

Sustainability Challenges in the Development of World Expositions

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Abstract:

World Expositions (EXPOs) are transformative instruments of progress in all areas of human life and endeavour. Throughout the history of EXPOs, their format and scope have evolved and adapted to the surrounding reality, reflecting changing political, economic and social currents. Since 1851, expositions have been a link between the past, present and future, promoting values and actions for progress for all.

The paper aims to present the place of the sustainability paradigm in developing world expositions. The paper presents the history of world expositions, the development of sustainability, and how it has been popularised and implemented in shaping the development of world expositions. The paper includes some examples confirming the strong commitment of the stakeholders of world expositions to these activities. The article takes the form of a case study of world expositions EXPO, taking into account developments in the area of sustainability approaches.

Keywords: world expositions, EXPO, sustainability, promotional events.

Streszczenie:

EXPOs są transformacyjnymi instrumentami postępu we wszystkich dziedzinach ludzkiego życia i przedsięwzięć. W ciągu całej historii EXPO, ich format i zakres ewoluował i dostosowywał się do otaczającej rzeczywistości, odzwierciedlając zmieniające się prądy polityczne, gospodarcze i społeczne. Od 1851 r. wystawy są łącznikiem między przeszłością, teraźniejszością i przyszłością, promując wartości i działania na rzecz postępu dla wszystkich.

Celem artykułu jest zaprezentowanie miejsca paradygmatu zrównoważonego rozwoju w budowaniu przyszłości wystaw światowych. W artykule zaprezentowano historię wystaw światowych i rozwój idei zrównoważonego rozwoju oraz sposobu jej popularyzacji i wdrażania w kształtowaniu wystaw światowych. W pracy zawarto wiele przykładów potwierdzających duże zaangażowanie interesariuszy wystaw światowych na rzecz tych działań. Artykuł ma formę studium przypadku world expositions EXPO, z uwzględnieniem zmian w obszarze podejścia do realizowania założeń zrównoważonego rozwoju.

Słowa kluczowe: wystawy światowe, EXPO, zrównoważony rozwój, wydarzenia promocyjne.

1. Introduction and Objectives

World Expositions (EXPOs) are cyclical expositions that present the cultural, scientific and technical achievements of the countries and peoples of the world. The body in charge of organising the exhibitions is The Global Association of the Exhibition Industry (UFI; the abbreviation currently in use is derived from the original name in French - Union des foires internationales), which came into being in 1928 as a result of an international agreement ratified by the majority of League of Nations states. The current organisation has 684 members (356 fair organisers, 96 fairground owners, 123 fairground owners organising fairs, 51 associations, 56 exhibition industry partners), present in 239 cities worldwide from 83 countries on six continents.

The organisation's primary task is to represent, promote and support its members and their business interests worldwide. (<https://www.ufi.org/>; access on: 06.12.2024) World expositions have aimed to promote national economies globally since the beginning of their history. From the outset, this meant that they were accompanied by a spectacular momentum associated with an over-allocation of resources and often a significant waste of the resources involved. The promotion of the country as a whole was supposed to justify the amount of investment and organisational commitment. To date, published work on EXPO expositions has focused on their promotional impact on the situation of individual countries and regions of the world and on the educational benefits derived by visitors to these events as they learn new information about the nationalities they encounter there. This study shows EXPO expositions in a new perspective - as a space where transnational content, universal values such as concern for the sustainability of the planet, are promoted. The managers of this event are fully aware of the great promotional resonance of EXPO exhibitions and have been trying to use the events they organise to educate their stakeholders for many years.

Because of the increasing degradation of the natural environment and the growing need to promote environmentally friendly behaviour, the question of how to reconcile the atmosphere of a unique festival and the panache and splendour accompanying it with sustainable development is becoming increasingly legitimate. What can be done to ensure that the successive world expositions do not lose their uniqueness but at the same time do not impose too significant a burden on the environment? Sustainability challenges are becoming increasingly crucial in developing national pavilions and the expositions they host. The hosts of the following editions of these events are also trying to influence participants to keep a sustainable approach in mind when planning their participation in these events.

This paper aims to show the place of the sustainable development paradigm in shaping the concept of world expositions. The paper presents the idea of sustainability, the evolution of world expositions, and examples of implementing the mentioned paradigm in the development concept of EXPOs. The presentation of selected examples of activities in the area of organising successive EXPO exhibitions allows one to notice the growing importance of the idea of sustainable development for their functioning. The changes are observable at the level of defining the goals of these events, the way they are prepared and executed, and the accompanying marketing communication. The article takes the form of a case study of world EXPO expositions, whose history and current activities are presented from the point of view of their approach to sustainable development.

2. Literature Review

2.1. Sustainability as a paradigm for the actions of contemporary companies and communities

The United Nations Declaration on the Natural Environment was a landmark document regarding human rights and the responsibility to protect the environment. The World Commission on Environment and Development, under the chairmanship of G.H. Brundtland in 1987, identified 'sustainable development' for the first time in its report 'Our Common Future' as a path to harmonious development without limiting the chances of the next generation to meet their development needs in the future (Adamczyk, 2018). Initially, the concept of sustainability was addressed on a macroeconomic scale, and the integrity of three systems, the economy, the environment, and society was assumed through their development. The Triple Bottom Line (TBL) concept, introduced by J. Elkington in 1994, played a unique role in shaping the idea of corporate sustainability. The transformation of the concept of sustainability to the microeconomic level required that companies take responsibility for their negative environmental and social impacts and that they voluntarily contribute to social and ecological goals.

The premise of sustainable development is to link economic and social development by providing access to renewable and non-renewable resources with an increase in the quality of life in a clean environment (Thøgersen, 2022). Nowadays, more and more companies not only refer to sustainable development in their mission statement but also publish reports on how they comply with its principles in their management process (Proszowska et al., 2024). Implementing and communicating sustainability results is becoming a standard of modern business management. Sustainable development has changed business rules and is creating a new approach to management, claiming to be a new paradigm (Rudawska, 2019).

Nowadays, sustainable development is defined as intergenerational solidarity consisting of finding such solutions to guarantee further growth, which allow all social groups to be actively involved in development processes, while at the same time giving them the opportunity to benefit from economic growth. Sustainable Development Goals are a set of actions aimed at achieving sustainable development in its three dimensions: economic, social and environmental. For sustainable development to be achieved, three key elements need to be coherent: economic growth, social inclusion and environmental protection. They are interconnected and are all critical to achieving the well-being of individuals and whole societies. The 2030 Agenda for Sustainable Development was adopted by the UN in 2015. The foundation of the Agenda is the 17 Sustainable Development Goals (SDGs), which consist of 169 tasks measured by 232 indicators. The 17 Sustainable Development Goals are based on the five pillars of the 2030 Agenda: People, Planet, Prosperity, Peace and Partnerships. (<https://www.un.org/sustainabledevelopment/>; access on: 10.12.2024)

2.2. Origins and development of the EXPO

Organised in 1851, the Great Exhibition of the Industry of All Nations is regarded as the first true World Exhibition (modern EXPO). It was organised on the initiative of business people and members of the Royal Society for the Encouragement of Arts, Manufactures and Commerce, mainly to promote British achievements in the arts and industry. The exhibition was successful and attracted over 6 million visitors in five months. The leading exhibition was planned in the Crystal Palace (563 m long, 124 m wide, 39 m high at the highest point inside, 92 000 m² of exhibition space on several levels), specially prepared for the event. Its construction consumed 293,665 panes of glass, 4,500 tonnes of iron and as many as 39 km of

gutters, with 5,000 workers involved in the work. The building was designed so that it could be dismantled and moved to another location or expanded as needed. (<https://www.domiporta.pl/informacje/a/kryształowy-palac-powstal-w-xix-wieku-i-byl-caly-ze-szkla-a-splonal-w-jedna-noc-3496>; access on: 10.09.2024)

The success of the First World Exhibition made other countries more and more willing to organise such events. It soon became apparent that there were so many expositions that individual events were starting to overlap. A need, therefore arose to introduce regulations and restrictions on the organisation of world expositions. An institution was established to coordinate the organisation of these events on a world scale (Bureau International des Expositions; currently, it comprises 184 countries). The first regulations governing this market were adopted in 1928 at the Paris Convention. They evolved over time, and finally, in 1988, it was adopted that major expositions would be held in different locations around the world every five years and would last no longer than six months. As a result, they have retained their uniqueness and continue to generate a lot of interest from exhibitors and visitors from different countries. The last Expo, which ended in Dubai in 2022, attracted 200 exhibitors (over 438 hectares) and 24,102,967 visitors.) (<https://www.bie-paris.org/site/en/2020-dubai>; access on: 10.09.2024)

2.3.The origins of sustainable decisions in the development of world expositions

Even the first edition of the World Expo was planned so that the main exhibition facilities could be reused. However, these were not enough to find sustainability in managing these events. These decisions were to save money in the long term. Successive editions of world expositions have sought to combine the ability to build a positive image in the eyes of stakeholders with the future functionality of the facilities (Creazza et al., 2014). Subsequent buildings dedicated to the exhibition sites of the individual countries and meetings with visitors were to be multifunctional spaces even after the event. They were also supplemented with objects to draw attention to the event, ultimately used as part of the venue for longer than just the exhibition.(Anderson, 2003)

The Eiffel Tower (EXPO 1889 Paris) and other spectacular buildings created to host successive world expositions generate a lot of positive excitement for those interested in these events. Still, at the same time, they are the site of allocating many valuable resources. The preparation of each successive exhibition requires many different types of building materials and energy and the involvement of large teams of people. In some cases, EXPO hosts have found it challenging to develop the grounds and facilities after the exhibition (e.g. Pavilion of the Future EXPO 92). For more critical examples of misguided activities during the EXPO and subsequent mismanagement of related facilities, see the paper (Schrenk & Jensen, 2014).

As environmental sensitivity has become more widespread, the ambition of trade fair organisers has become to create innovative exhibition systems that offer the possibility of arranging stands with almost zero-waste technology. The amount of wood-based panels used is minimised, and those used for stand construction are recycled after the event. (Holmes & Shamsuddin, 1997) Biodegradable materials, such as latex-free carpets, are used, and they are 100% recyclable.

In an era of increasingly dangerous climate change, the question of whether such an allocation of increasingly scarce resources is appropriate and how to optimise the use of these inputs for the benefit of society becomes increasingly legitimate. Increasingly, the planning of events (including world expositions) is being subordinated to the ideas of less waste and reuse, thus highlighting the importance of acting sustainably in practice and not just at the level of declarations (Rice, 1988). The organisers of successive editions of the EXPO are also

increasingly aware of this. This is why, among other things, The Global Best Practice Programme has been set up to accelerate achieving sustainable development goals - in line with the motto 'Small steps, big leaps: Solutions for sustainable impact'. This programme highlights sustainability initiatives that can be adapted, replicated and scaled to increase global impact.

3. Methodology

The aim of this paper is to present world expositions (EXPOs) as a venue and tool for promoting the concept of sustainability. Showing the history of these events and the key assumptions of their organisation will allow to see how the idea of sustainability was presented and to assess whether the mentioned activities help to promote sustainable behaviour of world expositions stakeholders. A review of scientific literature and documentation of world expositions was used to achieve the stated aim. Based on this information, a case study analysis of the cycle of these events was conducted. A general overview of the achievements of all world expositions was made. A more detailed analysis was made of events after 1987 (when the concept of sustainable development first appeared). World expositions are events that are very well documented and information about them is widely available. Individual countries show a very strong commitment to participating in EXPOs, which generates a great deal of interest among journalists, academics and business analysts.

A number of publications have been produced documenting the promotion of individual nations through their participation in the EXPOs. They simultaneously contain descriptions of all the events during the EXPOs and therefore the information they contain provides a basis for analysing the impact of these events on other areas of contemporary reality. World expositions (EXPOs) are primarily major exhibitions with a global scope.

Regional thematic exhibitions, which are less present in the public space, are also organised under the EXPO brand. Due to the large number of all events and the volume constraints of the article, only universal world expositions were included in the detailed analysis, while regional thematic exhibitions were omitted from the detailed analysis. Also important for this decision was the fact that a cursory analysis of these smaller events showed that their strategy was consistent with that of the main exhibitions. Future events have also been included in the presented list - due to their scale and complexity, they are planned in detail well in advance.

4. Implementing the Sustainable Development Goals through global expositions – findings and discussion

Sustainability is mainly present in the themes taken up by successive EXPOs and their accompanying promotional campaigns. Table 1 presents some examples of the themes of selected world expositions. Analysing the world exhibitions themes, one can see that they relate to global issues and events. In the beginning, the dominant themes were industrial development, the availability of technology, then world peace and the interconnectedness of the worlds of sport, art and business. In recent years, however, there has been a clear shift towards sustainable values.

Table 1. WORLD EXPO themes (World Expos include all International Registered Exhibitions (2005-present), World Exhibitions (1992-2000), and General Exhibitions of the 1st and 2nd category (1935-1970) organised under the auspices of the BIE, as well as World Expos dating from before the creation of the BIE that are considered of historical importance)

Name and date	Theme
EXPO 2030 RIJAD	Foresight for Tomorrow
EXPO 2025 Osaka Kansai	Designing Future Society for Our Lives
EXPO 2020 Dubai	Connecting Minds, Creating the Future
EXPO 2015 Milan	Feeding the Planet, Energy for Life
EXPO 2010 Shanghai	Better City, Better Life
EXPO 2005 Aichi, Japan	Nature's Wisdom
EXPO 2000 Hannover	Humankind - Nature - Technology
EXPO 1992 Sevilla	The Age of Discovery
EXPO 1970 Osaka	Progress and Harmony for Mankind
EXPO 1967 Montreal	Man and His World
Century 21 Exposition (1962)	Man in the Space Age
Expo '58	A World View: A New Humanism
Exposition internationale du bicentenaire de Port-au-Prince (1949-50)	The festival of Peace
1939 New York World's Fair	Building the World of Tomorrow
Exposition Internationale des Arts et Techniques dans la Vie Moderne (1937)	Arts and technology in modern life
Brussels International Exposition (1935)	Transport
Century of Progress (1934)	The independence among Industry and scientific research
1929 Barcelona International Exposition	Industry, Art and Sport
Panama–Pacific International Exposition (1915)	Celebrating the opening of the Panama Canal
Exposition universelle et internationale (1913)	Peace, Industry and Art
Brussels International 1910	Works of Art and Science, Agricultural and Industrial Products of All Nations
Milan International (1906)	Transportation
Liège International (1905)	Commemoration of the 75th anniversary of independence
Louisiana Purchase Exposition	Celebration of the centennial of the Louisiana Purchase
Exposition Universelle (1900)	19th century: an overview
Brussels International (1897)	Modern Life
World's Columbian Exposition	Fourth centenary of the discovery of America
Exposition Universelle (1889)	Celebration of the centenary of the French revolution
Exposición Universal de Barcelona (1888)	Fine and Industrial Art
Melbourne International Exhibition (1880)	Arts, Manufactures and Agricultural and Industrial Products of all Nations
Exposition Universelle (1878)	New Technologies
Centennial Exposition	Arts, Manufactures and Products of the Soil and Mine
Weltausstellung 1873 Wien	Culture and Education
Exposition Universelle (1867)	Agriculture, Industry and Fine Arts
1862 International Exhibition	Industry and Art
Exposition Universelle (1855)	Agriculture, Industry and Fine Arts
Great Exhibition	Industry of all Nations

Source: (<https://www.bie-paris.org/site/en/expos/about-expos/history-of-expos>; access on: 10.09.2024).

Table 1 presents a few selected world exhibition themes from the recent period. An overview of these shows that EXPO organisers emphasise building a future based on advanced technology that develops with social and environmental needs in mind. Also, environmental concerns and investment in technologies that will enhance social well-being while preserving (or improving) the environment are displayed in the country's presentations.(Gębarowski, 2022)

In 1994, out of concern for a better future for humanity, the General Assembly of the Bureau International des Expositions adopted a resolution ensuring that all EXPOs strive for due respect for nature and the environment. This principle, highlighted at Expo 2000 in Hanover

through the slogan 'Man, Nature, Technology', is the central theme of all contemporary EXPOs, which address global challenges through sustainability. In the 21st century, participation in expositions has been broadened to include civil society, cities and regions, and international organisations. Through thematic forums - and, starting with Expo 2010 in Shanghai, best practice areas - ideas, solutions and technologies from around the world are presented to encourage international exchange (Weber et al., 2012).

All the creators of the pavilions and exhibition displays emphasise that the EXPO is an extraordinary opportunity for dialogue, cooperation, and shared solutions. They aim to demonstrate that global challenges can be overcome through collective determination, innovation, creativity and collaboration. (Anderson & Shimizu, 2007)

For example, the theme of Expo 2015 Milan was 'Feeding the planet, energy for life'. The organisers emphasised ecology. The Expo site is a comprehensive town using intelligent solutions for integrated energy management. Renewable energy sources were used in the exhibition pavilions, and environmentally friendly materials were used in their construction. (Granata, 2015) For the façades of the buildings, among others, concrete with a photocatalyst in the form of titanium dioxide was used, which can absorb up to 80% of the pollutants present in the air, capturing them and turning them into inert substances. Photovoltaic installations were also widely used. Some solutions in the area of water management were presented and used: water purification systems, hydroponic cultivation systems, fog creation systems for cooling the building without air conditioning, etc. The modular buildings allowed for more accessible (i.e., cheaper and more environmentally friendly) transport and dismantling. Most of the built facilities were developed after the exhibition. (Fidor, 2016)

Expo 2020, for example, was based on three essential elements of the modern world: Opportunity, Mobility and Sustainability, which allowed for broadening horizons and sharing experiences that positively impact both people and the planet. During EXPO, each of these themes was presented in a separate pavilion. The organisers of EXPO 2020 Dubai knew how vital the three themes of this edition of the Expo were for our planet and future generations. So they decided to promote these ideas also after the event. The complex of buildings where the exhibition took place has been transformed into District 2020 - a model of a modern city that redefines previous thinking about urban architecture and its functions. (Anthonisz & Mason, 2019)

Confirmation of the pro-environmental nature of the buildings currently used at world expositions is provided by their zero-emission performance and by awards and certifications for green building, such as the LEED Gold Certification issued by the U.S. Green Building Council. Achieving LEED (Leadership in Energy and Environmental Design) certification requires meeting stringent requirements and applying a comprehensive approach to environmental sustainability in the building. The certification process covers five key areas: sustainable land use, water efficiency, energy efficiency, material selection and indoor environmental quality. (<https://newss.pl/biznes/zielona-wystawa-swiatowa-w-szanghaju-sprawnosci-i-rownowaga-ekologiczna-obiektow.html>; access on: 10.09.2024)

The observed changes in the functioning of world expositions are influencing the development of the entire exhibition sector. The strategies of today's exhibition organisers and operators are being enriched with objectives and activities directly related to sustainability. Their implementation is communicated in a language aimed at showing the company's functioning according to ESG strategy standards. Even if, in the case of some trade fair organisers, this is only information about measures to minimise waste, or to segregate or recycle it, it is given in such a way that it results in an increased sensitivity to environmental aspects in building the company's presence at the trade fair. As societies, we are not ready on a mass level to put consumer restrictions on ourselves that will lower our standard of living. But showing alternative (more sustainable) ways of achieving the same standards of living and functioning

makes the idea of sustainability more socially acceptable, which facilitates the search for and implementation of sustainable solutions.

5. Conclusions and Managerial Implications

In summary, the pursuit of sustainability determines the functioning of an increasing number of contemporary market participants. Both organisations and individuals are increasingly looking for ways to minimise their negative impact on the environment. The trade fair industry is no exception in this case, which is why efforts to rationalise the use of resources and choose more environmentally friendly materials when constructing individual exhibitors' trade fair stands are also increasingly evident there (Celuch, 2015). These practices are also noticeable at EXPO. Recycling of materials used in the construction of exhibition pavilions at EXPO and their furnishings is increasingly common. The pavilions being built are intelligent, passive buildings that, without compromising the sense of comfort of those using them, allow the carbon footprint of the events held in them to be reduced.

At the same time, it is somewhat legitimate to question whether organising world expositions in the context of sustainability concerns is appropriate. The enormous financial and organisational effort and the extensive carbon footprint left by these events and their participants call into question the advisability of organising them. At the opposite end of the spectrum to the previously given examples of pro-environmental measures during the preparation of expositions are some of the promotional activities of the EXPO organisers, such as the painting of the logo of the event on 40 Emirates aeroplanes (on the occasion of EXPO 2020 in Dubai). Applying this painting took 15,000 hours over 14 months (<https://www.aviation24.pl/index.php?view=article&id=4572:linie-emirates-wykonaly-malowanie-40-samolotow-na-expo-2020-w-dubaju&catid=59>; access on: 10.09.2024). Compared to this, occasional promotional gift sets seem like an insignificant detail.

On the other hand, the mass popularity of events of this kind offers the chance to prepare a message that will reach a vast audience. Obviously, in a sustainable world, people will need various events that are typically entertaining. It is becoming increasingly important to plan them according to sustainability principles (Anderson & Shimizu, 2012). The multiplicity of activities at world expositions and the large number of stakeholders involved is an endless space for educating different sections of society in the area of sustainability and circular economy. Paradoxically, the global nature of such events results in the consolidation of specific activities and increases their visibility on a worldwide scale, making EXPO World Expos an ideal place to promote ideas important to the global community. The sustainability of the EXPO needs to be continuously increased because the general public perception is that the economic and social impacts are more important for the inhabitants of the regions where the EXPO was held than the environmental ones (Guizzardi et al., 2017). This is also the approach taken by some scholars who are writing about the effects of EXPO, primarily regarding tourism development. However, nowadays, EXPO is more than a tourist attraction; it is an effective tool for promoting values. It is necessary to look for more organisational spaces within the EXPO to share knowledge and good practices in sustainable development, thus building positive experiences in this field and popularising these crucial topics in society.

The role of EXPOs in popularising the idea of sustainable development will be particularly important to those responsible for preparing the country's pavilion and all those who wish to present in them. They need to keep these assumptions in mind when designing the presentation and planning the accompanying events. The public administration responsible for implementing the idea of sustainable development gains an additional tool for popularising this idea. It is also an important signal to exhibitors participating in other trade fairs and exhibitions that their trade fair policy should be subordinate to the idea of sustainability.

6. Limitations and Further Research

For obvious reasons, a comprehensive case study on the sustainable challenges faced by the World Expos event series does not include all the details of this topic. There have been a large number of these events and each of them has been very elaborate. The author highlights only a selection of activities and projects accompanying the successive editions of these events. On the one hand, this is an important limitation of this case study, because sometimes really important details are missing. However, on the other hand, with such a long cycle of events (since 1851), it would not have been possible to show the general trend of change if the study had included detailed information on individual events. By taking a holistic view, it is possible to show the trend of change and prove that, despite the entertaining nature of EXPO exhibitions, the approach to their impact on the environment is very responsible. Today, it is increasingly apparent that trade fairs, as a business ecosystem, are dedicated to optimising the benefits of all stakeholders, but as highly visible media events, they are forced to pursue their objectives with sustainability in mind.

More detailed research showing the changes in the approach of successive event organisers to the implementation of sustainability is possible if each event is analysed separately. A detailed comparison of differences gives the opportunity to observe trends of change. Unfortunately, not all changes can be described and measured. Sustainability reporting standards are also changing and some dimensions of EXPO accompanying activities cannot be compared because they were not present in earlier years or their description or evaluation was carried out according to less ecologically demanding standards. And this, too, is a sign that EXPO exhibitions are getting better and better at addressing sustainability challenges.

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