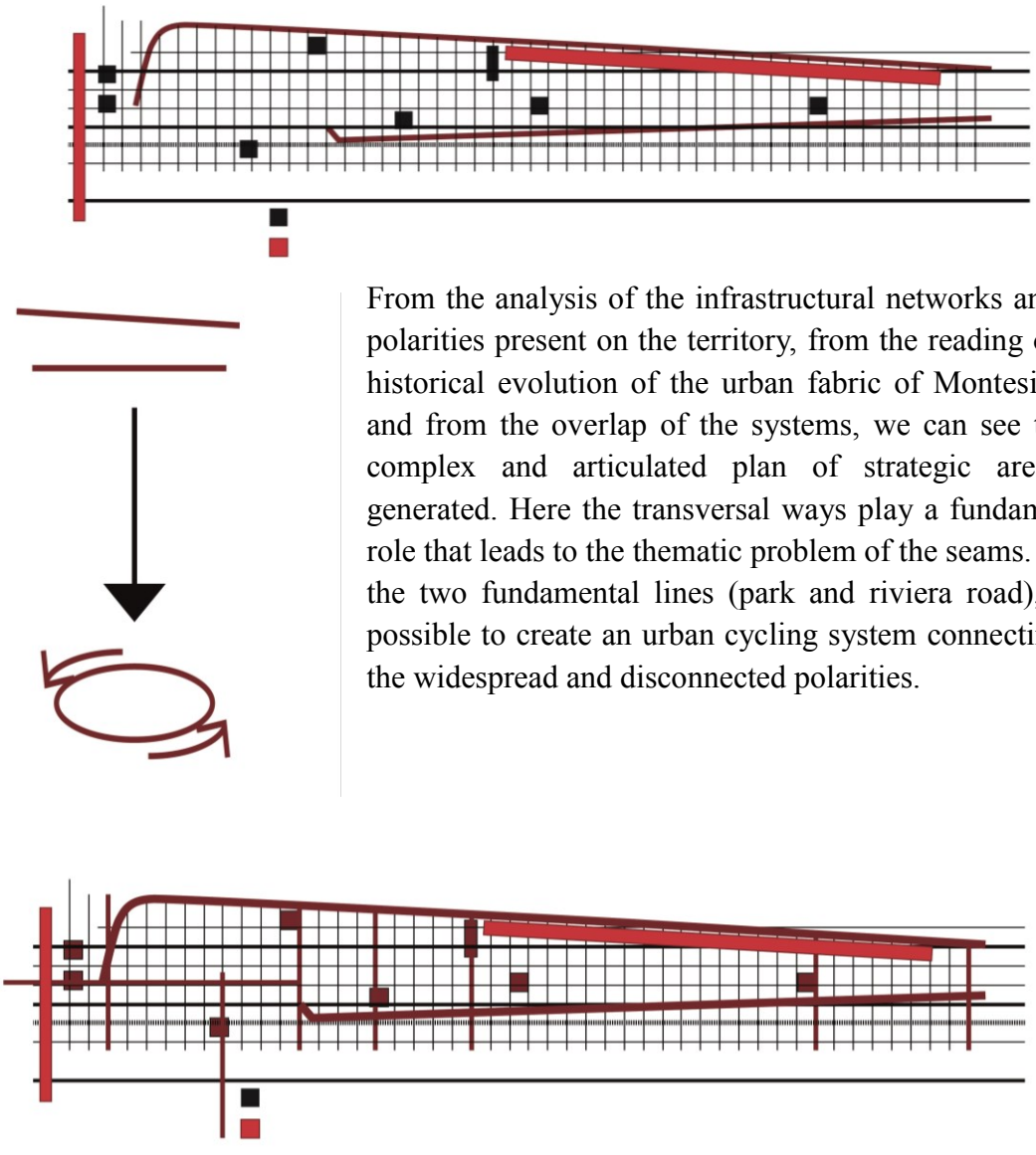
"The redevelopment concept implies an integrated approach to the problems of the territory and presupposes a demand for quality (environmental quality, quality of human relations, quality of urban life) that can only be satisfied by targeted interventions and prudent policies, especially in the more high index of urban pollution. In this sense, redevelopment has become above all a completely new way of understanding urban transformations and their government, a *process* of coordinated planning, of concerted action between the different public and private interests, of mediation between the

major objectives of interest general and particular interests, of conception of the overall urban planning of urban mobility, from the renewal of the relationship between population and territory" (Musso and Marcucci, 2011)[9]. With these initial considerations, talking about urban development today means imposing policies for the economic, social and cultural development of a city with a view to protecting the environment: it means, therefore, to talk about sustainable urban development. Sustainable development places mobility at the center of the problem. From here, talking about mobility with a view to urban development, means talking about sustainable mobility. Nowadays there are many strategies to deal with the mobility within a sustainable city: incentives for public transport, vehicle sharing, the spread of electric motors, city cars, expansion of intermodal solutions and social activities that promote the movement on foot but, among all, the strategy that is surely redesigning the urban infrastructural network is that of slow mobility, especially cycling.
Cycling in Italy today is finally reconsidering its transport function, abandoning its tourist meaning that it had taken in recent years: for this reason, as it enters the city, the cycle path must lose its landscape vocation and become an urban mobility infrastructure which holds together a series of issues typical of the territory in addition to the ordinary and more specifically technical themes of cycling infrastructures.

4. Consideration in the margins of a research on the territory of Montesilvano (Pescara).

Working on a consolidated urban fabric like that of Montesilvano means knowing in depth the territory that generated it and its historical change in the last decades to imagine the future scenario in which the cycle network will have its maximum use.
From the urban reading of the city of Montesilvano you can see how this presents the characteristics of the "Adriatic City": a compact fabric included and compressed by the Riviera, the State Road and Railway that cross the river system and the hilly one.
For years Montesilvano has been a city of passage, a fast North-South crossing without its own urban identity, almost a dormitory city of Pescara. This can be read from the driveway and cycle infrastructure network: two parallel connection lines.
But at a careful reading and descending scale we realize how in reality the urban fabric presents the potentialities and transversality worthy of interest as well as urban voids and residual spaces retrained or to be redeveloped. This is the case of widespread commerceon Corso Umberto I and on the beginning of Vestina; the pedestrian cross that is generated from the park San Giovanni Paolo II and reaches the sea through Palazzo Baldoni, the Town Hall and the railway station; of the large hotels that with the Palacongressi and the "Porto Allegro" shopping center, create a great attraction; or it is the case of all those specific polarities that spread throughout the territory: the area of the Palaroma which, in addition to the building itself functioning perfectly, presents an

excellent parking area due to its position; Stella Maris and Villa Delfico, both standing on Via Marinelli, create a single unfortunately abandoned system; the stadium and the sports facilities in general.



From the analysis of the infrastructural networks and the polarities present on the territory, from the reading of the historical evolution of the urban fabric of Montesilvano and from the overlap of the systems, we can see that a complex and articulated plan of strategic areas is generated. Here the transversal ways play a fundamental role that leads to the thematic problem of the seams. From the two fundamental lines (park and riviera road), it is possible to create an urban cycling system connecting all the widespread and disconnected polarities.

Figure 4. From the actual state to the creation of the system

The closing of the cycle network thus becomes the opportunity for a widespread redevelopment of the territory; it affects not only paths but urban spaces creating a slow, attentive and participated process of regeneration for the quality and safety of the city.
In the specific case of the city of Montesilvano, five strategic areas have been identified (pilot projects); each area has a main vocation and together constitute the great network of cycling for the sustainable urban development of the city itself.

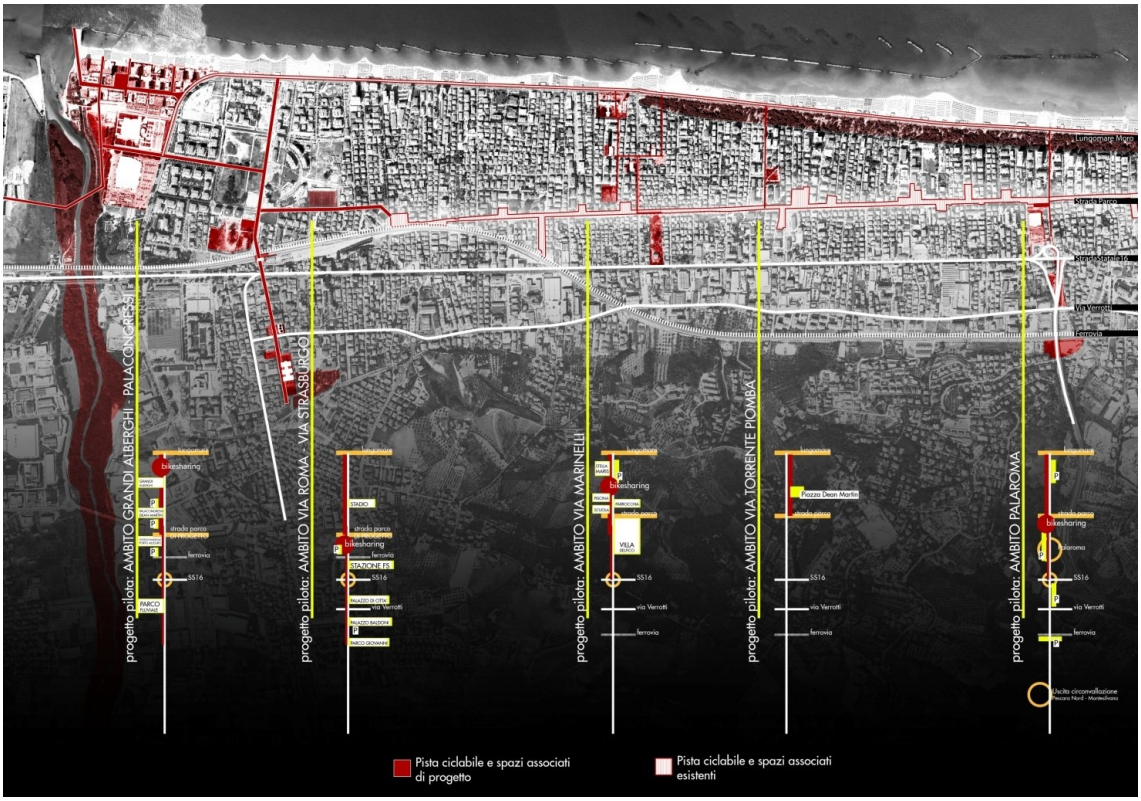


Figure5. The strategic areas

1	SCOPE	***Grandi Alberghi – Palacongressi***
	FEATURES	accommodation and tourist facilities
	VOCATION	exchange parking
2	SCOPE	***Via Roma - Via Strasburgo***
	FEATURES	presence of equipment and services
	VOCATION	crossing, re-stitching, redevelopment and exchange parking
3	SCOPE	***Via Marinelli***
	FEATURES	presence of a series of abandoned polarities
	VOCATION	re-stitching and redevelopment
4	SCOPE	***Via Torrente Piomba***
	FEATURES	central position with respect to the longitudinal axis of the park road and discreet traffic load.
	VOCATION	crossing, connection and experimentation.
5	SCOPE	***Palaroma***
	FEATURES	presence of a large vehicular infrastructure (Circonvallazione) and the presence of parking spaces currently at the exclusive service of the sports hall.
	VOCATION	exchange parking

Tab.1 Characteristics of the strategic areas

5. (Un)expected opportunities offered by slow mobility networks. The pilot project of Torrente Piombastreet in Montesilvano

Slow-mobility is receiving greater and greater attention as a low impact sustainable transport system. Less attention, however, is reserved for the potential of slow-mobility for urban renewal and as an opportunity to update the technological networks in a sustainable key. Is the cycle lane network able to trigger redevelopment and renewal processes in the crossed spaces? The research agreement between the Department of Architecture of Pescara University and the Municipality of Montesilvano aims at answering this question.
The challenge is to restore public spaces to people, putting the plurality of open spaces available in the city into a system. The goal is to allow all those who live in the areas concerned to use these spaces, triggering both physical and cultural redevelopment.
"Identity is generated by that quality of a certain space which, through the natural or anthropogenic configuration it has, makes the individual aware of the place where he lives, giving him a sense of belonging…" (Kevin Lynch, 1964)[10]. Another objective is the possibility of improving technological networks in a sustainable way. This objective is pursued through the use of rainwater harvest and storage systems and by the use of sustainable and innovative materials.
The aim of this research, through slow mobility, is to re-open dialogue between the city and its inhabitants, paying particular attention to the demands dictated by the contexts and its users. The aim is to make cities truly sustainable.
Montesilvano is characterised by the urban structure typical of "Adriatic cities and towns". A compact fabric compressed between the coast line and the hills, crossing several transversal river systems. Montesilvano has too often been conceived as a town connecting the north and the south without a real urban identity.However, in such a compact context, which does not seem to offer particular quality occasions, a closer look can identify a plurality of places, open spaces, noteworthy urban areas which, indeed, are typical of a town that offers many opportunities.
The current cycle network in the municipality of Montesilvano mainly includes two paths parallel to the coast, which, however, seem to have different specificities. The first path is that of the seafront cycle path that is part of the "bike to coast" project, a project that involves the construction of a cycle path running along the Adriatic coast from Lecce to Venice. The second is the bike path on the "park road" currently connecting Montesilvano and Pescara, which is planned to be extended northwards to the nearby Città of Sant'Angelo.
Since both routes are important but separate, they must be reconnected transversely to create an efficient cycle network at the municipal level, connected to the national network (bike to coast).

To do this, a series of transverse roads was selected to provide space for a cycle path

and, in this regard, analyses were conducted in order to understand what could be the best solution for each connection. The criteria that led to the definition of the most suitable paths for closing the network were mainly selected based on the possibility to involve the main interchange points of mobility, such as the railway station but also a series of car parks located in strategic areas of the town.
In addition to transport and intermodal considerations, the closure of the network also puts the attention on that plurality of public spaces, equipment and open areas that break up the compactness of the Adriatic town by putting them in the network. These spaces include: public car parks, equipped parks, neighbourhood sports facilities, schools, places of worship, hotels, commercial spaces, and some large strategic areas, not properly exploited or totally unused: Villa Delfico, the former Stella Maris, Pala Roma sports centre, Naiadi sports centre, Porto Allegro shopping centre. The study conducted, therefore, shows some opposite poles, but also a sort ofporosity of the urban fabric made of minor equipment and spaces that citizens could use daily as places of social life, opportunities for urban regeneration.

Figure 6.System of public spaces and connectionsbetween "park road" and "bike to coast"

Another very important criterion of which is kept in mind in choosing the transverse layouts of reconnection binds to the concept of sustainability through the water collection system. The municipality of Montesilvano more and more often presents flooding phenomena due to heavy rainfall. Heavy rainfall occurring more and more frequently creates problems to entire portions of towns near the coast, and the northern part of the town is under constant threat from the floods of the Saline river. The most significant events in recent years are as follows:

1992 flooding of the Saline river affecting the Montesilvano Marina area;
2012 collapse of the embankment of the Saline river;
2015 flooding of the Saline river with damages to the industrial area;
2016 traffic closure of the seafront area due to heavy rains;
2017 flooding of the Saline river.

Figure 7. Images of the floods occurred on the municipal territory. Images taken from: Panorama.it, cityrumors.it

The chronology of the events confirms that floods are more and more frequent, that is why the solution to this problem is urgent. The cycle layouts have been assembled mainly in the sensitive areas and in the areas that have ample green portions. This is because the cycle net is bearer of new technological nets able to collect and to store the rainwater. So the collected waters can be reused to irrigate the green areas in the summer season. While in the cases in which the rains provoke flood events, the system for collecting will becomes another element of outflow of the waters.

To understand which are the potentialities of this approach various pilot projects on different transversal aces of reconnection have been developed.

Pilot projects provide the methodological directions to the cycle path. The pilot projects in question were born with the aim of identifying and selecting contexts that were particularly significant with regard to different aspects and that provide satisfactory answers to the problems in place. The solutions found with a pilot project can be transferable and repeatable even in other similar contexts. In particular, the case of Torrente Piomba street is emblematic because it allows us to tackle all issues put in place by research.

The case of Torrente Piomba street forces us to reflect on three main themes: the reconnection and use of open spaces, environmental sustainability and safety. We have already specified how the slow mobility networks provide the opportunity to live the contexts crossed. Nowadays, along Torrente Piomba street there are many public spaces not properly considered.

Here there are the Dean Martin park, the coastal pinewood, a small refreshment area near the pinewood and a series of free spaces unused or used as a parking space. The aim of the research is to regenerate these spaces by reconstruction and resurfacing. For this reason, complementary equipment was provided for the slow mobility system and for a physical and functional rethinking of some areas. In particular a rest area has been proposed next to the park road at the top of the transverse axis and as a focal point for the identification of the route. For the Dean Martin park it was proposed to upgrade the already existing function, increasing its usability.

The park is easily reachable through the bike path and the pedestrian path, there are parking areas for bikes near the park and a new access to it. For the refreshment area, it is planned to upgrade it by rethinking the parking areas. It is planned to increase service facilities and to expand them outside in suitably planned areas. The expansion of the facilities for services will be realized by the interventions planned in the area of the coastal pinewood that, if implemented, will increase the load of possible users.
For the area of coastal pinewood different possible scenarios have been planned, by adding a series of features compatible with its natural heritage.
One solution include a series of sports equipment, such as cyclocross paths connected to cycle paths, with a series of equipment for outdoor training, racing circuits, minor sports facilities.
A second solution aims at integrating bike paths with parking areas for bikes and seats to recreate leisure and socialization areas, with a series of restaurants facilities or equipment for the maintenance of bicycles, bike rental facilities or other sports facilities that, especially during the summer season, attract many tourists. A final solution is to equip the pinewood with parking areas for bikes and seats serving play areas for children.
The slow mobility is the object of growing attention about the environmental sustainability, because it is a low-impact transport system.
It is immediately possible find a sustainable nature inherent in the very concept of slow mobility or sustainable mobility because the movement is operated by the human muscular strength.
Another diffused aspect of the sustainability linked to the slow mobility, is the possibility to give up gradually the car transport to replace it with the cycle mobility, with the use of other forms of sustainable mobility as train, bus, trolley bus, etc.
However there are further declinations of the concept of sustainability feasible through the establishment of a cycling network.
One of the most successful experiments, since this research takes borrowing north European models, is the possibility of integrating the rainwater collection system to cycle paths. This system results particularly suitable to the case of Montesilvano, given the deep problem due to the frequent floods already mentioned.
The rainwater collection system, integrated in the cycle paths, can solve many problems. In the case of Torrente Piomba street the insertion of the cycle path on existing roadway has been anticipated. In this case it would be enough to insert a curb of separation to distinguish the two layouts. This element of separation has been dilated to accommodate a rain garden. The system allows to collect and to purify the waters of before rain from roads, while those arising from the bike path don't have oil and polluting particles, as we find on the streets instead. The water collected and purified are conveyed by a tube draining and accumulated to be reused to irrigate green areas.
The tubs are located near Dean Martin Park and at the warhead on the "park road". During periods of heavy rainfall, the collection system become an additional element of

runoff, and the collection takes place through expansion boxes. In this way a sustainable water management process is triggered, that allows to reduce the maintenance cost of the green areas and to resolve problems of flooding. It seems clear that a system of this type can produce huge benefits against a small cost.
The research tries to answer to another issue linked to the phenomenon of flooding, that is the permeability of the soil. In urban areas the hydrogeological troubles are directly related to the lack of permeable soil, that are able to dispose the water load to which they are submitted. For this reason it is fundamental not to subsequently water proof the soil. For this layer in totally permeable cement has been studied, an highly innovative material that allows to leave the permeability of the soil unchanged and it furnishes a comfortable and sure surface at the same time for cyclists. To create road signs it is also expected the use of non-toxic water-based paint. These materials have been used in the line in which the cycle path crosses the pinewood, to leave the permeability of the grounds unchanged. Obviously could be used for the whole cycle layout that crosses the Torrente Piomba street increasing the actual general permeability of this street line. The system of management of the water, the attention to the care of green areas and the use of sustainable materials, are the themes that bring the concept of sustainability to a further level of specialization.

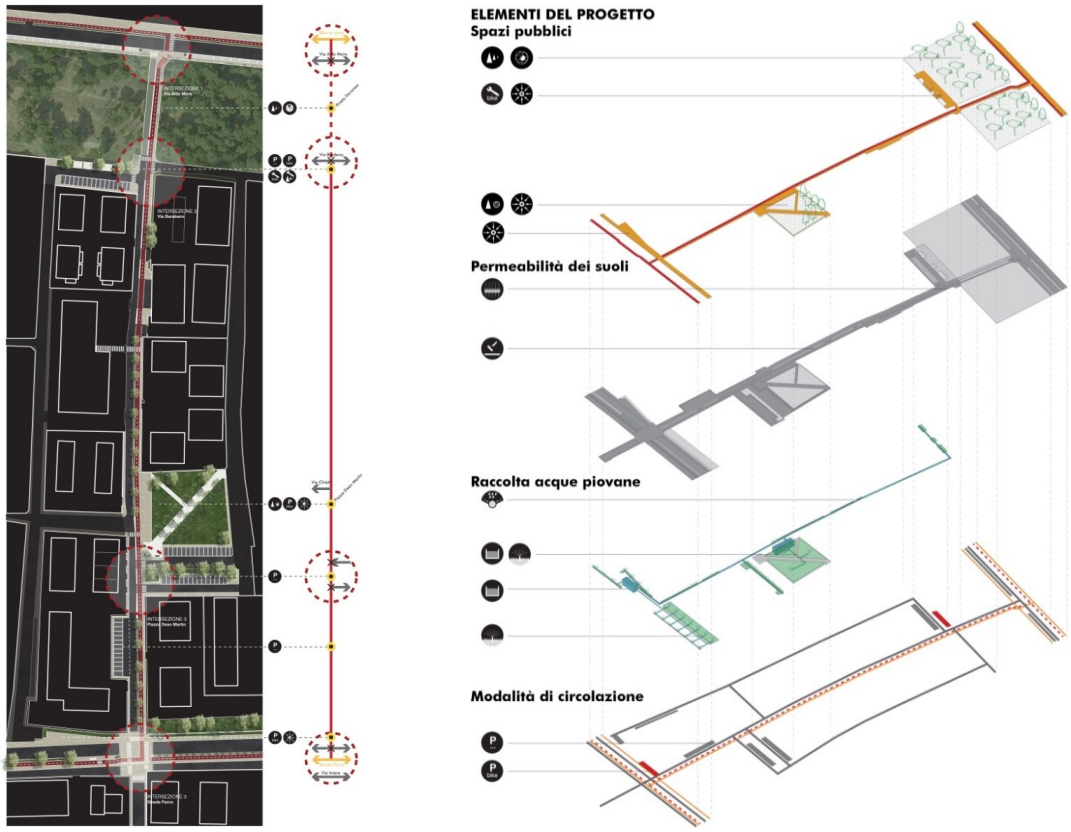


Figure 8. General plan of the proposed interventions and thematic levels of the project

Ultimately, the via Torrente Piomba pilot project offers the opportunity to reflect on the safety element.
All the points of potential danger have been analyzed, that is the intersections between the different mobility systems: a spatial resolution has been proposed, also providing indications on the vertical and horizontal road signs and on the protection devices.

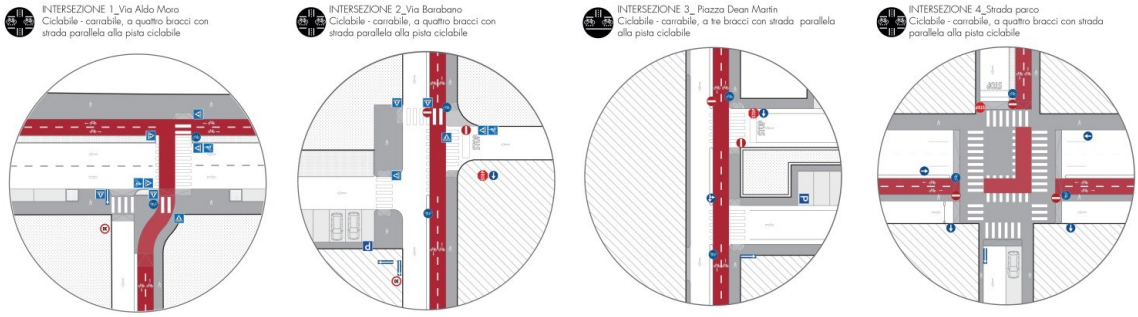


Figure 9. Resolution of intersections among the different mobility systems

The case of Torrente Piomba street provides us an useful tool to understand what might be the actual developments and potentialities linked to the cycle mobility. The most and innovative aspect is the will of contextualize the interventions, from time to time adapting the system of mobility to the different needs dictated by the crossed contexts. Contextualizing means to gather the potentialities of the urban fabric and to exploit the slow mobility for the creation of a net of public spaces. The slow fruition of the territory attributes to the slow mobility the power to retrain the crossed space, for that you have to pay particular attention to the context, to the places that the path crosses, to the possible public spaces or the equipments to reconnect, to the possible relationship that are created. Contextualizing also means to accept the requests of the city and to provide concrete solutions. As well as the necessity to resolve the problems of flood that, trough the integrated system of harvest of the waters, find a particularly careful solution to the concept of sustainability.
The attention to the context and the demands of the city invites to reflect on what the real opportunities offered by slow mobility networks are.

6. Conclusions

To understand the potential of Slow Mobility it is necessary to change the point of view. More specifically, it is important to underline how the cycle network is not a small highway that, by its nature, "proposes an effect of extraterritoriality" in which "the monofunctionality (linking a place to the other), the specialization (space reserved for the movement of vehicles) and speed exclude functional relations with the surrounding territory)"[11]. Slow mobility feeds on the contexts it traverses: it is not a policy of sector. The cycle network is a relational work that differs from any bypass which, always

remaining alongside something, does not care to activate any link with it; or a gallery that, passing below, does not create any relationship with the territory; or, again, a viaduct that, crossing the landscape at altitude, does not open up any possibility of dialogue. In other words, technical functionality, safety of the route and intermodality between different systems of transport (cycle-pedestrian, public and private driveway, railway), must have the same importance of the relationship that the cycle network can establish with the contexts crossed.

And this is precisely the reason why it is necessary that the cycle network becomes the presupposition of a soil project that knows how to take responsibility for glimpsing some possible answers to great topics such as, for example, better management of the first rain waters. Addressing a topic of such importance does not mean to simply evoke it but to imagine architectural devices that are able to become, in the first instance, project hypothesis and, subsequently, realizations. This is the responsibility that the research must take. Hence the decision to provide evaluation tools and planning guidelines for the municipal administration, both to guarantee adequate performance levels of cycling networks and to guide the morphological quality of interventions, taking into account the multiple relational and topological values expressed by the territory.

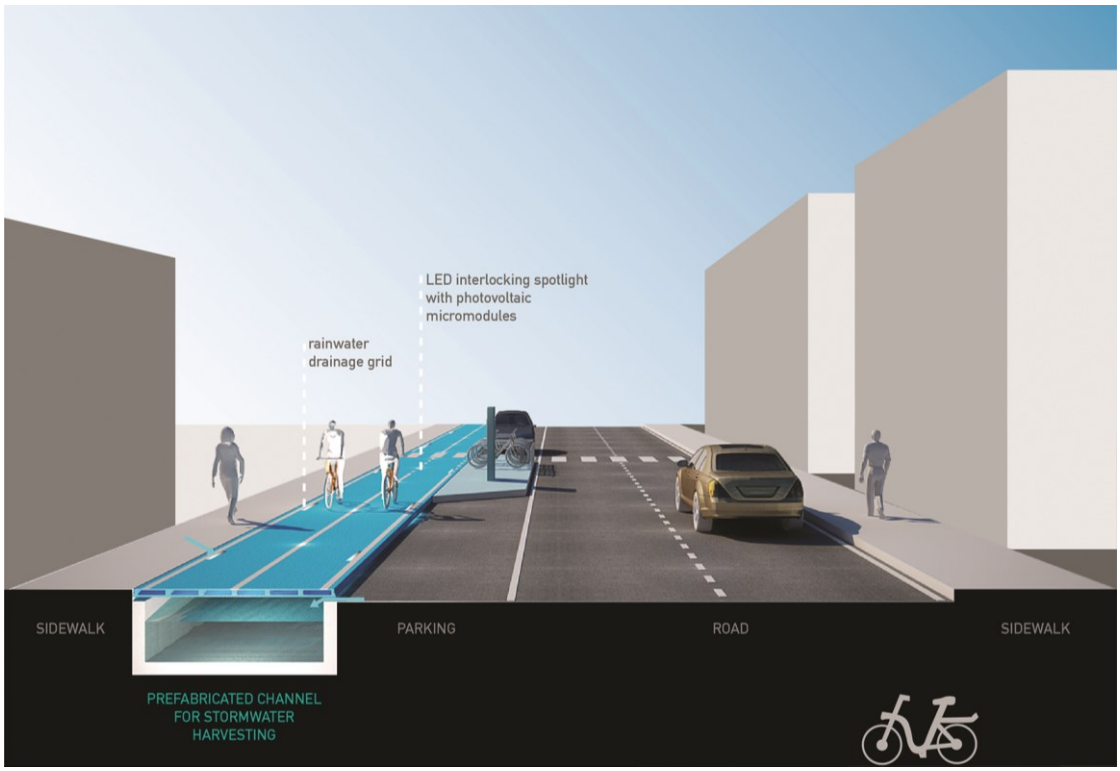


Figure 10. Project scheme

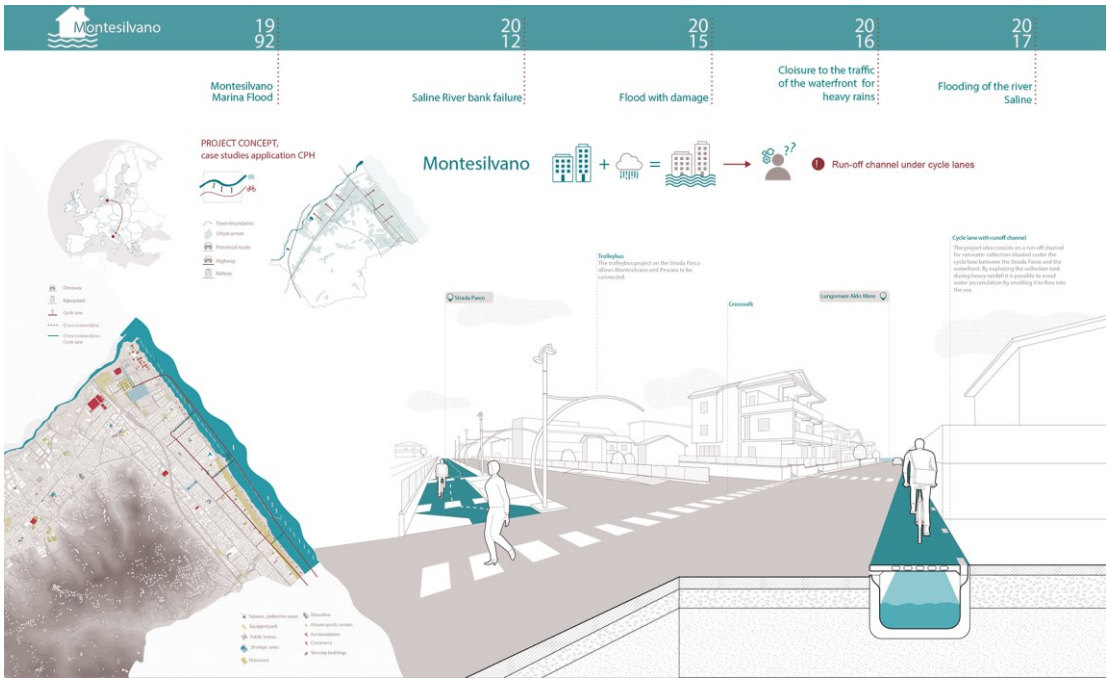


Figure 11. Concept with the technological innovations and dimensional morphological features of the new cycling network

Acknowledgement

In this paper the paragraphs 1-2-6 are by Antonio Alberto Clemente; paragraphs 3-4 are by Giulio Girasante; paragraph 5 is by Paolo Chiavaroli.

Endnotes

[1] The inter-institutional collaboration between the Department of Architecture of Pescara and the Municipality of Montesilvano, in line with the Protocol of Understanding, provides a two-year duration (2017/2018). Research group: Scientific responsible - Prof. Paolo Fusero; Scientific coordination - Prof. Antonio Alberto Clemente; Fellows - Arch.tti GiulioGirasante, Paolo Chiavaroli. Collaborators: Arch. PaRideTaurino, Eng. Francesco Rossi, Eng. Cristina Affatato, Eng. Angelica Nanni, Giuseppe Leone, PierluigiPetaccia, Giuseppe D'Abbraccio.

[2] It is impossible to give an exhaustive account of the Guidelines in this area. It is however considered useful to mention some of the most relevant: AA.VV.,*The city by bicycle. Designing cycle paths to improve the environment*, ARPAV and FIAB, 2007 http://www.arpa.veneto.it/; Carlo Socco, Chiara Montaldo (edited by), *Guidelines ZONE 30. The network of cycle paths*, publication of the Sustainable Cities Observatory of the Politecnico di Torino, 2007 http://www.regione.piemonte.it/; AA.VV.,*Guidelines PRESTO Promote the bicycle as a means of daily transport for everyone*, publication of the European Community, 2010 http://www.rupprecht-consult.eu/; AA.VV., *Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan*, Co-funded by the Intelligent Energy Europe. Program of the European Union, 2014 www.eltis.org/

[3] The Directives are issued by Min. LL.PP. (G.U. No. 146 - 24 June 1995), according to the Art.36 of the legislative decree of April 30th 1992, n. 285. New highway code.

[4] Law n.366 of October 19th 1998.

[5] Ministerial Decree n.557 of November 30th 1999.

[6] Abruzzo Region Law n.8 of March 25th 2013.

[7] Marco Castrignanò, Matteo Colleoni, Cristina Pronello (edited by), *Muoversi in città. Accessibilità e mobilità nella metropoli contemporanea*, Franco Angeli, Milano 2012.

[8]*ibidem*
[9] Edoardo Marcucci, Enrico Musso, (a cura di), *Sostenibilità, qualità e sicurezza nei sistemi di trasporto e logistica*, Franco Angeli, Milano 2011
[10] Kevin Lynch, *L'immagine della città*, Marsilio, Venezia 1964
[11] Nico Ventura, *Lo spazio del moto Disegno e progetto*, Laterza, Bari-Roma 1996.

Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp. 45 - 51

City in exhibition

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Abstract. Scientific studies are trying to measure well-being and happiness by analysing the synergies and the positive-cumulative effects that are related to the prolific relationship between art and architecture. Their combination is an ever-increasing source of endlessly diversified stimuli, but functional to increase the cultural level, well-being and quality of life of the community. Ten golden rules emerge from many years of research work.

Keyword: Creativity, art-architecture integration, competitive development, visual experience.

Sunto. Gli studi scientifici stanno cercando di misurare il benessere e la felicità analizzando le sinergie e gli effetti positivi-cumulativi che sono legati alla feconda relazione tra arte e architettura. La loro combinazione è fonte inesauribile di stimoli infinitamente diversificati ma funzionali ad aumentare il livello culturale della comunità, il benessere e la qualità della vita. Da un lavoro pluriennale di ricerca emergono dieci regole d'oro.

Parole Chiave: Creatività, integrazione arte-architettura, crescita competitiva, esperienza percettiva

1. Art-Architecture in the Naples underground

In the urban landscape, to qualify the public spaces makes better the citizens and "everything that makes us the best, is useful" (Ordine, 2013). Citizen who live in a city that is intellectually vibrant, creatively active and in continuous renewal, live in a favourable environment for the creation of well-being. Scientific studies are trying to measure well-being and happiness by analysing the synergies and the positive-cumulative effects that are related to the prolific relationship between art (expressed in different artistic forms) and architecture (designed in order to satisfy habitat needs of civil society). The attitude of a place to merge and combine in artistic expression, the ability of government bodies to stimulate and encourage artistic production on an urban scale and the ability of citizens to accept, welcome and embrace such places and such expressions of culture are all phenomena that can be evaluated in terms of the well-being and happiness of a community. They are closely related to the level of quality of life.

In the pyramid of human needs, Culture represents a unstable vertex if it is not based on the solid foundation of basic needs (housing, employment, health, justice); but those societies that gave value to their history, traditions, art and culture have created better living conditions and prerequisites for a competitive development.

A higher qualification of otherwise anonymous and utilitarian public spaces increases people's perception and in a way educate then to appreciate and take care of such work. Therefore, art, when integrated in this context, becomes an added value.

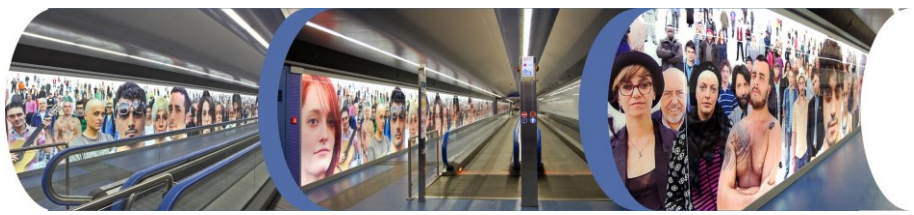

Fig. 1. Toledo Station - Oliviero Toscani, Human Race, 2013. LED light box - inkjet print on PVB (Source: www.anm.it)

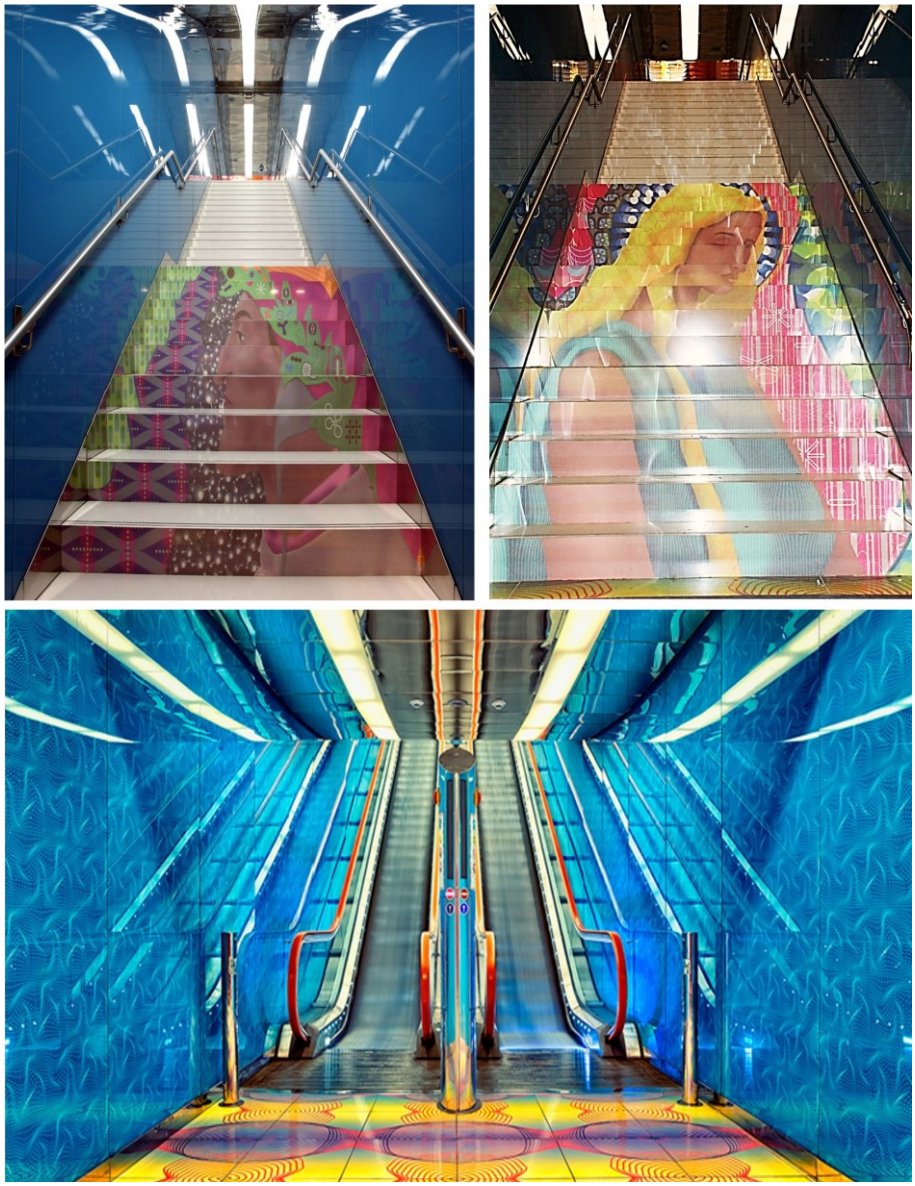

Fig. 2. University Station - Karim Rashid: Dante and Beatrice, 2010. sublimated prints on Stone
(Source: www.anm.it)

"*The observation of the multitude of experiences that through art, produce positive outcomes of recovery of the places, suggests to identify art as a driver of an economic and social development. The relationship with a work of art from individual becomes a relationship between people who recognize as a common good the artistic experience*" (Caterina, 2016).

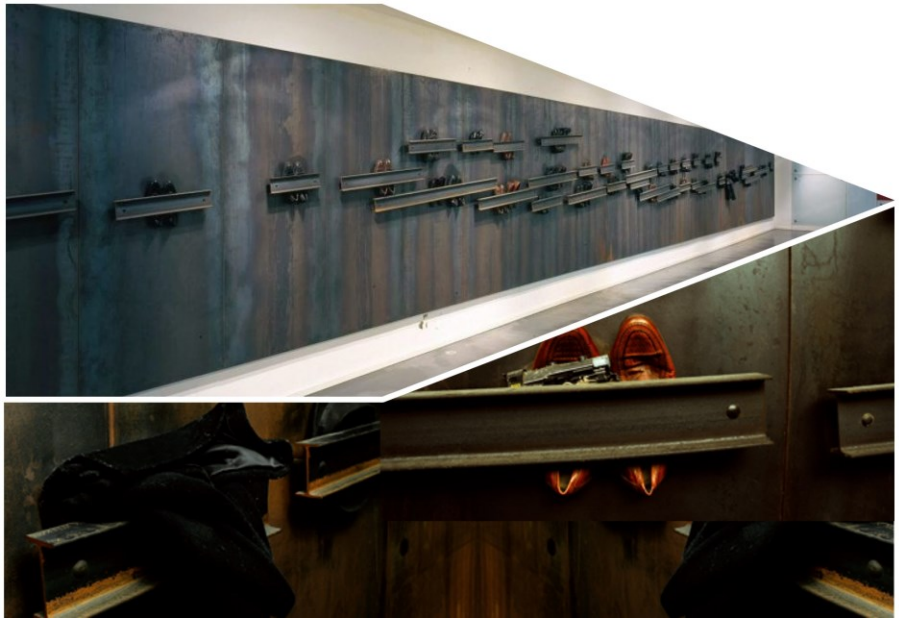

Fig. 3. Dante Station - Jannis Kounellis, Untitled, 2001. Steel sheet metal, iron beams, shoes, coat, hat, toy trains. (Source: www.anm.it)

In this effort to reach high levels of "widespread aesthetic usability", architecture, with its public exposure in the streets and squares, helps to indicate which ways to follow to deservilize art, starting from its public spaces to private architecture, also realizing, with painting and literature, the effects that the public seeks in the cinema. In a city like Naples, which since the post-war period has seen the growth of privileged artistic fields such as cinema and theatre, art has found its foundation in a social universe governed by original rituals of expression that involve figures, characters and places, always different expression of "Neapolitanity", which is a real "art of living". Art is free from utilitarian purposes; it tackles continuous battles against the dictatorship of profit.

If the architect uses the creative composition as a tool for the "If you do not understand the usefulness of the useless, you do not understand the art" (Ionesco, 1965).

Art and Architecture, when combined accordingly influence people´s behaviour. The contemporary city generates and nurtures creativity, offering infinite insights, which can be reflected in the architectural design of the place. If the architect uses the creative composition as a tool for the design, the user can then use the creative perception as an innovative tool of relationship with the urban landscape and the other users. In this way Architecture is an inexhaustible source of stimuli, which are perhaps seemingly useless but infinitely diversified and functional in order to increase happiness and quality of life.

The research explains the appeal and singularity of the Naples Underground, where the integration between art and architecture found a new way to display the town's creativity. The main place of this process is the stations' architecture and the surrounding urban open spaces rehabilitated with art works (an innovative way to conceive the urban lexicon): an innovative open museum of archaeological and contemporary works.

The real value of this work increases with the high use of this "city in exhibition" linked to the travellers' daily flux that crowds the underground stations. In this way, citizen are exposed to an aesthetic experience that contributes to educate them through the integration of art and architecture.
The idea of incorporating art to the underground stations transcends that of the mural in the city and provide an enriched visual experience to citizens. In the specific case for the Napoli´s underground stations there´s a strong evidence of the intention of creating spaces -the very objective of architecture- that are not only well defined but also useful and meaningful, giving people a sense of place. Thus, the art, which is apparently a useless trinket, becomes a useful tool to provide quality, culture and beauty to the urban space. In other words: quality of life!

2. Ten golden rules to increase cultural benefits

From the study conducted, a series of reflections arise on the possibilities that art has to enhance its function as a creative stimulus and cultural growth. The sense and purpose of the work of all those who collaborate in urban enterprise changes, in this perspective, tools and strategies. But the fundamental idea is the search for a way to awaken the creativity not only of artists but also of all those who, moving in a culturally privileged context, as ordinary citizens can contribute to enhance the creative sense of living the city, even in the complexity inherent in the place.

Ten golden rules is proposed below as a key to understanding the multiplication of benefits arising from the integration of art-architecture in consolidated urban contexts.

1. Visual quality. The importance of visually conveying ideas either historical, artistic, geographical through the language of art in a playful way, increases the value and significance of any urban and architectural space.

2. Art and Architecture when combined accordingly influence people´s behavior. The idea of incorporating art to the underground stations transcends that of the mural in the city and provide an enriched visual experience to citizens.

3. The semiotics of education. The intrinsic value of art itself as a powerful mean for education has an impact in children´s education since they're exposed to a context which is meaningful and memorable.

4. Adding value. The higher qualification of otherwise anonymous and utilitarian internal spaces increases the perception of people and in a way educate then to take care of such art work.

5. Color. Undoubtedly the colorful rendering of walls in a contemporary approach of art that encompasses kinesiology is much more in tune with the use of the space and more consistent with it in all regards.

6. Time. The contemporary architecture -pavilion-like structure- and the use of metal and glass introduces a dialogue with the already existing materials of the adjacent buildings -mostly stone- where also its lightness is juxtaposed with the heaviness of the solid structures (for instance in Napoli but also in Milano).

7. Design as a tool. The use of geometry, sculptural shapes, for the design of objects like benches, and waste baskets alludes to a certain minimalism which becomes a statement in terms of design specially when addressed in conjunction with lighting and a concept for cleanliness and the validity of combining artistic values with more utilitarian ones that may belong to the industry (I´ve got good pictures of all of this I´m writing about to eventually support the arguments made).

8. Sense of place. In the specific case for the Napoli´s underground stations there´s a strong evidence of the intention of creating spaces -the very objective of architecture- that are not only well defined but also useful and meaningful, giving people a sense of place.

9. Thoughtfulness. The subtlety of some subliminal messages through design features like lettering alluding to urgent and relevant components of our immediate reality sustain the principles behind the design concepts when alluding to some reflections about themes that are critical for our contemporary world.

10. Comprehensive continuity. The ability to continue the artistic discourse outdoors gives continuity and coherence to the whole idea while signing accordingly the presence in the city. This becomes a particularly clever way of understanding design, history and urban landscape as a whole, which is achieved in a masterly way in Naples (Salvatore Rosa Station) by incorporating the explanation about the archaeological features of the place.

Since the contemporary city feeds and nourishes itself with creativity, offering infinite ideas of vision and knowledge, which are concretized in the design of the architectural place, if the technician uses the creative composition as a tool for the design, the user uses the creative perception as an innovative tool of relationship and interaction with the urban landscape. Architecture thus becomes an inexhaustible source of stimuli that vary infinitely. (Hui et al, 2008)

Acknowledgement

The contribution is a result of many years of scientific collaboration between the two authors on the themes of the relationship between art and architecture. In particular: A. Violano is the author of: Art-Architecture in the Naples underground. J. C. Perez-Hernandez is the author of: Ten golden rules to increase cultural benefits.

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Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp. 53 - 63

Recycling the existing city: improved mobility and possible scenarios of public space

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Abstract

As cities around the world continue to grow and attract population and productive activities, a silent revolution invests the question "mobility". The demand for better sustainability of transformations and the right of all citizens to have access to the services and benefits that, in general, urban concentrations offer will produce a new way of interpreting the public space, progressively subtracted from traffic and the private vehicles. The role of public transport is crucial to supporting this process; the ability to make it free in European cities can be a decisive choice. If well managed, cities offer important opportunities for economic development and they enhance the access to basic services including health and education for a large number of people providing public transport, as well as housing, energy, water and sanitation for any urban population with a good level of population density. This is generally cheaper and less harmful to the environment than providing a similar level of services to a scattered rural or urban population. The new recycling culture is gaining importance in the new system of reasoning on the cities since these parts have been dropped in their original use and they have adapted to new types of life. If until now it was a matter of imagining the re-use of industrial areas, parts of infrastructures and out of date buildings, today the awareness is emerging on a greater complexity of the theme and, above all, of its ubiquity.

Keywords: Improvement of collective mobility, Recycling of road space, Renewed pedestrianity

1. The cities are the most populated part of the world

The part of the world population that lives in cities became the majority for the first time between 2005 and 2008. This trend will continue to lead the growing population into urban concentrations and so by 2050 it is expected that at least 65% of the total population will live in urban areas. This scenario will not only affect the expansion of the developed cities and megalopolises such as Tokyo but also the developing world. The causes of this growing pressure on urban areas are varied and mainly related to the lack of territorial infrastructures in ensuring rapid access to urbanized areas with the greatest concentration of services. The cities have the ability to attract the populations in basis of their size and concentration of people and activities. Generally, nowadays, almost half of the 3.9 billion urban inhabitants of the world live in relatively small cities with fewer than 500,000 inhabitants, while only about one in eight lives in 28 megacities with 10 million inhabitants or more. Cities with less than one million inhabitants are those with the highest growth rate.
Above all, there is a certain concern in which great attentions should be given, at least on the national level, to the need for territorial policies able to keep the distribution and the size of urban centers under control.
In Western Europe there is plenty of valuable historical examples on controlling land use and settlements development together with the infrastructural system. However, it must be recognized that in this regard, the policies implemented by the United Kingdom have been particularly important and fruitful. In the wake of thinkers such as Ebenezer Howard (the father the Garden City concept) and his experiments in building two new towns (Letchworth and Welwin) between the years 10 and 20 of the last century. In London district (Benevolo, 1985), first with the Greater London Plan of 1943 (signed by Sir Patrick Abercrombie) (EJ & Goldfinger, 1945) and then with the complex and lasting political life of the New Towns. This country has created a great constellation of new cities throughout the national territory which are embodied an equally important infrastructure system. The first outcome was controlling the expansion rates of the capital and above all of the urbanizations with low and very low population density (50/60 ab / ha) on the national level, it has been possible to avoid the large displacements of the population that would have inevitably produced the abandonment of entire regions and the decay of local economies.

It is an important issue since the progression of urbanization process in the last decades has followed the distribution of the communication networks by the widespread expansion of a low-density settlement on the territory, which made it objectively difficult to recognize the limits of a city with traditional meaning. There is no need to look at the great urbanizations of Tokyo, Shanghai or Lagos to be impressed by the phenomenon, it is even in Italy, in the triangle of Bologna-Turin-Venice, in which most of the national population are now resided, over 30,000.000 persons. The extension of these urban

regions suggests how the theme of mobility is important (already today) and to what extent will be the demand for new collective services for the future and the problems that will affect the issues of environmental quality and forms of urban governance. The 2014 Revision of World Urbanization perspectives has provided new and updated information on global urbanization trends and the growth of the city (UN, 2014). Such information has a vital importance in defining political priorities to promote inclusive, fair and sustainable development for urban and rural areas. This version of this report has recognized the importance of small towns and villages also it has expanded the number of cities and predicts, for the first time, the population estimates and projections for all urban settlements in the world with 300,000 inhabitants or more in 2014. In this important monitoring has recognized that the most interesting urban dimension, especially in relation to the management of services of immediate utility (such as local public transport), will increasingly be those of medium and small cities, even if they are included as basic units in large metropolitan systems.

For many researchers, the role of the medium-sized cities (below one million inhabitants, and above all those with a population of around 500,000) will remain very important and they will have a real driving force, such as centers of culture, innovation and work.

"The management of urban areas has become one of the most important challenges of the development of the 21st century. Our success or failure on constructing sustainable cities will be an important factor in the success of the post-2015 UN development program", declared John Wilmoth, Director of the Population Division of the United Nations Department of Economic and Social Affairs.

If well managed, cities offer important opportunities for economic development and they enhance the access to basic services including health and education for a large number of people providing public transport, as well as housing, energy, water and sanitation for any urban population with a good level of population density. This is generally cheaper and less harmful to the environment than providing a similar level of services to a scattered rural or urban population.

2. Cities are places of innovation

Urban history shows that cities are places of innovation. These are the places where new economic ideas become a reality where diverse groups of people learn to coexist as neighbors and where democratic experiments emerge to make way for previously excluded social groups to be included as real decision-makers. The high density of people in the cities encourage economic growth through better sharing, adaptation and learning, and as Alfred Marshal wrote already at the end of the nineteenth century, only the pure concentration of people leads to new ideas because "the ideas are in the air". People are different but housing density improves the coexistence of groups of different religions, nationalities, ethnicities and sexual orientations to live and work side by side and in doing so they know "the other" which leads to a global respect for diversity.

These preliminary considerations have completely outlined new urban problems which had never previously belonged to the city's history and culture. The new key words of the studies and proposals (but now also in most part of the policy) are: the sustainability of transformations, preventing pollution, controlling the land use, reusing and redeveloping urban areas. In recent years, a more precise definition of reuse and recovery has been affirmed among researchers: that of urban recycling. After the heavy industry crisis of the seventies, the greater awareness of the urban metabolism processes has spread which produces, like every living organism, remaining parts in which are useful to give new life. The new recycling culture is gaining importance in the new system of reasoning on the cities since these parts have been dropped in their original use and they have adapted to new types of life. If until now it was a matter of imagining the re-use of industrial areas, parts of infrastructures and out of date buildings, today the awareness is emerging on a greater complexity of the theme and, above all, of its ubiquity.

3. Need for new urban models

In the field of mobility, we are observing a deep and silent revolution that will soon overwhelm all traditional approaches to urban planning and planning processes. New models of urban planning are appearing in regards to the changes in the way they move. The growing demand for high quality mass transport is associated with the prospect of an upcoming and rapid decline in private transport, the increasing need to more sustainable and less polluting system which is associated with the need to recover spaces closer to the dimension of living and social life to help the residents in moving around the city. Naturally the dynamics are not the same for all the cities and it is always necessary to consider different environmental, social and political conditions.

A referendum conducted in Tallinn in 2010 introduced free public transport for residents in 2013. Referring to Italy a very different situation was described which is especially characterized by significant differences between north and south. The effects of the growth of this new awareness and the confirmation of the right to live better in our urban realities will affect all parts of our cities and not just some cases.
Interesting conferences have been promoted by various national associations and by some local administrations in Italy. They have had the aim of involving and raising the awareness of the public administrations to adopt “real” measures to change the paradigm and to promote more efficient and less impactful mobility, with many evidences and reflections for a strategy of sharing and redesigning urban space. The recovery targeted the areas to be taken from roads or deteriorated zones and redesigning them in terms of urban quality and the “active” mobility of people, in fact it strengthens the success and acceptance of other traffic management policies. The quality of the design of networks and mobility services, conscious to their integration into the urban landscape, can

contribute to urban regeneration. There has been a talk of new Urban Mobility Plans, of accessible cities for children and girls, of traffic moderation, of redevelopment of mobility in industrial districts, of transport infrastructures quality. From this and many other similar initiatives emerges the need to formulate not only new hypotheses for the governance of mobility but also that of revising the forms and functions of existing urban public spaces.

4. Rethinking urban transport

Private transportation in the city is experiencing a crisis that in many ways appears irreversible. It is not just a matter of replacing the traditional thermal engines of electric cars (perhaps better with the hybrid, at least in the short-medium term) but of understanding that policies of a strong containment of private mobility will soon emerge. The programmatic decisions of entire states such as the Netherlands and Sweden, although still to be consolidated with definitive measures, indicate a completely new path that will not only progressively stop the cars from invading every public space but allow us to glimpse a new way of conceiving the urban redevelopment. From the 90s onwards, experiments have multiplied for new types of buildings and urban ones that are able to be smarter. For the buildings it was a matter of pursuing forms of sustainability, above all energy, and for the efficiency of the waste and water cycle; for urban spaces, experimentation has also involved more complex issues such as the reduction or elimination of vehicular traffic and, above all, new ways of interpreting public space (Wright, 2005).

The cases with adequate outcomes are now many, on different levels and certainly important for their contribution on giving a new culture to the city: from Laguna, in Brazil to Varese, in Italy; from Amsterdam to Cairo, from Dubai to Màlaga. Wildpoldsried, in southern Bavaria, currently produces 500% more energy than it needs through renewable energy systems and it sells the excess energy to the electricity grid. A success is not without challenges but supported by smart grids. At Nottingham Trent University Congress Center in the United Kingdom, the administrations of nine cities met to sign a new manifest of cooperation. The signature has closed the collaboration that is already a reality within the Lighthouse community; however, the manifest represents another important step in the European Union's efforts to optimize project results and to ensure that they are replicable models even outside the test field. The need to coordinate a team of nine leads to the concept of REMOURBAN: Regeneration MOdel for accelerating the smart URBAN transformation. Project aimed at reducing network dependency and emissions especially in the cities of Nottingham (RU), Valladolid (Spain) and Tepebasi (Turkey) and others. The keyword of REMOURBAN is *regeneration*, a concept that is expressed through a series of specific measures designed for the three realities. The partners are looking forward achieving the following results: to reduce the domestic

energy consumption up to 50%, to increase the share of renewable sources up to 50% reaching an exclusive use of renewable sources for thermal consumption and decreasing the energy waste in transport, to use electric vehicles and to reduce the time spent on urban journeys by 15% thanks to the improvement of public transport. In these three cities more than 190 electric vehicles have already been introduced (including public and private cars) coupled with the necessary recharging points, and 900 apartments (over 63,000 m^2 of surface area) have been upgraded from an energy point of view.

Even today, the European level does not have a specific fund dedicated to smart cities but several possibilities for an access to different types of loans. In addition to the programs of individual Member States that are based on the integration of national resources and structural funds (ERDF, ESF, FESR), there are directly managed European funds that can finance particular aspects of a smart city, such as Horizon 2020, the Mechanism for connect Europe, the Cosme and Life programs.
European grants can intervene in three areas: infrastructure and urban development; supporting cooperation and capacity building; supporting research, innovation and competitiveness.

5. Special features of the European city

Despite the fact that the experiments which have also represented important advances, both technically and scientifically, as well as that of administrative policies, they do not take into account a true relationship with the nature of cities - especially the European ones - with their historical sedimentation, with their organizational, spatial and social form. Until we recognize that a true sustainable development of our cities can not relate to individual buildings or even building complexes but must address entire urban systems, considering all the complexity, it will remain very difficult to start significant renewal processes of our cities.
We cannot imagine making a clean sweep of the existing urban environment to produce a new set-up even though smart. It is necessary to accept the idea that the building cycles and the urban complexity of European cities are linked to dynamics of transformation in which the relationship with history and with the protection of private law is always important.
The urban renewal policies implemented in many countries try to trigger building replacement processes, focusing primarily on greater safety and energy efficiency but deep regeneration processes of existing urban fabrics will increasingly attribute the importance of using public space in a different way, starting from what is there. The neighborhoods of our cities are experiencing awful difficulty in finding space for social, recreational and other mobility activities: recovery and redevelopment of public space

cannot be separated from a substantial reform of urban mobility, especially in local territory.

The exponential growth in the mode of transport, both public and private, has highlighted the failure of the existing road network to satisfy traffic flows and the difficulty in controlling the consequent atmospheric pollution for some time. Traffic issues are even more severe in historic urban landscapes since its shape has not been designed for vehicles. As Pierluigi Spadolini recalled, as early as the beginning of the 1990s, the problem is not only linked to pollution but also to the serious alteration of the sense of collective space and its overwhelming decline, in a substantially rigid context. This decline, together with pollution, triggers phenomena of serious environmental degradation. The transport policies of the past, designed to maximize the demand for traffic and parking, have weaken slow mobility (pedestrians and bicycles) and led to the formulation of rules aimed at separating the functions rather than integrating them. In this process, public spaces have become fragments of specialized and hierarchical mobility, congested by vehicular traffic, polluted, unsafe and uninhabitable for the pedestrian.

In order to solve the congestion of the historical urban landscape due to the vehicular traffic, which is also detrimental to the cultural heritage because of the induced vibes as well as the devastating pollution, the Administrations have taken some measures. In particular, they have worked to prevent the transit and stop of vehicles by placing different kinds of bollards; to protect the pedestrian from road accidents by creating lifesaving islands and pedestrian crossings; to promote the vehicle movements by transforming the city gates in roundabouts. These solutions, often chosen by product catalogs valid for any part of the city and placed according to motives that correspond only to the Highway Code as highlighted by Bruno Gabrielli in 2015, they are not always compatible with the identity of the places and most of the time represent an obstacle to the usability and accessibility of public spaces.
Already in 1991 Pierluigi Spadolini proposed to think of the different parts of the urban landscape as “city districts”, which are self-sufficient citizens’ nucleuses having such a dimension to be walkable, and intending in each of them: to increase the pedestrian network to allow citizens to weave relationships; to implement public transport in order to facilitate both internal and external movements; to identify a system of parking areas located in perimeter zones of urban areas (and in any case not interfering with neighborhood life) to reduce the use of the private vehicle.

The proposal by P. Spadolini anticipated the contemporary people-oriented policies. Many cities have tried to encourage the use of public space, minimizing the movement of motor vehicles and encouraging green mobility sharing (car sharing, bike sharing, etc.).
Today, almost all historical urban landscapes have identified Limited Traffic Zones or pedestrian areas and in very large urban areas there are even rules like moving with alternate number plates and circulating with specific vehicles. In some cases, the subsoil

was used to cover the road infrastructures, incompatible with the character of the places located on the surface: this is the case, for example, of the redevelopment of Lyon square in order to include the underground parking or covering of a long stretch of the Madrid ring road to recover the environmental value of the park along the Rio Manzanares.

6. Pedestrianization and urban regeneration

Pedestrianization programs have recently experienced a significant increase in attention in the urban landscape (historical and non-historical), leading many administrations to expand the existing pedestrian areas and to make the public spaces more accessible to pedestrians and bicycles, with gaining advantages such as decreasing traffic and noise and atmospheric pollution. The project "Back in the Center" proposed by the Administration of Bologna seeks to solve the problems related to accessibility and livability of some public spaces located in the city center through interventions focused on the pedestrian.
But at the same time in recent years there have been multiple interventions for the recovery and redevelopment of parts of the ordinary road system and its nodes: interventions almost always generated starting from annihilated or degraded infrastructures (or parts of them), which, however, showed their ability not only to provide the neighborhoods with more suitable spaces to social life but also, more generally, to trigger effective processes of real estate development. To make an effective project of pedestrianization, however, it is not enough to prevent the transit of cars but it is necessary to study the relationship with the mobility system, in order to facilitate access to the pedestrian area through appropriate parking areas located near the area itself, as well to increase the public transport to be used as an alternative to private ones and to create several routes for the different user groups based on the current services.
In this sense, the "Siena parking" project has been launched. The project has built about seven hundred parking spaces on the surface along some of the main roads near the historic core and over four thousand parking spaces located in strategic points of the city. Rest areas include: differentiated rates depending on whether they are located in a built structure or flat; reception areas for tourist buses; digital and IT technologies to update the user in real time on free / occupied places and facilitate payment (pre-paid card).

The fight to control pollution will be through progressive exclusion of traditional thermal engine cars, car-sharing and bike-sharing, expansion of the slow-mobility circuit; these are measures that must be supported by policies to substantially improve local public transport and contain parking for private vehicles on city streets. In this regard, in Italian cities, it will be necessary to proceed step by step, focusing on the average period (5-10 years) to reduce free parking and to encourage the construction of collective parking lots, especially in the neighborhood.

In this phase, the introduction of free public transport can be effective, even in support of political action.

7. Reforming public transport

As it is clear from official data, the use of public transport in our cities is completely secondary, especially if the larger cities are excluded. Urban and district mobility is essentially assigned to the private vehicle. The reasons are varied and ranging from a cultural bias which consider moving by car is the best mode of transportation that guarantees greater freedom and security, to the general distrust of the public transport, considered unreliable and excessively expensive. The result is that, in addition to environmental damage and the continuous occupation of every part of the public space, in Italy the commercial speed is the lowest in Europe - in terms of urban and interurban - with the consequence of the greater cost of transport, both for people and goods.
Without going into details of this information, widely documented by studies, researches and censuses (Istat, 2015), it is quite clear that making a serious assessment on the cost of a policy of growth of public transport and of its improvement is not only concerning the transport costs and tickets prices but specific variables need to be included in such policies. The social cost derived from the current system is too high, both in terms of environmental damage (with its consequences in terms of health), and energy waste (the need to move 40/50 vehicles is much larger than what is used to move a bus or a tram), both for social problems (the inability to live and play in the streets due to the invasion of cars) and for the injustice to the weaker sections of the urban population whose right of moving is limited or prevented due to the high costs of transportation (including public transport) or its low quality (long travel times, unreliability of schedules, inconvenient and uncomfortable and obsolete vehicles).

8. Possible new urban scenarios, the recycling of road spaces

The changes in the way of moving and transporting in urban areas shall therefore be followed by a substantial transformation of the connective space: that of the current viability, in the first place. It is a matter of heritage which is as big as it is underestimated, to which currently corresponds one of the main financial commitments of local administrations to meet the needs of adaptation and maintenance. Excluding the oldest urban fabric, in our cities the endowment of road surface area is excessively wide and almost double compared to the area occupied in the urban areas better governed and built with attention and correct definition of infrastructure. The reasons for these high-cost expenses are to be found, above all, through the disorder in expansive phases, but also in the common belief that the roads should in any case serve also as parking for private vehicles. The urban morphology that we have generated, especially from the late 1940s

to the present, can only be changed in a medium-long time (between 20 and 50 years) and with continuous and careful planning, supported by policies of forward-looking regeneration.
Researchers and groups of scholars are engaged in our Schools of Architecture at "G. d'Annunzio University" to work on the future of these spaces. And this could be a key solution by creating a comprehensive theme for the future of our cities; a scientifically relevant topic both for the fact of covering large parts of the current urban territories, and for the widespread interest of the population.

A Community measure to support policies that encourage the use of local public transport also for free of charge modes should become a subject for scientific research and should be supported by their results: However, they should be aware of the multiplicity of different urban and territorial characteristics in order to create a progressive urban design scenario.
In the Department of Architecture at "G. d'Annunzio" University, we applied this vision through by selecting specific context in the city of Pescara, particularly interesting for the size of its conurbation (500.000 ab ca.), for its peculiar topography of hills and flat land and for the morphological variety. We have simulated a program in which the structure of some reference neighborhoods was kept unchanged in order to predict the progressive release of the road system from private cars; a partial reform of the modes of public transport; the construction of some parking islands; the transformation of roadways, nodes and traditional parking areas into spaces for collective neighborhood life and for the definition of new networks of general slow mobility. The interest of the study derives above all from the possibility of planning a deep transformation of functionality and urban quality in relation to an ordinary commitment of public finances.
It is precisely on the improving and innovating public transport systems that local administrations, especially in central and southern cities, need to be supported in a meaningful way and this support must be achieved by an adequate methodology that is capable to put together the large number of variables involved in order to measure the correct ratio between costs to be incurred and benefits to be achieved.

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Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp. 65 - 72

New Urban Quality of via Sopramuro: metamorphic pattern of a technological design

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Abstract

This contribution presents the results of a technological reading, aimed to offer a methodological approach to each phase of the transformation process, in historical context via Sopramuro in Pendino neighbourhood in Naples. The technological project follows the sustainable design principles especially related to the sources saving and supplies to no-quality urban space the use of appropriate technology as added value. So technological progress as close connection between present lifestyles and historical context.

Keyword: Saving of Resources, Historical Context, Appropriate Technological Solutions, Harvesting Rainwater.

1. An important trajectory of Naples urban development

Naples' economic and commercial impulse has an explicit historical evidence in its market places, toponomy and in the available iconographic views.
This commercial flair of the City, has marked most of the urban system in time, since the traders' home were built up their shop and vice versa. And in so doing for whole neighbourhood, the aptitude of the city entered in urban pattern, becoming a distinctiveness and offering typical smell, colours and folklore, mainly in proximity to the access roads to the city.
This alternation between production/handicraft and sale-inhabitation has characterized the urban space living.
Some of this spaces lost the main role of urban protagonists after the opening of big commercial chains and malls, resulting in their increasing abandonment and environmental degradation.
Living and environmental protection are the fundamental needs that the actual construction and urban redevelopment strategies seek to answer (Violano and Buanne, 2017).
The technological project developed for the urban regeneration of Porta Nolana was divided in the following steps, which represent its experimental and research approach: Explorative and sensitive knowledge of the places, gathering the dimensional and spatial information and, also, suggestions and perceptions raised by the place's folkloric atmosphere; graphical representation and urban environment relief maps elaboration, focusing mainly on the permanent relation between living/working/travelling; analysis of expressed and unexpressed needs, targeting a better liveability and usability of the area; development of a technological project and a qualitative verification of its feasibility.
The evalutation of the environmental comfort in open urban spaces was performed applying the analytical method of the RUROS research, this has highlited a relationtip between environmental parameters and microclimatic conditions like air temperature (Tair_met, °C), global solar radiation (Sol_met, $W.m^{-2}$), wind speed (V_met, $m.^{s-1}$) and relative humidity (RH_met, %), to define the Actual Sensation Vote (AVS), a people's thermal sensation model that evaluate the thermal comfort conditions in outdoor spaces, calculated by the matematic relation (1) (Violano and Buanne, 2017).

Fig 1_ Map extract from "*Historic Centre of Naples - inscribed minor boundary modification"* by http://whc.unesco.org/en/list/726/multiple=1&unique_number=1867

	SPRING	SUMMER	AUTUMN	WINTER	AVERAGE
AIR TEMPERATURE Tair_met (°C)	14	23	18	19	**16**
SOLAR RADIATION Sol_met ($W \cdot m^2$)	211,3	282,5	138,3	78,1	**177,55**
WIND SPEED V_met ($m \cdot s^{-1}$)	2,9	2,9	2,2	2,2	**2,55**
RELATIVE HUMIDITY RH_met (%)	71	70	74	75	**73**
ASV	**-0.34**	**0.16**	**-0.13**	**-0.62**	

Tab 1_ Average seasonal weather data for Naples Capodichino, useful for calculating the ASV

This information for Neapolitan climate was carried out with the data of the Military Air Force Military Service of Naples Capodichino Meteorological Station, as described below (Tab 1).
Then the AVS can be calculated employing in the following format, that was elaborated for European Country:

(1) $ASV = (0.0049 \cdot Tair\_met) + (0.001 \cdot Sol\_met) - (0.0051 \cdot V\_met) + (0.014 \cdot RH\_met) - 2.079$

From the calculation results that the comfort conditions of the area are quite discrete in all seasons for the outdoor sales activity, thus the Via Sopramuro urban revitalization design must not be a gentrification or homogenisation of traditional trade, but rather support and trying to make livable in the current users and environmental value scenarios.

SEASON	ASV	COMFORT	PERCENTAGE
SPRING	-0.34	0.65	65%
SUMMER	0.16	0.78	78%
AUTUMN	-0.13	0.70	70%
WINTER	-0.62	0.49	49%

Tab. 2. Percentage Values of Users in Comfort (ASV).

2. Within urban framework

The market place of Porta Nolana, in Via Sopramuro (Pendino neighborhood), is historically linked to the sale of food, mainly fish. In fact, starting from 1438, Ferrante d'Aragona promoted the expansion of the city walls and the development of a market-dedicated area near to the new city walls. This was possible thanks mostly to the proximity to the sea and to Porta Nolana, one of the gateways to the city.
This city block was shaped in alleys and squares, and that formed a system of urban market that is still present today.
The market place of Porta Nolana flourished so that it became a traditional mark of characteristic language where its direct and indirect users still identify themselves.
Nowadays, this area is a model of urban complexity, in Via Sopramuro (literally "street above the walls", meaning just outside the perimeter) in particular there are: historics elements, elements for the sale, high-density housing. They are all occurrences that coexist in the same space and constitute its characteristics. Via Sopramuro road has linear longitudinal development and on its curtain road there are advertising insignias, rainwater pipe, electric cables and merchandise in sales exposed.
Here the sale happens everyday, and exhibiting shop stands are opened on the road from early morning until late evening and they occupy the sidewalk and part of the carriageway, the consumers crowd, walk, watch and bargain in the middle of the road and they are drawing with colours, vibrant sounds, folkloristic atmosphere and prime quality products.
The co-existence of all these elements makes this street particularly complex, but heart of a local code marked with a strong identity.
As usually happens in the urban center most outer areas, this zone, despite the presence of important monuments such as Porta Nolana and the two side towers, once the daily market activity has ended, lays in a considerable, environmental and social degradation that is physiologic in similar zones.
Therefore it is hoped for a project that integrates the potential for urban comfort, and quality of the architectural environment.
The technological project can be improved them, setting itself up as integration process between present-day lifestyle and historical background.

3. The adaptive project that qualifies the urban space

Based on analysis carried out, the technological project, that was designed for specific conditions of fish sale, consists in the integration of water saving, aimed for the street cleaning when daily activity will be finished.
Water is a precious resource whose management must be geared towards avoiding waste. The historical role of water, which in this area of Naples washed the walls as natural protection, in the concept of this urban design evolves by flooding the streets to ensure cleanliness and health. The project uses water as a distinctive feature for the regeneration of the site, with the added value of being a recycled resource. The recovery and recycling of rainwater is pursued through three phases:

1. evaluation of feasibility of the system according to rainwater resources;
2. preparation of underground storage into place of use;
3. efficient allocation of resources for the street cleaning.

In order to verify the feasibility of the technological system, the determination of the need for water resource for the street cleaning was compared with that of the recoverable amount of the rainwater (water requirements).
The established water needs is 4600 litres a day and the rainwater supply is determined by water from monthly precipitation (the data are from the nearest weather station of Napoli Capodichino) and from rainwater that has accumulated in enhancing-surfaces on the rooftops of buildings of Via Sopramuro. The report sets out that it is possible to retrieve about 4200 litres a day from rainwater, therefore producing savings by more than 90% of resource.

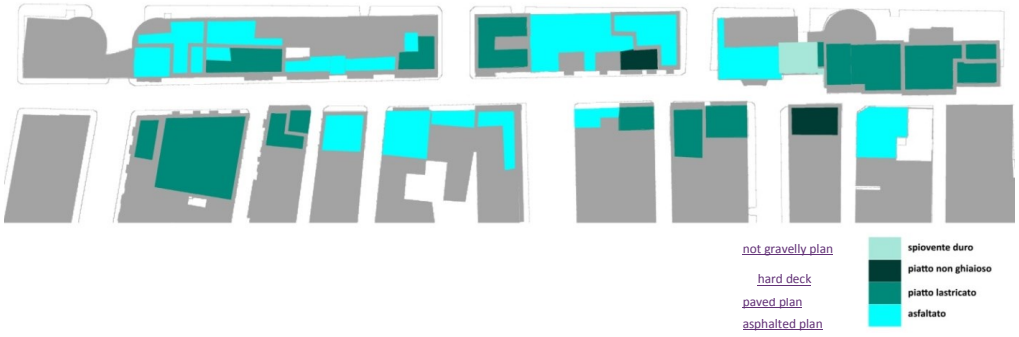

Fig 2_ Roofing plan of Via Sopramuro buildings. Evaluation of feasibility of the collector system.

The new street arrangement foreseen in the technological project arranges the road as it follows: reducing the actual dimensions from 6 metres each to 3 metres, in order to make easier the public access to the market; a diversification of the inclination paving percentage in two way: in the first section of standard inclination with a 2% slope and

1,20 metres long; the second one 1,80 metres long and with a 8% slope, to facilitate trade show products and the water flowing towards the sewage system for the cleaning street.
This new road section does not substantially modifies the commercial purpose of the area or the sensory perceptions that it raises in the user, but it allows to turn the use of a precious resource like water in a virtuous cycle of utilization, making the urban environment comfortable and performing for the particular market activity.
This harvesting rainwater cycle may be divided into three phases:

- the first consists in collecting rainwater by roofs; the water is filtered by remains and smells through the drain-trap, then it runs into the basin to be catched;
- the second consists in pumping up the water into the kerbstone of sidewalk with a 2% slope; water is further filtered into collection sump that is stored on the street by sidewalk;
- the third consists in washing, following the slope of the road and in the end, water is channelled into the sewers.

Therefore, this project, through rainwater rescuing and reusing, allows via Sopramuro to self-wash from the remaining part of market area and developing its economic activity. At the same time, the project restores the ancient street dignity and unity, highlighting the living and users' relation with the neighbourhood and its activities.

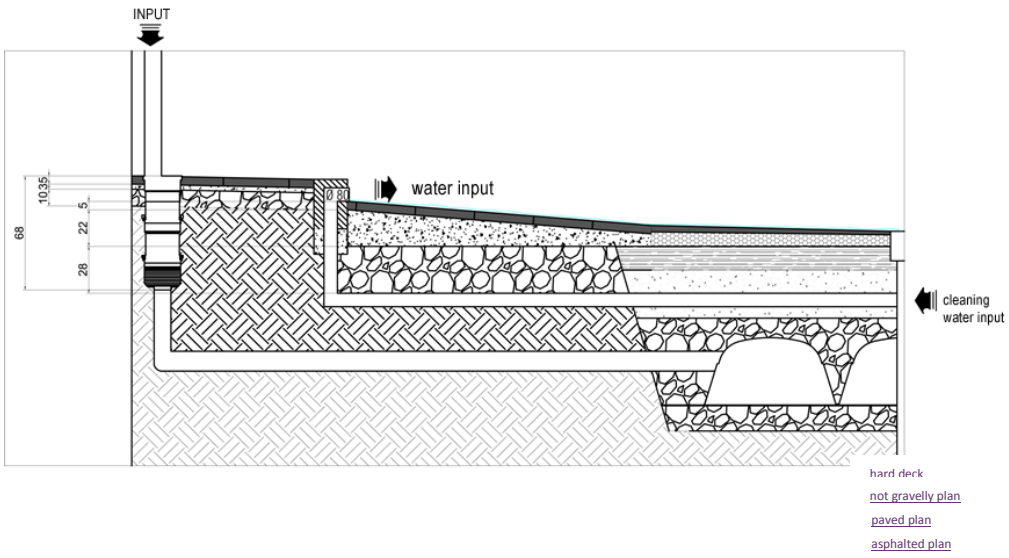

Fig 3_ Localization and water harvesting system.

4. Conclusion

The methodology applied for the technological project of Via Sopramuro regeneration offers a model of knowledge and systematization of sensitive information, in order to provide a lecture for a project proposal that truly integrates the cultural, social and environmental local issues and that doesn't impose a far removed from the context layout, but as an integrated and participated space reading. This places, in fact, so rich of identity, hardly acquire as their own a new space interpretation. Thanks to the presented methodology, it is possible to plan urban regeneration of open spaces in similar contexts.

Notes

[1] RUROS research published the results of an extended survey in seven European cities, Athens (GR), Thessaloniki (GR), Milan (IT), Friborg (CH), Kassel (D), Cambridge (UK) and Sheffield (UK) , with the aim of identifying the relationship between climatic factors and comfort indices in open space, in terms of thermal user satisfaction (ASV), and providing the designer with simpler complex assessment models.
Cfr. http://cordis.europa.eu/project/rcn/54204_it.html.

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Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp. 73 - 84

Daylighting and solar control in school environments

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Abstract

The use of natural light, especially in school buildings, takes on a central strategic role for the well-being of the direct users of these spaces and the control of energy lighting performance of buildings. On the other hand, solar radiation on transparent surfaces, if not controlled, can cause an increase in energy consumption during the summer season. The Research investigates the conditions of natural lighting and solar control of the "Andreozzi" State Technical Institute, located in Aversa, Campania [IT].

Parole chiave: Daylight, solar control, School buildings, UNI 10840.

1. Introduction

The control of solar radiation through a transparent envelope represents one of the most complex design elements above all in the Mediterranean countries. In fact, the glass surface plays the difficult role of mediation among contrasting needs: reducing infrared radiation in summertime, exploiting solar gains in wintertime and optimizing the lighting transmission all year round. In summer conditions the solar gains can represent even 70-80% of the overall energy requirement. The lack of control of such gains results not only in high consumptions of primary energy for summer cooling, but it specially influences thermo-hygrometric and visual comfort conditions negatively (Cannaviello, 2017).
In this context, it is necessary to individualize opportune parameters of design control for sizing, positioning and choice of transparent components, aiming at optimizing the relationship among building, thermal radiation and daylight.
The paper illustrates the results of a research carried out on a school building located in Aversa, Campania [IT], to assess the comfort conditions in the classroom, in terms of natural lighting and solar control, through some indicators derived from the current regulatory and legislative framework.

2. Designing with natural light

Daylighting is the controlled flow of natural light, direct sunlight, and diffused-skylight into a building, not only in order to reduce the electric lighting consume, but also to improve visual comfort, which can be defined as subjective perception of the suitability of lighting taking into account various factors including uniform illumination, optimal light levels, glare, contrast, correct colors.
For existing buildings, however, the size and orientation of the transparent components is already given and generally cannot be changed, but it is still necessary to analyze the performance of the existing window system, in relation to the characteristics of the room in which it is located, to verify whether they are met not only the requirements of energy efficiency, but also those of thermal and visual comfort.
“The design control of lights is, therefore, necessary for the implications it has got on other aspects related to the quality of the architectural space: natural light is energy and direct solar radiation carries a heat component, combined with the light component; existing rules establish that it must be monitored and controlled quantitatively for a proper energy balance; but it is also a condition of psycho – physical wellness and visual comfort, linked with the quality of the natural light ray entering in a confined space. […].(James Thurber)” (Violano, 2006).
This concept open a new way of reconsidering the light as one of factors decisive for the quality of life.

The negative reaction of people spending their lives in an environment, partially or wholly illuminated by the artificial light, without an appropriate control of natural light, lead to psychophysical illness, because light affects a large number of psychological and physiological processes to determine actual dysfunctions in case of insufficient quality and quantity, whose manifestations are: demotivation, internal lag caused by the lack of perception of the passing of time, depression, frequent headaches, eye fatigue and blood pressure issues.

Therefore, the control of natural lighting conditions is especially important in a school environment.

Latitude, place topography, orientation of building facades, weather conditions, natural and artificial obstacles and reflection rate of surrounding surfaces are the most important characteristics for the management of indoor natural light (Björkstén et al., 2009).

The amount of natural light depends in turn on geometrical characteristics of the space considered and openings outwards, presence of any external obstacle and characteristics of transparent components (mainly the percentage of light transmission value).

In addition to formal-perceptive and technical-physical evaluation of light aimed at defining the quantity and quality of natural and artificial light, interpretation of contemporary architecture offers us an alternative approach, morphological-space type, in which the light is one of the elements of project (Bosco and Muzzillo, 2005).

A research[1] carried out on school buildings in Campania, has highlighted the lack of an adequate lighting design, particularly with regard to natural lighting.

The main parameter used to assess the ability of the transparent building envelope to provide adequate natural lighting conditions is the "average daylight factor" (FLDm) . The DM. 5/7/75 (according to the Ministerial Decree of 5 July 1975, concerning the minimum height and the main hygienic-sanitary requirements of the living quarters) imposed a minimum value to be satisfied for residential buildings, equal to 2%. For school buildings have been established, by the standard UNI 10840: 2007 – "School premises - General criteria for artificial and natural lighting", higher minimum values.

The UNI/PdR 13:2015 standard on environmental sustainability in buildings, In area D, relating to indoor environmental quality, in relation to the visual comfort category, introduces the criterion: natural lighting. The performance indicator used to assess whether the requirement for natural lighting is met is the average daylight factor.

The calculation must be carried out for each room, in the absence of mobile shielding and considering only fixed shading, for each type of glass and room, according to the procedure described in Appendix A in standard UNI 10840.

[1]Research project: "Guidelines for the energy and functional requalification of school buildings in the Mediterranean area". Financed by the Campania Region pursuant to Regional Law no. 5 of 2002.

3.Technical Regulation UNI 10840

From a quantitative point of view, the lighting design for a school building must refer to the Standards UNI 10840: 2007.
The lighting requirements set out in the standard must meet three main requirements:

- visual comfort;
- visual performance, i.e. the possibility for users (students/workers) to carry out their activities, even in difficult conditions and over a long period of time;
- health safety, i.e. the guarantee that the lighting does not adversely affect the health conditions of the students.

The standard sets out the general criteria for the artificial and natural lighting of classrooms and other school buildings, which guarantee the general conditions for wellness and safety of students and other school users and establishes the minimum values of the average daylight factor [FLDm] for the different school environments. This value will be higher if the task to be carried out in a certain room is long lasting and requires greater visual effort. The regulation also states that the natural lighting should be used to the greatest extent possible in order to favor the psycho-physical well-being of the occupants and reduce energy consumption.
The windowed surfaces must fulfill the dual function of allowing visual contact with the outside environment and achieving a satisfying distribution of the luminance in the indoor environment.
Considering educational activities carried out using audiovisual media, windows must, in addition, be equipped with total dimming systems. As previously mentioned, the illumination is calculated using the FLD indicator.
It is a ratio, expressed as a percentage, between the internal [natural sources] and the external light, measured on a horizontal plane that sees the whole sky but is shielded from solar radiation:

$$FLD = \frac{E_{in}}{E_{out}}[\%] \qquad (1)$$

Performing this calculation requires knowledge of the geometry of the internal environment [*including transparent openings*] and of the urban surrounding [*buildings, obstacles of other nature*]. Daylight Factors recommended for different environments and visual tasks:

Type of building	**Environment**	**FLD**
School, University	Classroom	2%
	Laboratory	4%
	Offices	1%

Table 1- Daylight Factors for different type of buildings and environment –Source: Technical Regulation UNI 10840 "School buildings- General criteria for artificial and natural lighting"

We need the **FLDm**, *Medium Daylight Factor*, defined by the regulation on the type of activity, in order to calculate this factor within the school environment.

Type of environment, field of vision or activity Scolar building	***FLDm*(%)**
Middle School's Classrooms	≥3
Reading Rooms	≥3
Common Rooms and Auditorium	≥2

Table 2 - Minimum values of daylight factor in school premises - Source: Technical Regulation UNI 10840 "School buildings- General criteria for artificial and natural lighting"

we can use the formula referred to the simplified model of the environment in order to calculate the FLDm, reported in the standard:

$$\eta_m = \frac{(A_f \cdot t)}{(A_{tot} \cdot (1 - r_m))} \cdot \frac{E_{0v}}{E_0} \cdot \Psi \qquad (2)$$

Considering:

$$\varepsilon = \frac{E_{0v}}{E_0} \qquad (3)$$

we have:

$$\eta_m = \frac{(A_f \cdot t)}{(A_{tot} \cdot (1 - r_m))} \cdot \varepsilon \cdot \Psi \qquad (4)$$

in which:

E_{0v}= outdoor lighting of the vertical glass surface;
A_f= area of the window surface, excluding the frame;
t = glass light transmission factor;
ε = window factor, representative of the sky position from the window's center of gravity, equal to:

- 1,0 for horizontal window (skylight) without obstructions;
- 0,5 for vertical window without obstructions;
- < 0,5 for vertical windows with obstructions.

A_{tot}= total surface area of the environment delimitations;
r_m= average factor of reflection of surfaces of the environment delimitations;
Ψ= window factor reduction factor, obtained from the glass position and the wall thickness. It is obvious that a certain average daylight factor can change the perception of space by the observer.

4. Solar control of the transparent building envelope

In school buildings, the transparent envelope must also be designed with respect to solar control, especially in the Mediterranean area.
In the thermal balance of a building, in fact, in the summer season, the most significant energy contribution is represented by solar radiation.
In Italian school buildings, most of the environments and especially the classrooms have no summer air conditioning system. This means that the lack of control of the solar radiation entering the summer season, leads to overheating and negatively affects the thermal comfort, affecting the performance of the students.
To evaluate the solar energy that affects the glass surfaces of a building, it is necessary to know, hour by hour, the relative position of the sun with respect to the orientation and inclination of the windows. The value of the unit solar radiation depends on latitude, time of day, day of year and orientation.
To evaluate the amount of energy transmitted through a glass as a result of solar radiation, the most suitable indicator is the solar factor, a dimensionless quantity that identifies the ratio between the total flow of solar energy through the transparent surface and the flow incident on it.
D.M. 26/06/2015 Minimum requirements, implemented by Law 90/2013, which establishes the design constraints for nearly zero Energy Building, introduced a new parameter to evaluate the performance of the "window system". It is g_{gl+sh}total solar energy transmittance factor, which evaluates the combined performance of the glass with the possible mobile shielding system, calculated in July, when solar shielding is used. For important second level renovations and for energy rehabilitations, it is necessary to verify that for the transparent technical closures delimiting the air-conditioned volume outwards with orientation from East to West and South, the value of

the total solar transmission factor of the window component, when solar shielding is used $g_{gl+sh} \leqslant 0.35$ [1].

5. The Study Case of ITS Andreozzi

The ITS "Andreozzi", located on the northern outskirts of Aversa (CE) is the selected case of study. The building, which houses a technical high school, is developed on two floors.

Figure 1. The ITS "Andreozzi" of Aversa (CE)

The classrooms are displayed on the four main fronts, North – South – West - East.
The typical classroom measures 6.2 m x 6.35 m in plan, and the height is of 3,2 m.
The two adjacent windows are located on the only vertical outer wall and measure 2.16 m x 1.60 m each.

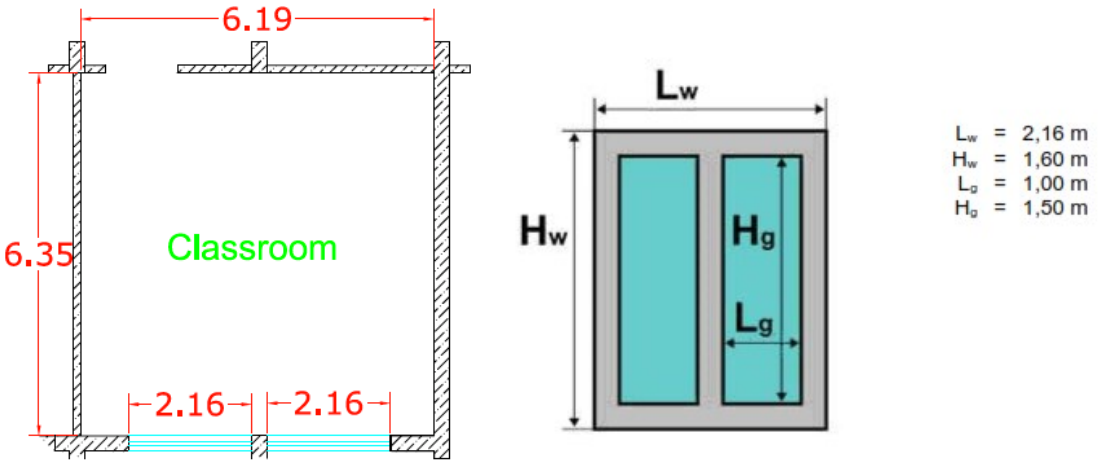

Figure 2. Typical classroom, plan and windows

The data used to calculate the average daylight factor for these classrooms are as follows:

A_f= area of window surface, excluding the frame: 6,0 (2,0 m x1,5 m x2) ;
t = 0,70 (typical clear, double-glazed, 4-12-4);
ε = 0,5 (vertical window without obstructions);
A_{tot}= 151,8 m^2(total surface area of the environment delimitations);

$r_m = \frac{\Sigma\, Si \bullet \rho i}{\Sigma\, Si} = 0{,}5$ (ρ = reflection factor)
Considering:

- light-coloured floor: ρ= 0,4
- upper floor with clear plaster: ρ= 0,6
- perimeter walls with medium-coloured plasterρ= 0,5

Ψ= 1.
Considering:

- p= wall thickness= 0,30 m
- h= window height = 1,6
- L= window length =2,16 m x 2= 4,32 m

L/p= 14,4 h/p = 5,3

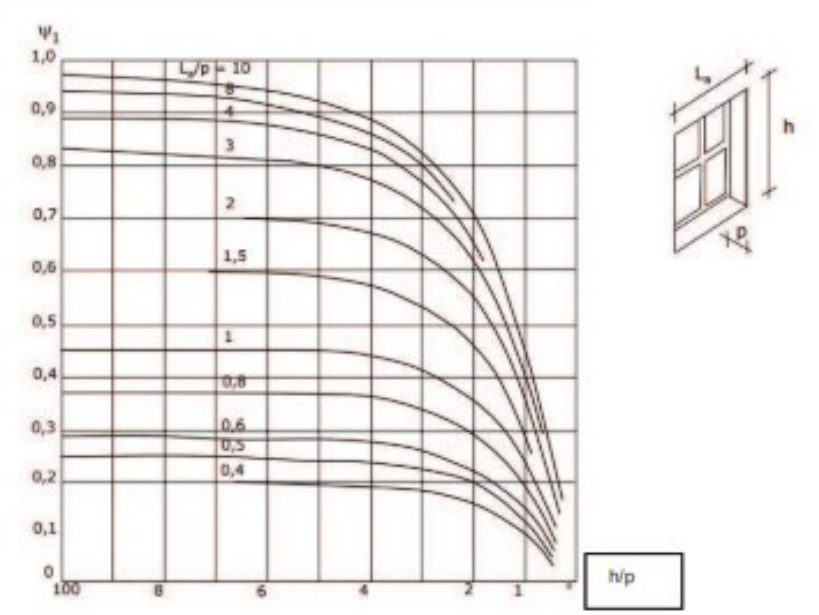

Figure 3. Vertical opening reduction factor - Ψ

So we have:

$$\eta_m = \frac{(6{,}0 \cdot 0{,}7 \cdot 0{,}5)}{(151{,}8 \cdot (1-0{,}5))} \cdot 1 \cdot 100 = 2{,}77\% \qquad (4)$$

The average daylight factor is therefore less than 3% (minimum value for classrooms and reading rooms set by the UNI 10840 standard). But this is not the only criticism found.

The classrooms analyzed have windows placed on one side only. This means that natural lighting decreases progressively as it moves away from the window.

Figure 4.One of the Classes with southern exposure

Other problems encountered, when analyzing (also through interviews with direct users) the conditions of visual and thermal comfort in the classroom, are those related to glare and summer overheating.

Glare is the visual sensation produced by surfaces of high luminance within the field of view and can be perceived as annoying (the direct one) or debilitating (the reflected one) glare. "In direct light areas, the sight clearly perceives the delineation of areas with higher luminance: it depends on margin (clearly distinguishable) and dimension (the larger the surface is directly illuminated, the greater the potential dazzle). The proper use of colours, materials and textures makes this physical condition an architectural quality perceived as static and immutable at time x and, on the other hand, variable and dynamic at different times of the day and in several months of the year." (Franchino and Violano, 2017).

In the classrooms analyzed, it was found that the glare caused by direct solar radiation entering through the windows, because they are completely free of external shielding and the internal ones are absent or not functioning. "The envelope, in its alternation of opacity and transparency, determines the quality of the internal space and the use of appropriate internal or external shielding systems can orient, filter and modify the flow of natural light." (Violano and Merola, 2018).

The energy performance of the window system in terms of solar control was verified using the Apollo 1 software[2]. This verification allowed to compare the performance of the window analyzed with the current regulatory standards set by the Ministerial Decree 26/06/2015.

[2] APOLLO is the software of the ANIT suite for the analysis of the transparent building envelope and for the control of the shading. The software is based on calculation models that comply with current standards and is aligned with the verification methods defined at national level by DM 26/6/2015.

The calculation carried out showed that the current window-system, consisting of a clear double glazing (4-6-4) without any type of shielding, does not meet the requirements of the law ($g_{gl+sh} \leqslant 0.35$), because $g_{gl+sh} = 0{,}743$.

Energy performance of the window				
	Geometrical data	**Thermal Trasmittance**	**Total solar transmittance**	**Total solar transmittance with shading**
Frame	A_f= 0,46	U_f= 7,00 W/m²K		
glazed surface	A_g= 3	U_g= 3,28 W/m²K		
glass-frame joint	L_g= 10	ψ_f= 0,02 W/mK		
TOTAL	**A_w= 3,46**	**U_w= 3,83W/m²K**	**g_{gl}= 0,743**	**g_{gl+sh}= 0,743**

Table 3 - Energy performance of the window in terms of thermal trasmittance and solar control

This causes significant problems of overheating, especially in the summer season, causing thermal discomfort.
The newspapers attached to the glass are a clear manifestation of need!

5. Conclusions

The use of natural light in school buildings is very important because it affects the visual comfort and performance of students and other users. It also affects energy consumption for artificial lighting. “Only in the event of a lack of natural light, the artificial light design must provide for the fulfilment of the requirements of uniformity, colour rendering and “colour temperature” close to the natural one, the luminous flux must be able to be regulated in direction and intensity, and must not be harmful to health (no fluorescent lamps) (Violano and Merola, 2018).
However, it is believed that the design of the window system cannot be done solely on the basis of natural lighting, but must also take into account the problems of solar control.
The research has shown that, although the average daylight factor is a useful parameter, it is not sufficient to assess the natural lighting conditions in a school environment.
In the case study analysed, not only is the average daylight factor not guaranteed, but the absence of shielding on the windows causes major problems in terms not only of glare but also of overheating.
Solar control is a very important aspect, which cannot be neglected, especially in a school building, and must be addressed together with natural lighting. The verification

of the solar factor of the window + shielding system can therefore be of support in planning the renovation intervention, and also allows to verify the compliance with legislative requirements.

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Housing Policies and Urban Economics Vol.7 (Dicembre 2017), pp. 85 - 92

SU[N]STAINABLE SYSTEM
Façade restoration and energy adaptation

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Abstract

The work presented is the result of research carried out on the occasion of participation in an international competition for the restoration and energy adaptation of the PAN-AM Building in New York held in 2016.
The concept of the intervention was based on two principles: the energy adaptation and the architectural respect of the original project. The architectural design of the project did not intend to change the division into three parts of the facade or to lose the formal continuity of the plans that define the geometry of the volumes. So, for this purpose, we sought (researched) a geometric / volumetric principle that could guarantee respect for this assumption and the creation of an energy-sustainable façade system.
Through the use of parametric procedures (grasshopper) the façade was divided into compositional units of different sizes but all included within the single compositional planes. The individual compositional units host the different technological solutions for the energy adaptation of the building.

Key words: architectural composition**,** sustainability, architectural restoration, energy saving.

1.Premise

In 2016, an international competition to redesign the external façade is banned from the property of the former PAN-AM building[1].
The design group[2] has set as a goal of its work the respect of the compositional principles applied in the original project, and the redesign of the facade necessary for energy adaptation.
The skyscraper, built in the sixties of the last century, was designed by Emery Roth & Sons and Pietro Belluschi whit advise from Walter Gropius.
The curtain wall system that expresses the unity of the three overlapping volumes that make up the building was inspired by the original principles of the project.
The challenge was: is it possible to combine energy efficiency with the architecture project? and is it possible to do this also in interventions on existing buildings? especially in buildings of particular architectural value?
So the theme was the search to combine technological needs with architectural composition.

2.The concept

From the energy point of view, we have assumed a vision that images a building that links together the "exposed areas" to the "shaded areas" through the concept of energy compensation, intended as a mutual aid relationship.
This leads to a reduction of energy dissipation and to a more uniform energy distribution, so that all indoor environments can experience a homogeneous comfort.
In fact, the system is currently unbalanced, in which the energy is not equally distributed: areas completely exposed to the sun are opposed to completely shaded areas. This leads to a higher energy consumption.
The working hypothesis, instead, wants to pursue a Responsive System that realizes an energy compensation in which the areas exposed to the sun "give support" to completely shaded areas. This is the principle of subsidiarity applied to architecture (Greefhorst and Proper, 2011).
Furthermore, in a balanced system, where the energy is equally distributed, the stanzas enjoy a more homogeneous and natural lighting comfort. This optimizes the overall energy consumption of the building.

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[1] METALS IN CONSTRUCTION MAGAZINE ***Reimagine a New York City Icon***

[2] Design Group: prof. arch. **Carlo Coppola** (Napoli) – *team leader*, arch. **Rosa Buonanno** - *architectural design* (SCIA Napoli), arch. **Vincenzo Nigro** - *architectural design* (SCIA Napoli), arch. **Giuseppe de Matteo Manzo** (SCIA Napoli) - *architectural design*, ing. **Adriano Brancaccio** – *structure* (New York), **Vidaris, Inc**. - *MEP system* (New York).

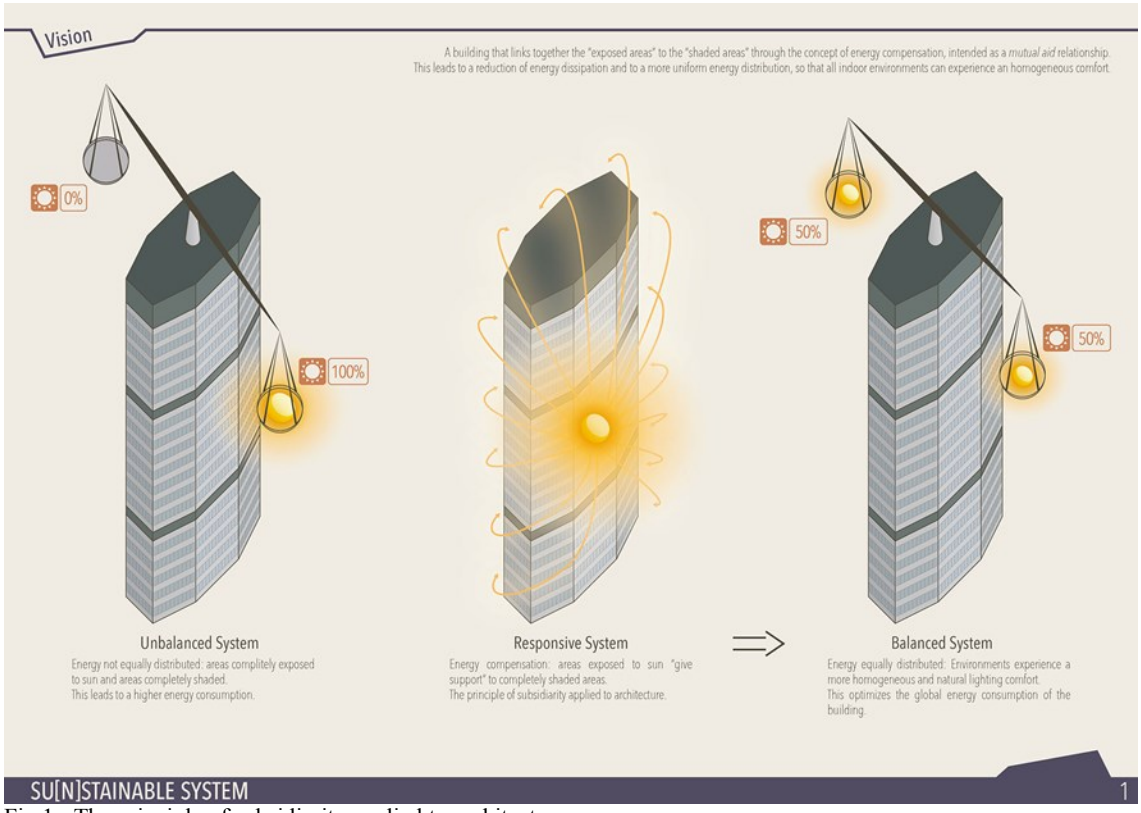

Fig.1 - The principle of subsidiarity applied to architecture

The concept is referred to:

- the Greenhouse Effect

This is one of the oldest and simplest energy saving systems (the Romans first applied this concept in their "hortus" to force the growth of certain kinds of plants). The solar greenhouse (passive thermal machine producing free thermal energy) is the space membrane that stands between the inside and the outside: the wide glass surfaces catch the solar energy and convey it inside the building, consequently improving its thermal and acoustic comfort.

- the Light amplification

The application of the physical principle of light reflection to increase natural indoor lighting production. (Franchino and Violano, 2017) Through this principle, light is reflected inside the building instead of being dissipated after hitting opaque surfaces. This leads to a consistent reduction of dissipated light and, at same time, higher comfort with no additional costs.

- the Light transmission

The least invasive system to efficiently carry the solar light into the blind inner areas: natural light is carried inside the building through optical fibers and spread over the rooms thanks to special devices.

- the Energy production (PV)

The active solar system that integrates with traditional passive systems, aiming to

achieve energy self-sufficiency of the building. (Gevorkian, 2016) The installation of PV panels allows the conversion of solar radiation into electric energy thanks to the photovoltaic effect. This is one of the best green energy systems as it does not produce any kind of pollution.

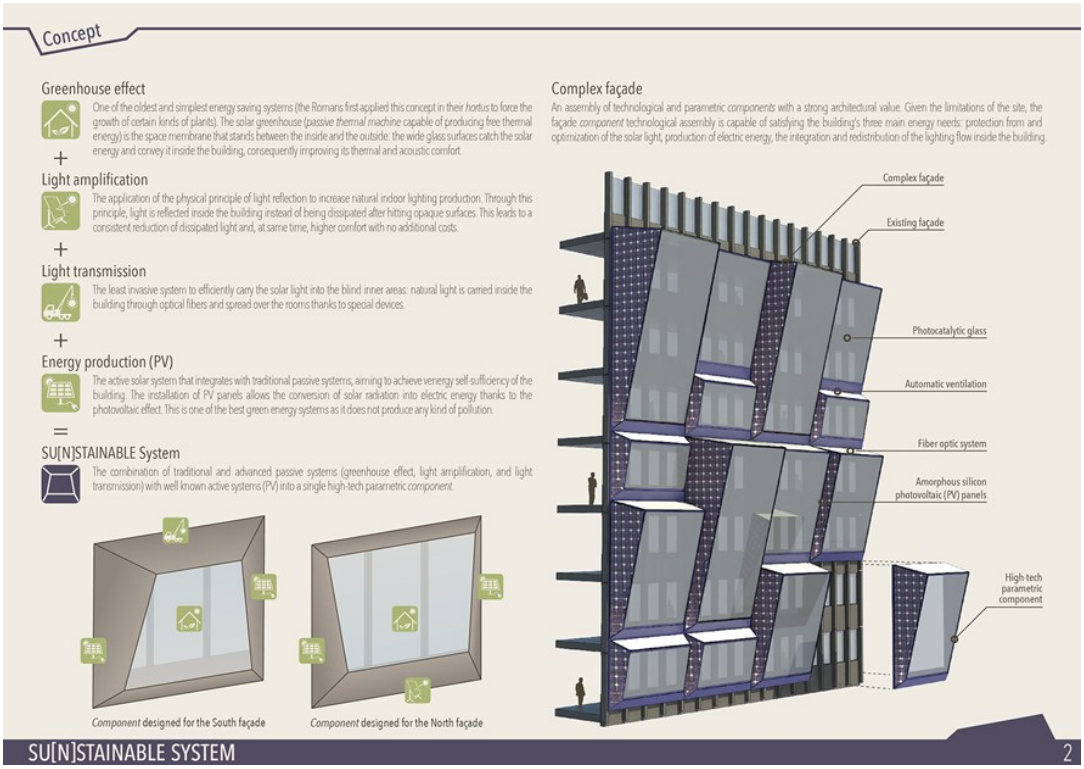

Fig. 2 – Complex façade system

The SU[N]STAINABLE System is a combination of traditional and advanced passive systems (greenhouse effect, light amplification, and light transmission) with active systems (PV) into a single high-tech parametric component.

The Complex façades formed assembling technological and parametric components with a strong architectural value. Given the limitations of the site, the façade component technological assembly meets the building's three main energy needs: protection from and optimization of the solar light, production of electric energy, the integration and redistribution of the lighting flow inside the building.

2.The Project

The adopted envelope solution is installed on the building as a double skin, allowing it to preserve its original sense of façade. Its design was based on three different types of elements that make up the pattern of the image and their apparently random distribution serves to give the surface a vibration of planes and lights such as to fit it more appropriately into the city of New York.

The elements adopted were designed using a generative algorithm (grasshopper) which distributed elements of different sizes over the entire surface of the façade. The algorithm allows to obtain many different equivalent solutions for elements distribution. The elements were chosen also for the optimization of relationship between the facade and the interior spaces that they delimited.

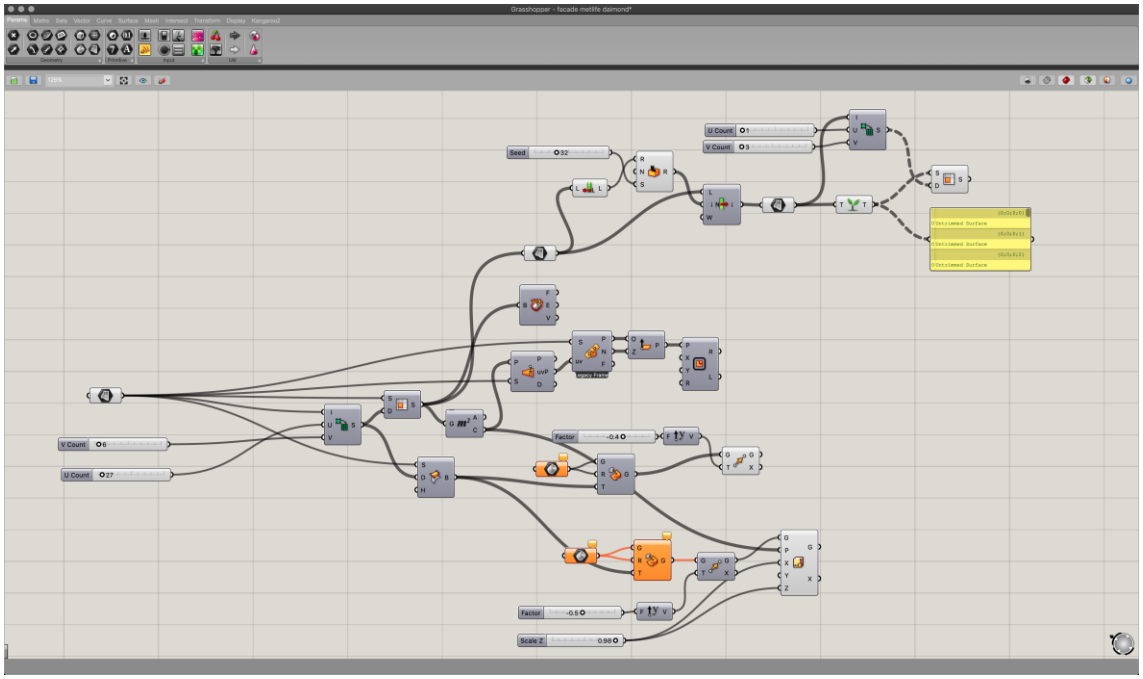

Fig. 3 – Grasshopper algorithm for façade system

The objective was to evaluate the different yields of the ecological addition elements on the façade according to the exposures and the need to enjoy the panorama from the various work areas.

This provides not only a consistent economic benefit, without disregarding the aesthetic, but also avoids annoying interferences with the ongoing building activities during construction.

It is not of minor importance the decision to use a single component capable simultaneously of producing energy, shading from sunlight and propagating natural light. Further, the shape of the component, although subjected to the aforementioned functional aspects, returns a new and strong architectural significance to the MetLife Building[3], while preserving its original spirit of composition.

The SU[N]STAINABLE System represents the combination of existing and well-known technologies with a static component perfectly compatible with the existing facade. Every single piece of the component is designed to be assembled on site to guarantee constructability and reduce costs of installation. Maintenance costs are also reduced thanks to the choice of passive and static components of bioclimatic architecture that do not employ any kinematic mechanism on the façade.

[3] MetLife is the new name of the Pan-Am building

The attached table shows a breakdown of the building's energy demand before and after the installation of the new façade. This calculation has been developed considering also potential upgrading interventions to the current and probably aged M.E.P.[4] systems of the building, as a crucial action to be performed during building energy renovation projects.
In the analysis of heating and cooling improvements, estimations of the new reduced U-values have been considered to reflect the presence of the new double-skin facade made of low emissivity glasses, steel metal trusses and insulated panels. Given that the characteristics of the existing M.E.P. systems and actual envelope are unknown, the numbers shown in the table are an estimation with an accuracy of likely 10-20%.
For the PV panels, applied only to the South façade of the building, a capacity of 15 Watt/sq.ft has been assumed.

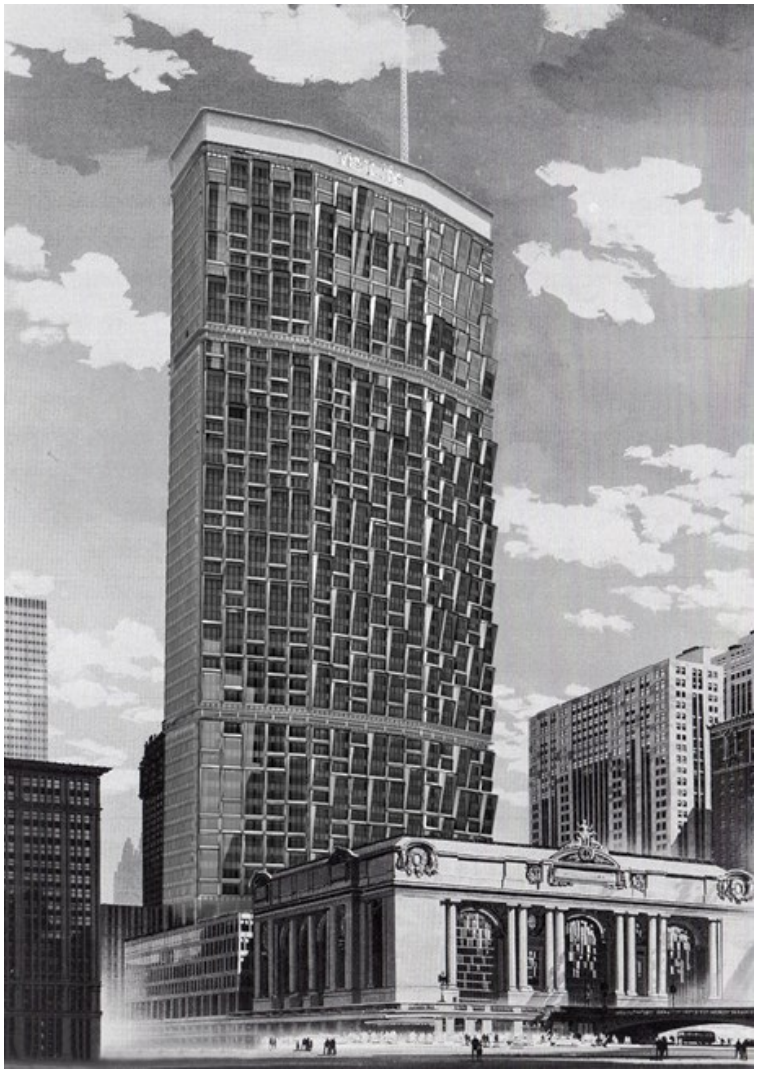

Fig. 4 – Architectural sketch by design team

[4] Mechanical, Electrical and Plumbing systems

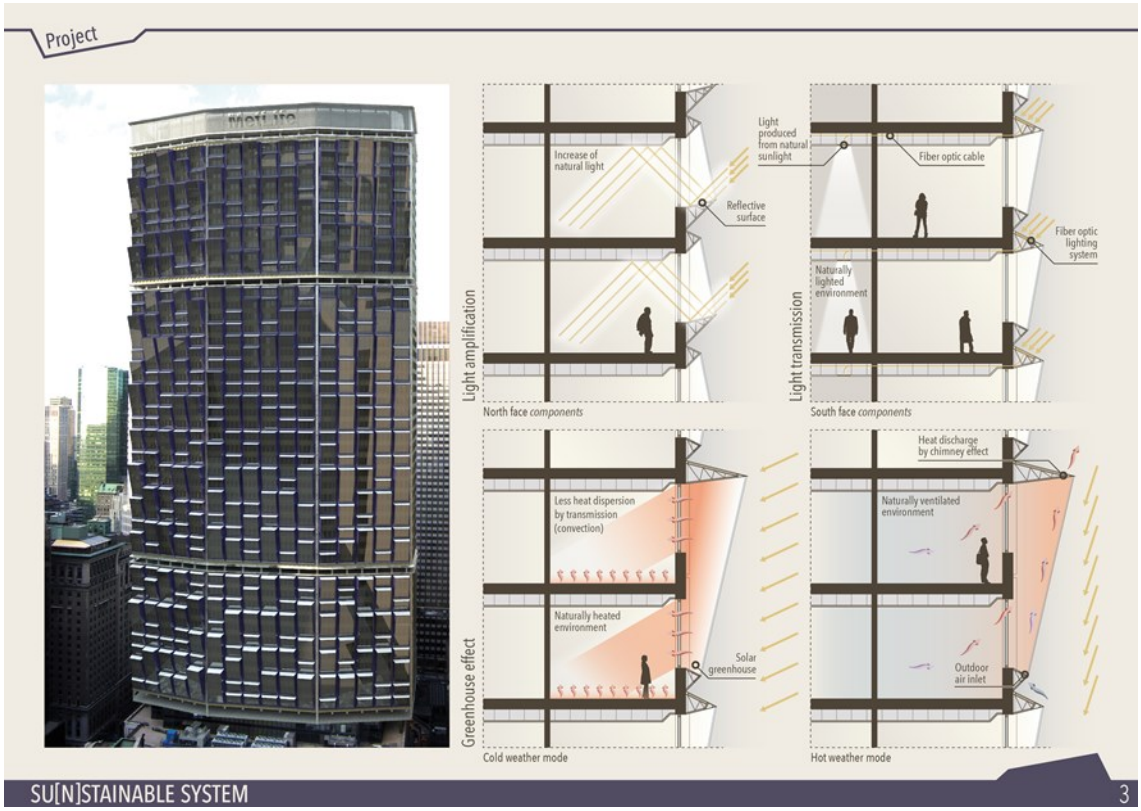

Fig. 5 - Greenhouse effect (competition table)

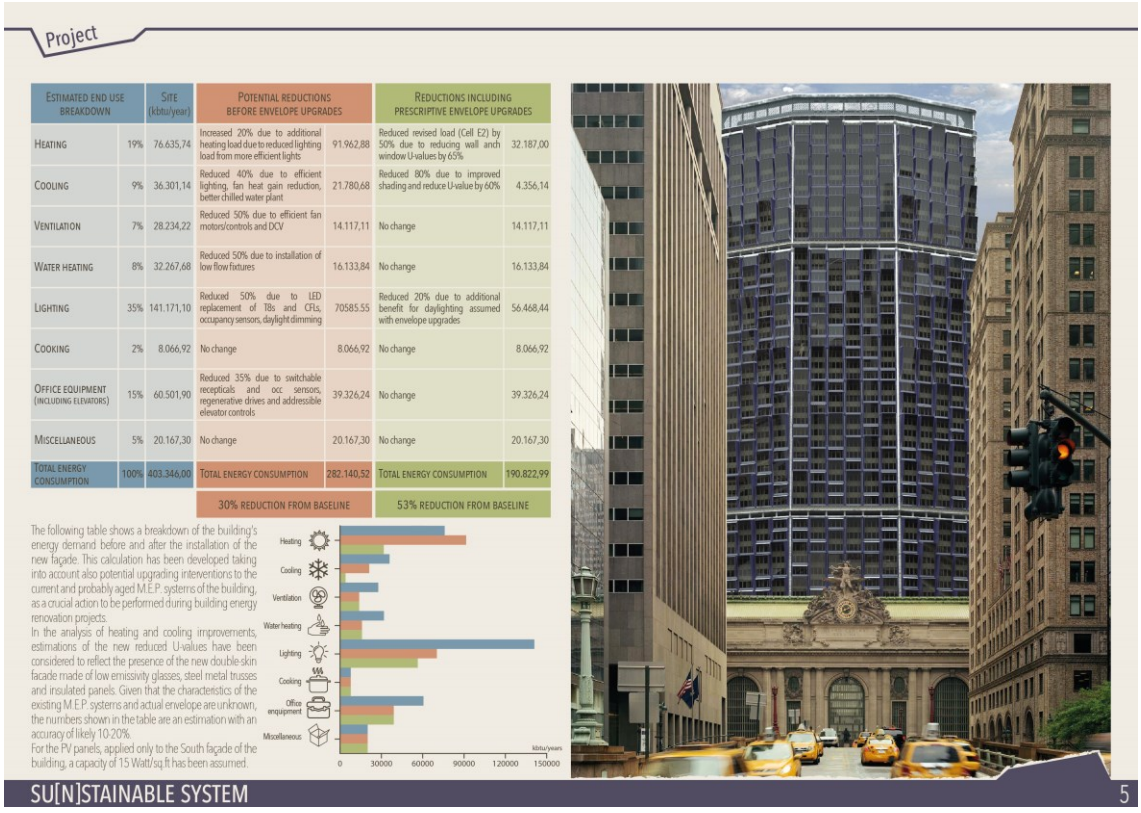

Fig. 6 - Energy balance table and Rendering (competition table)

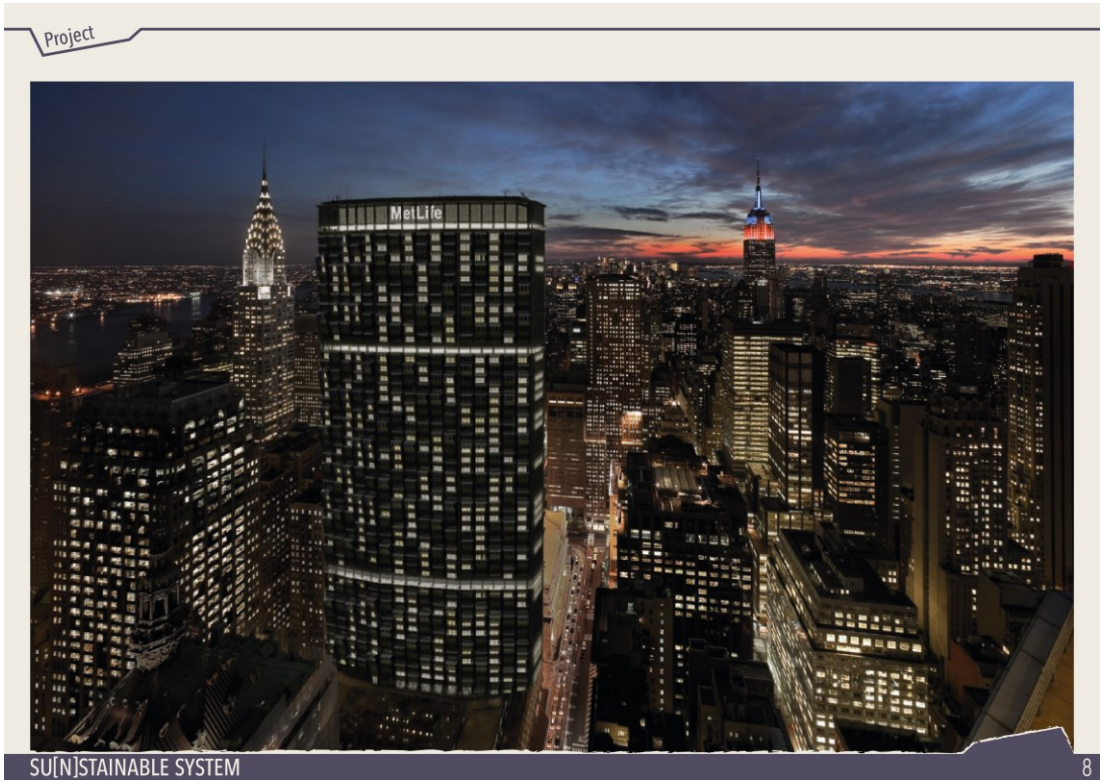

Fig. 7 - Night rendering (competition table).

3. Conclusion

The façade renovation project achieved the required energy efficiency. From the architectural point of view the original composition of the skyscraper has been respected, the expressive continuity of the curtain wall plans was not lost, and the overall image was not altered. The images of the project show how the results obtained have preserved the character and the landscape role of the building, having allowed the proposal to be mentioned by the jury[5].

In conclusion, all this considered, we believe that the architectural result obtained may be what the original design team himself would have designed with the current ecological sensitivity and today's technologies.

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[5] **Areta Pawlynsky**, AIA, **Ben Tranel**, AIA, LEED AP, **Billie Faircloth**, AIA, LEED AP BD+C, **Fiona Cousins**, PE, LEED AP BD+C, **Sameer Kumar**, AIA, LEED AP, **Peter Arbour**, Associate AIA (Moderator).
The jury mentioned the project for the application of the principle of subsidiarity in architecture.

Editore: Accademia Piceno - Aprutina dei Velati in Teramo (APAV)

Via del Concilio n. 24, Pescara, Italy

Codice Fiscale: 92036140678 Partita IVA: 02184450688

Codice destinatario per fatturazione elettronica: M5UXCR1

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Banca Unicredit (succ. Pescara Umberto)

Periodicità: semestrale

Siti web: www.apav.it ; www.eiris.it

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Autorizzazione n. 16 del 17/12/2013 del Tribunale di Pescara

ISSN: 2385-1031 (testo stampato)

ISSN: 2385-0671 (online)

Stampato a Pescara il 14 agosto 2019

Accademia Piceno - Aprutina dei Velati in Teramo

ACCADEMIA DI SCIENZE, LETTERE, ARTI E TECNOLOGIA
Ente accreditato dal MIUR per la formazione del personale della scuola
(Decreto del 24/07/2009 e Direttiva 170/2016)