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SUSTAINABLE DESIGN. AN ELEMENT PARTICIPATING IN HUMAN DEVELOPMENT IN THE FUTURE

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Abstract: Sustainable design is a philosophical concept in which the design of physical objects is related to a series of principles related to economic, social and ecological sustainability. In this way, processes are carried out that promote the objectives set by the UN for sustainable development, and where an *environmental ethics* is established as a field of applied ethics concerned with the natural environment, the instrumental and intrinsic value for humans and animals. Likewise, biocentrism seeks the integration of the human being, considered as one more element of the natural system, and its interrelation with the other living organisms of the planet. Finally, transhumanism emerges as another alternative to perpetuate human life beyond what it naturally has.
Keywords: Sustainable design. Sustainable development goals. Environmental ethics. Biocentrism. Transhumanism.

A SUSTAINABLE DESIGN FOR HUMANS

According to the Academy of the Spanish Language, the concept of *sustainability* has to do with aspects related to ecology and economy, as well as the fact of being maintained for a certain period of time without exhausting natural resources and causing significant damage to the environment. Thus, in the sustainable process, a series of necessary capacities must be produced in order to be able to manufacture continuously without exhausting the indispensable resources for the proper functioning of the different systems, eradicating the possibility of generating more pollutants that cannot be assimilated by the natural environment. In this sense, there is a direct relationship with a quantitative increase of the factors or elements that produce an exponential growth, which is replicated from certain environmental conditions and under constant reproduction, resulting in the depletion of natural resources, thus deriving in unsustainability.

The sustainable process is related to an accumulation of knowledge that human beings have gathered through generations, known as "community knowledge", which is based on experiences in accordance with human needs and its objective is not to risk endemic resources through their conscious use. In this way, the economic wellbeing of the entire community is sought in order to increase the quality of life of its members, without affecting the natural environment. With sustainability, there coexists an intercession between the environment and human actions.

However, at the social level, the economic interests of companies avoid addressing the recommendations of global issues related to the pollution of ecosystems, the loss of natural plant and animal resources, the rapid degradation of land, the overexploitation of water and air pollution.

In this regard, Junhua (2023) states that the planet is in a moment of "polycrisis", as a series of difficulties have arisen, among which climate change stands out as the result of production and consumption practices that have irreparably damaged it. The author also comments on the latent threat of the loss of social progress, as the Sustainable Development Goals set by the United Nations, known as Agenda 2030, have not been met.

Other destructive conflicts such as war and attacks against people have generated consequences such as forced displacements which demand new territories to inhabit as well as for the cultivation of food, leading to the consumption of natural resources such as water, which gives way to the modification of ecosystems. All these variations have not allowed to carry out the relevant changes to comply with the 2030 Agenda that was established in 2015 to be fulfilled by the nations in 2030. However, in order to make this possible, it is necessary to observe the "five priority areas for urgent action" identified by the United Nations:

Heads of State and Government must commit to taking accelerated, sustained and transformative action over the next seven years, at both the national and international levels, to deliver on the promise of the Sustainable Development Goals.

Governments should promote concrete, integrated and specific policies and measures to eradicate poverty, reduce inequality and put an end to war.

against nature, emphasizing the promotion of women's and girls' rights and the empowerment of the most vulnerable.

Governments must strengthen capacity, accountability and public institutions at the national and subnational levels to accelerate progress towards the Sustainable Development Goals.

4.-The international community must recommit at the SDG Summit to the Addis Ababa Action Agenda and mobilize the necessary resources and investments to enable developing countries, and in particular countries in special situations and those experiencing acute vulnerability, to achieve the Sustainable Development Goals.

5.-Member States should facilitate the further strengthening of the United Nations development system and increase the capacity of the multilateral system to address emerging challenges and address gaps and weaknesses in the international architecture related to the Sustainable Development Goals that have become apparent since 2015.

THE IMPORTANCE OF A NEW SOCIAL ETHIC

These five spheres must now be linked to *environmental ethics,* the communities and governments of the different States. Likewise, under a series of concepts, the aim is to promote a series of sustainable processes in which human beings play an important role in their relationship with the environment, systematizing their actions by means of more practical moral relationships that ensure and preserve natural resources on the way to social and economic development in each region.

On the other hand, the concept of *environmental ethics* is also linked to a deontological moral system, limiting the use and value that human beings give to natural systems. Currently, this ethical system is related to procedures that are implemented as part of sustainable design, in the search to minimize the negative impact on the life of all living beings on the planet. Sustainable design seeks to reduce mainly the production of waste by conserving the environment.

The design also proposes the development of products through environmentally friendly practices and processes. Another of the fundamentals it contemplates has to do with minimizing energy expenditure, developing systems more in line with the contexts, their needs and their geographical characteristics.

Therefore, under an ethic that guides people's conduct, social behaviors are based on values. Therefore, sustainable design based on a normative, helps to respect the environment considering the natural resources of a place, culture, customs and community traditions. Likewise, from an ethical point of view, a *biocentric* approach is proposed. In this regard, the integration of human beings is sought, considering them as one more element of the natural system, in order to interrelate with other living organisms.

With biocentrism, it would be possible to prevent human activities from generating more drastic changes in the planet through the alteration of ecosystems; for this, policies, norms and regulations will have to be reformed and revalued from a collective ethic. On the other hand, the biocentric concept also seeks a change in the system of human life, as well as in the space-time of individuals, moderating the use of natural resources, committing to use the indispensable ones, abandoning the tendencies of immoderate consumption of goods, and only consuming the goods that correspond to imminent needs.

An example of this is the proposal called "fog catcher", which offers a solution to provide water to populations living in desert areas and in adverse conditions for an adequate quality of life. According to Salvadeo (2023), the fog catcher has three important objectives:

1) Start a global monitoring network of changes in coastal upwelling systems and mapping of haze potential in BCS using fog radar and satellite data.

2) Develop a pilot program for the construction of low-cost, easy-to-maintain structures for harvesting fog water in low-income populations, integrating the university community in its execution and scaling up at the territorial level.

3) Develop an agribusiness scheme based on fog capture that favors agricultural reconversion in the arid coastal valleys and present it to authorities and rural producers.

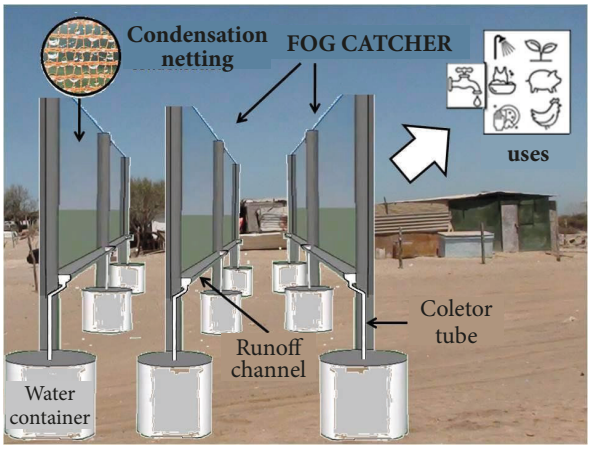

Image 1. Fog catcher. Universidad Autónoma de Baja California Sur. https://sdsnmexico.mx/banco-de-proyectos/economia-circular-y-tecnologias-sostenibles/atrapanieblas-a-solution-to-the--scarcity-of-water-in-the-coastal-desert/

This proposal also considers improving the quality of the environment by reducing negative factors; supporting the health of the inhabitants through personal hygiene, household and drinking processes; obtaining, storing and using the water obtained through the proposal and optimizing the daily chores for the production of goods that can be sold in order to obtain income to activate the local economy. On the other hand, from a holistic point of view, it will be possible to integrate the different systems and their properties in order to analyze them as a whole and not in isolation, i.e., considering them as a whole.

For example, the biological, social, economic and physical systems, which provide the guidelines to solve the problems of the inhabitants of a given place.

In this regard, Ferruzca and Rodríguez (2011) suggest the need to generate a design based on research, development and innovation (R&D&I):

> Design proposes social inclusion, interaction with users, differentiation of products and services, and dynamization of the economy through innovation ecosystems that apply design as part of their strategy to boost the competitiveness of Mexican companies and sustainable development. Design generates jobs, opens new channels for citizen participation and contributes to face environmental problems. When design is understood from this perspective, we can say that it is sustainable and, therefore, citizens, public administration, research centers and companies benefit from applying and consuming it. (p.48).

From a sustainable design, we must consider a process that initially meets the needs of users, from an efficient development of products that consciously have a positive impact on all people, within which are considered the designer himself and the consumers of the products. Therefore, with this type of design it will be necessary to link the environment, society and the economic factor of a certain place to generate "more with less", that is to say, to produce products that satisfy with the least possible expenditure of energy and pollution. Undoubtedly, in this

process, recycling or reuse will have to be a constant that can alleviate the waste of natural resources, thus avoiding the degradation of ecosystems that can lead to more serious problems for a certain community. This not only guarantees an adequate management of resources, but also improves the quality of life of the inhabitants by involving them as participants in sustainable design projects.

Thus, by making the most of resources, material savings will be generated with a production that requires the minimum number of elements or parts for a design object, saving economic resources and minimizing the waste that is constantly dumped into the environment. Therefore, with sustainability, endogenous elements are regulated and exogenous factors that act in the communities with the objective of revaluing work methods in order to generate satisfactions for daily life. Under this idea, people are encouraged to take ownership of internal productive practices, conceived as clean, recyclable, resource-saving and with low environmental impact.

In the same way, it is important to highlight the importance of a projection that from the sustainable design reduces the garbage and waste generated by the industry to then be poured into surface waters to reach the groundwater, affecting the air and land in the same way. Based on the above, it is also necessary to safeguard natural spaces for the urban context, as one of the most susceptible, i.e., capable of receiving the action or effect of the above and with direct consequences to the population, therefore, it is imperative for example, the promotion of activities that are part of the leisure of people and from which promote safe, inclusive, natural and clean spaces. Under sustainable design, the economy is also strengthened to promote a development that positively affects the quality of life of people, from the rescue and renewal of natural resources under projects that help all people mitigating the most essential needs. For smaller urban areas, these proposals are conceived as viable to maintain an adequate sustainable development and whose impact results in benefits of all kinds for the inhabitants and the possible resources still available.

In this regard, Higueras (2009) points out ten principles for sustainable development in the urban context: initially, a *study* should be carried out to *determine urban population density*, determining congestion, traffic and the cost of the infrastructure required for the operation of the city. In terms of sustainability, there is a relationship between the number of inhabitants and the square meters occupied in the territory that is part of the urban center. This has a direct impact on other important aspects, for example, land use; vehicular congestion and the number of people using the different services offered by the city, such as public transportation networks; the general complexity created in the urban center, conceived from the different typologies; and the variety of facilities, according to the author.

Secondly, to take into account *the building morphology of the urban structure in general* in order to shape an urban center more in line with the principles of sustainability. The objective in this regard is related to the typology of buildings under specific requirements and characteristics. These include the variety of architectural forms; the variety of dwellings; variety of tenants; and adaptation to the different conditions in the construction areas.

Third, *mixed-use proposals* are intended, that is, that the urban morphology should include tertiary activities related to commerce and industry as well, avoiding monofunctionality. In fourth place, the interest in the *implementation of green areas and open spaces* that, due to their characteristics, are suitable for a biodiversity in which natural resources are present in harmony with the local inhabitants. The fifth principle has to do with the possibility of having *supply networks and urban infrastructure,* characterized by renewab-

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le and non-polluting energies, thus reducing the environmental impact. The use and implementation of a sustainable infrastructure therefore presents advantages related to the saving of diverse resources by reducing their consumption, making urban aesthetics possible, reducing environmental noise and regulating the use of electrical energy.

Sixth, *facilities integrated* with open spaces and green areas that allow them to be maintained in adequate conditions. The seventh principle is related to the correct *management of urban traffic*, which is relevant to regulate transportation and pedestrian areas in order to improve the quality of life of the inhabitants, offering cars and pedestrians functional roads and spaces. The eighth important principle pointed out by the author is related to the *reduction and reuse of* various types of *waste*, for which the most viable alternatives have been sought as fuel for cogeneration cycles or trigeneration of waste incineration. The ninth principle deals with the conservation of *peri-urban land*, with the aim of connecting the urban area with peripheral natural areas. Finally, the tenth has to do with the search for *social cohesion, equality and, above all, citizen participation* under the implementation of social norms, of an ethic in accordance with the functionality of the society in general and with a policy that considers social problems and needs.

THE RECONSTRUCTION OF LIFE

These ten principles pointed out by Higueras, are part of a set of proposals that are integrated to sustainable design and to the concept known as new "environmental health" pointed out by Montoya (2017) and that turns out to be so necessary in the social context, that is, both for people and for the things created by these in their reciprocal interaction. In this regard, the author points out the need to emphasize the knowledge contained in the *culture* of a place and a human group, which from the institutions has to be sustained, increased and safeguarded under the concept of the planet's culture. Through this idea, Marañón-Pimentel (2014) proposes "a good living" with the search to reconstruct the socio-environmental life in which human beings and nature coexist; for the author, since the implementation of coloniality, the power of the human being is denoted, likewise, a division is generated between human reasoning and nature, between the subjects and the objects themselves. (Marañón-Pimentel, p. 41). Thus, based on transdisciplinary approaches, needs analysis is generated to implement initiatives under various approaches that systemically provide actions based on research. On the other hand and under this approach, Nicolescu (1996) observes the following about a *lived transdisciplinarity*:

> Transdisciplinarity is not the way, but a way to bear witness to our presence in the world and to the experience lived through the extraordinary knowledge of our time. A voice where the capacities of being resonate. As Jacques Robin clearly pointed out, lived transdisciplinarity can lead us not only to a change of mentalities, but also to a change of social behavior. It is necessary to question the conditions that must be created in order to bring about this new behavior (p.99).

Nicolescu's idea of lived transdisciplinarity is also related to a transhumanism, that is to say, to a new humanism that offers a greater development of the humanities cultural and spiritual for each person. Transhumanism seeks a new *being* from individual approaches rather than from a social uniformity, it inquires about the coincidence of diversity, flexible and channeled towards the common welfare, understanding that it is admitted for the majority and it is frequently done. In relation to the above, García (2021) points out about the Transhumanist Manifesto the following:

> ...one of the main ambitions of transhumanism is to prolong life as long as possible, considering as a possibility the possibility of ending the mortal condition of the human being. Death is identified as one of the main sources of suffering in life, as well as illness and aging, which leave man in a situation of special vulnerability. Transhumanism seeks, based on scientific advances, to prolong life with health and vigor as long as possible, and not only one's own life but also the life of the people one loves and with whom one shares it. To achieve this objective, the aim is to biologically perfect the human being through the use of biotechnology, opening up the possibility of bionically prolonging life in a man-machine integration to the point of considering the possibility that human life can continue eternally in an *in silico* support. Along these lines, cryogenics is also proposed as a way of hope for those who cannot yet enjoy the advances that technology will bring and who wish to be brought back to life and live eternally. (p.162).

It is evident that transhumanism seeks greater well-being in the life of human beings on the planet, eradicating situations such as diseases, aging or death itself, so in order to achieve "better states of being"; the implementation of processes from a sustainable design, set guidelines towards a healthier and biologically better life in conjunction with optimal natural environments from different social contexts.

In relation to the transhumanist current, which also seeks to enhance physical capabilities, including the vigor or energy of the body, elasticity, the ability to do certain things, the capacity to evoke events and situations, the observation, listening, reflection, analysis, interest, the ability to perceive, feel and be moved by everything present in the real environment, leads to the knowledge of things and, above all, to a series of improvements that the human being has to carry out. In this regard, García (2021) points out the following:

> These improvements reveal the human desire to deepen the way of being of things themselves by finding new ways of linking ourselves to reality, of inhabiting the world, and of deepening our knowledge of the truth[24] contained therein. These improvements entail numerous ethical implications that should be taken into consideration, as the transhumanists themselves recognize, but beyond that, in all human beings there is a desire to enhance and improve their physical and cognitive capacities in different ways. Coinciding with the desire to increase the intellectual capacities that allow us to know more and better, in my opinion, transhumanism manifests here a certain myopia when considering as the only licit way of knowledge the empirical and experimental sciences, in which it places a blind faith when it comes to understanding the reality that surrounds us and our place in the cosmos, as well as to build on it the foundations of morality. (p.164).

Under a new conception of human life on the planet, sustainable design is already an imperative need; inhabiting the world implies a more direct relationship with scientific knowledge to establish the guidelines that lead human beings to their integration with the natural world. The improvement of human capabilities is, initially, in the promotion of culture and moral values, of an applicable and achievable ethics among individuals; the Sustainable Development Goals proposed by the United Nations Organization (Agenda 2030), are far from being achieved after a series of interests that different governments and companies have around the natural resources of the planet, which leaves behind the proposals of sustainable type, of less value for what they represent.

Sacristán (2022), citing Lovelock (2021), states that there is currently an unquestionable relationship between artificial intelligences (cyborgs) and human beings based on a greater awareness of civilization and the changes that are present in it. Therefore, there is a need

to modify paradigms and social systematization in order to ensure global sustainability. In this regard, Lovelock states that there will be an intrinsic relationship between artificial intelligences (AI) and human beings to maintain the ideal conditions for the habitability of the planet, among which the increase in global temperature, climate change and the modification of ecosystems endanger human existence, so it is necessary to propose a sustainable transhumanism.

CONCLUSIONS

Finally, with the development of sustainable technologies, the aim is to use the least amount of energy possible to protect natural resources, emitting a low amount of pollutants and through the search for recycling or reuse processes of the materials used and those that are subsequently discarded when using the products. However, in practically all areas of human progress, different design products that meet the specifications to cover the category of sustainable items are considered. Thus, Estévez (2020) makes it clear that sustainable design includes the life cycle of products or services, although more important is the fact that this design focuses on observing details included in the 2030 agenda, such as human rights, community development, trade and ethics, for example, which suggests the need to incorporate all the inhabitants of the planet to change and dignify individual and community life. Therefore, from the approaches of this design, Manzini (2019) points out a series of models with which it is intended to reformulate priorities such as being able to promote times of contemplation. In these, from the *slow design,* quality products are offered, carefully and responsibly made, and where beauty is present as part of the way of life of people to generate feelings and pleasant sensations for the human psyche, raising the quality of life of people.

On the other hand, it is proposed to prevent goods from deteriorating, giving them consideration and fair value in the market. It is also proposed to give preference to materials with greater regenerative potential, redefining the idea of comfort under an open, understandable and inclusive design, aspects that are pointed out in the sustainable development objectives. Likewise, fostering the link between the community and technology becomes important through a link to be part of the global context. In this way, social innovation seeks solutions that are more in line with individual and collective needs, adapting them to people's environments and culture in order to solve the most pressing problems. To this end, technology generates new opportunities for design based on the available resources, materials, knowledge, culture and skills of the inhabitants, with the advice of multidisciplinary work teams and designers. Transhumanism and sustainable design supported by a new social ethic will be the triggers for a radical change in human existence for the remainder of this century.

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