

CONTRIBUTIONS TO WG4 OUTCOME PHOTOGRAPHIC DATABASE AND COMPETITIONS OF COST RELY

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Abstract. Due to heavy urbanisation, approaches in greener cities are required. This is addressed by a number of initiatives, including seeing the city as an ecosystem, and the dialogue between economy and ecology. Sustainable and resilient cities mean connection between the city and the landscape, bringing the landscape into the city, for example through nature based solutions such as green walls or through more open spaces which are green, such as urban parks. In this context the landscape quality of the city can be judged. The renewable energy in the city can relate to solar energy of the passive house which can be a house of heavy geo-materials. In this contribution the approach to sustainable and resilient cities, includes the approach to renewable energy and landscape quality.

Key words: renewable energy, hydro-energy, wind energy, solar energy, dissemination.

1. COST action TU1401 "Renewable energy and landscape quality"

European Cooperation in Science and Technology (COST) is a European networking initiative of national research along certain topics. In the COST action TU1401 (run time 2014-2018) networking is done along four working groups: WG 1 Review/Meta-analysis, WG 2 Case Studies, WG 3 Socio-cultural aspects, WG 4 Synthesis/Dissemination towards the investigation of the effects of renewable energy installations on landscape quality (Roth, 2014). 35 countries from Europe but not only network in this initiative. This paper presents work done towards WG4.

2. Renewable energy types and the connected poetry of integration in landscape

2.1. Hydro-energy

The romantic of wind mills is well known, but so romantic are water mills as well.

Today when small size micro-hydro-power is a danger to ecology of rivers, we take a look to the early sustainable hydro-power. The first energy landscapes considered are water mills. In Esslingen am Neckar, a small city in South-West Germany, historical water mills are in the city centre, included in the city tour (Fig. 1a). The Neckar river gave energy to the cities along it from the time of industrialisation on (19th century) and in Esslingen the urban Neckar channels and the so-called water house are monument protected. This includes among other three important mills. In Romania instead, these can be found in a rural environment, on Rudăriei river gorges in Eftimie Murgu village in the Banat region (Fig. 1b), a region inhabited by Danube Swabians, like the South-West Germany town where they came from. The historical water mill landscape in Romania is a listed monument.



Fig. 1. Hydro-energy: a. Esslingen (Germany), b. Rudăriei (Romania), c. Iron Gates (Romania).

Photos: M. Bostenaru

From the total of 22 preserved watermills, composing the largest complex in South East Europe, 12 are listed as national importance monument. The earliest 8 mills were from 1772, a number which increased to 51 mills till 1910. Also in the Banat region there are the mega-hydropower from Communist time, the Iron Gate on the Danube. The Danube was before in this area also subject of romantic, as a passage from "The man with golden

touch" (Az aranyember 1872), a novel by Hungarian writer Jokai Mór shows: "A mountain-chain, pierced through from base to summit—a gorge four miles in length, walled in by lofty precipices; between their dizzy heights the giant stream of the Old World, the Danube.

Did the pressure of this mass of water force a passage for itself, or was the rock riven by subterranean fire? Did Neptune or Vulcan, or both together, execute this supernatural work, which the iron-clad hand of man scarce can emulate in these days of competition with divine achievements?"

One of the workshops of the DanURB European project was held in this area, and revealed also wind mills in the area. Building the Iron Gates hydropower (Fig. 1c) made landscapes disappear, such as the Ada Kaleh island. In Romania there are several other big hydro powers from Communist time, such as Vidraru on Arges river and Bicaz hydropower (Bostenaru and Stan, 2017). Having one third of the country covered by mountains was in favour for this.

2.2. Wind energy

Better known are wind mills. The romantic of windmills was noted in Don Quijote by Cervantes: "Look, friend Sancho Panza!" he exclaimed. "Thirty or more monstrous giants present themselves! I mean to engage them all in battle and slay them; for this is righteous warfare. It is serving God to sweep so evil a breed from off the face of the earth!"

"What giants?" asked Sancho curiously.

"Those with the long arms," replied Don Quixote.

"But, your worship," said Sancho, "those are not giants but windmills, and what seem to be their arms are the sails that make the millstones go."



Fig. 2. Wind energy: a. Bruges (Belgium), b. Leiden (Netherlands), c. Vienna (Austria), d. Nessebar (Bulgaria), e. Dobrukscha (Romania). Photos: M. Bostenaru

Wind mills are spread throughout Europe. In Romania instead an area for windmills is Dobrudsha region next to the Black Sea (Fig. 2e.). The gender dimension includes safety of these inner urban leisure areas.

In Brugge, Belgium there is a park from the same baroque time as the Romanian historic watermills. The area Sint-Janshuismolen of the now park was dedicated to wind mills since 1487, and the windmills actually date from 1765 till 1970 (Denewet and van Nieuwenhuysse, 2018). We chose a photo displaying today's cyclists instead of Don Quijote and Sancho Panza on horses. In Leiden, the Netherlands, the wind mill is integrated in the city tissue (Fig. 2b) as the water mill in Esslingen am Neckar. Wind mills have an architecture which is characterised by critical regionalism, that is, adapted to the area where there are. These Nordic wind mills look different of those white washed in Greece, for example on Rhodes Island. Similar mills to the Nordic ones are on the Black Sea shore in Bulgaria (Fig. 2d).

The wind mills of today are not so romantic and pose a threat to landscape quality, for which reason public participation is called for in many Western countries. The wind park on the Danube Island in Vienna (Fig. 2c, Wien Energie, 2018) is situated in a leisure area in the city, next to the river, as the historic one in Leiden, and two of the mills included public participation. It is also an early work from 1997.

2.3. Solar energy

If in case of historical watermills and wind mills a construction is monument protected, in case of solar energy this can be placed on field or on a building. In case of being building connected,

architecture plays an important role. Fig. 3 shows examples from three countries. The first is the reconstruction in L'Aquila after the 2009 earthquake. Displaced people were placed in the new neighbourhoods outside the city which composed "Progetto C.A.S.E. Complessi Antisismici Sostenibili ed Ecocompatibili" (Seismically resilient sustainable and eco-compatible complexes). From the point of view of the investigation of the action these did not involve users through public participation for which reason they were criticised. The "eco-compatible" and "sustainable" components included the use of solar energy, including solar panels (Fig. 3a).

Fig. 3b is a boutique hotel in Vienna, the first passive hotel. Austria is pioneer also in this (Gervers, 2015). The hotel incorporates different thermal energy elements, including photovoltaic on the facade. The facade is not only innovative for this, but also for the green walls, a feature found more times in Vienna. This is also a component to sustainability. The dimension of gender has been considered in shaping the living space, be it public space or the private space of the house.

The Romanian contribution in Fig. 3c is the model house for the competition Solar Decathlon, house EfdN presented in 2014 at the competition for Europe in Versailles. It was the second Romanian participation after the so-called "Prispa" house two years ago in Madrid, which was inspired from vernacular architecture. EfdN instead was the prototype for a dense urban neighbourhood. In 2018 a next participation was approved to Solar Decathlon Middle East (Fig. 3d). The proposed house is a passive house, with

different ways to imply thermal energy. The first two were presented in detail in Bostenaru (2017).

The motto of the world EXPO 2015, held in Milan, Italy, was "Feeding the Planet, Energy for Life". The German pavilion authored by architect Schmidhuber was a pavilion involving solar cells in artificial trees with photovoltaic cells as their leaves (Fig. 3e). Following the theme "Fields of ideas" in its exterior shape the artificial trees were "Idea Seedlings". This construction was the first large project to use this new technology (ArchDaily, 2015).

While the Karlsruhe Institute of Technology has the biggest german Solarspeicherpark (Landgraf, 2014) and makes a conference on renewable energies in Chile in autumn (Kaas, 2018), this photo was taken at a distance from Karlsruhe with the Schwarzwaldbahn, in the Black Forest mountains which start in Karlsruhe. The Danube landscape of the Black Forest mountains connects numerous energy landscapes passing Vienna and Romania as in other submissions. Fig. 3f presents on-roof photovoltaic like in Fig. 3a, but for traditional Black Forest houses (like the ones conserved in the village museum in Gutach), while Fig. 3g presents on ground photovoltaic in the landscape of the Black Forest mountains.

3. Discussion and conclusions

The COST action run more dissemination actions, among which are a glossary, a photo database, a book, a travelling exhibition, online lectures on the Le Notre site, and also two photo competitions. The contribution in this paper relates to the photography related initiatives. The entries are part of the photo database.



Fig. 3. Solar energy: a. L'Aquila (Italy), b. Vienna (Austria), c., d. Bucharest (Romania), e. EXPO 2015 Milan (Italy), f, g. Black Forest Mountains (Germany). Photos: M. Bostenaru.

The contemporary energy landscapes of these were also analysed employing the questionnaires of WG2 and WG3 as case

studies. The Iron Gates landscape and the historical windmills follow the photo competition in 2017 which meant

connecting literature to photography. Instead, the Vienna entries are entries to the competition of 2018, which meant letting the action flyer travel. The entries present historical energy landscapes, contemporary energy landscapes and also demonstration entries in expo pavilions.

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