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ID 1677 | WORLD EXHIBITION AS A TOOL FOR THE PROMOTION OF HEALTHY AND LIVEABLE CITIES: CASE STUDY MILAN, ITALY

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1 INTRODUCTION

Mega-events, such as world and international exhibitions, the Olympic Games, other sports and cultural events, are intrinsically complex processes. Their planning, organisation and realisation require the engagement of a large number of people and financial resources for the successful realisation of the event. In addition, the success of the event depends on numerous social, economic, political, spatial and other factors that are often unpredictable and can significantly increase effects of the event that can be recognised in long-term on the local, regional and national level.

While hosting mega-events, the attention of a large number of people from all over the world is focused on this specific event that has its own specific roles in the realisation of that event. According to Maurice Roch (2000) mega events involve combinations of political and economic elites, together with cultural elites and professionals that are operating within and between urban, national and international levels, and working together to produce the event and to manage their effects. They can be conceived as temporary “cultural and physical bridges” between elites and the people. In mega-events people are active members of international cultural movement and they are involved in international communication that is taking place.

Compared with other mega-events, world and international exhibitions last the longest and attract the greatest number of visitors. For the purpose of the exhibition, the most suitable site to meet all set-up parameters and for which it is desirable to conceive the long-term use is chosen. For every exhibition, the specific topic is set to which all participants correspond with the conception of their pavilion and presentation.

The exhibition topic is always in line with global trends and promotes the technology, science and progress towards the concepts of sustainable development.

In addition to the main event, during the exhibition in the city and region a number of accompanying cultural, scientific, professional, sport events are organised to promote the exhibition theme and can contribute to comprehensive positive effects. For this reason, world and international exhibitions can be considered as platforms for education and promotion of innovation and for a comprehensive awareness of the importance of the sustainability aspects and sustainable development for humanity in the 21st century.

Organisation of the exhibition can significantly contribute to the development of the host city and the region through numerous interventions in infrastructure, suprastructure and ecostructure, that are directly or indirectly related to the event, and remain as the exhibition heritage improving the overall quality of life of their inhabitants. (Petrović, 2009)

The aim of this paper is to show how world exhibitions contribute to the promotion of the health and liveable cities, putting emphasis on the world exhibition EXPO 2015 which was held in Milan, Italy.

2 WORLD EXHIBITION AND BUREAU INTERNATIONAL DES EXPOSITIONS

Although the roots of world exhibitions date back to the time of Mesopotamia and Ancient Egypt, the first modern world exhibition was held in London in 1851 under the name Great Exhibition of the Works of Industry of All Nations. In the period from 1st May to 11th October 1851, Great Britain with colonies and 25 countries from all over the world presented their achievements in industry, art and craft in Cristal Palace in Hyde Park that was visited by 6,039,195 visitors (Bureau International des Expositions).

Great success of the first World Exhibition held in London led to the increase in frequency of the organisation of exhibitions. Exceeding frequency of 19th century exhibitions and disregarding established rules of the organisers in the early 20th century led to the need for institutionalisation and the establishment of legal frameworks for organising the world and international exhibitions. For this purposes and based on the Paris Convention of 1928 an intergovernmental organization Bureau International des Expositions (BIE) with headquarters in Paris, France was established with the aim to control the frequency, candidacy, selection and process of organising world and international exhibitions.

According to the BIE the main objectives of the exhibitions are: reinforcing the international relations, promotion of culture and education, encouragement of development of the city and region, careful actions in the environment from the aspect of sustainable development and urban renewal and experimentation with technical and scientific innovations of future development.

3 EXPO 2015 MILANO

The celebration of the centenary of the 1906 World Exhibition (held with the theme of transport on the occasion of the opening of Passo Sempione) prompted reflection on the reorganisation of such an event in Milan. In October 2006, the Prime Minister sent a letter of intention to the BIE, and the candidacy was confirmed in 2008. In the meantime, two thematic forums were held in Milan and Rome with the aim of discussing themes among international experts.

The company Expo 2015 SpA was founded for the organisation, realisation and management of EXPO 2015 Milano including the construction of infrastructure directly related to the exhibition site. In 2011, the company Arexpo SpA was founded in order to conduct the process of transformation of the exhibition area into post-exhibition period.

At the world exhibition Expo 2015 Milano there were 145 participants in the period from 1st May to 31st October 2015. In that period, the Expo site was visited by 21,500,000 visitors (Bureau International des Expositions).

A new vision of Expo's role was conceived. The intention was to interpret the event and its legacy in a new way including also thematic culture. Expo 2015 Milano strived to define a new thematic type of architecture and to focus on the relationship between human beings and nature. The pervading theme, engagement with visitors, involvement of counties in thematic clusters and contribution of enterprises and civil society were innovative aspects included in the concept of exhibition.

Expo 2015 SpA paid close attention to the sustainability of the event, which resulted in various programmes and projects through all stages of preparation and implementation of events based on the social, economic and environmental aspects of sustainability. Priority was on environmental sustainability and the use of advanced methods and technologies in construction Expo site and in organizing the event.

Expo Milano 2015 was the first exhibition that used tools to manage environmental, social and economic impact. The Event Sustainability Management System enabled the increase in overall level of sustainability. The planning phase, the preparation of site and implementation and management phase obtained the UNI ISO 20121:2013 certification. There were two special guidelines set in order to prevent, reduce and manage environmental impact related to the presence of participants on the site. Sustainable solutions were applied in planning, construction, dismantling and reuse of the pavilions and the implementation of green procurement criteria for the procedures in purchasing goods and services.

3.1 THEME FEEDING THE PLANET, ENERGY FOR LIFE

Nowadays food production and consumption have grown exponentially. Improper food production and environmental pollution have led to the need of thinking about how to feed nature, achieve balance between growing food requirements and methods of boosting production. Reflections should be directed on feeding the environment in which we live and from which we draw sustenance.

Therefore, issue which interweaves the environment and food, theme Feeding the Planet, Energy for Life was chosen for Expo 2015 Milano. The world exhibition is an ideal place for exchange of views through talks on food and sustainable use of resources, on the right to healthy, safe and sufficient food for the whole planet, sharing of production and consumption models that are respectful to the environment and social equality. It is also an opportunity to remind people of ancient techniques of food production and preservation of ancient knowledge and make researches for new technological applications.

The intention was that organizer and participants cooperate in order to present excellence in the methods, techniques and rules of food production, strategies to combine production with energy sources and the safeguarding of natural resources. (Expo 2015 Milano)

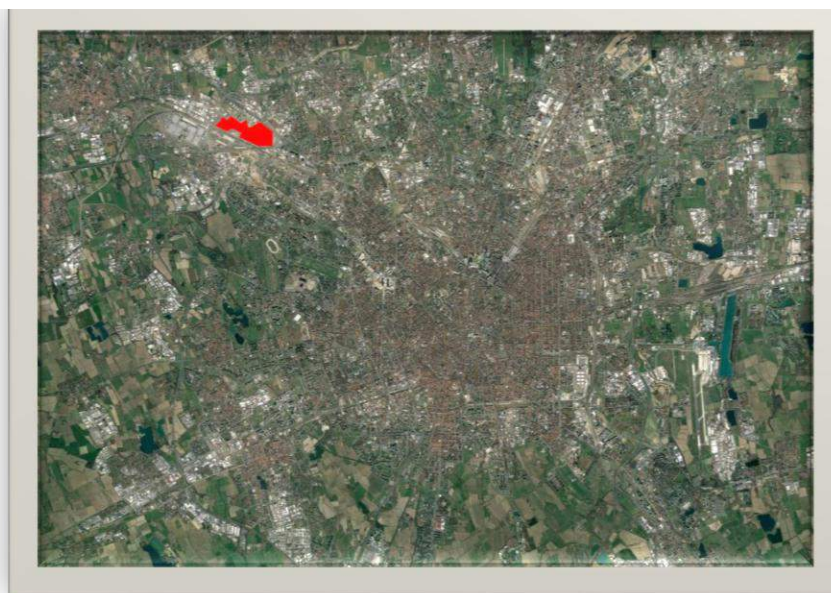


Figure 1 - Location of the Expo 2015 Site in relation to the City of Milan and its metropolitan region

3.2 EXPO SITE

For the purpose of the event, a location in the north-western part of Milan was selected, which was mostly unbuilt area and partly agricultural area. The selected area of 110 ha forms a part of the greenbelt of Milan (Parco Agricolo Sud and Parco delle Groane) and represents a significant link between rural and urban space. The area is easily accessible via the railway infrastructure (underground, regional and high-speed

rail lines) and the road infrastructure (A4 and A8 highways and bypass) and is located near the Rho-Pero trade fair complex. (Figure 1)

In 2009 group of five architect (Stefano Boeri, Ricky Burdett, Joan Busquets, Jacques Herzog and William McDonough) made a conceptual Masterplan for Expo 2015 site (Herzog & de Meuron, 2016). In the preparation of Masterplan, the great attention was paid to the following topics: actual theme of urbanisation, regarding limitation of the consumption of land, ensuring the permeability of the largest possible surface area, intelligent use of resources, possibility of reutilization of structures and materials in post-exhibition phase, encouraging of use of public transport, production of energy from renewable resources, sustainable waste management and internal water processing.

The exhibition site represented the Expo theme in its physical form. It was conceived as a single landscape, an island surrounded by a canal. Water, as a key element constituted an integral part of the site through a system of canals that were conceived on the model of network of rivers and waterways characterized for the Milan and Lombardy.



Figure 2 – Layout of Expo 2015 Site Milan, Italy

There were two main axes, Decumanus running east-west and Cardo running north-south. Pavilions of participant countries were placed along Decumanus (35m x 1500m) and the sites for Italy and its regions, provinces and cities were conceived along Cardo (350 m). Main iconic elements of the exhibition hosting the major events were places on the four cardinal points: the Mediterranean Hill, the Open Air Theatre, the Lake Arena and the Expo Centre. In total, there were 70 independent pavilions built, 9 clusters (Coffee, Rice, Cocoa, Spices, Fruit and Legumes, Cereals and Tuvers, Agriculture and Nutrition in Arid Zones, Islands, Sea and Food and Bio-Mediterranean), the Cascina Triulza pre-existing structure, 4 thematic areas (Pavilion Zero, Biodiversity Park & Slow Food, Children’s Park and Future Food District) and one in the Milan Triennial complex and 5 structures for events (the Lake Arena, The Open Air Theatre, The Open Plaza, Auditorium and Conference Centre). Symbol of Italy’s participation was the Tree of Life, a tower sculpture of steel and wood that produces sound and light shows with spectacular fountain displays. (Grimaldi, 2015)

Participants were given greatest freedom in design of pavilions, although their obligation was to offer interpretation to the exhibition theme (processes of agricultural production, technologies, research in food sector). In the pavilions, there were spaces for sampling and selling characteristic products.



Figure 3 – (1) The Mediterranean Hill, (2) The Lake Arena and Italian Pavilion, (3) The Tree of Life

The Cascina Triulza was the only pre-existing structure located within the Expo Site. It was a traditional farmhouse from the late 1800s (a total surface area of 7,900 m², which was reconstructed for the purpose of Expo using sustainability criteria in compliance with the LEED NC standard (GOLD level certification). During the event, the structure hosted civil society with debates and exchanges of ideas and experience with the question of food, that is managed by the Triulza Foundation, a network of various national and international third-sector organizations.

Around 20% of the area was covered with vegetation. The buffer zone toward nearby motorways and railway lines was created by planting trees on the perimeter using planting techniques requiring limited maintenance. Great attention was paid to the landscape arrangement. There were 8 gardens, 3 major piazzas, 25 minor piazzas, The Mediterranean Hill, tree-lined rows of bushes arranged on the Expo site. (Grimaldi, 2015)

From the very beginning the idea was to reuse structures and equipment used for exhibition (interior furniture, outdoor and street furniture, bins for waste collection, plants, office furniture and equipment, expo village furniture). The green works and structures (seats, pergolas, paving) were planned for dismantling for reuse after the event. (Grimaldi, 2015)

The company Arexpo SpA with the majority of public capital has been conducting the process of developing and implementing the transformation of the area in the post-exhibition period. It was necessary to elaborate a Master plan for urban transformation of the whole area and to conceive a Business development plan. In 2016 guidelines of the strategic development plan and its evaluation were developed. It was conceived that in the area where the exhibition took place, the scientific technological park of international significance will be arranged. A science technology park (STP) should be dedicated to the research of the most advanced technologies in the fields of health, nutrition and sustainability, called project "Italia 2040 (Monaci, 2015). The Park is designed to facilitate knowledge transfer between universities, companies and research centres around the world.

The area, well-equipped with infrastructure and easily accessible has a high development potential and is appealing to both public and private Italian and international companies. The area is designed to live 24/7 thanks to mixed functions - culture, sports and entertainment, housing, the tertiary sector, shopping areas etc. (Arexpo)

3.3 PROJECTS AND PROGRAMS

Programme "Towards a sustainable Expo" aiming to stimulate and encourage greater attention to sustainability, was created by Ministry of the Environment and Protection of Land and Sea and Expo 2018 SpA. The intention was to limit the environmental impact, highlighting the most relevant solutions and disseminating them as a legacy of Expo. There were 4 categories: Sustainable architecture with references to the project for the Pavilions and Exhibition areas, Sustainability of food offered by refreshment of catering services, Application of green procurement criteria for furniture, packaging and merchandising.

Because the urbanization of Expo site caused the loss of 160 equivalent hectares in term of ecological value, there was a special ecological reconstruction programme conceived in order to balance the loss.

The area covered by the programme surrounds the exhibition site in the North West Milan. Expo 2015 SpA together with Regional Body for Services to Agriculture and Forests will carry out planned compensation interventions.

For the purpose of monitoring actions in all exhibition phases Expo 2015 SpA presented the Environmental Monitoring Programme – EMP (noise, vibrations, atmosphere, underground water, surface water, drinking water, waste water soil, eco-system, fauna and vegetation). Monitoring of some sensitive elements was made according to the further assessment method “Delta VIP”.

Expo 2015 SpA developed an Inventory to calculate greenhouse gas emissions produced by the organisation of the Expo (UNI ENISO 14064:2006 standard). If inventory estimation will be confirmed, the implemented initiatives would allow offsetting 100% of the emissions under the responsibility of the event through specified interventions (energy requalification projects for public buildings in Milan, Rho and Arese, purchase on the voluntary market of credits).

Smart city project Smartainability (“Smartness” and “Sustainability”) was conceived in Ricerca Sistema Energetico of the GSE Group in cooperation with Expo Milano 2015 and technical partners. The intention was to measure quantitatively and qualitatively how a city can result sustainable by using a “smart” technology.

Some specific actions were made during the event in order to ensure food safety (document inspections, sampling and analyses of food, equipment, environments and personnel) as well as to prevent food waste (collection of perishable products organized). Separate Waste collection was organised at the exhibition site that enabled the recycling and the production of various re-products.

During the Expo, there were numerous additional events under the name Expo in the City (exhibitions, talks, events of fashion and design, activities for families, sports and special concerts, recreational and cultural programme) held in the exhibition Site, in the city of Milan and its metropolitan region. (Figure 4) There were also international events organized related to sports (canoe, kayak and water-skiing world championship, amateur races) and recreation (a series of itineraries for walkers and cyclists to discover green and agricultural areas organized by the FAI).



Figure 4 – Accompanying events - Fashion week activities in Piazza Gae Aulenti

Thanks to the virtual environment, people interested in the theme of the event that were not able to visit Expo 2015 Milano, had an opportunity to make online visits that offered 3D exploration of the Site. The project allowed the greatest possible number of people access to the exhibition spaces increasing awareness of the importance of Expo Milano 2015 theme.

Spreading the events content was also taught through the implementation of school project. Teachers and students were invited to study Expo theme in classrooms and on the exhibition site. There were more than 170 Italian universities that joined the project “La Università in Expo”.

Programme Feeding knowledge, as a strategic initiative, aimed to develop and share knowledge as a main tool of finding concrete solutions for fighting food insecurity. The programme was the backbone for the setting up of a Euro-Mediterranean Centre of Knowledge for Food Security.

WE-Women for Expo programme placed female culture at the centre of Expo. Women participated in expressing themselves on nourishment for body and nourishment for freedom and intelligence and the alliance between food and culture.

Thanks to the project “Expo is Now” more than 500 meetings were organised between companies. There was a support to organize Business Forums on National Days.

The Milan Charter is a joint document that calls upon all citizens, associations, firms and institutions to unite their responsibilities to ensure future generations the right to food. Italian and international expert have worked to identify the primary issues regarding sustainable use of the world’s resources. It addresses 4 major theme within the right to food: the economic and productive models capable of ensuring sustainable development in economic and social spheres; the existing types of agriculture capable of producing a sufficient amount of healthy food without damaging water resources and biodiversity; the best practice and technologies to reduce inequality in the cities, where most of human population is being concentrated; and recognition of food not only as a source of nutrition but also as a key element of social and cultural identity. The intention was to adopt rules and policies at the national and global level capable of ensuring a fairer and more sustainable future for the planet. (Expo 2015 Milano; Expo 2015 SpA, 2015)

3.4 INTERVENTIONS IN THE CITY INFRASTRUCTURE, SUPRASTRUCTURE AND ECOSTRUCTURE

The exhibition was the occasion to revitalize the historic place and symbol of Milan Darsena - city dock. In the preparatory period of the exhibition, according to the project of architects Edoardo Guazzoni, Paolo Zizzato and Sandro Rossi with Studio Bodin & Associés, the project of reshaping the ancient dock and adjacent spaces (investments of 19 million Euros) were realised to remain in the legacy of Milan and the Lombardy region. The project covered the renovation of the promenade, the rearranging of Piazza XXIV Maggio as a green area and almost completely pedestrian area, planting the garden and arranging the garden at the site of the former Bobino restaurant. Preservation of important artefacts like 15th century bridge, the remains of the Viarenna dock and the foundations of the 16th century city wall were enabled. New footbridge for pedestrians and cyclist connecting two river banks were conceived. The replacement of the old municipal market with a new structure along Viale D’Annunzio, a stretch of the Ticinello canal is reopened and redeveloped. (Grimaldi, 2015)

In the centre of Milan there was the Expo Gate built according to the design of Alessandro Scandurra. It was located between the Sforza Castle which was the epicentre of the world exhibition in 1906, and Via Dante as the strategic transportation axis. The Expo Gate was conceived as a first meeting place to present the Expo theme to the public. It was composed of two identical pavilions hosting different functions (ticket office and information desk, along with a small conference space and a shop a multipurpose space hosting a program of inter-cultural events and workshops) inspired by the criteria of sustainability, constructive economy and intelligence. The buildings look light-weight and airy during the day, while at night they become translucent, self-illuminated objects. An open-air public plaza is located between the pavilions, visually aligned with the Sforza Castle beyond. (Expo Gate / Scandurra studio Architettura, 2015)



Figure 5 – Expo Gate as a part of a project Expo in the City (Expo in Città)

In 2008, an urban-architectural competition for the transformation of Cascina Merlata (50 hectares), located west of Cimitero Maggiore and south of the Torino-Milano highway, was carried out. The authors of the three-award-winning works (Paolo Caputo Partnerships, Antonio Citterio and Partners and Mario Cucinella Architects) were invited to jointly develop a new Masterplan (90 ha). The Masterplan (Caputo Partnership groups, Citterio-Viel & Partners, Antonio Citterio, Patricia Viel) was adopted in 2011 and included an area for the construction of the Expo Village (8 hectares). (Ordine e fondazione degli architetti, pianificatori, paesaggisti e conservatori della provincia di Milano, 2017)

The housing development Cascina Merlata, apart from housing, includes the accompanying public and social facilities (kindergarten, schools), the renovated Cascina Merlana with public facilities, commercial centre and urban park of 20 ha. The Urban Park forms a part of a system of “green strips” of Milan through which bicycle trails are passing all the way to the city centre. (Cascina Merlata)

In the first phase, the complex of 3 residential buildings (investor EuroMilano S.p.A.) located in the northern part of Cascina Merlata served as accommodation of the exhibition staff, and after the completion of the event was converted into subsidized housing. The heart of the whole project is the largest settlement of Social Housing in Italy consisting of 11 tower buildings, developed by different design studios (Cino Zucchi Architetti, Cappai and Segantini Associati, Mario Cucinella, Pura, B22, Teknoarch) that are developed according to the most advanced principles of sustainability for a district in class A and with zero emission.



Figure 6 – Expo village located within Cascina Merlata

The architectural concept was based on the premise that quality living is strongly influenced by the quality of public and/or private space in the surroundings. The buildings were organized around a central space, and organized as a configuration of three towers. A solar power analysis was conducted, evaluating the number of hours of direct sunlight per day on each surface: based on these variables, attention was paid to the orientation and size of transparent facade surfaces to optimize daylighting in each interior space. In the ground floors, there were communal spaces that accommodated green areas and spaces for collective use. Despite the limited budget for the project, the buildings achieved Class A classification. In fact, the inclusion of high efficiency systems (solar panels, district heating, radiant floor heating, air handling units) combined with highly insulated envelope (facade coating, low emissivity double glazing) enabled the reduction of annual consumption for winter heating. (Expo village, 2015)

In the preparatory period of the events, there were other interventions realised that were indirectly related to the event. The interventions were related to the restructuring of public facilities (schools) and infrastructures (roads), the Rho-Expo station was renewed, new lines of public transport were introduced etc.

4 CONCLUSION

The research shows that the organisation of world exhibition contributes to the promotion of the health and liveable cities on several levels.

By choosing a suitable event theme which is related to current problems in space, the reflection on the subject matter is stimulated, and the whole world responds to the set theme by building their pavilions and/or conceiving their presentation at the mega-event. The world exhibition in Milan strived to contribute to the current theme of food and sustainability in order to raise the overall awareness of their significance on the local, regional and global level.

Conceiving the event, construction of the site, conceiving and realising the subsequent use of the exhibition area are comprehensive processes involving a large number of experts from different fields. The sustainability concept that has been incorporated in all phases has encouraged all involved professionals to contribute to the sustainability of the overall project and to the sustainable development of the city of Milan and its metropolitan region. Liveability of the site in post-exhibition period depends on the adequate usage scenarios and facilities implemented in the area. According to Arexpo SpA plans, the former Expo 2015 site will live 24 hours a day thanks to a variety of facilities. The goals of subjects that are planned to be located in the Milan science and technology park serve the promotion of healthy and liveable city.

Interventions in infrastructure, suprastructure and ecostructure that are realised in the pre-exhibition period, directly or indirectly related to the event, contribute to the promotion of a healthy and liveable environment and improvement of the overall quality of life.

Social events organised during the exhibition are carriers of attention and audience not only from the host city and the region, but also the entire world. The exhibition period is characterized by organisation of numerous events that give the host city special liveliness and recognisability.

Along with this, carefully thought-out programs and projects in the function of the event have important roles, but also have their deeper significance for humanity (The Milan Charter) and remain as a lasting exhibition legacy.

It can be concluded that organisation of world exhibition Expo 2015 Milano can be considered as a tool for the promotion of healthy and liveable city not only on local level but also globally.

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