

## **Sustainability - Education**

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### **Abstract**

*From a general perspective, sustainability can be understood as an assembly of directions and measures which tend to draw attention towards the conditions under which both the built environment and individuals can develop together, in compliance with the heritage, the present and the requirements of the future generations. According to a more specific perspective, addressing local, development and mentality, sustainability can be regarded as a deliberate reaction to the economic development, especially after the 1970s (an intentional system). It can also be regarded as the natural result of a slow technological development of geographic areas that have preserved their natural and built environment in its spontaneous form (an intuitive system). Within the shaping of an individual's mindset or a group's mentality, education oriented towards emphasizing sustainability becomes extremely important. If initially perceived with an intuitive approach, the concept now becomes a clear target. In the spirit of the above assertions, this paper analyzes the educational aspects present in the curricula of the Faculty of Architecture and Urban Planning of Cluj. In recent years three project themes from the Specialized Design – Furniture Discipline (the 3rd year of study) have tackled different aspects of sustainability. A first project theme focused on the revival of several underused urban areas of great potential and a second one, the Green Hotel theme, that fostered an eco-attitude of the students by studying and designing the interior of an eco-hotel suite. The most recent theme is also the one of a design competition initiated with a furniture producer, a theme which aims to imagine an object or an environment by creating new forms of composition and using the remaining materials of the company production. Some of these ideas can also be found within the final projects of the 6<sup>th</sup> year students.*

### **Rezumat**

*Dintr-o perspectivă generală, susținabilitatea poate fi înțeleasă ca un ansamblu de direcții și măsuri ce tind să atragă atenția asupra condițiilor în care atât mediul construit, cât și indivizii se pot dezvolta împreună, în acord cu patrimoniul, prezentul și viitorul generațiilor următoare. Dintr-o perspectivă mai aplicată, din punct de vedere al dezvoltării locale și al mentalității, ea poate fi înțeleasă ca o reacție deliberată la dezvoltarea economică, de după anii 1970 (modelul programat). Poate fi privită și ca un rezultat natural al unei dezvoltări economice mai lente ale unor zone geografice ce au păstrat mediul natural și construit în forma lor spontană (modelul intuitiv). Referindu-ne la modelarea mentalității individului sau a unui grup, educația orientată către accentuarea susținabilității devine foarte importantă. Dacă până acum această direcție a fost abordată în mod intuitiv, ea devine în prezent o direcție clar formulată. În spiritul celor expuse mai sus, lucrarea analizează aspectele promovate în curricula Facultății de Arhitectură și Urbanism*

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din Cluj. În ultimii ani, proiecte din cadrul disciplinei Proiectare specializată-Mobilier (anul 3 de studiu) au abordat diferite aspecte ale sustenabilității. O primă temă a propus revitalizarea unor zone urbane cu potențial real, dar neutilizate, cea de-a doua temă, intitulată Green Hotel, dezvoltă o atitudine eco a studenților, prin studierea și amenajarea unui apartament de hotel. Cea mai recentă temă a fost subiectul unei concurs de design inițiat împreună cu un producător de mobilier, o temă ce urmărește imaginarea unui obiect sau al unui ambient, prin propunerea a noi forme de compoziție și folosire a materialelor rezultate din procesul de producție al companiei. Putem regăsi unele dintre aceste idei și în cadrul proiectelor de diplomă ale studenților anului VI.

**Keywords:** sustainability, sustainable attitude, sustainable education, urban furniture, eco-furniture

## 1. Introduction

Sustainable development is commonly defined as a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [1]. Another definition emphasizes that a sustainable "society's demand on nature is in balance with nature's capacity to meet that demand" [2]. This papers' approach is divided in two sections. A first section deals with the concept of sustainability in a general perspective, highlighting several aspects regarding the area of Romania, with its specific characteristics. The second section illustrates an education towards sustainability, presenting some contemporary attitudes or solutions in both the international and national context and, in particular, in the curricula of the Faculty of Architecture and Urban Planning of Cluj. In this second part, some specific applications within the Furniture Design Discipline – Specialized Design 2 and within the final thesis of the 6<sup>th</sup> year students are presented.

## 2. Sustainability components

Two different components, the intrinsic and the intentional, define a subjective approach towards sustainable development. The intrinsic component exists in all systems of organization and ideas, underlying the development of traditional – basic societies. This type of development can be exemplified by our traditional rural development, the traditional organization of a village or a traditional household (Fig. 1, 2) or that of other countries' with a similar development. This intrinsic component reflects the important principles of sustainability without a clear target or an express attitude.

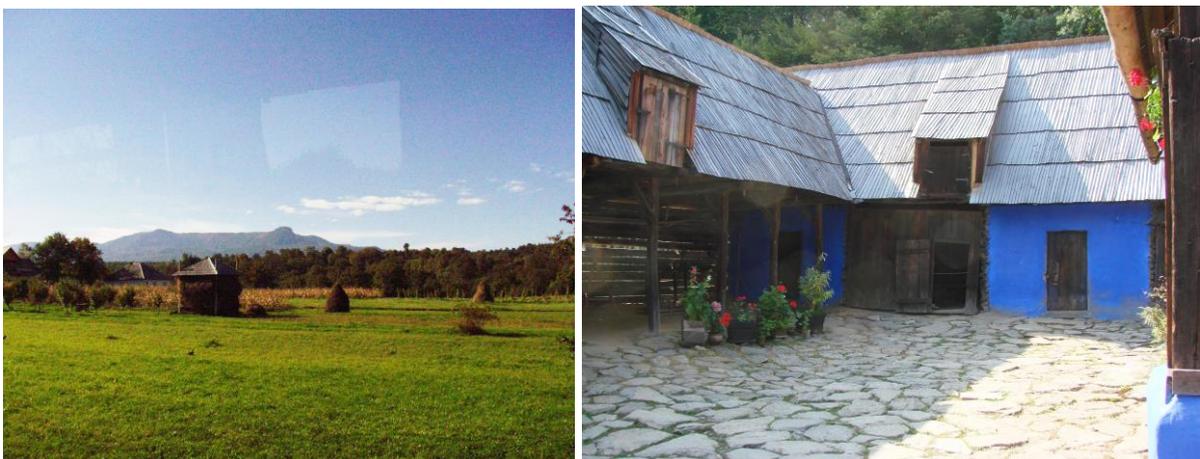


Figure 1. Typical rural landscape in Maramureș area

Figure 2. Traditional household in Săliște, Astra National Museum Complex, Sibiu

The intentional component is a well-shaped alternative that appeared shortly after WWII, following a strong economic and technological development, a result of the consumerist policies adopted by the European countries, along with the postwar reconstructions. These attitudes promoting expressions of sustainability occurred in response to a forced industrial development that tended to subordinate the organizing principles of life, an attitude oriented towards excessive mercantilism and pragmatism. A non-harmonious development led to economic, social and environmental imbalances. As a consequence, in the 1970s [3], individual standpoints frequently appeared, as did government agencies focused on environmental protection (the US Environmental Protection Agency or The National Environmental Protection Agency etc.). An efficient use of resources, the identification of energy saving principles and the utilization of adequate materials that can be reintroduced in the natural environment become the basic principles in creating a sustainable product for society. In the same time, the structuring of the ideas that should be part of the ecological education of society (children, youth, adults and elderly people) takes place.

### **2.1 Current attitudes – Resources and environment**

Even though many countries have good policies regarding environmental protection and the civil society has a higher degree of involvement and awareness (recycling in Canada, Sweden etc.), their actions in foreign territories reflect different attitudes towards problems of a global scale (deforestation etc.). In this sense, F.A.O. (Food and Agriculture Organization of the United Nations) [4] statistics reveal that the forest area in Europe has increased, while it has decreased in other continents due to excessive exploitation. In Romania, in the last decades the cutting of the forests has been excessive and this is also the result of the actions of foreign companies that are exploiting the resources in ways in which they would not be allowed in their countries of origin. A sustainable attitude concerns not only a territory or a country, but, in this case, the entire Europe, while the imbalance reflects on a global scale.

The same aspect is also valid in terms of exploitation of other resources in Romania (minerals, oil, gas, wood etc.): large scale mining as in the case of Roșia Montană [5], Certej (Fig. 3) or polluting activities that have not been approved in other European countries, like in the case of the Kronospan factory in Sebeș [6].



Figure 3. Photos of Roșia Montană and Certej. Photo of Certej in 1971

### **2.2 Towards a sustainable attitude**

Although the frequent changes of legislation undertaken by the political class in Romania are most often against the principles of sustainability, the civil society (young people, adults, and elderly people) has engaged in different actions and has succeeded to promote those principles. Only a few examples are: Campania Salvați Roșia Montană (Save Roșia Montană Campaign) fighting for the

protection of the environment and of the historical heritage, Asociația Salvați Bucureștiul (Save Bucharest Association) engaged in the protection of the built heritage [7] or the local communities of several localities striving against shale gas exploitations. Despite the lack of a coherent national environmental policy in Romania and the big ecological accidents (more or less publicized), the two opposing positions - the non-sustainable and its reverse are well defined, each having its own level of consciousness and vision for the future. A large part of the political class and of the companies is oriented towards a pragmatic vision which excludes long-term prospects, focusing on their own future only. Others act from a higher level of consciousness, either as producers / initiators of new activities or from a need for survival (various organizations that recycle materials or produce sustainable materials, others that promote the introduction of the existing heritage into cultural circuits). We can identify three steps of the development of sustainability. Some countries have known a full circle of economic development and have returned to sustainable principles (Switzerland, Sweden or the U.K.), others still have not. In contrast, some countries have a traditional type of development that assumes the existence of implied sustainable principles (some of the African countries, a part of India). Some countries include both directions. (Romania)

Nowadays we are encountering an important moment, in which the resource crisis becomes more and more evident and a change in mentality is also taking place; while before, sustainability was rather an intuitive component, it now becomes a clear direction.

### **3. Current educational aspects**

Even though there are some common principles, education for sustainability is not identical to environmental education (within the ecological education the outlook is narrower, its applicability aims mainly towards the natural environment). Recent studies within the field of pedagogy highlight some directions in particular.

- The education and challenges of the contemporary world [8: 64-67]

The learning process is oriented towards stimulating both brain hemispheres in the process of learning and mastering the complexity of knowledge. We already know that the left hemisphere is responsible for the logical learning and the right one for the intuitive processes.

- New educations [8: 68-73]

As a result of current trends, particular directions have recently emerged in the development of education, for example: Education for Peace, Ecological Education, Home Economics Education, Education for Democracy and Civic Engagement, Education for Communication and Mass-Media, Nutritional Education, Health Education or Education for Leisure). "Ecological Education tries to raise one's awareness towards the ecosystem, to optimize one's connection with the natural environment. Thus, children and young people are guided towards developing their responsibility regarding waste management, environmental aestheticization and growing resources. Education for the environment involves a set of actions aimed at the structuring of an ecological culture of the contemporary man, based on knowledge, on explanations, on the internalization of attitudes and responsible behavior towards the environment. A characteristic of this type of formation lies in its interdisciplinary perspective." [8: 68-73]

#### **3.1 A selection of positive initiatives**

The following examples illustrate the use of the principles that are part of a sustainable direction, whether they are the result of economically driven actions or the protection and integration of cultural values.

- Economically driven actions

Eco Rom Ambalaje (Eco Rom Packings) [9] is a company involved in recycling and waste management. Prispa [10] is a Romanian team who participated at the Solar Decathlon 2012, a competition that promotes solar-powered houses that are cost-effective, energy-efficient and also attractive.

Various structures constitute themselves within a system that encourages sustainable principles (healthy food, sustainable architecture). Eco Ruralis is an "association made up of small farmers who practice organic and traditional farming based on environmentally conscious principles" [11]. The National Association of Rural Ecological and Cultural Tourism – ANTREC [12] is a member of the European Federation of Rural Tourism – EUROGITES.

- Protection and integration of cultural values

The site of the Institute for Cultural Memory, CIMEC [13], is an example of an action that brings together Romanian research institutes in order to present the built heritage, the mobile heritage, events, exhibitions, publications in the fields of archeology, architecture, ethnography, history, music, or theatre. Some structures promote the research of the cultural heritage in Romania and its integration in the national and European circuit (for example: The RPER Association [14] - Rencontres du Patrimoine Europe Roumanie which organizes summer camps at Bucium, under the guidance of the Romanian Academy). Other structures target the saving of architectural values and their integration in a functional circuit (for example – the Adopt a House in Roșia Montană project, or the initiatives of a small group of researchers drafting an index of the built heritage in Oltenia [15]). Adopt a house in Roșia Montană (Fig. 4) is a program initiated by Alburnus Maior (the local NGO dedicated to the protection of the rights of the Roșia Montană community) and Association A.R.A. [16] (an association committed to the research, conservation and development of cultural heritage for the benefit of communities and society). This program tries to preserve the local heritage with the help of the local community and through public contributions.



Figure 4. Adopt a House in Roșia Montană!

Some initiatives promote artistic directions that represent a national specific (the Internet sites [designerromani.ro](http://designerromani.ro) or [designist.ro](http://designist.ro) promote young local creative - interior designers, fashion designers, jewelry designers and others). Several initiatives present the traditional Ia (the traditional Romanian Blouse) [17] in international exhibitions or in shops. Local private museums initiated by small groups or individuals preserve local objects or traditional pieces of furniture. During this year's edition (2015) of the TIFF festival, beside the established screenings in Bontida, a film projection has been organized in Vlaha, at the Arkhai Sculpture Park, drawing everybody's attention towards the hay sculpture park [18].

### ***3.2 Sustainable education - a perspective towards the Specialized Design 2 – Furniture Design Discipline, Faculty of Architecture and Urban Planning***

Following the idea of encouraging local values and a sustainable education, several activities of this type have been developed at the Faculty of Architecture and Urban Planning in Cluj: the project themes of the Architecture studio of the 4<sup>th</sup> and the 5<sup>th</sup> year of study, the Ecological Architecture course in the 3<sup>rd</sup> year of study, the elective A course: Traditional Furniture Design in the 5<sup>th</sup> year of study or the Specialized Design 2 - Furniture Design in the 3<sup>rd</sup> year of study.

In recent years, three project themes from the Specialized Design 2 – Furniture Design Discipline [19] (the 3<sup>rd</sup> year of study) have presented different aspects of sustainability. The Urban Furniture Design theme has focused on the revival of some urban areas of great potential, but underused. For example, a project focused towards the using of a roof-terrace above a collective housing building, in order to integrate it within the community's common space. The example below (Fig. 5) is a more metaphorical approach to the theme. The students imagined a place to escape the traffic noise, inside an imaginary pot that grows around a tree.

The second project theme entitled Green Hotel cultivated an eco-attitude of the students by modeling an interior environment from a sustainable perspective. This project chosen to illustrate the theme shows that the students not only utilized recycled furniture, but also used natural, green finishings adapted to each area (Fig. 6).



Figure 5. Urban Furniture Design theme. A project of A. Gheorghe and A. Durloi, arch. students

Figure 6. Green Hotel theme. A project of A. Crisan, A. Lorincz, M. Marcu, arch. students



Figure 7. Creativity / Re\_Utilization theme. A project of O. Vaida and E. Ciuperca, arch. students

Figure 8. Creativity / Re\_Utilization theme. A project of A. Scurtu and D. Cosman, arch. students

The most recent theme, launched in a design competition organized together with a furniture producer, seeks to obtain a possible solution to reuse the materials resulted from the production process of the company. The competition started with a visit at the factory, for a better understanding of the materials and production process. One of the projects used the existing frames of one of the chair models in order to create a separation - a transparent green wall (Fig. 7). Other projects used the remaining textiles to create toys for children (Fig. 8), decorative pieces for the household or a pattern to build an origami castle.

Teaching experience of these recent years is related by default to the field of sustainability, an important concern of the contemporary generation. The approach was both intuitive and intentional, focusing on different scale themes with specific requirements. The final project, respectively the diploma project and the dissertation paper, are more focused on the contemporary reality, the principles of sustainability becoming more and more present. Ten years ago this type of themes was less frequent. It grew in number in the last 4 years, from a general perspective to more concrete issues. For example, some projects focused on the development of local resources (Alternative Treatment Center in Săcărâmb, Mountain Center in Abrud, Wine Center in Zalău, Sports Complex in Târgu Lăpuș or Spa Center in Someșeni and in Dej). Other projects emphasized a research component of the field: a Research Center in the Biology of Plants in Târgu Mureș, a Center for Fruit and Vegetable Processing in Iara or a Culinary and Nutritional Institute in Niculițel. An interesting theme concentrated on cultural aspects – the Ethnographic Park and Traditional Civilization Museum in Târgoviște or the Center for Traditional Art and Culture in Baia Mare. (Selection of the diploma projects and dissertation papers guided by Assoc. Prof. PhD Arch. D. Vlad)

#### 4. Conclusions

From a teaching perspective, we believe that in this way the young students are more prepared for the issues of the near future and even further. By practicing at a small scale, within a realistic or imaginary scenario, they design and achieve concepts and ideas that remain valid principles of life. Sustainability can be seen as a possibility of evolution of a multitude of factors towards the coordination of what is correct, harmonious, required and viable in the same time.

On a national scale, sustainability is going in two current directions. Although most of the mass-media headlines unsustainable actions and their results, one can observe however that by summing up punctual developments (individual and group actions), there is a compensating positive trend, of equal value, indicating hope for future developments.

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