Sustainability as an Urgent Global Issue: Architectural Environment and Landscape

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Abstract: In our increasingly interconnected world, sustainability has emerged as a paramount global concern. Both organizations and individuals are recognizing the imperative need for sustainable solutions to safeguard the future of our planet. Achieving sustainability on a global scale necessitates a significant level of collaboration among diverse stakeholders (Calvagna, 2020). Many of the pressing challenges we face, such as climate change, inequality, hunger, and resource scarcity, can only be effectively addressed through structured collaborative efforts involving various entities (Murtagh, Roberts & Hind, 2016). Professionals from various fields are actively engaged in commendable endeavors aimed at advancing sustainable development, fostering economic growth, and maintaining environmental equilibrium. This essay delves into the collaborative endeavors and their outcomes within three projects focused on the architectural environment and landscape. These projects represent significant strides towards the promotion of a sustainable future.

Keywords: Sustainability; Global Collaboration; Climate Change; Inequality; Sustainable Development; Economic Growth; Environmental Equilibrium; Architectural Environment; Landscape Projects; Sustainable Solutions

Introduction

Sustainability is increasingly becoming a global issue in the world. Organizations and individuals are increasingly becoming aware that sustainable solutions are needed to ensure the posterity of the planet. In the quest to achieve sustainability, different individuals and agencies have a crucial role to play. The level of collaboration needed to achieve sustainability is quite massive (Calvagna, 2020). Solutions can be devised for the general challenges of industrialization and large-scale globalization. Murtagh, Roberts & Hind (2016) elaborate that most of the challenges that human beings face, like climate change, inequality, hunger, and scarcity, can only be tackled at a global level and through a structured collaborative effort among different players. Various professionals have participated and are still participating in noble projects aimed at promoting sustainable development, achieving economic growth, and an outstanding environmental balance. The essay discusses collaborative efforts and outcomes in three projects concerned with architectural environment and landscape that have taken huge strides towards the promotion of a sustainable future.

The Burj Khalifa Tower Park

The Burj Khalifa Tower Park was developed in Dubai by the SWA Group. Dubai is a desert region, meaning the climate is scorching, with very high humidity and strong winds. The climate situation in Dubai gets even worse during the summer. The unfavorable conditions in Dubai meant that the developer had to devise different creative ways to create a sustainable structure. The SWA group made intense efforts to not only come up with a functional design but also one that was beautiful and aesthetically pleasing, and striking enough to meet the ambitious standards of development that the city authority had in place. The significant innovations the building used included native planting and colorful tiles, which perfectly complemented Dubai's short period of flowering season (Ponzini & Alawadi, 2022). The design of the building incorporates six significant features of water that are made possible by a system of irrigation that drains, collects, and pumps condensed water from the outside air, which is humid to the chilled water cooling system advanced from the lower tower. The system

produces a massive 15 million gallons of water each year. Some of the water produced is then used to irrigate the plants. The conservation cycle involved in this tremendous sustainable project is therefore immense.

The project became a reality because of the massive collaboration made possible by interacting with professionals from diverse fields. The SWA developers were able to bring together engineers, architects, landscapers, and policymakers from diverse backgrounds. The policymakers who conceived the early plans and ideas to construct the building envisioned that in the future, there would be great demand and need for vertical cities to minimize the urban sprawl and traffic, among other challenges associated with population growth in urban centers, according to (Ponzini & Alawadi, 2022). The original plans combined different usages such as living, leisure, and working in a particular location. The policymakers quickly brought together an experienced team capable of working with suppliers and all the necessary governmental infrastructure to put together the historic building. The design, construction, and building technologies needed for the tower would require numerous innovations. The construction contract was awarded to a highly experienced team which entailed collaborative and innovative suppliers and logistics personnel. The blend of teams with diverse knowledge and experience was a massive boost for the project.

Intense collaboration with the creative suppliers played an integral role in implementing various essential aspects of the project. As per Al-Kodmany (2021), the suppliers who were to supply building materials and other associated technologies received an earlier briefing on the standards required for the whole project. A great example of collaborative effort was when Peri and Doka, two leading formwork specialists, were consulted. Their opinions lead to the change in architectural designs and subsequently to the whole process of construction. After the advice, the project team reverted to pouring concrete for walls so that things could move on faster. The project team was highly flexible and readily accepted changes and suggestions to the fundamental requirements of the project. Some latest technology was effectively integrated into the project, such as the GPS-controlled jump formwork. The technology was developed by a group of technology-savvy individuals and helped in controlling the verticality of the building with military precision. Another innovative technologies included in the process to make it a success was the Favco diesel-powered self-climbing crane. The crane helped avoid voltage drops that plagued standard electric cranes. Unimix, the project's concrete supplier, contracted Putzmeister, a German construction company, to develop, test, and supply pumps that could operate under immense pressure. The concrete was fine-tuned through various tests to guarantee that there was immense fluidity. The brilliant mix of different professionals who were well conversant with the construction process made it possible to achieve the goals of constructing the Burj Khalifa tower, whose sustainable benefits can now be enjoyed by many people across Dubai and thousands of travelers.

The Crystal Project in London

The Crystal is a sustainable cities project initiated by Siemens in London. The project was opened to the public in 2012 (Eyre, 2022). Siemens Corporation hired Townshend Architects to help develop this project into reality. The project's primary goal was the creation of an urban landscape that could act as an ecological center in London. The project used more excellent landscaping materials, making it relatively easy to stand out amongst other similar projects in terms of objectivity. The project recognized the fact that Landscape architects can play an exciting role in the creation of design interventions that can encourage environmental sustainability. Siemens had a goal of promoting sustainable architecture through the project. Sustainability architecture incorporates aspects of green design into the various sections of a building. The primary objective is often to strike a beautiful impression while preserving nature through a green display and thus enhancing the overall quality of life. The green projects generally decrease harmful environmental consequences on the planet. The dynamic nature of requirements for developing such a project requires an immense collaboration between different parties.

In The Crystal, Siemens was able to bring together professional Landscape Architects, Engineers, and Biodiversity experts, among other specialized professionals, and provided them with an appropriate environment to achieve the set-aside goals. As per Eyre (2022), the massive building covers an estimated area of 3,687 square meters. The building is entirely electric and eliminates the application of fossil fuel. The immense solar panels on the roof replenish the massive battery storage, thus ensuring that excess energy generated is not wasted. The building is fitted with sensors linked to the building's management system. The work of the sensors is to adjust the temperatures, ventilation, heat and lighting. The process ensures

that as much energy as possible is conserved. The large amounts of glass ensure that natural lighting can be accessed during the day. Moreover, The Crystal harvests rainwater and converts it to drinkable one. The building has a water recycling plant, which makes this possible.

The concept used in constructing the building inspires the masses to see the need to take issues concerning future sustainability with all the seriousness it deserves. The Crystal, London, effectively challenges other cities and organizations to improve power grids, water supplies, transportation systems and architectural infrastructure. Siemens has had to work with a competent group of individuals to realize success in the project. Besides the impressive work done by Wilkinson Eye Architects, Electrical Power Engineers have done great work in designing a whole power grid and integrating it into the building. Furthermore, Water and Mechanical Engineers did well to channel all water resources to a greater purpose, thus effectively eliminating wastage. Environmentalists and policymakers played an essential role in coming up with visions of the environmental requirements of the future and coming up with plans on how to implement these strategic visions. BRE rating covered all aspects to do with biodiversity. The group did well to add a native wildlife meadow alongside several resourceful amenities. The plants the group recommended are climate sensitive and can minimize water consumption with utmost precision. The black water recycling system also helped in the irrigation needs of the building. All these factors and personnel contributed to the realization of the goals that Siemens had in place for the sustainability needs of the future.

Solar City Project

The Solar City is a project designed by Atelier Dreiseitl in Austria and completed in 2005. When the discussions concerning sustainability reached a fever pitch in the late 1990s, the Solar City project was conceived to try and bridge the gap between the social and environmental perspectives (Gimenez-Maranges et al., 2021). At this point, there was a clear need for expansion because of the growing European populations. The Solar City project is compassionate and during the construction, highly indicated respect to all the riparian landscape while at the same time ensuring to attend to the recreational concerns of individuals. Solar City embraced a high-quality architecture integrated with ecological quality. Therefore, Landscape Architects made it a point to design residential areas that would not harm the natural protected areas (Kibert, 2016). The schemes to be protected are natural swimming ponds, water management systems, and manufactured wetlands, among others. For the 88 homes, decentralized wastewater purification systems were set up by the Solar city project. There was also a primary school whose water needs the project served diligently. The waste matter was largely used as a fertilizer and compost.

The Solar City design was inspired by green garden cities which had flowing transitions between landscapes, gardens and parks. The contractor had a speciality in water concepts and ecological landscape. The company pulled all strings to ensure that there would be a low consumption of fossil fuels. The plan included recreational facilities like a natural swimming pond, large quantities of vegetation and a water playground that kept residents near the areas which were already built up. The project also had an elaborate water management system which incorporated bioswales, drains, and brooks which lead rainwater from buildings to the woods in the washlands. According to Gimenez-Maranges (2021), the groundwater designs help in preserving water and supplement the wetlands thus ensuring a great water balance.

Competent and famous designers handled the project to issue competitions across the energy, architecture and water. Despite the aspect of competition which was involved in the project, these designers heavily collaborated and relied on each other to build quality facilities. As a consequence of these noble actions, Austria ended up having a district with one of the most elaborate water management systems in the world. The quality in terms of an architectural masterpiece, urban development, nature development and sustainability was surely on a greater level. Projects such as the Solar City are indicators that the world is changing at an alarming rate, hence landscape usage and designs should take an approach geared towards these changes. One clear fact is that people are increasingly becoming conscious of sustainability measures. Hence, city planners and landscape architects have to shift focus and thinking to embrace degenerative and active roles in developing healthy communities by implementing sustainable projects (Martek et al., 2018).

Conclusion

In all, one can easily see that there is an increasing number of revolutionary sustainable designs. Sustainable designs can be implemented on various scales. Sustainable development cannot be ignored at this point. Various global challenges require corporations, governments, and individuals to come up with solutions to ensure that humanity survives in the future. Achieving such a goal requires the immense efforts of different individuals in various institutions through collaboration. In the three sustainable projects discussed above, various professionals with different levels of experience and expertise came together and made it possible for humanity to experience innovation. Such a level of collaboration is a core ingredient if the sustainability goals are to be fully attained. The Burj Khalifa Tower project in Dubai, the Solar City project in Austria and The Crystal in London are clear indicators that there lies the immense potential that if harnessed correctly then, achieving the sustainable development objectives would not be as difficult as it may seem.

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