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ENERGY PORTAL MAGAZINE

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SUSTAINABLE ARCHITECTURE

VOJIN CETKOVIC
Actor

It Is My Duty to Talk About Ecology

ANDERS HOUGÅRD
Ambassador of Denmark

We Have a General Political Consensus About Green Issues

EVA KAIL
Urban Planner of the City of Vienna

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Dear readers,

This is the 11th issue of our Magazine with the topic of "Sustainable Architecture". Architecture is a discipline that through its practice has a profound impact on all fields of sustainability, which means that during its existence, an object affects the local and global environment by various related activities and processes even before it is actually constructed. You can read more about the influence of architecture on the environment in the introductory text of a young architect and our external associate Petar Veselinovic.

According to Environment Management Index (EPI) for 2018, Denmark occupies the third place, which is why we decided to find out from the Danish Ambassador in Serbia Mr. Anders Christian Hougård what measures Denmark has taken in order to be so highly ranked, but also which projects the Danish Embassy has implemented in Serbia so far and in which areas we could still cooperate in order to ensure a higher rate of economic growth in our country.

From the example of our famous actor Vojin Cetkovic, we can learn how to implant the habit of preserving the environment to our children and to pass on them the love for animals and plants. In this completely different interview, we will present Vojin as a socially responsible person and environmental protection advocate.

Eva Kail is one of the leading experts – urban planners on the European continent. She provides the citizens of Vienna with a comfortable life together with other experts. A survey conducted by the international consulting firm "Mercer" showed that nowhere in the world is the life as good as in Vienna, so we found out from Eva how they manage to achieve this.

You can read many interesting stories on this topic in this issue, among which is also an article about the first green building which should be built in the center of our city.

In the Section People and Challenges, you can read an interesting article about company "UrbiGO", founded by the young experts who were eager to find a garden solution for a new generation that grows up in the concrete jungle and in an increasingly polluted environment.

I hope that this topic will be interesting for you and that it will inspire you to do everything you can so as to use available resources in the most economical way in your surroundings. I would also like to draw your attention to what the Danish ambassador said during the interview: "An important way of thinking is based on the attitude that saving stands against the use".

Sincerely,

Nevena Djukic

Nevena Djukic
Editor in Chief

14 ANDERS CHRISTIAN HOUGÅRD

Ambassador of Denmark

Nordic Formula – Synergy of Environmental Protection and Economic Growth

In the basis of Denmark's prosperity is a primarily social balance, high level of trust in the state, strong cooperation between the public and private sector, extremely low level of corruption, as well as free health care and education. In addition, Denmark is making efforts to create a "green" and sustainable society that will achieve the goal of draining entire energy from renewable energy sources by 2050.

24 VOJIN CETKOVIC

Actor

Passionate Fisherman in the Struggle for Preservation of Untouched Nature

Although it is expected to talk to Vojin Cetkovic about his rich career and plans, we decided to ask him about his love for fishing, black storks and white-tailed eagles that land in the vicinity of his energy-efficient vacation home in Cortanovci. We also discussed the things that drive him to participate in the activities of clearing illegal landfill in National Park Fruska Gora.

IN THIS ISSUE »»

Photographs: (Vojin) Milos Luzanin; (Hougård) Embassy

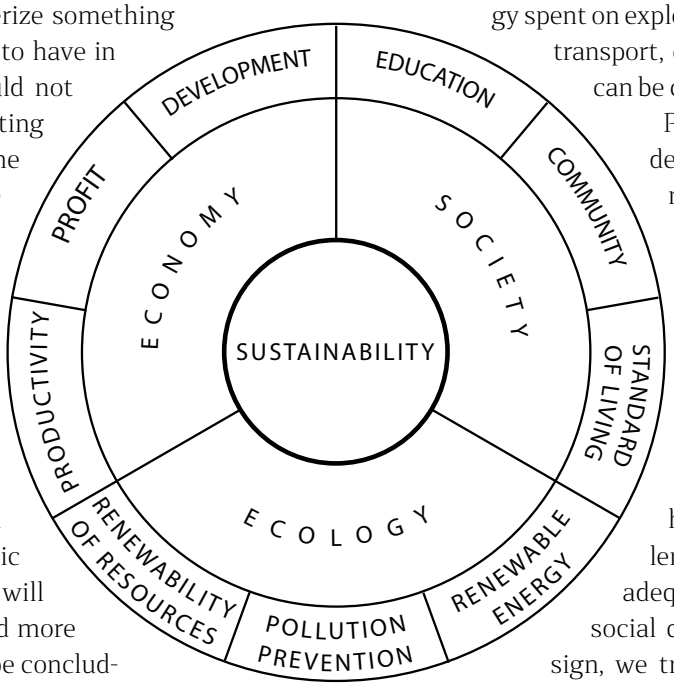
Photographs: (Kail) Rudolf Schmied; (URBIGO) URBIGO TEAM; (wheat) Pixabay

THE IMPACT OF ARCHITECTURE ON THE ENVIRONMENT

In 1987, the World Commission on the Environment and Development defined sustainability as a process of meeting the present needs without compromising future generations and their needs. This definition can be expounded into three main aspects on which sustainability rests – ecology, economy, and society.

Ecological aspect refers to our impact on the environment and surroundings. It can be positive and negative. The key factors in this aspect are energy, its renewability, and consumption, water, air and soil pollution, emission of gases, resource renewal, climate change... The economic aspect includes the prices of material, its transport and processing, energy efficiency, productivity as well as the development of local economy. On the other hand, the social aspect is to provide social equity, preserve cultural heritage, engage and educate the local community, as well as its safety and health.

When we want to characterize something as sustainable, it is important to have in mind that these aspects should not be separated because neglecting either of them will lead to the emergence of an unsustainable system.



Architecture is a discipline that through its practice has a profound impact on all fields of sustainability. The economic development of a country will cause the construction of many industrial, business and residential facilities, and also the economic development of one country will lead to a desire for a larger and more luxurious housing unit. It can be concluded that the growth of the economic status of a social apparatus, a country, business or family, also increases the demand for land and construction materials, which affects the global ecosystem. The challenge of sustainable design is to find technological and design solutions that guarantee the prosperity of this ecosystem.

During its existence, an object affects the local and global environment by various related activities and processes even before it is actually constructed. Exploitation of resources, their processing, production of construction materials and their transport can cause environmental damage of a larger scale. Materials that are not available locally must be delivered from the locations that are on some occasions far away from the place on which the facility is being built. Therefore, even if these exclusive materials are produced with minimal energy consumption, the transport itself will have a negative impact on the environment. The process of constructing an object, although temporary, also affects the environment in terms of the use of energy and resources by creating a construction site and temporary infrastructure for its servicing, making waste and noise...

After the completion of the construction, the very functioning of the building leaves a long-term effect on the ecosystem. Energy and water consumed by the residents of the building are converted into harmful gases and wastewater after use. When a facility loses its function, it does not lose its influence on the environment. If we do not recycle that facility, either in terms of object conversion or literal demolition in order to use the materials for something else, all energy spent on exploitation, processing, production, transport, construction, and maintenance can be considered as a loss.

Problems which sustainable design aims to solve depend on a number of external factors that are contained in three aspects of sustainability. These external factors vary in intensity and type, thus it is impossible to provide universal solutions. The sustainable design actually represents a conceptual framework which helps us anticipate these problems and find a solution with adequate ecological, economic and social qualities. With sustainable design, we try to reduce the consumption of non-renewable resources, promote the use of renewable energy resources, reduce waste to a minimum and create healthy and comfortable places. The principles of sustainable design include optimization of the potential of construction land, use of ecological materials, conservation of energy and water, optimization of functioning and maintenance process of the facilities, as well as the improvement of the conditions for staying and working on the premises.

It is necessary to take responsibility for the impact that architecture has on the environment and overcome selfish needs in order to enable future generations to meet their needs

When positioning a facility on a plot, the existing contour of the site should be taken into account. Major changes in the field are not only costly but also affect the existing microclimate, such as changes in the conventional drainage of the

Photographs: (on the previous page) Pixabay; (diagram) Petar Veselinovic

GREEN OR SUSTAINABLE ARCHITECTURE?

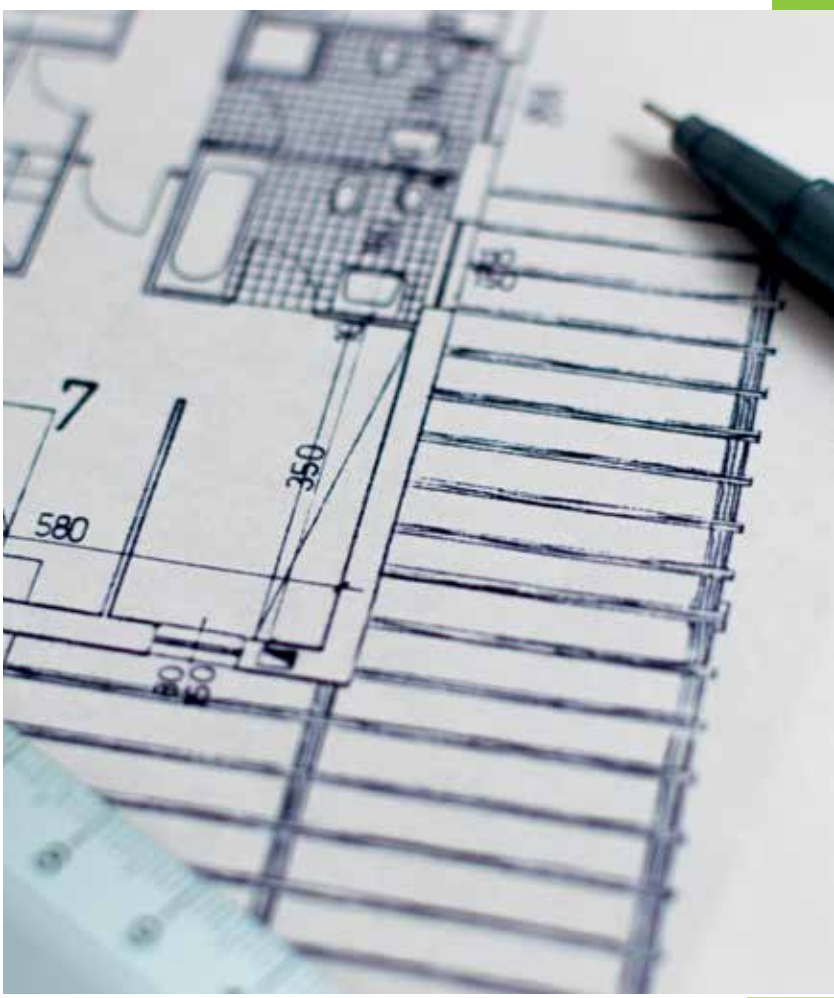
Sustainable architecture is a concept wider than green architecture. Green architecture is manifested through the ecological aspect of sustainability, but it can really be unsustainable if "green" materials that are transported from a distance (for example, bamboo coming from China) are used for the construction of the facility, which makes the whole process more expensive and thus the negative impact on the environment exceeds the positive.

We must emphasize that it is far more important to find long-term solutions that create a secure environment for the life and well-being of future generations, rather than choosing the right term for the description of human needs. In this sense, the debate on the terms "green", "sustainable" and "ecological" with term architecture is not really that crucial.

field and airflow, which may be even more important at the moment. In addition, attention should be paid to the level of groundwater – if you expose groundwater to external influence during the construction, you will increase the chances of its pollution. It is recommended that flora and fauna at the construction site become the part of the project in greater percentage so as to maintain the local ecosystem.

By proper positioning of a facility in relation to the environment, an architect adjusts the facility to the natural resources at the site, such as the sun and wind energy, which increases the energy efficiency of the facility and the quality of its space. Thus, the shade during summer is created by planting deciduous trees on the south side of the building (which is the most exposed to the Sun), while in winter the sunlight passes through the stripped branches which results in achieving passive solar heating of the building. By planting the conifers on the north, the facility is protected from cold, winter wind. By combining both principles, the thermal loses of the facility are reduced, as well as the energy consumption for heating or cooling.

The urban environment limits the freedom of positioning in relation to natural resources, and this should be addressed at the urban level by forming parameters for construction of blocks so as to maximize



Photographs: Pixabay

the utilization of these natural conditions. The advantage of cities in terms of the local environment is reflected in the existing infrastructure for the supply of construction sites and buildings, which would have to be planned and whose performance would affect the environment if they were built outside the towns.

Renewable resources are all those resources that can be grown and exploited at a rate that exceeds the speed of human consumption. By definition, the use of these materials is sustainable. Materials made from non-renewable resources (oil, metals, etc.) are not sustainable even if their current supplies are adequate. The use of renewable materials, as much as possible, greatly reduces the need for non-renewable materials.

The architect reduces the amount of non-renewable resources required during the construction and operation of a facility with the economical use of resources. Functioning of a facility is a broad term which includes all the processes necessary for its maintenance, management, and operation. The maintenance of the facility does not only include servicing of active devices in it, but also maintaining installations in the building – electrical, areal, water and sewage. All activities in the facility consume some form of energy (thermal, mechanical, electric, etc.) and the result of this process is the generation of waste.

Crucially, sooner or later, any resource that comes into the building will have to come out of it in some form. There is an uninterrupted flow of resources, natural and produced, both inside and outside the facility. Water that comes into the residential building comes out of it as so-called graywater or in the form of faecal water, while water which passes through industrial facility comes out of it as toxic waste, depending on the industrial narrower activity. A building requires large amounts of water for drinking, cooking, washing, cleaning, watering plants, etc. All this water requires treatments and it must be delivered to the building, and both of these processes require energy consumption. It should not be forgotten that this energy is most likely obtained through the use of non-renewable sources. Water which leaves the building as wastewater also has to be processed and that again requires energy consumption.

If we observe this process of material flow through three phases – input, use and output, we can say that the second phase is the one in which all design decisions can have consequences on the environment.

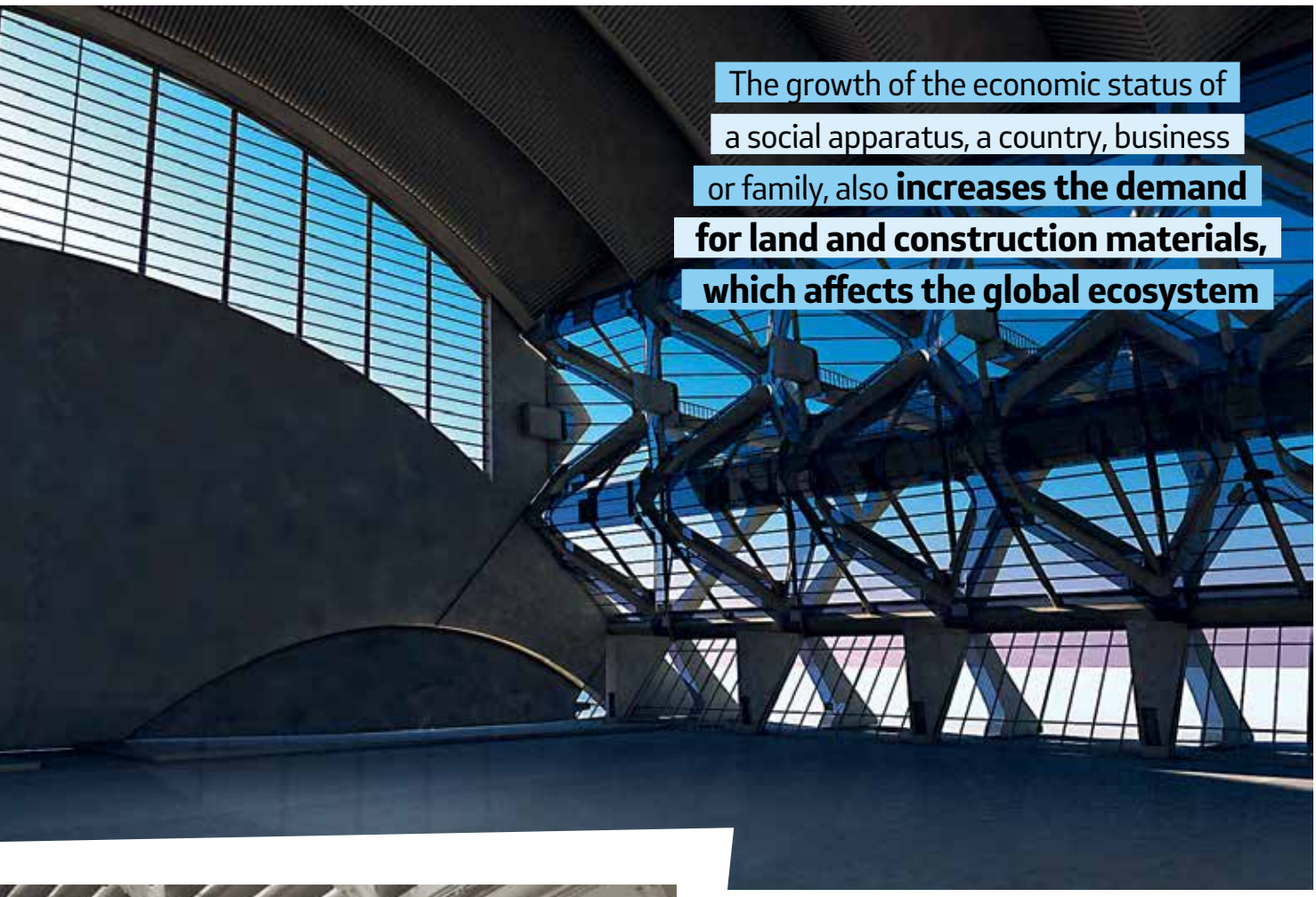
Traditionally, buildings were built as a shelter from weather conditions, including rain, thus in most parts of the world rain was not seen as a useful resource. However, the roofs can have the function of collecting rainwater, which would be further used for watering the plants or for filling up the toilet tank. Water used for washing hands is no longer drinking water, but it can be recycled and used in a similar way as rainwater. There are home systems for disposal and reuse of greywater. During droughts, it is excellent for maintaining the soil moisture. Water conservation methods can drastically reduce water consumption, and at the same time the amount of water that is discharged from the facility through the sewage system. For example, by collecting rainwater the Nike sports facility in Hilversum in the Netherlands saves 4 million liters of water annually.

Japan is known for cultivating a close relationship between nature and society in which we can find we can find many sustainable principles. In the mountain villages, sinks are also fishponds. Tenants clean their dishes by using clear mountain water without detergent, and carps eat leftovers and at the same time they purify the water. This is one of the numerous examples of how a person can live in symbiosis with the environment.

Many buildings outlive the purpose for which they were built. One of the simplest and most effective ways in which we can preserve materials is to use already built objects that are no longer in use. Most of these buildings, if not all, can be adequately adapted at a much lower cost in comparison with the construction of a new facility.

There is a trend in the use of abandoned industrial facilities, which become museums, galleries and other types of cultural objects. Their potential lies in the high quality of

Photographs: Pixabay



The growth of the economic status of a social apparatus, a country, business or family, also **increases the demand for land and construction materials, which affects the global ecosystem**

light, excellent service infrastructure, solid structure and spacious rooms that can be divided when necessary. One of the main examples of his practice is certainly Tate Modern in London, the former power plant on the Thames coast. Since 2000, the plant has been operating as a museum of contemporary art, which is visited by almost 8 million people a year. Belgrade also offers similar opportunities. There are numerous abandoned industrial buildings in our capital. The power plant "Svetlost i snaga" and Belgrade cotton factory have been the subject of numerous student works in the field of architecture, but in practice they continue to rot without any function. On the other hand, Beobanka building on Zeleni venac represents an excellent example of re-using the already built facility whose restauration has been taken by the company Stattwerk.

Facilities that are unsuitable for conversion of area, whose demolition requires less economic resources than their restoration, can also be useful. Most building materials such as wood, steel or glass can easily be recycled into new materials. Brick or windows can be fully used for the construction of a new facility. This method does not extend the life of a facility, but without it, we are forced to produce new construction materials from raw natural resources.

When constructing new facilities, the choice of construction materials is not only important for structural and aesthetic characteristics. The production of materials uses

resources and energy, thus by choosing the materials that can later be recycled conserve the consumed energy. If you are not sure which materials can be recycled after use, use already recycled materials. Their use reduces the amount of waste and it also preserves the already scarce landfill area.

A man spends most of his day indoors. The productivity is increased and stress is reduced to the user of space when the conditions for staying in the interior are improved. The maximum use of daylight is achieved by adequate positioning in relation to the sides of the world and optimization of the openings on the façade. In addition to better visibility, it will also reduce the need for artificial lighting. By using energy efficient lighting such as LED lighting, the negative effect on the environment is further reduced. Older facilities must be renovated so as to meet sustainability standards. To begin with, the control overheating can be enabled with a renovation of the installations. During the winter period, apartments connected to central heating are equally warm when you are at home or at work, even when you are visiting or on vacation which results in huge resource and energy losses. LEED (Leadership in Energy and Environmental Design) certification program is used to evaluate the energy efficiency of the existing and newly constructed facilities can it can be considered as a standard when renovating a facility.

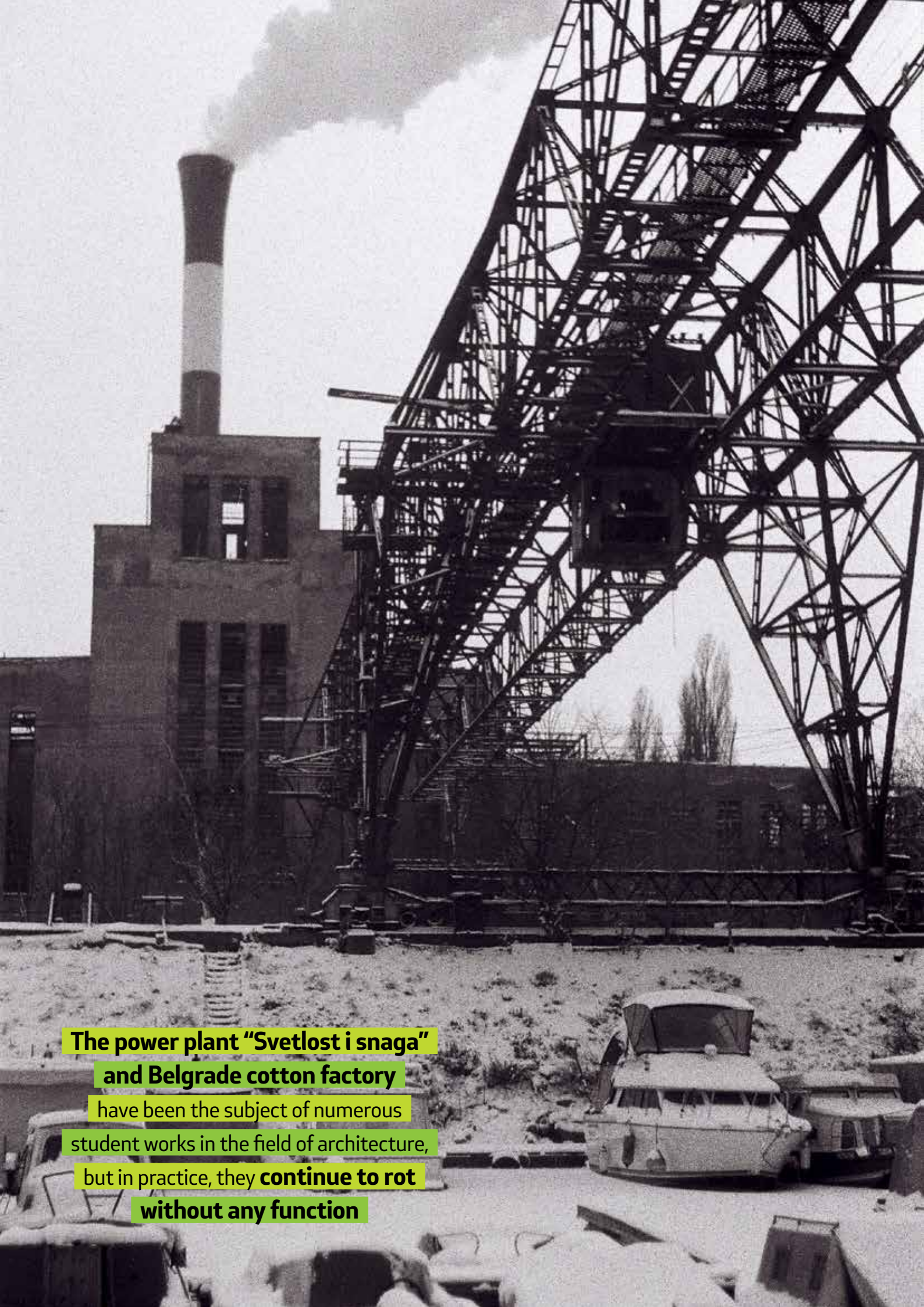
During the construction, as well as for functioning and servicing of a facility, we use materials, energy, and water that produce waste with a negative impact on health and the environment. Sustainable design has been developed in order to limit this effect and it must be studied, promoted and practiced. It represents a complex system of processes and activities that can affect the economy, society, and ecology. Sustainable construction is not an easy and cheap task. Positioning of the facility in accordance with the natural environment may be limiting. Unfortunately, investing in sustainable construction systems and their use in practice is still expensive. Easier maintenance of the facility and energy efficiency will return the investment, but these systems are still inaccessible to the most of population. It is necessary to take responsibility for the impact that architecture has on the environment and overcome selfish needs in order to enable future generations to meet their needs.

It is recommended that flora and fauna at the construction site become the part of the project in greater percentage so as to maintain the local ecosystem

As part of their professional training, architects must master the technology of sustainable construction and accept sustainability as an ideology that preserves society, culture and the environment. Sustainability is vital for the survival of human species and biodiversity, and sustainable architecture is the best chance to achieve this.

Prepared by: Petar Veselinovic

Photographs: (up) Pixabay; (on the next page) Petar Veselinovic



The power plant "Svetlost i snaga" and Belgrade cotton factory have been the subject of numerous student works in the field of architecture, but in practice, they **continue to rot without any function**

Anders Christian Hougård
Ambassador of Denmark

Nordic Formula – Synergy of Environmental Protection and Economic Growth

The country of well-being, the oldest monarchy in Europe and the country with the happiest inhabitants, the birthplace of LEGO bricks, "hygge" lifestyle and famous fairy-tale writer Hans Christian Andersen – we can try to find the most picturesque proposition that would summarize the description in a few words but that would still partially reflect the success of his Nordic country. The basic prosperity of Denmark is primarily social balance, high level of trust in the state, strong cooperation between the public and private sector, extremely low level of corruption, as well as free health care and education.

In addition, Denmark is making efforts to create a "green" and sustainable society that will achieve the goal of draining entire energy from renewable energy sources by 2050. According to the Environmental Management Index (EPI) for 2018 this country is in the third place, and its citizens consider that environmental protection is their civilizational obligation. Hence, it does not surprise the fact that the number of bikes in Denmark exceeds the number of inhabitants. In an interview with the Danish ambassador in Serbia, Anders Christian Hougård, we found out which measures have the Danes taken to find themselves in such a high position, and also which projects the Danish Embassy has carried out in Serbia so far and in which areas we could still cooperate in order to ensure a higher rate of economic growth in our country.

The country's **total energy consumption has declined by 9%** despite the **economy has cumulatively grown by 30%** in the same period

EP According to the EPI ranking for this year Denmark has taken the third place, which is desirable for most countries and a fairly unattainable position. However, if we were to take only fishery and forestry into account, the status of Denmark would be somewhat different. What has your country taken so far to prevent losses in forested areas as well as in fish and shell stocks in the Baltic Sea?

Anders Hougård Our ranking in the field of the fishery is a consequence of the continuous and rapid decline of fish stocks. This is a matter of great importance to us, especially because the fishery is a very important industry in our country which has a great export value. The Danish Fisheries Agency is in charge of regulating commercial fisheries, and the agency's ambition is to support growth through a green transition. Funds are provided through the European Fisheries Fund for the development of sustainable fisheries and aquaculture, and at the same time inspections are performed to ensure that the fish stocks in the Danish sea

Photographs: Embassy

waters are sustained. In the Baltic Sea, fish stocks and nature are particularly vulnerable, as many different countries are bordering, and risks of pollution and over-fishing are therefore high.

Concerning forest management, the Danish government is planning to cover additional 10.000 hectares with trees and to make a nature reserve of untouched forest. Furthermore, 3.300 hectares will be laid out as protected biodiversity, and when the whole project is completed, the total protected forest and biodiversity in Denmark will be more than doubled compared with today. As such, this will substantially reduce tree cover loss and improve diversity in nature to the benefit of the forest industry, as well as outdoor recreation. Compared to international standards, Danish forestry is overall healthy and sustainable, but over the last many years increased industrialization and the lack of focus on preserving forests and ecosystems have put Danish forests at risk.

EP Does the Danish government run any campaign on the importance of preserving the environment or it seems redundant now after decades of attentive implementation of conservation and nature policy?

Anders Hougård The promotion of the green agenda is a never-ending process. It is important to keep the education

Photographs: (top right) VisitDenmark/Bjørg Kiær; (bottom) VisitDenmark/Kim Wyon

ongoing and that it involves everyone in the society, from small children to seniors. The current Danish government is putting in a great effort in promoting their green agenda these days. They have proclaimed themselves the greenest government in the history of Denmark. For the big part of the Danish population, a green agenda is at the top of the list, and more people are becoming aware of the crucial necessity of protecting the environment. Additionally, there is a widespread political consensus on the green issues, so even if the parties in the Government change, the overall course will not change.

EP Your country provides many good examples of how to protect the natural environment. What is the key approach to keeping the economic growth and the nature safe?

Anders Hougård The development and execution of policies have been focused on the synergy of nature protection and economic growth for many years now. A major part in it is planning and communicating these policies to the public and with the business sector. We came to an understanding that environmental protection can also create new job opportunities and new innovative companies which contribute to our economic growth.

The investments in civil society for sustainable energy transition should reflect on easier negotiations and subsequent completion of relevant EU chapters, and in particular Chapter 27

For example, by implementing policies for wastewater treatments, we have not only contributed to saving the nature and waterways but also created new jobs in construction, operation, and maintenance of such facilities. The decision to protect waters has therefore created jobs and economic growth which go hand in hand. The same principle can be applied to renewable energy, energy efficiency, the introduction of processing industry standards, and so on. However, it has all started with a decision and dialogue to aim for a cleaner and healthier environment.

EP How did your country achieve harmonious arrangement between nature conservation and keeping the land usable for human purposes?

Anders Hougård The keyword here is urban and environmental planning. This topic has been high on political agenda for many decades and it is a subject of many ongoing discussions on how to achieve the best balance between, primarily, agriculture and nature conservation. This debate topic was set many years ago, and its purpose is only to find a variety of ways to achieve that goal. It is important to keep an open mind for solutions which have come about during the decades of trying to reach the harmony between nature and the use of land for human needs.

EP Denmark is well-known for its great windmill production and Copenhagen is famous for its biking culture. But these aren't the only ways how the Danes manage to lead a green and sustainable lifestyle. To what extent are solar panels, biogas, rainwater tanks or seawater cooling system used in Denmark?

Anders Hougård Denmark extensively uses available renewable energy sources. In combination with the efficient use of energy and water, we are today one of the leading countries in that field. We have started this transition many years ago and if we observe what has been happening since 2000 to date – we see that the share of energy produced from renewable sources has increased from 8% to 28% in the last 17 years. In addition, about 32% of energy consumed today comes from renewable sources and it is a clear indicator that people and companies choose green energy and sustainable lifestyle.

Denmark is still a net energy importer, but our consumers choose to buy green energy. To further underline the importance of energy efficiency, the country's total energy consumption has declined by 9% despite the economy has cumulatively grown by 30% in the same period. In Denmark, we are well aware that the decisions we make today, and the steps we implement today, will give results in the future but actions should be taken immediately.

EP Due to a severe climate, Denmark is forced to use a lot of energy for heating and lighting during winter months. Could you tell us what the level of energy efficiency in buildings is, and what has been done to increase it lately?

Anders Hougård Many years ago, Denmark has decided to try not to use a lot of energy for heating but to save as much energy as possible. The importance lies in the mindset – saving vs. using.

Photographs: (previous page bottom) VisitDenmark/Jørgen Schytte; VisitDenmark/Simone Bramante

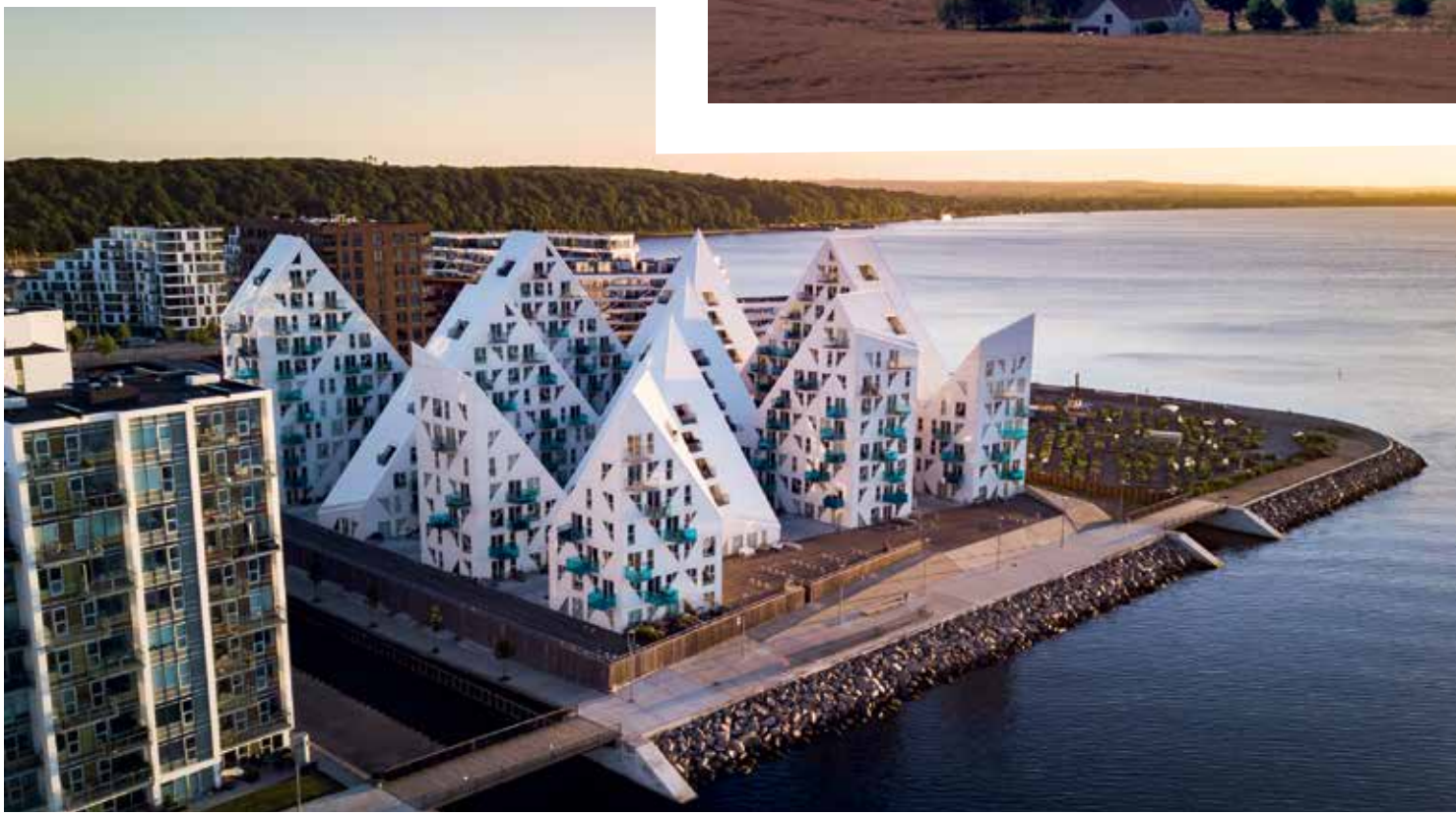
The plan to gradually reduce energy consumption in buildings dates back to 1961 with a strategy, which has been adjusted and changed ever since. For example, in 2015, the maximum allowed consumption of energy for heating, ventilation, cooling and domestic hot water was 36.7kWh/m² per year. In 1979, this figure was 185kWh/m² per year and the plan is to spend only 20kWh/m² per year in 2020. Again, the key lies in long-term planning and communicating the plans with the industry and the public. This way we can make sure that after dialogue, all parties involved are well aware of the energy policies' direction and what measures need to be put in place to achieve that.

I heard that Serbia has also made steps to improve energy efficiency in buildings since 2013. The next step could be to announce plans for the further reduction of the use of energy in buildings and I am sure that Denmark will be willing to help and share experiences in this area as well.

EP You supported the projects focused on strengthening the Civil Society for Sustainable Energy Transition. According to your opinion, how did those projects help Serbia to adopt new energy solutions and cut in green gas emissions?

Anders Hougård Serbia is actively working on further reduction of green gas emissions and improvement of overall energy efficiency. Laws and regulations have been passed to allow both public and private sector to be more active in this area and playing a small role in this process is surely a way of supporting Serbia in its efforts. Our role was also to help by sharing experiences and helping Serbia lay frameworks allowing the reduction of CO2 on practical level. It is also important to note that investments in civil society for sustainable energy transition should reflect on easier negotiations and subsequent completion of relevant EU chapters and in particular Chapter 27. Activities like these clearly underline Danish support for Serbia's EU integration process.

Transition to renewable energy sources has started many years ago and if we look at what has been happening since 2000 to date – we see that **the share of energy produced from renewable sources has increased from 8% to 28% in the last 17 years**



BILATERAL COOPERATION

Two years ago, Denmark opened a business club to enhance cooperation between Danish and domestic companies. This business community already gathers more than 20 companies and is very active, and the ambassador Hougård says that Denmark is one of the top ten EU investors in Serbia, and 12th overall investor in Serbia in last seven years. "Our companies come together to discuss both challenges and point out opportunities to each other and are generally very supportive to each other. Being relatively small on the local market, our companies exercise a higher level of synergy, which we very much encourage and that is something that participation in the business club has enabled them", says the ambassador Hougård.

Photographs: (previous page bottom) VisitDenmark/Dennis Borup Jakobsen; (middle) VisitDenmark/Nicolai Petjersi; (top right) Danish Embassy; (bottom right) VisitDenmark/Kim Wyon

EP The Danish diplomatic mission in Serbia supported agricultural growth in South Serbia through Fruits & Berries programme that ended in 2016. What are the greatest benefits of this programme and is there a plan for helping some other agricultural branches in a similar way?

Anders Hougård The Fruits and Berries programme has clearly been one of the highlights of our Neighbourhood programmes in Serbia. With almost €30 million of direct investments, it was one of the largest projects we had in Serbia in the last 18 years. Numerous references and positive feedback that we are still receiving about the project is something that has shown that the investments have been highly appreciated, justified and have helped people to start or expand their businesses. By working and helping farmers directly, we believe that we made both the difference and helped local government understand what kind of support is needed for small and growing farmers.

Since the development aid has phased out for Serbia, and the country has moved out of a group of countries to

whom we provide aid – as economic development has increased, it is unlikely that similar projects will exist in future. However, it does not mean we are closing the door, but we are opening new cooperation possibilities founded on commercial terms. This primarily means that we are working on projects allowing local companies and farmers to access equipment and know-how in, for example, pig farming, meat processing, cold storage and other areas where Denmark has something to offer. Also, this type of exercise is very important for local companies to prepare themselves for competition in and among the EU companies.

EP What is the key of the Danish "hygge" concept of life, what are its roots and how come it has become so appealing around the world?

Anders Hougård In Denmark, most of the year is dark and cold, but through 'hygge' the Danish people have found a way to turn it into a positive thing. This is done by putting on a pair of wool socks, lighting a candle and drinking a cup of hot chocolate. 'Hygge' is characterized by the atmosphere, and the word is somehow reflecting who we are and how we feel. The Oxford Dictionary describes 'hygge' as "a quality of cosiness and comfortable conviviality that engenders a feeling of contentment or well-being" – a sentence that also reflects the characteristic of Danish society where welfare and a surplus of mental resources are more common than in other parts of the world.

EP Denmark is widely considered as one of the happiest countries and the new World Happiness Report has confirmed that several years in a row. Objective indicators such as stability of government, low levels of public corruption, income, health, civic engagement, high quality of education etc. give the supporting evidence. How do you explain the fact that there are many countries with the relatively same objective indicators, yet their people do not see their lives positively?

Anders Hougård In general, life in Denmark is good, which is understood and highly appreciated by all the Danes. It is a challenge to keep such a high rating, and like all other countries, Denmark has its own problems to deal with. In order to stay one of the happiest countries, it is necessary to have support from other important indicators, as you have mentioned, and we will have to work hard to keep our rating and competitiveness in the world, which is changing faster and more disruptive than ever.

Prosperity, good health and enjoying a considerable freedom are basics for each citizen when it comes to having a good life, but why more Danes rate life positively compared with other people is difficult to answer! The Danes seem to share this positive attitude with our Nordic neighbors to a large extent, as the Nordic countries rank in the

Photographs: (top left) VisitDenmark/Nicolas Jessen; (bottom) VisitDenmark/Bang Clemme Film & Openhouse; (the next page bottom) VisitDenmark/Robin Skjoldborg

top ten of all recognized international indices. The Nordic Council of Ministers have in fact studied your question, and they found three possible explanations: good governance, high level of trust, and relatively equal societies with only small differences among people.

EP The Nordic Council of Ministers has recently developed a digital platform called the Nordics where anyone can upload story, film or fact that represents common Nordic values and mindset. So-called "Traces of North" is a regional online campaign aimed to show the Nordics in the world, instead of showing the Nordics to the world. What are those common values that people from Denmark, Finland, Norway, Sweden, Greenland, Faroe and Aland Islands share? And what is the desirable outcome of this campaign?

Anders Hougård The most common values for all of the Nordic countries is our shared idea of constantly improving in every aspect, from innovation, sustainability, equality, trust, and openness. I think that those values are synonyms for the Nordics countries, and people will think of those values when thinking about Denmark, Sweden or any other Nordic country.

On the other hand, our countries have been at war for many decades, but ways have been found to overcome them and work for a joint interest. We are stronger together, so we work hard on maintaining the joint labour market, environmental standards, digitalization of the public administration and generally, good quality of life at the service of our citizens.

Interview by: Nevena Djukic and Tamara Zjacic

ABB Solar Inverters on the Roofs of "Ikea" Company

In the endeavour to assist in meeting of the increasing energy demands worldwide, with the minimal negative environmental effects, ABB Company has created extra values for their customers with flexible and innovative solar energy technologies. Integration of the renewable energy sources has become the crucial element of the world energy revolution and the ABB Next Level strategy. ABB has provided the trade chain "Ikea" with the possibility to fulfil their objectives set in domain of the energy efficiency.

ABB has supplied the trade chain "Ikea" with 20 innovative solar inverters TRIO-50 used for charging of the roof solar system in their leading department store in Singapore. The system is expected to generate 1.3 million kWh annually, which is the volume of renewable energy sufficient to supply more than 280 households. Installation of the solar panels on the "Ikea" department store started in March 2017, and the power plant started to operate in December 2017. With the construction and use of the said installation, "Ikea" expects to reduce electricity costs for 2.4 million dollars in the next ten years.

A few months before realization of the Singapore project, a similar project was executed on the department store "Ikea" in Belgrade, at the area of 35,000 m^2. Namely, in cooperation with the project designers and contractors, ABB has realized delivery of the complete electrical equipment required for electricity supply of the "Ikea" facility. This equipment, apart from solar inverters, also included a transformer station of 10/0.4 kW, distribution cabinets in the building and rail distribution. Delivered equipment for the transformer station contained dry-type power transformers for distribution section of the transformer station and for the solar power plant installed on the roof of the department store, air-isolated medium voltage plant UniSec, and the certified electrical distribution cabinet Pro E Power, planned for the electricity of up to 6300 A.

The arrangement of the solar panels and configuration of the roof of the "Ikea" department store in Belgrade has influenced the decision of the project designers and investors to take ABB invertors model TRIO-50, of the power ratings of 50kW. The said solar power plant includes 6 installed inverter units, envisaged for outdoor installation with IP65 protection. All units contain protection and power switch

All photographs: ABB

equipment, on both, DC and AC side, and their terminal boards are separable, which enables easier horizontal or vertical installation. The housing is designed for outdoor use which enables normal operation regardless of the weather conditions. The construction of the said inverters is such that it does not require opening during the process of installation and connecting. It is done with the pre-set connection box to which all planned strings are connected. Integrated protection also contains AC and DC load break switches, in accordance with the international standards, and with different configuration options. All electrical connections (fittings and connectors) can be locked. ABB inverter model TRIO-50 has a very high efficiency degree (98.3 %) in the wide range of powers. It is also characterized by wide span of the input voltage, topology which does not contain transformer, as well as extremely fast and accurate MPPT algorithm for monitoring and improvement of the

process of power production in real time. Straight efficiency curves enable high efficiency in all output levels, thus providing constant and stable performances in all levels of the input voltage and the output power. Also, there is a possibility of connecting external sensors for supervision of the working conditions.

ABB solutions related to solar systems enable corporate customers, such as "Ikea", to make both financial and operative savings with the reduced emission of harmful gasses. According to the "GTM Research", the costs of installation of commercial roof solar power plants have been reduced for almost 30% in the last five years, mainly owing to the reduction of price of solar panels. It is exactly because of the "Ikea" company, and owing to the quick economic feasibility of the solar energy, that the rest of the corporate world has been increasingly interested in and preparing for the construction of the solar power plants.

Designed in such a way to combine the supreme parameters and the price competitiveness in the central inverter, with the portability and flexibility of installation of the "string" inverter, TRIO-50 will continue to spread on other roofs of the trade chain "Ikea".

Four decades of experience that ABB has gained in development and implementation of inverters, with the offer of the solar plants that moves from small single-phase inverters to three-phase string central inverters, has made this company the global leader in solar systems that produce energy without harmful emissions, contribute to alleviation of climate changes and reduce dependence on the limited conventional energy sources.

ABB (ABBN: SIX Swiss Ex) is a pioneering technology leader in power grids, electrification products, industrial automation and robotics and motion, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, ABB today is writing the future of industrial digitalization with two clear value propositions: bringing electricity from any power plant to any plug and automating industries from natural resources to finished products. As title partner in ABB Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 147,000 employees. www.abb.com

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VOJIN CETKOVIC
actor

PASSIONATE FISHERMAN IN THE STRUGGLE FOR PRESERVATION OF UNTOUCHED NATURE

Twenty years ago, he won the affection of a broader audience with the role of Brando in the television serial "Family Treasure". Since then, Vojin Cetkovic has shown that he is equally able to play different and demanding roles: bad guys, monks, poets and recently he added the role of the first crowned Serbian king – Stefan the First-Crowned in the TV serial "Nemanjici – the Birth of the Kingdom". Although it is expected to talk to him about his rich career and plans, we decided to ask him about his love for fishing, black storks and white-tailed eagles that land in the vicinity of his energy-efficient vacation home, but also about the things which drive him to participate in the activities of clearing illegal landfill in National Park Fruska Gora.

EP When did you decide that you were tired of city life and was the love for fishing crucial for the construction of your vacation home in Cortanovci municipality, on the Danube bank?

Vojin Cetkovic It was my need made all the difference. I have been fishing since I was five. I was lucky to have grandparents who lived in the village, thus I spent a lot of time there, and my parents constantly took me into nature. Since my childhood, I have been attached to nature, animals, and especially plants and rivers. My parental grandfather had an entire hill above Mojkovac, where he lived, so it was most logical for me to find a place for my vacation home which is close to a hill and a river. Thanks to my friend from the kindergarten Novica, who has a vacation home in Cortanovci, we often visited him there and I liked the place very much. He found a plot for me. At first, the Danube could not be seen due to the shrubbery on the plot, but when I cleared it, one of the most beautiful panoramas appeared in front of us. Now I have a boat on the Danube and a house with the view.

EP Since we are not a nation that takes much care of nature it is not difficult to come across the daily evidence of our negligence. What is the thing that especially worries you while you are fishing?

Vojin Cetkovic Everything bothers me, and above all the consciousness of people. Some fishermen often do not know where they are, and they say they love the river. Recently, I saw a father who thought his son how to catch a pike during the prohibition period and not to mention the size of the pike which was well below the allowed dimensions. What are you supposed to say to that man?

I have seen everything on rivers; poachers, nets which should not be in small rivers. Unfortunately, without harsh laws and without the application of these laws, nothing can be done. That is what bothers me the most. It also bothers me that the state was negligent because the damage is

All photographs: Milos Luzanin

huge and almost irreparable. Twenty years ago, in the kilometer of the river flow, there were around 800 kilograms of fish. Today it is less than 80 kilograms. The data on the amount of fish in the see is equally shocking.

Since I am a public figure and I have the chance to be heard by people, I feel that my duty is to talk about ecology and somehow change the consciousness among people. That would be my huge success, and I have given that task to myself. I have often responded to working actions for cleaning of lakes and rivers, and within a project, we tried to stock the Drina with huchen. There were many difficulties in the implementation of this project, and there were some constant excuses that were mostly related to the difficult economic situation. I also spoke with some guards, who were willing to do their job well and to catch poachers, but they are in a difficult situation due to the threats they receive.

I read that Chapter 13 which is related to fisheries should be opened. If all the laws were implemented as well as the requirements which the European Union requires from us and if only ten people who committed offenses were punished, the situation would change dramatically.

In addition, we still have factories that throw out wastewater into rivers and canals and cause a lot more damage. It is necessary to install collectors, which is a large investment that will have to be implemented.

I know very well both running and standing waters in Serbia and I can say that the situation in them is quite alarming. There are rare examples of certain parts of national parks in which some order exists, and in which stocking with young fish is carried out and fishing is controlled. According to my knowledge, the European Union has devoted enormous funds to ecology and I hope that it will be used for these purposes.

EP When decided to build an energy efficient house, did you use some environmentally friendly materials, and did you perhaps think about the installation of solar panels on the roof?

Vojin Cetkovic I built the house of the best material that could be found in Serbia. I used YTONG's thickest block of 37.5cm because I wanted to make an energy efficient house. In addition to the energy savings of 30 percent which these blocks provide, no insulation is needed and when we used them, we also reduced the amount of cement, water, and sand needed for the construction, thus we preserved the yard from harmful effects of these materials.

I even wanted to make a small windmill since winds blow in Cortanovci almost every day. Therefore, I also brought experts, but all of them told me that it was not possible because there is no constant wind flow. A greater investment is needed for solar panels, and it would pay off only after five or six years. However, the additional problem is non-existent infrastructure. The roads are very bad, and I do not know how I would drag the panels or the windmill. We are not drawn in the Cadastre, we do not have a water supply, electricity is bad, and we are paying for the taxes, building permits and everything else. Everything is upside down. Still, I have met some good people there who really care about the ecology and the Danube. Together, we are trying to save National Park Fruska Gora, especially fish and the rare birds that come there. Black storks land on my plot and I have a few white-tailed eagles. I have appropriated them, but they do not actually come to my place but in the national park. You would not believe that someone has recently shot a white-tailed eagle, and only by fortunate circumstances, the eagle remained alive. It' is still recovering and it should fly soon.

I have a really good communication with the employees of PE "National Park Fruska Gora". Together we cleaned three or four illegal landfills. However, the Municipality of Indjija has provided assistance to us. We pulled out three truckloads of trash only from one landfill. It should not be forgotten that due to these landfills in the woods, the oak moves and makes landslide. Occasionally, workers who are currently engaged in the breaking of a tunnel are helping us in cleaning, because they have the necessary machines.

EP We know that you are cultivating fruit, but we are interested whether you have a vegetable garden, and also do you have time to teach your daughters what kind of a relationship they should have towards nature?

Vojin Cetkovic I have planted a lot of different fruits that I prune and spray by myself. Actually, not all by myself, since my father and uncle are still in good shape, so they can help out. The truth is that I created myself an obligation so that I have to go there. I don't have vegetables, because I cannot irrigate it, and as climate changes have started, I don't know how much fruit will remain. I had to cut three trees recently, due to the last year's drought. Since we cannot grow vegetables, we get it from a friend who lives in the countryside.

If you were to ask my daughters to guess the tree type, or to tell you how many vine-woods we have, or apricot or plum trees, they would answer correctly. I would have thought that I made a huge mistake if I could not influence my children. First of all, both I and my family have a duty to set a good example of how we should treat nature.

EP Do the children learn enough about the way of treating the nature within our educational system?

Vojin Cetkovic I think they learn enough. We had lucky even in the preschool. Our daughters had two wonderful nursery-governesses, so they had been taught some songs about the natural protection, they made herbariums and

THE SURVIVAL OF DRINA HUCHEN

At the initiative of Vladimir Grbic, the famous volleyball player and also a fishing enthusiast, a project was launched for stocking the Drina with huchen six years ago in which Vojin also participated. "The Pond in Perucac is built under the Perucac dam due to which it was not possible to establish a fishing route. The huchen could not go upstream of the Drina where it would spawn, thus its survival was questioned. Drina huchen is really unique and beautiful for sports fishing. We tried with the Ministry for Agriculture and Environmental Protection to make an agreement. We received the funds and managed with the help of ichthyologists, although it was very difficult, to let a certain number of huchen in the Drina", says Vojin and he explained to us that the huchen, this natural rarity, which exists in Serbia, Montenegro, Bosnia, and Slovenia, were produced in artificial conditions and were returned back into the Drina. Unfortunately, the project did not last for long. Now that pond serves for commercial purposes.

now I notice that are also learning about the nature protection at school and I am very satisfied. They have learned a lot about the use of water, because we do not have it in Cortanovci, but we collect rain, and now they take care of how they consume water in the city also.

EP Given the fact that you travel frequently, what has left the biggest impression on you abroad?

Vojin Cetkovic I was on the Main recently, which is despite the developed industry so pure that trouts swim in it. When I am in Vienna, I can drink tap water. Those are just some examples, but that does not mean that those citizens are better than us, but they have better-developed consciousness. Lately, I was in a green hotel in Slovenia, which on the other hand has a nuclear power plant that works constantly.

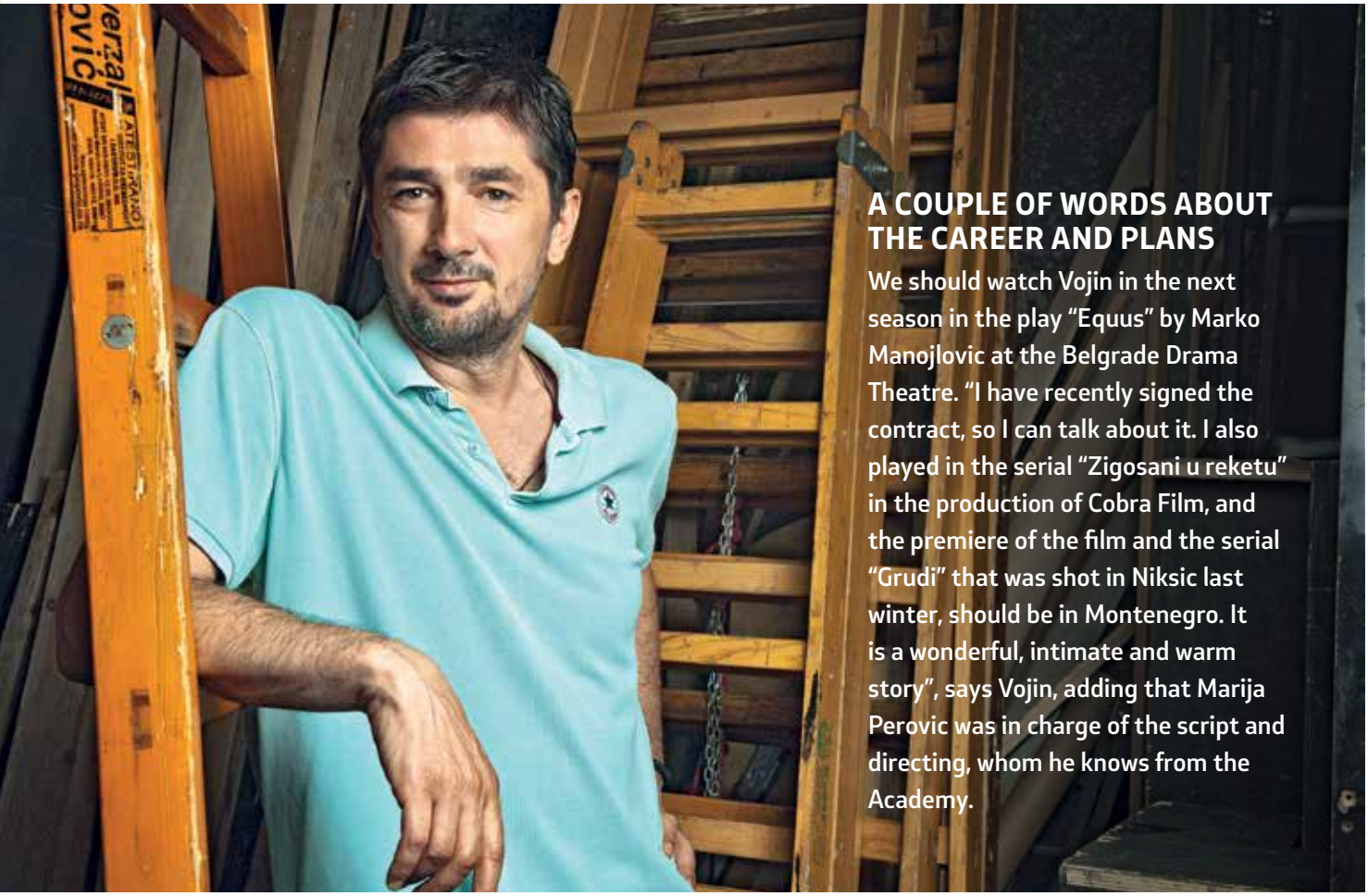
A man can find the meaning of his life precisely in the efforts of taking care of his environment. We should try to be more aware of both ourselves and the environment we live in. we are not here to stay forever, nor is this environment only for ourselves so we can ruin it and someone else will be there to take care of it. I do not have a desire to see the universe, but I have the need to do everything that is in my hands to fix things, to make them better. I have a deep awareness of this.

EP Your opinion on the impact of globalism on the family is well known. Does the departure from the city and return to nature provide the necessary deflection from the dazzling glow of modern life?

Vojin Cetkovic I think that the world has never changed so much as in the last hundred years. In fact, the facts confirm this. I am not sure if we should go back or adapt somehow and swim in all this. I feel like a dinosaur, a specie that is extinct, at least when we talk about some life values. However, I try to follow and understand my children and to be with them so that we could easier accept the world we live in together.

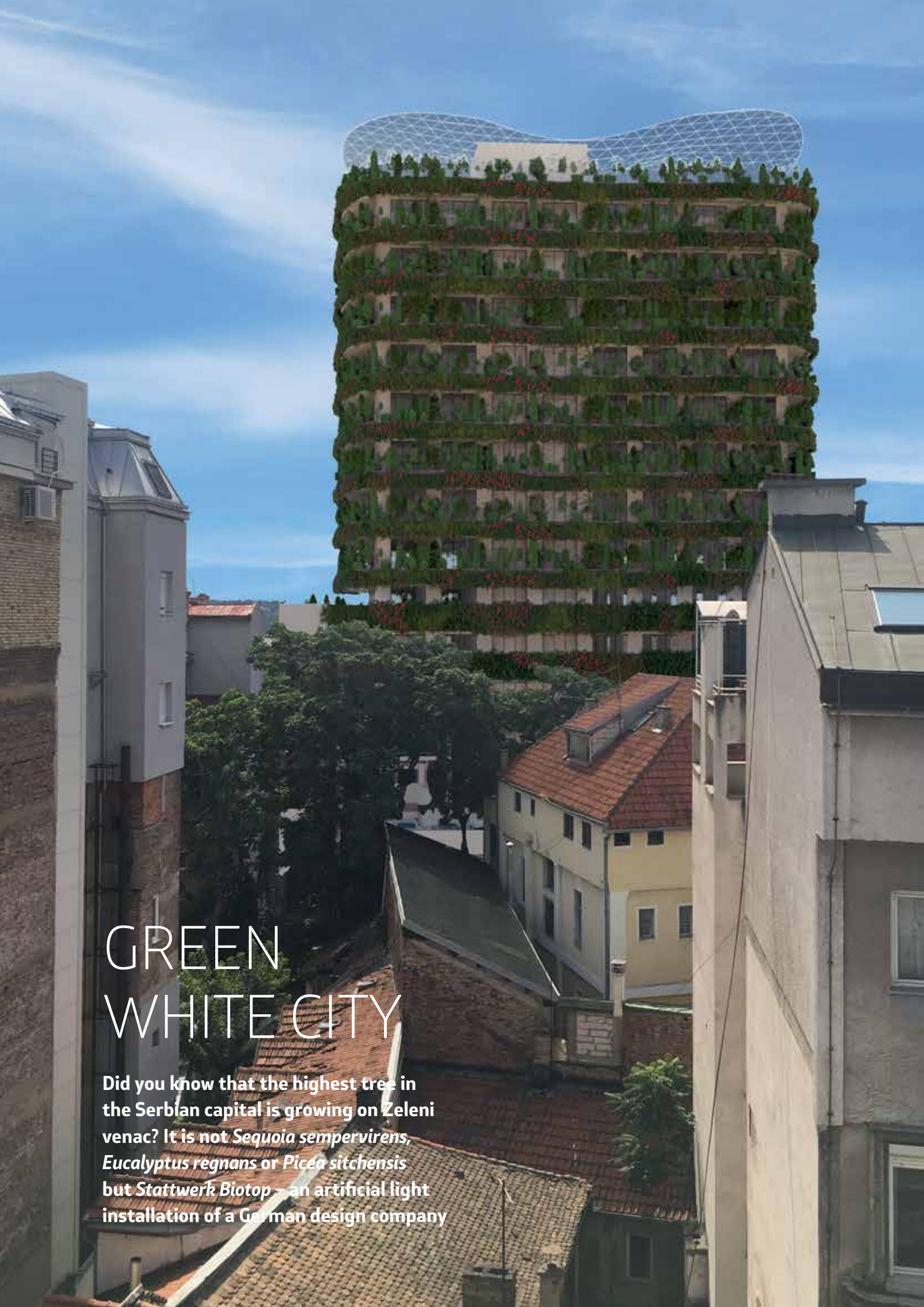
On the other hand, I am trying to influence my surroundings, both on the stage and in these kinds of conversations, but definitely always by setting an example. That is what I can do. Luckily, my wife, Boba and I were raised in a similar way. We were taught similar values in our childhood, so we are raising our children in that direction. It happens that the four of us want to be alone without the rest of the world, but we are not some weird family. We are not twisted like the Adams family (laughter). However, occasionally we have to get away and leave so that we could look from the distance the world we live in. The only way to do it is to retreat in our family cocoon, which is exactly what our vacation home in Cortanovci allows us to do.

Interview by: Nevena Djukic



A COUPLE OF WORDS ABOUT THE CAREER AND PLANS

We should watch Vojin in the next season in the play "Equus" by Marko Manojlovic at the Belgrade Drama Theatre. "I have recently signed the contract, so I can talk about it. I also played in the serial "Zigosani u reketu" in the production of Cobra Film, and the premiere of the film and the serial "Grudi" that was shot in Niksic last winter, should be in Montenegro. It is a wonderful, intimate and warm story", says Vojin, adding that Marija Perovic was in charge of the script and directing, whom he knows from the Academy.



GREEN WHITE CITY

Did you know that the highest tree in the Serbian capital is growing on Zeleni venac? It is not *Sequoia sempervirens*, *Eucalyptus regnans* or *Picea sitchensis* but *Stattwerk Biotop* – an artificial light installation of a German design company

Inspired by the metamorphosis of nature "Stattwerk" has symbolically planted "seed" for its eco-centre project in the bare building of the former Beobanka building, by using recycled planks and wooden battens. In the city center on twelve floors "grew" almost 50 meters high Biotop. Canvases are placed at different angles and arranged to "capture" light and wind that revive this green facility. "The Tree" is visible at night from all the surrounding parts of the city, but it is not the only one that brings life to the gray concrete structure.

The architectural bureau of "Stattwerk" team is located at 18 Zeleni venac Street – or it is better to say that it is "ticking"? The office space was built in a form of asymmetrical heart in contrast to the sterility of modern Belgrade architecture from the second half of 20th century. Right there, on 10th May 2018, Stattwerk presented the conceptual design for their first energy efficient building with green façades.

The skyscraper will, in relation to its two predecessors in the same place – "the tree" and "the heart" raise the scale of spatial revitalization and environmental protection.

The future construction achievement is inspired by the desire to contribute to the improvement of the quality of life and a create more comfortable and healthier environment in the area of one of the most polluted and busiest intersections of Belgrade through the architecture and at the same time to enrich the city's silhouette.

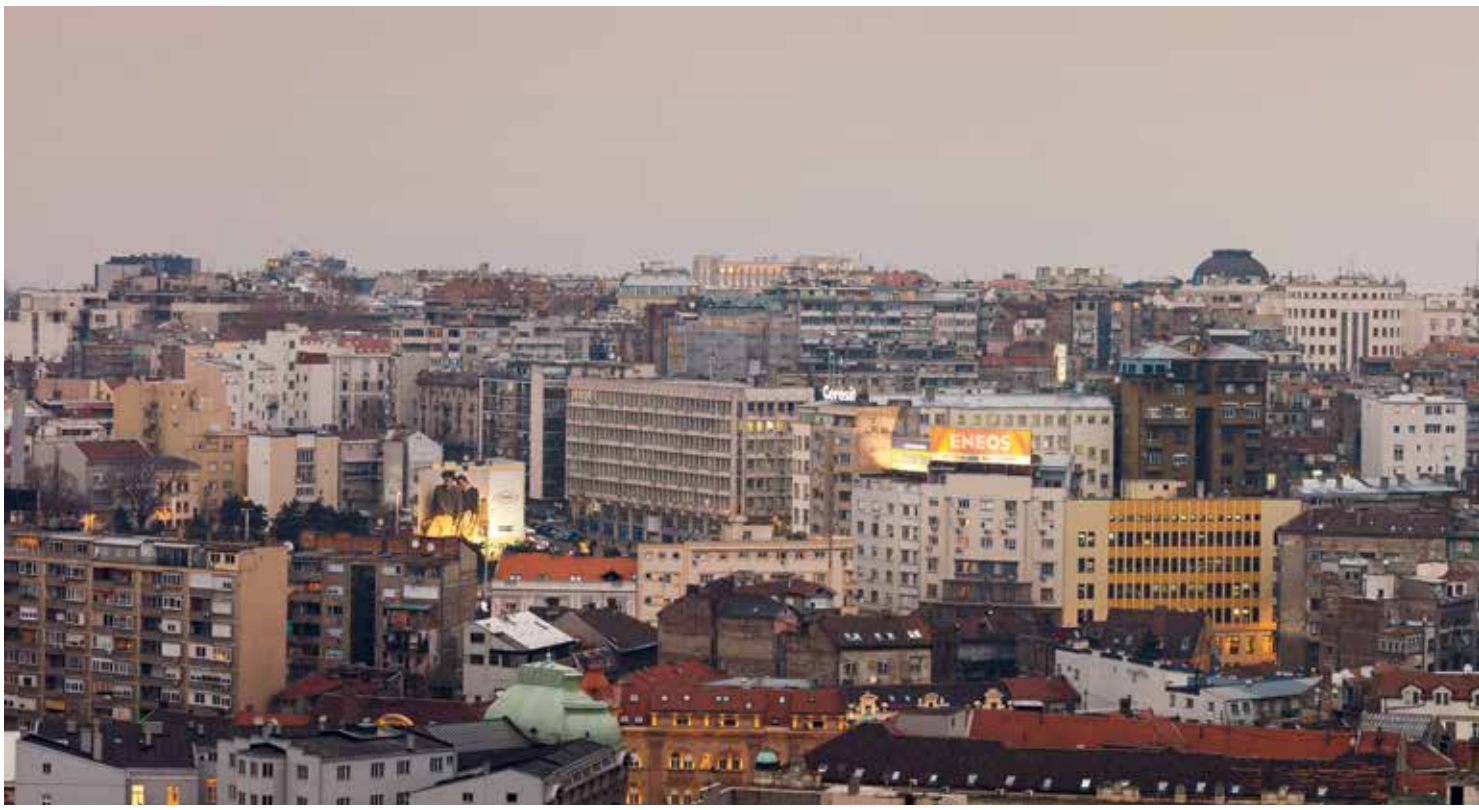
The first green multi-storey building in Serbia will have the total area of more than 30,000 m², and 2,737 m² of façades will be covered with a green robe. Pot plants will be placed on the outer parts of the building, and the roofs with the total area of 2,631 m² will also be enriched with numerous plants, just like the interior of the building.

One square meter of green façade can purify the pollution that is produced at 1.4 square meters of busy city road such as the intersection at Zeleni venac. With almost 3,000 square meters of greenery, "Swattwerk" skyscraper will have the capacity to purify nearly 4,000 square meters of streets. This is further optimized by choosing the position of certain plant species.

What kind of vegetation can we expect on Zeleni venac? While choosing plant species, it is necessary to take into account their tolerance to the specific ecological conditions that prevail in different parts of the façade (including temperature, insolation, air flow, etc.) significant seasonal variation of ecological factors, but also high levels of air pollution. It is also necessary to take into account the size of the plants, their growth rate, characteristics of the root system, their need for nutrients and many other features. A broader list of plant species that could be implemented in the project is made taking into account all the above-mentioned characteristics, as well as appropriate aesthetic criteria related to the appearance of the façade itself. Several types of bushy grass, succulents, ferns and creeper plants that grow on the territory of Serbia and the Balkan Peninsula are among these species that will contribute to the promotion of biodiversity in this area, emphasize the experts of this company.

Mission of Belgrade "Stattwerk" project is to **promote the "green" way of thinking**, not only in the field of architecture and construction but also in the other areas of business and lifestyle

All photographs: Stattwerk



THE FOREST AT ZELENI VENAC IN NUMBERS

Estimated investment value 30 million euros

Planning and time optimization of the project, after obtaining the permits 3 months

The construction process from 12 to 15 months

Property area more than 30,000 m^2

Green façade area 2737 m^2, the capacity for purification is almost 4000 m^2 of streets

"Stattwerk" building will also include **office area dedicated exclusively to ecologically-oriented companies** and organizations, as well as the aparthotel

The mission of Belgrade "Stattwerk" project is to promote the "green" way of thinking, not only in the field of architecture and construction but also in the other areas of business and lifestyle. Its place under the sun below the vibrant roof and within greened walls will find eco-hub, a centre for education and practical training of pupils, students and young scientists, eco-stores, fair, start-ups and individuals who develop "green" ideas. "Stattwerk" building will also include office area dedicated exclusively to ecologically-oriented companies and organizations, as well as the aparthotel. There will be a garage with 514 parking places, as well as parking for bikes and chargers for electric vehicles in the basement. The roof of the highest part is envisaged for a panoramic spot and an eco-restaurant.

"Stattwerk" multi-storey will use the energy of wind, sun and geothermal energy. In addition, new alternative sources such as piezoelectric floors and heat exchange within the sewage system will be used. All technologies will be incorporated and made easier for the users. The entire facility will be a kind of a showroom that will provide an insight and information on how these systems work to all interested parties.

In addition to the systems for the exploitation of renewable energy sources, ecological materials will be used within the reconstruction and environmental protection will continue after the completion of the works. Advancement of energy consumption and consumed water will be done through a smart monitoring system, plastic will be avoided and waste will be sorted and sent to recycling facilities. Primarily rainwater will be used for watering the plants and also as technical water. At the time when we are facing the challenge of preserving the planet for our successors, the concept of sustainable development should represent the path of our aspirations, and architecture is one of the indispensable means of our struggle for nature.

"Stattwerk" is a design company founded in 2007 in Stuttgart, Germany. Since 2016 it has been present in our capital. Why did the Germans choose Belgrade? "Stattwerk" wants to give its contribution in raising awareness in Serbia about the importance of environmental protection. Representatives of the company pointed out that they saw Serbia as an excellent market for the development of various eco-business which would find a base in this facility. There is a lot of potential for business cooperation between for province of Baden Wurttemberg from which comes the parent company, and Serbia, as evidenced by the recent April visit of the president of province Winfried Kretschmann and his delegation to the Belgrade office. A lot has been done for the development and empowerment of these connections, which will contribute to the further development of "green" construction and eco-industry in Serbia.

Although the skeleton usually marks the end of life, the skeleton of Beobank building has resurrected thanks to the company "Stattwerk".

Prepared by: Jelena Kozbasic

Eva Kail

The Gender Planning Expert for the Executive Group for Construction and Technology, the City of Vienna

Vienna Acts Against the Climate Change

A survey conducted by Mercer, an international consulting firm, has shown that there's no place in the world where the life is as good as it is in Vienna. Having been in a competition with 231 cities, the Austrian capital was honored this year, the ninth time in a row, with the title of the city with the best quality of life, which has been contributed by a good security, developed public transport network and a number of cultural institutions and amusement places. Eva Kail is a member of the team of the Executive Group for Construction and Technology in the Austrian capital which, among other things, enables comfortable life for its citizens. She is one of the leading experts - urbanists for gender-sensitive planning on the European continent. She coordinated more than 60 projects in the field of housing, mobility, public space, urban development and social infrastructure.

You will learn from this Viennese urbanist in what way her city crosses swords with the climate change, what the urban planning process looks like "in the West" and to what extent her own home is "green". She and her colleagues know very well that the best weapon is the one at hand, so when they set out to fight the climate change challenges they make sure the urban plans are nearby.

So, how come Vienna ended up being an urban environment with the best quality of life? It's due to the fact that no citizen, of any gender, material status or age, is kept out from the city's efforts to ensure the most comfortable life for everyone.

Eva Kail also suggested to us to visit some of her favorite places in the city, and in case you are planning to visit Austria in near future, her hints might serve you as a Travel Guide.

EP As an urban planner, could you briefly describe to us the process of construction planning in your city and tell us about all the experts involved in the project realization?

Eva Kail Vienna is a fast growing city and a lot of construction work is ongoing. This is based on the outcome of the different planning levels. The urban development plan defines the planning principles and their specification in thematic concepts like 'Mobility', 'Green and Open Spaces', 'Public Space' or 'Energy'. The transfer of master plans and urban design proposals for specific areas to legally binding land-use plans and zoning plans are the basis for project planning for public spaces, residential, public service and office buildings.

Energy and mobility concepts are usual for development of new areas, such as mobility points, car sharing, high quality of bike parking facilities, green roofs which are obligatory in most of the zoning plans. Vienna, as a federal state, is responsible for the housing subsidies law and distribution. In comparison with other European cities, Vienna has a very high percentage of social housing, with

Photograph: Rudolf Schmied

220.000 dwelling units. Around 60% of the Viennese population live in social or subsidized housing. Ten years ago around 80% of newly built dwelling units were subsidized, due to the rapid growth and economic development this has decreased to 50%, but this is still a very high percentage. This explains why the assessment of projects asking for subsidies can play a decisive role in the implementation of high quality, sustainable and affordable housing construction. The Viennese housing fund is owned by the City. Its tasks are to buy sites for subsidized housing projects, to organize developer competitions for new subsidized housing projects, to make a quality assessment for smaller projects with a regular board and to distribute subsidies for urban renewal. This initially comprised a three-pillar model consisting of planning, economy, and ecology, and it was supplemented in 2009 with social sustainability as the fourth pillar. Due to the competitive situation, the quality of subsidized housing is rather high also in regard to green buildings, but also social sustainability, which is influenced by the gender criteria.

Gender-sensitive planning criteria are part of the general quality criteria of the Vienna Housing Fund, as the gender planning experts have been part of the juries of developer competitions for more than ten years. Most of the gender criteria were integrated into the criteria list of the Vienna housing found which are also shown in the chapter gender mainstreaming in housing construction in the Manual Gender Mainstreaming in urban planning and urban development. The gender criteria were an addition to a more detailed definition to the planning quality pillar in the context of a gender-specific preliminary review.

EP What are some examples of green architecture in your hometown?

Eva Kail For office building there are two well-known flagship projects.

The biggest challenge for me is **the preservation of existing and the production of new 'cold air lakes'**, as this is essential for the climate in the city effort

Photographs: (bottom) WienTourismus/Peter Rigaud; (middle, left) WienTourismus/Christian Stemper

One is the Raiffeisen office building on the Danube canal, which is a new construction from 2012. It has 21 story and 900 workplaces. It has a climate glass façade and uses geothermal, photovoltaic and cogeneration for energy production. The water of the canal is used for the cooling of the building. All this means a 50% reduction of energy in comparison to a similar building with conventional house technology. So this office building was the first one reaching a passive house standard. *

*** Passive building is a strict standard on a voluntary basis for the energy efficiency of the buildings which enables reduction of their environmental footprint. These buildings require a rather small amount of energy for cooling and heating.**

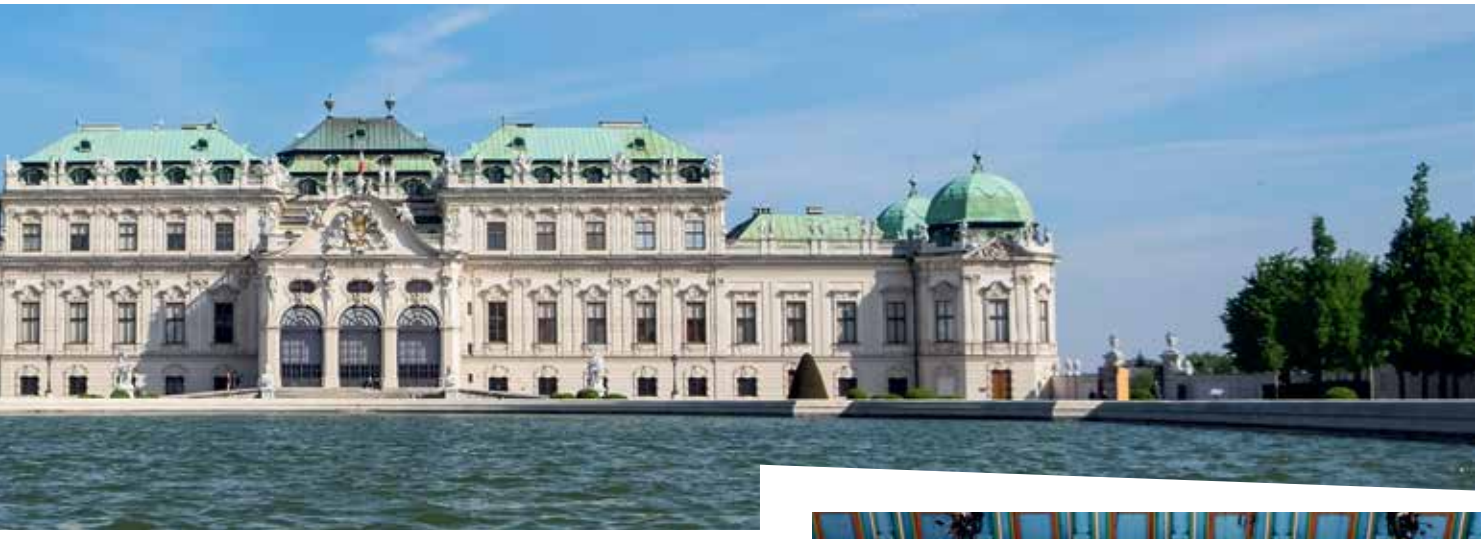
Photographs: (top) WienTourismus/Peter Rigaud; (bottom) WienTourismus/Christian Stemper

The other one is the Getreidemarkt Campus of the Technical University. This high rise building was developed with the active involvement of scientists of the University itself as future users. Finished in 2014 as a refurbishment of a building from the 70's, this 11 storeys high office tower with 800 workplaces is already a cost-effective energy building. Austria´s largest photovoltaic system (facades and roof: 2200m^2), the utilization of server waste heat and other measurements helped to reduce the 93% of the former energy consumption of the building. Both projects have gained several green building awards.

As for green residential buildings, there are quite a lot of interesting projects. I`d like to mention Seestadt Aspern, Vienna´s largest urban development area, which used to be an airfield in the outskirts, and now 2,900 flats are already inhabited. The agency responsible for the planning processes is asking for high ecological standards due to the TQB criteria.

The latest project is 'Living Gardens', with green facades, and it demonstrates that a CO_2 neutral building is also possible to reach in a multi-storey.

Taking into account social sustainability, the special place belongs to Wohnprojekt, a self-governing co-housing community near the train station in the north part of Vienna. This complex with 40 flats is a very low energy consumer and it is enhanced with varieties of facilities for users, such as two private sharing cars, big bike garage, many shared rooms of an extraordinary quality, roof garden, food cooperation, self-run coffee shop, neighbourhood garden, etc. This project has been awarded many times, and the users of the building take the planning and house administration decisions guided by the principles of sociocracy.



EP Are there future plans for making already quite green Vienna even greener?

Eva Kail Since 2014 Vienna has a Smart City Framework Strategy, which was approved by the city´s Council. This is not only a concept about energy saving, CO_2 reduction, and sustainable economic innovations, but it defines life quality as a central field of action and a core issue of future developments. The Fair shared City concept was influenced by Vienna´s Gender Planning activities, which aimed to improve the quality of everyday life for many different groups including also the weaker ones. This social awareness is an outstanding characteristic in comparison to the Smart City Strategies of other Cities. The Executive Office for Construction and Technology, where I work, coordinates now a broad implementation process in order to use the potential of the public buildings owned by the City, such are schools, hospitals, etc.) and to support private initiatives.

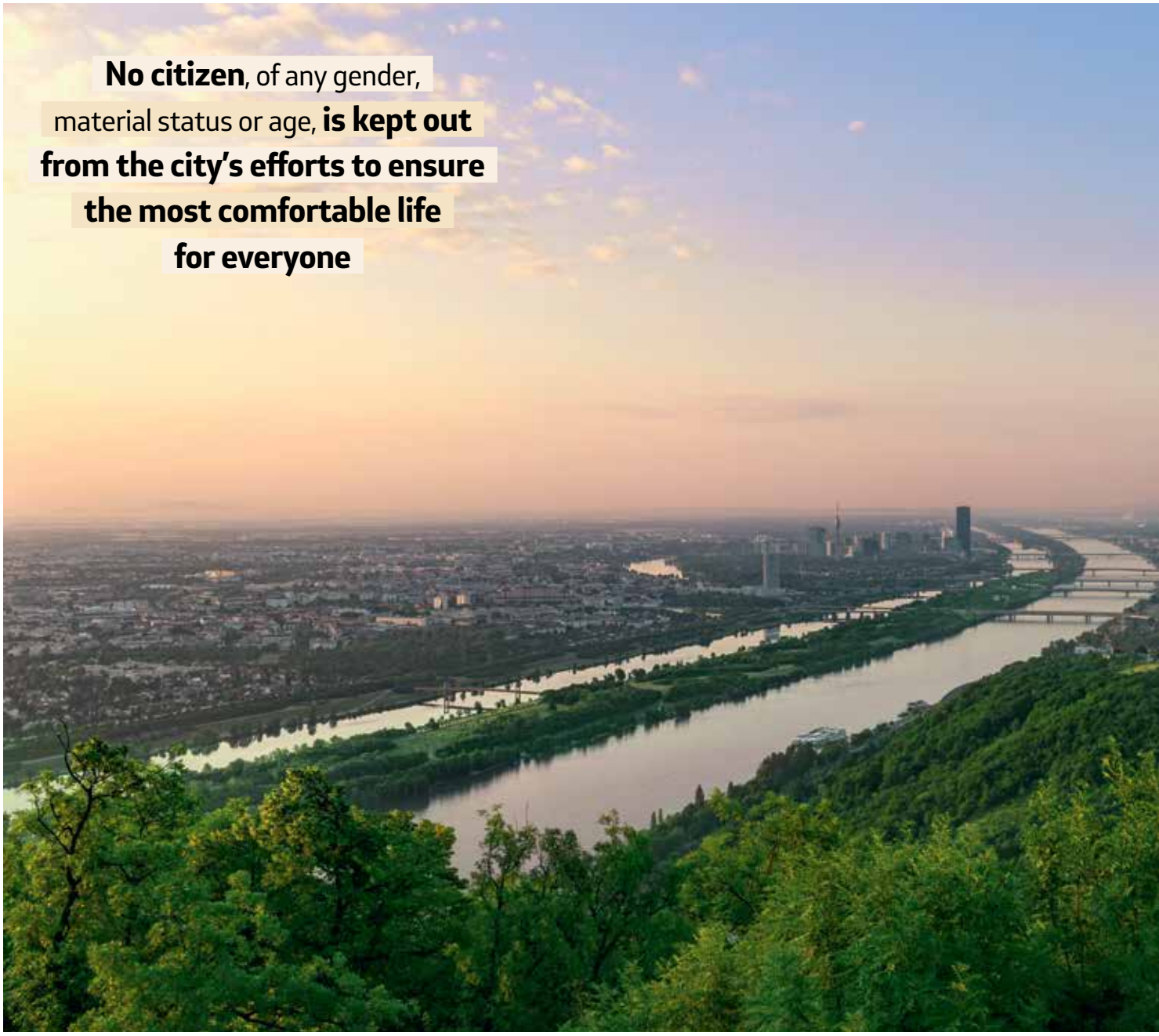
EP What is the area of land covered with trees in your city?

Eva Kail The area of Vienna is 41,487 ha. The green land covers 18,887 ha, 8,189 ha are forest, 1,756 ha are parks and graveyards. Vienna has 86,683 trees on the streets.

EP Is your home environmentally friendly and if so, how?

Eva Kail To a small degree it is. I live in a 1904 five storey rental house from the so-called Gründerzeit epoch, so the building materials are good to recycle: bricks and wood. But the energy consumption is very high; the house is heated with natural gas.

Photographs: WienTourismus/Christian Stemper



No citizen, of any gender, material status or age, **is kept out from the city's efforts to ensure the most comfortable life for everyone**

Photographs: WienTourismus/Christian Stemper

EP Do you find sustainable lifestyle expensive and is that the reason why more people aren't embracing it?

Eva Kail Organic food is certainly more expensive, but mobility without private cars is much cheaper. So I think, the problem is more about the necessary change of habits, which makes it difficult and it is often more time consuming – you have to go to many different shops if you want to buy organic food at reasonable prices and have enough choices of available products, whereas public transport takes more time. To some extent, it means a reduction of individual comfort, which is more than compensated in the long run in the improvement of the quality of the environment.

EP How does your city encourage the involvement of marginalized group in public spaces – from women and disabled people to national minorities? Are there any research studies showing if your strategies have been successful?

Eva Kail Vienna is well known for its gender planning activities. A lot of them have reached the planning mainstream so the social space analysis precedes the redesign of shopping streets or major squares in order to determine which groups are using the place, which groups are missing and why, and what are the needs and wishes of the different groups. Last year two gender-sensitive participation pilot processes took place. The project for a redesign of the station Reumannplatz had a specific focus on the needs of marginalized people and migrants, and the redesign of Meidlinger Hauptstraße, a regional shopping street in a social weaker district, was started with a social space analysis, followed by a gender sensitive competition. The jury decision respected the wishes formulated by the residents so that the quality of the 'living room' atmosphere there could be preserved.

EP How do you see the future of urban planning in the context of the fight against climate change and its role in this process?

Eva Kail Urban design has a decisive role. The biggest challenge for me is the preservation of existing and the production of new 'cold air lakes', as this is essential for the climate in the city. Zoning plans can do a lot, just as the legal binding requirement for green roofs or trees on streets at new development areas. We also insist there on energy and mobility concepts. The building regulations and the conditions of housing subsidies play an important role, too. It needs the whole 'chain'.

To mitigate the climate effect you should plant at least 15 years old trees, but this is a question of costs.

EP What is Vienna doing when it comes to old buildings and how do you make them more energy efficient?

Eva Kail The success of the smart city strategy depends to a high degree on the development of the existing building stock. The EU funded project 'Smarter together' (with Munich and Lyon) is Vienna´s most advanced and promising activity in this field.

The core activity is the renovation of three housing complexes with 632 flats, a large one by a non-profit developer and two small social housing buildings, in close inclusion and participation of the 1,300 residents. The measurements comprise heating, photovoltaic energy, solar heat, a highly energy efficient lighting system and e-bikes with charging stations. The saving potential is estimated

The terrace of the restaurant Palmenhaus at Burggarten in the Hofburg complex is **one of the most beautiful city places to sit** in during summer

Photographs: on the previous page (bottom left) WienTourismus/Peter Rigaud; (bottom right) WienTourismus/Popp&Hackner; (top) WienTourismus/Peter Rigaud

at 6 million kWh/year, and the annual cost reduction per household will be 400 euros. Other activities are neighborhood eCar sharing and the use of eCars for post-delivery in the project area including 20,000 inhabitants.

Vienna also gives a lot of subsidies for urban renewal also under ecological aspects.

EP What are your favorite landmarks, restaurants, and cafeterias in Vienna?

Eva Kail My favorite landmark is the whole complex of the old imperial residence, the 'Hofburg' with its beautiful squares and surrounding parks. Also, the Belvedere with its two castles and the park is a baroque 'Gesamtkunstwerk'. So this for the historical central places, to get an impression of modern Vienna it is the best to visit Seestadt Aspern, where you can see one of the most ambitious urban development projects of Europe, with a holistic understanding of development, including buildings, mobility, public space and social empowerment.

Interview by: Jelena Kozbasic

THE HEALTH CENTER IN KLADOVO IS ABOUT TO BECOME MORE EFFICIENT

Why is September 22 important to the Britons and dentists? Back in 1955, that was the date when British commercial television started broadcasting. The first paid advertisement it transmitted was a toothpaste commercial (ironically enough, the British are not famous for having the world healthiest teeth).

And what about citizens of Kladovo, a town in the Bor District of eastern Serbia? September 22 is the name of a street where their new community Health center is located. It is only a part of the municipal complex of healthcare institutions. Its patients and employees will be soon rewarded with more comfortable staying and working conditions.

At the moment, the experts from **CEEFOR** – *Center for Energy Efficiency and Sustainable Development* – are working on drafting a technical documentation on energy rehabilita-

*** Energy efficiency represents all planned and implemented measures with the aim to use a minimum quantity of necessary energy but with a preserved level of comfort and production rate**

With successfully accomplished assignments in the field of energy technologies, **CEEFOR** has reduced not only the costs for its clients but also **the negative impact of harmful components that cause the greenhouse effect**

Photographs: CEEFOR

tion, adaptation, and reconstruction of buildings of Kladovo Medical center which will be used as a base to the future project of its renovation. The medical services given in both old and new Health center as well as General Hospital in Kladovo will be improved and Kladovo citizens will be healed and treated in a more energy efficient environment*.

According to the project task's description, most objects within this Medical center are in a bad condition. The company **CEEFOR** was entrusted with a duty of designing the solutions for ameliorating them in favour of their patients and workers.

"Healthcare centers throughout our country are mostly in a critical state. The Kladovo Health Center will not be among them anymore. We want to create a more functional environment for doctors and nurses and an atmosphere that will, in both health and illness, appeal to people visiting. In order to achieve this goal, it is necessary to isolate objects better and replace carpentry, linings, floors, tiles, walls, and roofs, and we hope to achieve it", said Marija Vujanac, the responsible engineer for energy efficiency of buildings.

The **CEEFOR** team consists of 23 experts with many years of experience in the field of renewable energy and energy efficiency: mechanical, electrical and civil engineers, technology engineers, architects, traffic and fire protection engineers, economic and financial experts and translators.

The Center for Energy Efficiency and Sustainable Development was founded in 2010 and its headquarters are in Belgrade. It has provided more rational energy consumption for many companies. Some well-known products come from their clients' factories: some of them refresh you when celebrating Patron Saints day (Knjaz Milos), make your life sweeter (Stark and Swisslion – Takovo) and make your lunch more tasty and richer with proteins (Neoplanta). Associate in the field of energy saving for these companies was no one else but **CEEFOR**.

With successfully accomplished assignments in the field of energy technologies, **CEEFOR** has reduced not only the costs for its clients but also the negative impact of harmful components that cause the greenhouse effect, which made this company one of the leaders that strive for social responsibility.

The main field of the Center's activities, hand in hand with those obvious ones – energy efficiency and sustainable development – is renewable energy.

Prepared by: Jelena Kozbasic

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CHERRY TOMATOES AND CHILLIES FROM A GREEN CUBE

It's about the plaint cultivation being beneficial to us, and also necessary because we are forced to fight ecological problems

Gardening has always involved owning a piece of land, and garden plants would bear fruits as a result of time, effort and knowledge a man has invested in. If a city dweller wanted to grow his plants, he would have to own a cottage with a garden or at least strips of land around his house, and also to spend some time learning the gardening basics as well as practicing techniques whose intensity varies depending on the season. The one who did not have a plot of land could only dream of sweet-smelling and fresh produces from his own crops.

By implementing the modern concept of urban gardening and vertical gardens all around the world, inhabitants at urban areas also got a chance to grow herbs, strawberries and cherry tomatoes on small land lots managing even to apply the main principles of organic production which means that no pesticides, artificial fertilizers, chemically treated seeds, etc are allowed.

Recently, a step forward has been made. Thanks to a local team of young experts, an urban gardener – by definition without a land - now doesn't need to have any knowledge about agriculture, nor to worry about weather conditions, nor to spend much time to take care of his plants. All he needs is "Green Cube".

A fledgling company "UrbiGo", founded by Anja Carapic, Aleksandar Varnicic, Predrag Gajic and Milan Trajkovic, made a portable smart garden and gave it a name "Green Cube". Having witnessed the challenges of an intensive urbanization and overpopulation in cities that led to a gradual shrinkage of green areas, these young people wanted to find a solution for a new generation that is raised in "concrete jungle" and in an environment which is increasingly polluted. It appears that small garden is an ideal choice for growing herbs or miniature vegetables throughout the year and at any place in home.

Anja Carapic, an environmental engineer and the only lady in this team of four innovators, told us that they had a strong motive since there was a product missing from the market, the one designed to all urban residents who do not have enough space, time or knowledge to become owners of their own piece of greenery and to grow their own groceries.

"Many have tried, frequently with no success, to grow various plants at home. We noticed that they had been spending a lot of money on different solutions for urban gardening, but they were all too complicated, big or noisy. We wanted to make a product that will make the cultivation much easier", says Anja. If we also take into account the fact that today people generally show interest, if not concern, about the quality of food which they keep buying at the supermarkets, it's not unusual that they want to grow plants and pick fresh produces.

Today people generally show interest, if not concern, **about the quality of food which they keep buying at the supermarkets**

Upon reflecting on the fact that most people in city do not have even a terrace suitable for cultivating at least certain types of fruits and vegetables, this team of innovators has realized that it is necessary to create an advanced and autonomous garden solution - plants must be provided with all that they need to grow in the conditions that were previously considered completely inadequate for cultivation and which posed an obstacle for any kind of "gardening".

"With the 'Green Cube', you no longer need a terrace, garden or plenty of space. The garden has an automatic lighting

Photographs: (on the previous page) Jovana Todorovic; (top) URBIGO TEAM

"GREEN CUBE" AT THE LOCAL AND INTERNATIONAL COMPETITIONS

UrbiGo presented the miniature garden concept at several international start-up competitions in Europe, among which is the most prominent their participation at the renowned SLUSH competition in Helsinki where they came to the global attention. The "Green Cube" was also presented at fairs and conferences in Serbia and everyone has got a chance recently to pre-order a smart garden on the web site www.urbigo.me which will ensure a promotional price the moment they start with mass sales.

Team UrbiGo consists of:

Anja Carapic, an environmental engineer, and CEO. Anja is engaged in business development and marketing.

Aleksandar Varnicic, software engineer, and architect with more than 10 years of experience in software development and CTO.

Predrag Gajic, software and hardware engineer. He is the "brain" of the smart garden system.

Milan Trajkovic, engineer of horticulture and green design, who is in charge of the "Green Cube" design.

and self-watering system so it informs you when it's thirsty, that is to say when you need to water it (generally on 3 or 4 weeks), or when you should turn the light on or off, regardless of where you are at that moment. And here comes its main advantage. All of this you can actually do with one click on your mobile phone", says Anja. Through the free application, the company UrbiGo developed, it is now possible to monitor vital factors of plants such as temperature, light and water level at any time and from any place, which enables the urban gardener to pick fresh spices or miniature vegetable produces in just 2.5 months. As the breeder moves forward in his gardening adventure, he unlocks new levels in the application, gets recipes and tips, and learns what are the benefits of cultivating different plants in his garden.

We Believe in Smart Gardens but Also in Smart Gardeners

According to Anja, the main users of "Green Cube" are primarily millennials, young business people aged from 23 to 36 years who have a hectic lifestyle, yet want to have a healthier diet. There are companies on the waiting list for this product who want to make their workspace greener and

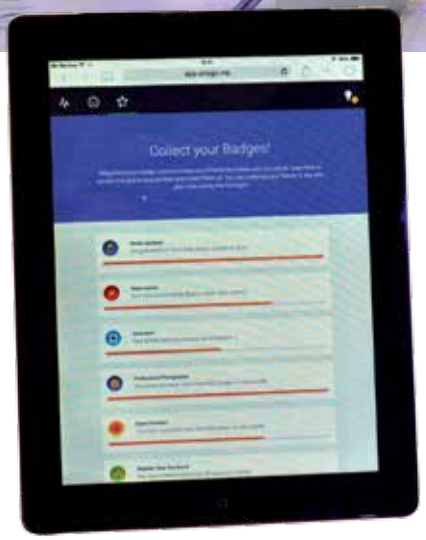
connect their employees with nature. Families with children are also interested in the "Green Cube" because parents believe it's better for children to learn about nature while the children themselves are engaged taking care of plants, and to spend time on a phone in a more meaningful way by using this application instead of just playing the games.

There is no need to have prior knowledge nor any kind of skills in order to grow plants in this miniature garden, since the application guides the user through the process of cultivation starting from the moment of planting seeds to the forming a mature plant and notifies him when something needs to be done. Anja believes that many people will find this "gadget" to be quite entertaining, because on one hand, it's about cultivating crops in an organic, healthy way, and on the other, all is done through a certain form of a game.

"We found out from the consumers that this means a lot to them because it proves they are capable of growing their own food at least partially and it enables them to know for a certainty where the food comes from. In addition, there are people who had lived for ages in a house with a garden but having moved to a city, their lifestyle has changed, so growing plants this way reconnects them with their home and roots. Still, I think the most important thing is that people perceive this not only as a way to grow plants but also as a value that stems from knowing that they can create a life with their own hands by growing their food ", says Anja, pointing out that there's going to be an increasing demand for this industry since we are being left without available arable soil whilst the population keeps on growing. The whole world will have to adapt to these changes and learn how to grow fruits and vegetables locally and in a healthy and sustainable way. And that is exactly where the technology at our disposal can largely help.

When we asked Anja how the UrbiGo team feels about their role in making living spaces greener and more sophisticated, she told us that they are actually advocates for better future and smarter cities, and unlike the competition, they have integrated education into the product itself by designing the application which shows to both young and old users an interesting way back to nature. "How we are going to live is exclusively up to us and the initiatives we are taking. We are glad that the potentials of these initiatives and products such are our 'Green Cubes' are being recognized in Serbia, too," says Anja.

Anja, Aleksandar, Predrag, and Milan shared the same vision. Although they have different careers, from ecology to programming, that didn't stop them holding to that vision, they combined their knowledge at the same time trying not to insist resolutely on their original conceptions. The first concept of the miniature garden was being changed according to the market and consumers. Even though none of them are gardeners in the traditional sense of the word, Anja explains that each one of us is an urban gardener to some extent. "It doesn't matter whether we are going to take this novelty as a fashion trend or manifestation of an essential human need to be surrounded by nature. It's about the plaint cultivation being beneficial to us, and also necessary, because we are forced to address a number of ecological problems in the close environment", says Anja and points up that the technology can help us create innovative solutions and adapt to the changes that have already taken place in nature as well as to those that are expected to happen in the future.



How we are going to live is exclusively up to us and the initiatives we are taking

Photographs: (on the previous page) Jovana Todorovic; (the others) URBIGO TEAM

Prepared by: Tamara Zjacic

Milena Zindovic
architect

Woman in Architecture

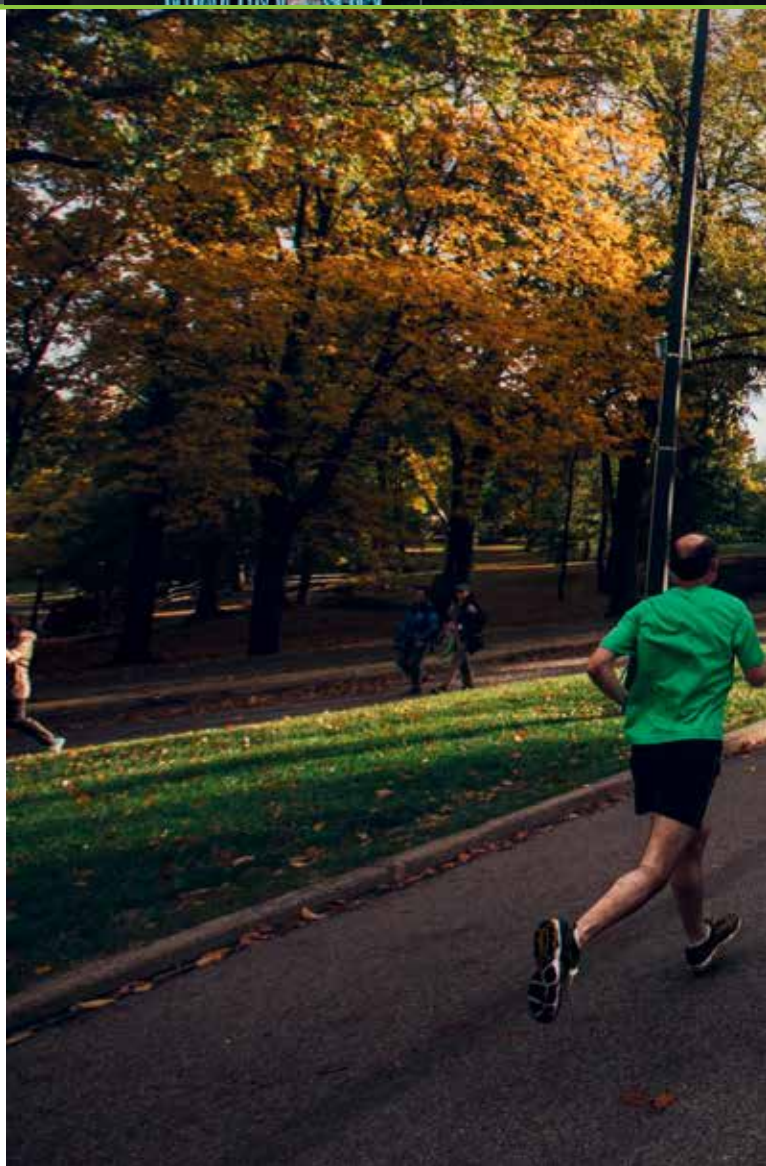
On the academic and business trajectory of the Serbian architect Milena Zindovic, in addition to our capital, where she graduated from the Faculty of Architecture in 2007, there are also New York, Ljubljana, and Sabac.

At the Cornell University in New York, where she went for a master's degree, her majors were architecture and media. Cornell belongs to the "Ivy League" universities which include the eight most prestigious private universities in North America. Side by side with Harvard, Columbia, and Princeton, it is one of the most popular and most selective US universities, and the League got its name from the ivy plant which covers the oldest buildings of these higher education institutions. Coincidentally, Milena has something in common with it – both her and the ivy make various structures and projects green.

Besides the very advanced skills, from America, she also brought to Belgrade the taste and the appearance of diners, cheap fast food restaurants, which helped her transmit the real spirit of American culture to one of Belgrade's catering facilities.

Stozice Arena in Ljubljana represents one of the projects she took part in, which gave us the reason to feel a specific dose of patriotism while walking the streets of the capital of Slovenia.

In 2013, she launched the regional portal for women's creativity in architecture "Women in Architecture", and two



years later she found herself in Sabac where she, as the Director of PUC Plan Sabac, promoted a sustainable approach to urban development and by 2017, with her team, provided the citizens of Sabac with more multifunctional public spaces.

EP You were the Director of the Public Urbanization Company Plan Sabac. In the context of humanity's concern for the survival of our planet, how has this city contributed to the fight against climate change with its urban plans and projects?

Milena Zindovic I spent two years in a leadership position in the PUC Plan Sabac. I resigned in November 2017. Sabac, as well as a significant part of our country, experienced the consequences of climate change during the floods of 2014. Apart from these extreme events, the result of overheating are also increasingly warmer and longer summers that are harder and harder to bear, especially in urban areas. As urban planners, we have the task to make the space we are planning more pleasant for everyone, and achieving excellent microclimate in urban areas is one of the prerequisites for accomplishing better and healthier life in the cities.

Since the beginning of my mandate in Sabac, I have advocated a sustainable approach in urban development, in particular, the development of multifunctional public spaces, which in addition to their purpose as gathering and circulating places, have the function of green oases, providing shade, and improvement of the microclimate. I am especially interested in nature-based solutions for urban development. We have incorporated them into several projects and plans, of which undoubtedly the most important for Sabac is the detailed regulation plan of Savapark, which envisages the adaptation of 300 hectares of the river border into a predominantly park space.

We have also applied the principles of sustainable planning to the strategic urban planning, and in cooperation with EnPlus, consultants from Belgrade, we developed the Green – Blue Strategy of the City of Sabac. This strategy consisted of the analysis of all aspects of city life, urban systems, and functions, it also identified the resources, synergies, and interactions, and it gave us the basis for further planning with the goal not only the sustainability but also the regeneration of urban ecosystems.

On the strategic level, we also dealt with the question of urban mobility in Sabac, which is ideal for biking and walking because of its size and topography, but whose infrastructure is inadequate or nonexistent. Improving the quality of public spaces to encourage pedestrian and cycling transit is of vital importance for the city, therefore on that basis, the City of Sabac is also developing its Sustainable Urban Mobility Plan.

Photographs: (Milena Zindovic) Rade Kovac; (bottom) Pixabay

EP You are one of the founders of the Smart City Association, which, among other things, promotes sustainable development and new technologies in spatial planning. Have you applied some of the "ecological" solutions and which ones?

Milena Zindovic The Smart City Association was established to promote and implement modern concepts of sustainable urban development in Serbia, and it is in every respect based on the challenges and experiences I had during my practice in Sabac. For us, it is not only the digital that is smart but every approach that makes sense and contributes to a better life for our citizens in our towns and cities. Many smart concepts are neither expensive nor complicated, they are not even technologically advanced, but they require smart planning and designing. As a part of our activities, we strive to highlight and draw attention to different aspects of sustainability our communities lack. So far, we have had events related to accessibility, gender equality, and climate change.

Along with the City of Sabac, we participated in the public call for the Open Data Challenge, which is implemented by the UNDP and the Ministry of Environmental Protection as part of the Local Development Resistant to Climate Change project. The goal of this project is to reduce the greenhouse gas emissions, and we applied with a plan that proposes the data collection on different methods of heating in households in Sabac and by the association of the energy sources and methods of heating with the greenhouse gas emissions. We were rewarded, along with seven other local self-government, and in the next six months, we are going to participate in the Climate Incubator which was inaugurated within this project.

Ljubljana

The cities where the environmental protection and the fight against climate change are among the top priorities are Hamburg, Copenhagen, Malmö, Stockholm, and Vienna

EP You have also gained experience in the capital of Slovenia. Could you compare Ljubljana with our capital? When it comes to urban design, which actual practices could we adopt from the Slovenians, and which ones of ours would be applicable for them?

Milena Zindovic It is complicated to compare Ljubljana with Belgrade, first of all, because of its size. Ljubljana has around 300,000 residents; the city is not big, it has a reasonably flat topography and is very green. It is much more pleasant for life than Belgrade. What makes the City of Ljubljana far ahead is undoubtedly its approach to urban mobility. A bicycle is the predominant means of transit and travel, which reduces pollution in the city, improves the health and physical condition of the citizens and gives a specific atmosphere to the whole town. The city centre is

Photographs: Pixabay

Stockholm

Copenhagen

completely closed for cars and is very pleasant for walking and spending time in it. And one of the most important city avenues – Slovenska cesta, a few years ago became the so-called shared street – where pedestrians, buses, bicycles – all share the same space. It is a radical move indeed as if we now decided to reduce the car speed limit in Kneza Milosa Street and allow pedestrians to use the driveway.

However, Ljubljana has a higher degree of motorisation than Belgrade, which means that Ljubljana has more cars per capita. We can draw some conclusions from this. In fact, our country is still less motorised than the rest of Europe.

If we start now to deal with urban mobility in cities, we will achieve better results because we have a better starting position. Investment in public transport and alternative methods of transportation should be a priority for our cities, especially Belgrade. Given the fact that we do not have big industrial polluters anymore, heating plants and traffic are the leading greenhouse gas emitters in our country today. The urban mobility both urban and environmental issue.

EP What is the greenest city you have visited?

Milena Zindovic European cities today are competing for this title. I had the opportunity, both on a personal and business level to visit Hamburg, Copenhagen, Malmo, Stockholm, and Vienna. They are all cities where the environmental protection and the fight against climate change are among the top priorities. What is interesting is that these are also the cities regularly ranked high by their residents for the excellent living conditions. The measures such as greening the cities, biodiversity, investment in urban mobility, emission and heat island reductions, in addition to reducing the effects of climate change, actually create spaces that are more comfortable and enjoyable for people. The objective of environmental protection is not only the protection of plants, animals, and the planet but the protection of ourselves, the human race that is also part of that environment.

EP Probably it is thanks to my love for burgers, but your project that I liked most is the restaurant "Intergalactic Diner." To what extent did your experience of studying (and enjoying food) in America inspired you, and what were the other sources of inspiration?

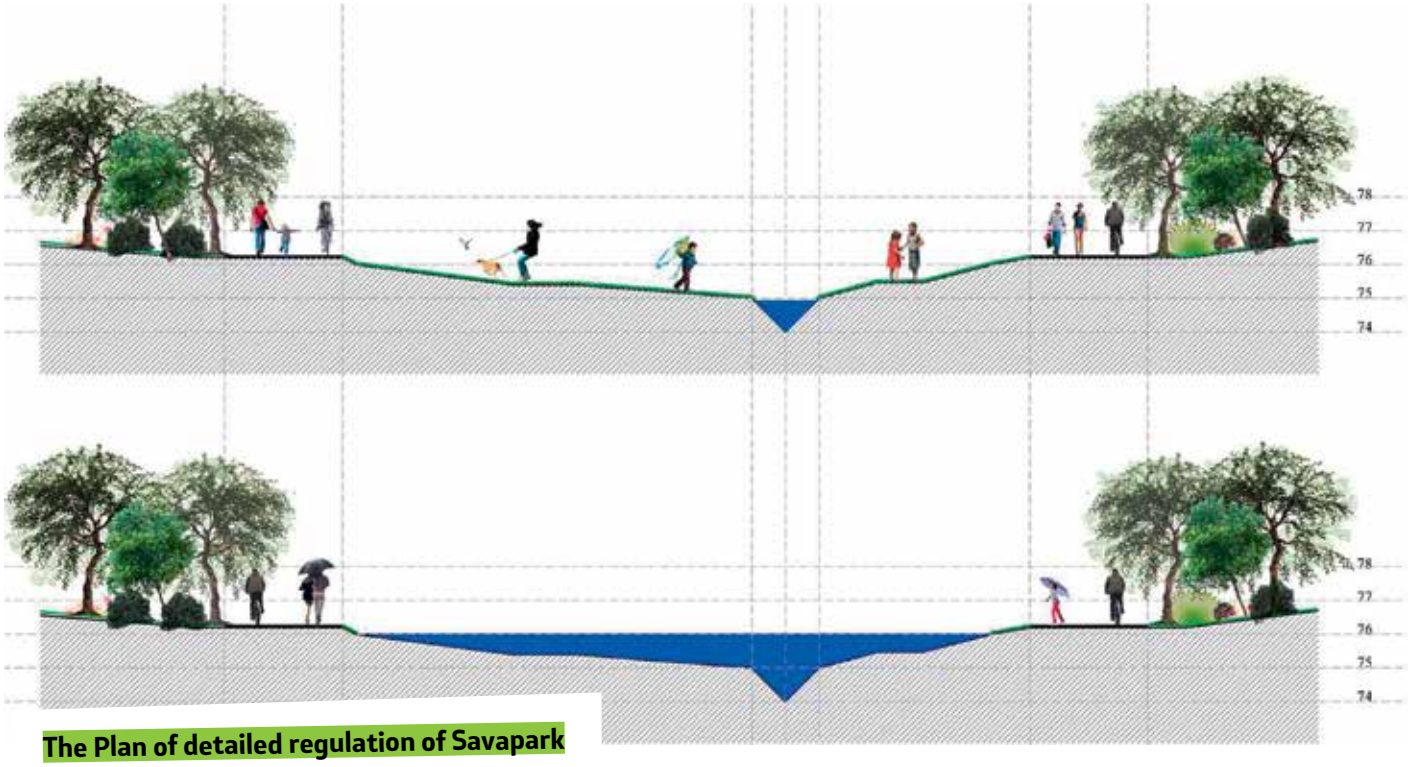
Milena Zindovic What certainly helped is the first-hand experience with American diners. These are cheap restaurants that serve everything, from burgers to Greek specialities. I always liked their relaxed atmosphere and the mixing of people and social classes – diners are for everyone, something like our old taverns...

Perhaps this restaurant would have that atmosphere even more if the investor did not have his requirements regarding the restaurant's concept. Great inspirations were the fifties and rock'n'roll because this is the period most often associated with diners. It was a challenge to incorporate all the interior elements into a small space – the first space before the extension had only 30 square meters. However, we managed to accommodate the booths, the kitchen, and the bar. It seems to me that it was the first interior of this type in Belgrade, and now you can find them at almost every turn.

EP What is the most ecological project you have been involved in?

Milena Zindovic I strive that all the projects I am involved in, primarily urban, contain a component of ecology, and environmental protection. Among them, the Plan of detailed

Photographs: Pixabay



The Plan of detailed regulation of Savapark

regulation of Savapark stands out most. We had a free reign to plan this area in the best way. The subject of this plan is the adaptation of 4.5 km of the Sava River coastline and the territory within this area of over 300 ha. This free space area is an exceptional resource for every city, especially for a town the size of Sabac. The natural characteristics of this area, the high groundwater, are the reasons why it has not become a building ground yet. In 2015, the leadership of the city took this far-sighted decision to turn this space into a park, mainly a public space for sports and recreation. When you know that Sabac has 0.1 per cent of open green areas in the city, this decision becomes even more important.

Along with the team of PUC Plan Sabac, we decided to use the sustainable approach in Savapark planning, while keeping in mind contemporary programs that are already being used in the world, and which are based on the existing natural balance and characteristics of the terrain. Instead of levelling the entire area, we have decided to solve the problem of seasonal high ground waters, which are connected with the river regime, through the network of channels, but in a way that these channels also become multifunctional. Their geometry allows them to be part of the park during dry seasons, we anticipated the use of certain plant species and the geometry of the riverbed itself for their cleaning and aeration, and biotopes are developing on the channels which are re-establishing the biodiversity along the Sava River. Greenery in the park was also planned based on endemic species, which are adapted to the humid terrain and Macva area. The implementation of this project will significantly change the microclimate in Sabac but also contribute to the protection of the city from high ground waters.

If we want to make our country greener, but also cleaner, better and healthier, we must have specific goals and measures to achieve this

Unfortunately, this spatial development approach has not been used in Serbia yet. Whether it is because of the rush or the lack of knowledge, but technical solutions applied in many infrastructures and other investments in our country represent the already outdated technologies. We have shown with Savapark that it is possible to plan a modern space in Serbia that respects all aspects of sustainability: ecological, economic, social and cultural.

EP Do you think that Serbia takes into account environmental protection when it comes to urban planning? If not, what is holding us up and what could be our incentive for "greening"?

Milena Zindovic What is slowing us down is stereotyping and recurring to already tried solutions. We rarely have the time (or are given the time) to approach the challenges of planning creatively, and to find the best possible solution, both concerning ecological or other impacts. Instead, politics, private capital, or automation often dictated urban planning. Urbanists as professionals have been undermined and reduced to administrators, and citizens, as well as the decision-makers, see the plans as some necessary evil that hinders and slows down the development.

Illustration: Courtesy of Milena Zindovic

The objective of environmental protection is not only the protection of plants, animals, and the planet but the protection of ourselves, the human race that is also part of that environment

Of course, the truth is different. Without serious strategic planning, and urban planning is precisely that, we cannot talk about serious development, let alone sustainable development. Urban planning is closely linked to the strategic orientation of the city's leadership, which ultimately plans and adopts, as well as to the financial and other resources of the cities. Ideally, urbanism should deal with the spatial aspects of a broader development strategy and should be based on adopted visions and goals, as well as on the data of the current situation. In practice, there is no time for thorough analysis of the existing situation, there are not enough statistics that provide information about the behaviour and needs of the citizens, and neither the cities nor our country has a full vision of sustainable development. If we do not know where we set off and where we are going, does this make any sense at all?

I will give you an example. We are still investing most in industrial zones, as it is considered to be the best way to secure new jobs and prevent people from leaving smaller towns. But even during the planning of industrial zones, we could contemplate modern infrastructure facilities, which could use the wastewater energy potentials or other by-products of the industry. We could adapt industrial zones into green areas that are not just the source of pollution. In the end, we could draw up plans to decide which type of industry we should allow in our city.

If we want to make our country greener, as you say, but also cleaner, better and healthier, then we must have specific goals and measures to achieve this. All institutions must take this into account, and not just the environmentalists, or urban planners. We must find creative, feasible ways to reverse the negative trends that are taking place in our country regarding pollution, as well as regarding the development's stagnation. Maybe precisely the green jobs, businesses, and industries dealing with some aspects of the environmental protection are one of the ways to increase the number of employees.

EP Which Serbian city could others look up to in the field of green practices in urban planning, architecture, and construction?

Milena Zindovic Various cities in Serbia can be the examples of green practices. It does not seem that there is a town in Serbia that has achieved sustainability in all its aspects yet, but many cities have taken the first steps in specific areas. For example, Krusevac is the first city to adopt the sustainable urban mobility plan. Sabac adopted the Plan of detailed regulation of Savapark and gave a positive example of the urban coastline area management. Uzice has been investing in energy efficiency for years now because the city's topography is aggravating the air pollution during the winter. Towns in Vojvodina promote the use of bicycles as a means of transport because this has already been a part of their tradition.

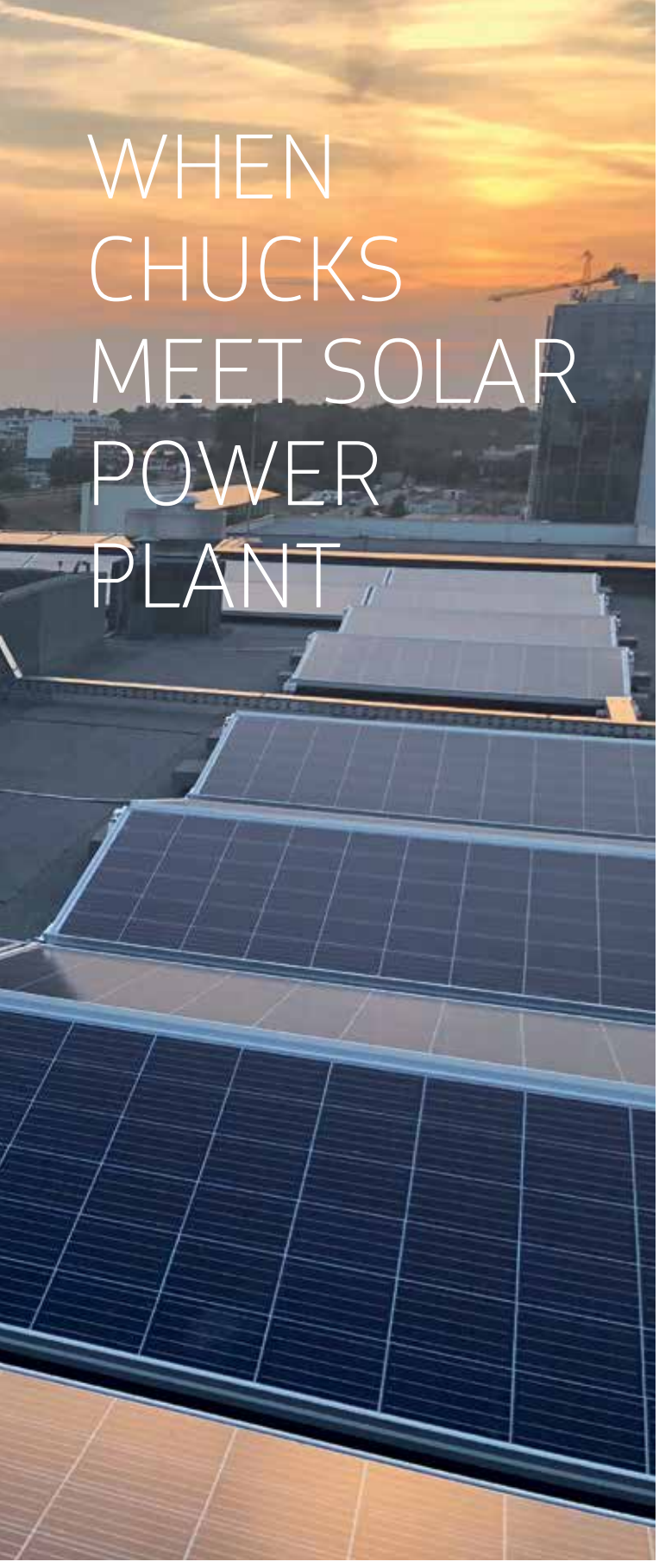
I think that there is a great interest in these topics throughout Serbia and that enthusiasts can be found in every town who already contribute in different ways to make their cities greener. Unfortunately, they do not have the support from the system, so it often happens that if this individual becomes exhausted, retired or relocated, the work on that subject also discontinues. One of the goals of the Smart City is to promote positive practices from different cities, to share experiences with each other, to motivate the cities in Serbia to start discussing the implementation of the sustainable development approach in all aspects of their operation.

Interview by: Jelena Kozbasic

Promenade, Novi Sad

Photographs: Pixabay

WHEN CHUCKS MEET SOLAR POWER PLANT



In case you have bought your pair of Chucks in Serbia or a country in the region, there are high chances that they had found their way to your feet with the help of *Triple Jump*, the exclusive distributor of *Converse*, one of the world's oldest sports brands. As a result of the knowledge and work of the company's employees, some other renowned brands came to the market of South-Eastern Europe, such as *Escada, Mexx, Nike,* and *Zara.*

The founder of the company is Milan Spasojevic, former Yugoslavian Olympian, and successful triple jump athlete. *Triple Jump*'s main activity is the trade of products in the field of sports and fashion.

In an effort to reduce electricity bills in their offices in Belgrade and to reorient themselves on the production of electricity from renewable sources, the management of this company hired *MT-KOMEX*. *Triple Jump* entrusted the task of building a small solar power plant on the roof of its office building to the experts of this company.

Moving a step forward along with modern trends, the Belgrade-based company *MT-KOMEX* enriched their several decades-long experiences in the field of mechanical engineering and welding with the areas of clean energy sources, energy efficiency and sustainable development. It is therefore not surprising that triple jump athletes have chosen it to achieve their goals.

MT-KOMEX engineers have been trained and certified to install photovoltaic modules with the corresponding equipment, as well as voltage and inverter converters. Their skills were once again proven on the roof of a multi-story building in Novi Beograd, where *Triple Jump* is located.

They set up a total of 108 photovoltaic panels of polycrystalline type and high efficiency, produced by the Canadian-Chinese company *Canadian Solar*, on the aluminum substructure, made by *K2 Systems*.

The power plant with a capacity of 30 kW was put into operation on June 1, 2018. The engineers installed *Fronius* inverters. The generated electricity will be used for Triple Jump's own consumption without a possibility of handover to the electric grid. It will mostly be used for the purposes of air-conditioning, heating, and lighting.

Users of a small solar power plant, thanks to a smart meter, can monitor the energy "exhaustion" of the building and indirectly improve its energy efficiency.

The decision that, among numerous sustainable alternatives for obtaining energy, the choice falls onto the sun is sparked by the fact that the territory of our country gets a quantity of horizontal radiation of the sun that is higher than average.

Although solar panels are standard in Germany, and a rarity in Serbia, the Serbian soil is richer in sunshine compared to German. In Germany, global horizontal radiation goes up to 900 kWh/m^2 and in our capital up to 1250 kWh/m^2.

Prepared by: Jelena Kozbasic

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Photographs: MT-KOMEX

THE TALLEST WOODEN SKYSCRAPER IN THE WORLD: IS DEFORESTATION FOR ITS CONSTRUCTION JUSTIFIED?

Japanese manufacturer of wooden construction structures and items Sumitomo Forestry is planning to build world's tallest wooden high-rise in Tokyo by 2040 to mark 350 years of its business. The company has been present in the wood industry since 1691.

According to Sumitomo, a wooden building, named W350, will be symbolic 350 meters tall. It will have 70 floors. The highest construction of this kind at this moment "touches the sky" at the height of 53 meters. It has 18 stories and is located in Vancouver, Canada.

The structure of the Tokyo-based skyscraper will be made out of 90 per cent of wood, in total 185 thousand cubic meters, and 10 per cent of steel.

Wooden architecture requires substantial financial resources. The estimated cost of this projects goes up to 4.6 billion euros, which is, according to the British public broadcaster BBC, twice as much compared to the construction of a conventional building of the same dimensions. Still, investors do believe that after 20 years this project will pay off. In the wooden walls of the construction in Tokyo, there will be stores, offices, hotels and private apartments. The resistance of this outstanding construction achievement to fire and earthquakes will be ensured by using special building techniques.

The idea behind Sumitomo Forestry is that happiness grows on the trees. Its goal is to create environmentally friendly cities and "urban jungles" through increased usage of wood in constructing. However, could we ecologically justify the exploitation of immense forest capacities? Is "forest" still a "forest" if it does not leaf, green and live?

This seventy-storey building will be "brought to life" with some trees and greenery on the balconies. Is that enough to make wood an environmentally acceptable option?

Photograph: Sumitomo Forestry

Probably not. Nevertheless, the fact that wood stores carbon goes in favour of the concern. Over and above, the concrete objects are responsible for 8 per cent of global greenhouse gas emissions and the steel ones for 5. Even the government of Japan supports wooden architecture, as a greener alternative to the standard one. It has brought the Act for Promotion of Use of Wood in Public Buildings. Finland and the United States of America consider following Japan's steps.

The enterprise points out that almost two-thirds of the country (68.5 per cent) are covered in forests which makes Japan the second most-forested country among members of the Organization for Economic Co-operation and Development (OECD), right behind Finland.

There are numerous benefits of trees - from providing fresh air through raw materials for the production of paper to building constructions and homes.

The danger to Japanese forests is derived from inadequate care for them. Forty thousand hectares are under the control of Sumitomo Forestry which is around 1/900 of the total area of Japan under the forest.

Large quantities of Japanese cedar and cypress planted after the Second World War reached the time for cutting. Still, due to the excessive exploitation of the rest of the trees, they were saved from the chainsaws to stay there to produce oxygen for people and prevent landslides.

Sumitomo draws attention that, for the sustainability of Japanese greenery, it is crucial to replace every cut tree with a new one. The company implemented the philosophy of sustainable forest management within its business. Throughout its entire existence, Sumitomo followed these principles of forestry, carefully cultivating new seedlings on the place of old trees.

Especially in the 21st century, when the focus of human efforts has been put into combating climate change and preserving the environment, responsible business towards people and nature should be a priority of each company.

Sumitomo strives not to put any local ecosystems in danger. To achieve this, they use systemic afforestation and deforestation of the territories in the ownership of the corporation and create a map of these spaces and improve the technology. In 2006, the company was awarded the Sustainable Green Certificate Ecosystem Council certificate, a Japanese organisation that values a company's attitude towards climate and natural environment.

Jelena Kozbasic

THE CHINESE WILL NOW USE THEIR FULL LUNG CAPACITY: FOREST CITIES AND WORLD'S BIGGEST AIR PURIFIER

Smog is a chronic air condition in China. Some segments of the prescribed treatment for it are greenery and air purifiers. Those two seemingly simple solutions were elevated to a completely new level by architects and scientists. They invented forest cities and constructed the biggest "vacuum cleaner" of harmful substances from the air.

An Italian could come to help the Chinese to clear their lungs. In the future, Stefano Boeri sees the Chinese nation in a green robe – from office blocks through homes to hotels, in Boeri's imagination, those are all covered with different plants, bushes and trees.

The Italian architect, well-known for his "green" skyscrapers Bosco Verticale in Milan, has bolder plans for the country whose activities are synonymous with environmental degradation. The first forest town should sprout there by 2020. Boeri's team was asked to design a whole urban settlement with 100 or 200 buildings of different dimensions with green façades. The architect described his concept of "vertical" forests as an architectural equivalent of skin transplantation. Its targeted intervention would bring life to a polluted corner of the Chinese territory. The city created according to his designs would be sustainable and would use a little energy. The plants would be the sponges for carbon-dioxide and dust particles. At the same time, they would produce oxygen. Even biodiversity would have the benefits of creating this unique urban space.

The capital of Shaanxi Province in central China X'ian would welcome a vertical forest as well as it is on the list of the state's ten most polluted cities. However, if the biggest air purifier in the world that was constructed in this Chinese area performs good enough – Stefano Boeri's invention would not be needed. The goal of the purifier constructors was to find an effective and inexpensive way to remove pollutants from the atmosphere.

Experimental tower higher than 100 meters, according to project managers, has made a significant improvement in the air quality. Scientists from the Institute of the Environment, at the Chinese Academy of Sciences, recorded a positive shift in the observed area of 10 square kilometers. According to statements given to South China Morning Post, the local population feels that the air is cleaner. In quantitative terms, the tower has managed to produce more than 10 million cubic meters of pure air since it started operating a few months ago. Project costs were not published.

The system works thanks to the greenhouses located around the base of this unusual building. They cover the surface of about half of the football field. Glass gardens are sucking polluted air inside the tower where it is heated by solar energy. It then circulates through several layers of cleaning filters.

As the heating network of Xi'an relies on coal, the city experiences the highest level of pollution during the winter period. The tower managers point out that the key to its successful functioning during the cold months are the sheets on greenhouses. They allow the glass to absorb solar energy with higher efficiency.

The experimental plant in Xi'an is a smaller version of the much larger tower that the project leader Cao Junji would build with his team built in the future. According to the patent application filed in 2014, the tower would reach a height of 500 meters and a diameter of 200. The area of the greenhouses would be increased to 30 square kilometers in relation to the one on the existing tower, and the unit would be able to purify the air for a smaller city.

Jelena Kozbasic

Photograph: Stefano Boeri

FLOATING SOLAR PANELS IN MALDIVES

The Republic of Maldives lays on almost 1200 islands in the Indian Ocean. Only a few of them are larger than one square kilometre. Nature was graceful to this archipelago – not only has it given it unrivalled vastness of white sand, a diverse marine world, coral reefs and crystal clear water, but also an abundance of sunshine.

Before you think that we are a travel agency that advertises a package arrangement for a luxurious Maldivian resort, we will emphasise that in the sequel we will not deal with the Sun as a means of getting tanned, but for obtaining energy.

The Austrian company Swimsol recognised the Maldives' insolation as an energy production potential. In the absence of land and stable roofs (due to the typical island architecture) for the installation of solar panels, in cooperation with the Vienna University and the German institute Fraunhofer, they have come up with an alternative solution. Instead of "grounding" them, they "anchored" the solar units. Each of them has an area of 14 square meters and can supply 25 households. They are set to aluminium frames that do not interfere with sailing.

The SolarSea system is extremely durable - engineers point out that the waves up to 2 m can not damage it and the wind up to 120 km/h. Its warranty period is 30 years.

Another good side of the invention is the speed and simplicity of its assembly – the company claims that only three people can build Swimsol's unique platform in just one day at the beach, which is why it is compared with Ikea furniture.

According to the calculations, floating solar panels are 5 to 10 per cent more efficient than their roof equivalents in the same climate. The reason for this is the cooling effect from the surface of the water and the reflection of the beams on the ocean surface.

In order not to disturb the development of the corals which also need sunlight, it is essential to take care that the panels are installed in places with a sandy bottom. Some of them, moreover, are "surrounded" by the colonies of these organisms, thus preserving artificial reefs.

What about other marine creatures? Given that fish prefer shady regions, the SolarSea environment gives them perfect scenery for playing hide-and-seek.

Not only that the electricity from renewable sources is tempting from an ecological perspective, but it is the same case from a "wallet" perspective. Without government subsidies, the price of energy sold by Swimsol is lower than the cost of electricity coming from significantly dirtier oil derivatives.

Jelena Kozbasic

Photograph: Swimsol

LONDON FIGHTS AGAINST POLLUTED AIR

It is well-known that the air in London is polluted. Already in January this year, the amount of harmful substances in the air exceeded the permitted limit prescribed by the EU for the entire 2018 year. But one novelty inspires hope that the air over the city will soon be cleared up.

German company Green City Solutions recently "planted" an outstanding innovation in the street chock-a-block with pubs and organic supermarkets, not far from the busy Piccadilly square. This invention is a hybrid between the city bench, the "vacuum cleaner" of dirty particles from the atmosphere and the smart device that collects data about our environment.

By combining plants and moss, the bench neutralises dust, nitrogen and ozone in the surrounding air. It was designed to be resistant to physical damage that prevents it from being damaged by vandals. The bench collects and provides data on the level of air pollution, temperature and water quality. On top of everything, it is entirely self-sustaining because it has a built-in solar panel that accommodates its energy needs.

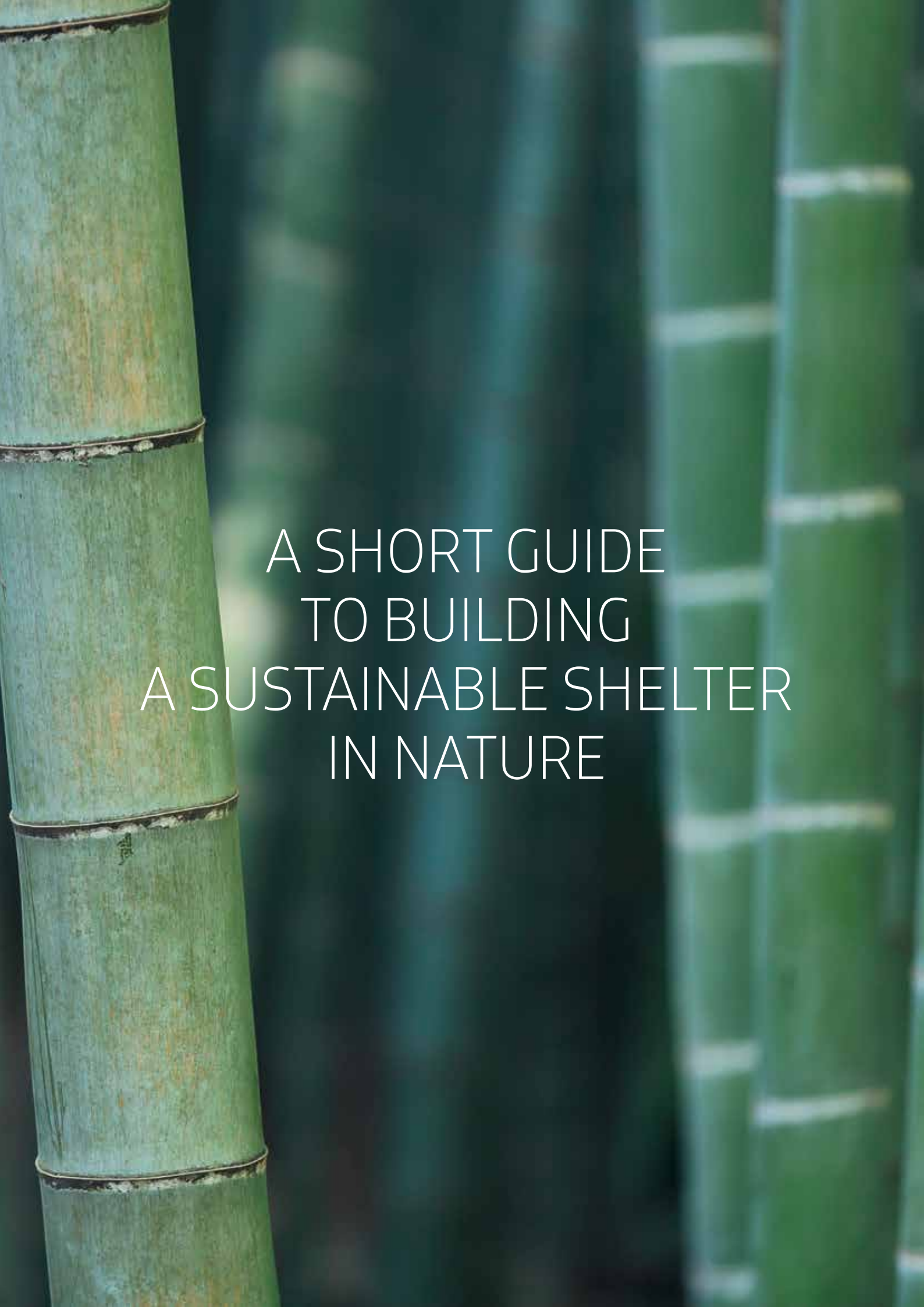
The manufacturer claims that this device will purify 265 tons of air annually, which is a result that would be achieved by 257 trees. Although this bench solely will not solve the problem of air pollution in this metropolis, it is an excellent example of how technology and good design can be used to combat climate change and pollution.

London is the latest on the list of cities that got its "city tree" as the smart bench is popularly called. The residents of Berlin, Oslo, Paris, Drammen, Amsterdam, Brussels and Hong Kong are already sitting on similar benches.

Photograph: Green City Solutions

"Our goal is to incorporate this invention into existing building capacities," said a co-founder of Green City Solutions, adding that they are guided by the idea of using technology to create a unique climate infrastructure that will allow us to regulate air and temperature in the city environment.

Milan Zlatanovic



A SHORT GUIDE TO BUILDING A SUSTAINABLE SHELTER IN NATURE

Imagine you are on a desert island. You're trying to invoke the image of Bear Grylls in hope for some hint on survival technique, but with no success whatsoever. You have nobody else to rely on, only yourself and the ingenuity of your own, and being determined to survive, you are throwing yourself into making a shelter. Take a look around you first. There won't be any concrete and steel on the island, neither mixers nor cranes. You have only natural materials at your hand, but if you use them carelessly, you may damage the ecological balance of the island. Sustainability represents a synergy of the environment, economy and society. The environment aspect is reflected through the responsible use of nature's resources, pollution prevention, biodiversity and ecological health. Having that in mind, you are presented with a perfect chance to build a real sustainable shelter of your own!

First and foremost, you need a construction material to structure your shelters. You can make the simplest refuge by sloping a long branch over a stone, log or tree. The branch will serve as a truss, and you will put smaller branches across it so that they make two slopes as if in a gable roof. Ideally, the truss should be longer than what your height is, so that you may completely stretch out when you are in laying position. Be careful not to overdo it with luxury - it will be harder for you to get and transport the material needed to build a larger place! Any tree can be used for the shelter's construction, but since you are on the island, try to find some material that is in abundance. As the idea is to build a sustainable shelter, it is essential to use renewable resources that will have the lowest negative impact on the environment.

Bamboo grows natively in the tropical areas, but certain kinds can be cultivated in the subtropics. Ideally, it can grow about one meter a day, what makes it one of the fastest-growing plants on the planet. Without being industrially treated in any way, its stalks can be used within one to five years, depending on a kind. Bamboo is traditionally utilized as a building material, and it's becoming ever more popular due to its sustainable potential. All bamboo species are light, yet they make a durable material with antibacterial properties. If you plan to extend your stay on the island and remodel your shelter into a real home, keep in mind that good quality floors can be made out of bamboo. Its water-resistance is the quality that can't be attributed to another hardwood flooring. It shouldn't be overlooked that this material is organic and undoubtedly water-responsive, so it's not recommendable to put it in rooms where it would frequently be exposed to moisture. Do not forget that bamboo is softer than other floorings. Therefore it will be more comfortable on touch, while on the other hand, moving of heavy furniture could leave marks on it.

Now that you have made a bamboo construction and congratulated yourself on the job well done, it's time for your shelter to get protection against sun, wind and rain. Long and wide palm leaves are just perfect for covering the shelter because it takes less of them to spread above the entire shelter and they will provide an adequate shield against the weather. If you only have small leaves at your hand, it may be much better to use tree bark for covering. The point is to

It is essential to use renewable energy resources that will have the lowest negative impact on the environment

All photographs: Pixabay

Persian traditional architecture attained natural ventilation by means of windcatchers – **chimneylike towers that are open from one side for "catching the wind"**

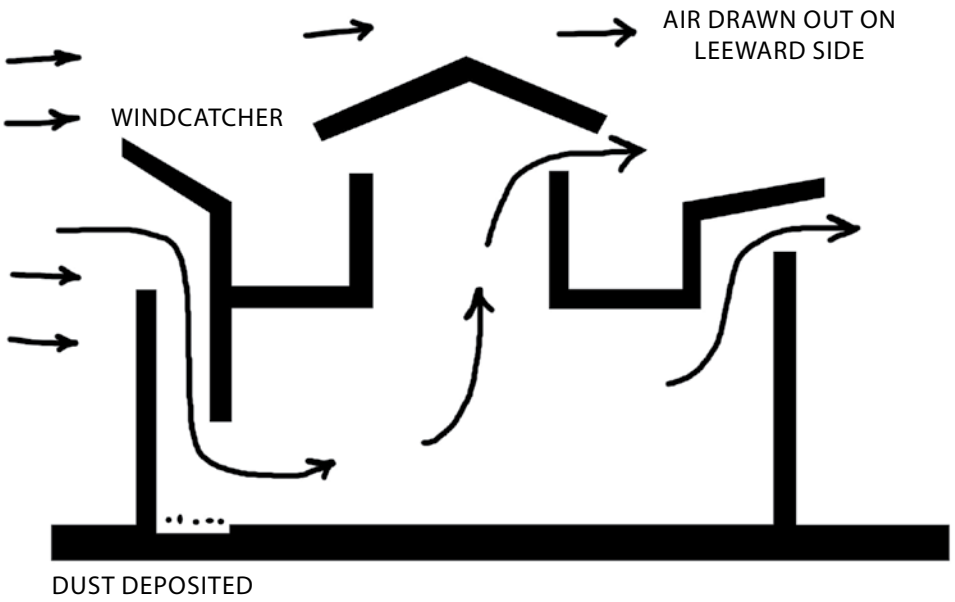


Illustration: Petar Veselinovic

use long and/or wide pieces of bark so that you could reduce the porousness of your "overlay". It's not enough to only pile up the roofing over construction, especially in windy areas. If that is a case, fasten it to the construction. The rope could be adequately replaced by flexible twigs or sinewy striped leaves. Since finding drinking water on the island could pose a problem, you can optimise your "roofing" so that it collects water for you. Precipitation will be pouring down your roof, right into the containers you will have placed on the floor in the direction of streaming water.

A shelter is a place presumably dry and warm, so it is highly essential to insulate the floor, too. If you haven't yet decided on whether the bamboo flooring is the right choice for you, cover the floor with a layer of vegetation. The purpose of the insulation layer is to separate your feet from sandy or earthy bottom surface that your shelter rests on. Any kind of leaves, laid down in multiple layers, will serve well as a floor covering.

By using the mixture of water, soil and straw, which are the materials that nature abounds with, you can make a long-lasting solution for the entire thermal insulation, as well as the construction. There are various techniques for the use of soil in the architecture. Filling wooden moulds (formwork) with earth, by pouring one layer after another, is a technique known as rammed earth wall. The soil must be moist when being rammed as it allows to be easily moulded. The surface soil isn't suitable for moulding; therefore it is recommended to use layers at a minimum depth of one meter. Add some straw in the mixture of water and soil which will serve as a binder, crucial for the structure of the house. Unfired bricks, hand-formed and dried in the sun, are called mudbricks. The only limiting factor of the rammed earth wall is its height, while the advantages are numerous. The earth walls will absorb the outside temperature over the day, keeping the indoor space in the shade, whereas over the night they will emit accumulated heat and thus maintain the temperature optimum. They also stand out for good acoustics, so houses made of this material are beautiful to live in. They are resistant to fires but keep in mind that moist climate could affect the bricks quality in as much as their solidness is gained by drying the soil.

Survival experts emphasise that a man is a social being and that survival task would be much easier if completed in a company. Apart from fulfilling one's need to socialise, other people can contribute with their strength, knowledge, and even by a mere presence which can incite motivation.

Drinking water can be collected by means of solar energy. Dig a hole in the sand, in a sunny place. Place a container for water in the middle of the hole and put some freshly cut leaves around it. Cover the hole with a piece of plastic or some other non-porous material which will capture the air within. Put more massive stones along the edges of the plastic lid to secure it, and a lighter rock in the middle so that it makes a dip. The heat will dry out moisture from the leaves which, having been trapped beneath that non-porous material, will start to gather as drops. These droplets will flow down the slope made by the lighter stone and fall into the bowl in the hole. The most important thing is to keep that cover out of contact with the edges of the bowl so that it doesn't diminish the effectiveness of this gadget.

When cladding your shelter, be sure to leave some space for air circulation. Cold air is heavier and flows closer to the ground so that it will go through your shelter, too. Cold air that comes in will become warmer and lighter. Do not trap it in, but make openings at the top of the shelter, allowing air flow. Persian traditional architecture attained natural ventilation by means of windcatchers – chimneylike towers that are open from one side for "catching the wind". Their purpose is to direct the wind to the living space, and from that place, it would, after being warmed, go out through the other hole. Air circulation doesn't affect the temperature directly in the object, but the air flow achieves the cooling effect.

More advanced versions of Persian windcatchers canalise the wind through channels to water pool before directing it to the living space. That way the air gets cooled down in the water reservoir, and as such, it decreases the temperature when it flows into the building.

You've reached the very end. Having used nearby materials and logic, you made a shelter in a delicate ecological system such as desert island without harming the environment. Challenges were overcome without applying the principles of modern house-construction which don't provide adequate solutions for climatic conditions, and without using materials whose production harm our environment.

Guided by the principles of sustainable design, we can consider plots for house-construction as desert islands, which are being surrounded by unsustainable design. When we have a choice to build a house from scratch, on an empty plot of land or desert island, why wouldn't we make one simple, accessible, responsible and sustainable system? Think about the energy effectiveness of the materials, the price and the impact of the production, the installation and use on the environment. Think of other people in your environment and about the next generations. Your contribution is important, so let's make an archipelago of sustainable islands before we get swallowed by the unsustainable sea.

Prepared by: Petar Veselinovic

Dragan Randjelovic
President of the Association of Young Researchers Bor and Chairman of the Assembly "Green List of Serbia"

We Need a Harsher Penal Policy That Will Be Implemented Consistently

Dragan Randjelovic has been active for forty years in the Association of Young Researchers Bor. He gained significant experience in the development of the first local environmental action plans in Bor and other cities and municipalities in Serbia. He was the coordinator of a series of ecological projects and media campaigns, eco-schools, and programs for solving environmental problems. He has particular experience in organising public debates on environmental policy documents and regulations, as well as in strengthening the capacities of civil society organisations in the field of environmental protection.

We talked with Dragan about current legal solutions in the field of waste management, with a particular focus on mine and hazardous waste. We asked him for an opinion about the Draft Law on Climate Change, as well as the activities and steps that we need to take to improve the quality of the environment.

EP How can regulations related to the waste management (the Law on Waste Management, Waste Management Strategy for the period 2010-2019) contribute to the establishment of an integrated waste management system in our country?

Dragan Randjelovic The regulations are an essential requirement for the application of environmental standards, but it is necessary to understand that the state of the environment and the approaches to its protection are continually changing and that regulations have to be innovated accordingly. When it comes to waste management, new concepts are determined, and amended regulations should support that.

EP Which factors are an obstacle to the implementation of regulations in the field of waste management in the Republic of Serbia?

Dragan Randjelovic Legal norms do not ensure the change of situation in particular domains of life, not even in the field of environment that is incredibly complex. It is necessary to build appropriate institutions to direct and control the implementation of regulations. It is both essential to provide significant funds to resolve preexistent environmental problems and to prevent further pollution of the environment and also to develop efficient green technologies that will, in the case of waste, ensure the reduction of its quantity. It is also essential to introduce the reuse of waste through recycling or to use it as an energy source, and finally to provide the safe and permanent waste disposal. It is precisely the lack of these factors that mainly prevents the implementation of waste management regulations.

EP Do you think that Serbia's penal and misdemeanour policy in the field of environmental protection is appropriate?

Photographs: (top) Dragan Randjelovic (others) Pixabay

Dragan Randjelovic I believe that the penal policy established by the regulations is mild concerning the extent of the accumulated problems in the field of waste management. Even such a mild penal policy is inconsistently implemented or not implemented at all.

EP Could you tell us which substances are defined as the mine waste by the Law on Mining and Geological Exploration?

Dragan Randjelovic There are many provisions of this Law on mine waste. Terms of the law are defined at the very beginning, and mine waste is considered a waste that has resulted from geological explorations, exploitation, preparation, and storage of mineral raw materials, as well as waste obtained in the process of preparing ore. For example, tailings are the mine waste that needs to be removed to perform the mining of useful mineral raw material, and flotation tailings are the mine waste obtained in the flotation process of the mineral raw materials. Waste dump is a designated area for piling or arranging of mine waste, in either solid or liquid state. It is explicitly established that technogenic mineral resources that can be further processed can also be found in waste dumps. The law also contains many acts on mine waste management, abandoned mines and their rehabilitation and recultivation, on cadastre of the mine waste, cadastre of abandoned mines and mining facilities. A particular regulation regulates the mine waste management.

EP Who controls the execution of the mine waste disposal and what is the situation on the field?

Dragan Randjelovic The Ministry of Mining and Energy is responsible for the mine waste. The Environmental Protection Agency does not even monitor the status of the mine waste because, as they say, they are not a part of the Ministry of Mining and Energy, but the Ministry of Environmental Protection. On the other hand, the Ministry of Mining and Energy does not have enough inspectors to monitor the status of mine waste. The good thing is that the cadastre of the mine waste project is being financed from the EU grant, and this project includes about 200-250 abandoned mining waste fields and 200 active mines, on which besides foreign companies our Mining and Metallurgy Institute Bor also works. In Vojvodina, this cadastre has already been completed. Mining waste management activities are regulated by a separate Article which establishes the conditions and procedures for issuing the permits for waste

It is both essential to provide significant funds **to resolve preexistent environmental problems** and **to prevent further pollution of the environment**

management, as well as criteria, characterisation, classification and reporting on mining waste. This act was adopted in 2017 following the EU directive, but unfortunately, its implementation is not expected before 2020. Considering that the mining projects are long-termed, we believe that mining waste management plans should already be prepared according to this Regulation. We have a significant amount of mining waste in Bor, which for the most part belongs to accumulated pollution within the territorial jurisdiction of the state, which at one point was ready to start solving this problem from the World Bank loan. Unfortunately, this loan has not been obtained.

EP Hazardous waste is found in 70 companies that are in the restructuring and bankruptcy phase, in the total amount of about 5,000 tons. In what manner should this waste be handled?

Dragan Randjelovic I think that we need to radically tighten the penal policy regarding the treatment of hazardous waste and that it should be consistently implemented. Most of the dangerous waste in restructuring companies belong to the pollution originated in the past which must be addressed by the state, and in which the funds from the government's Green Fund and the budget from the environmental funds of local self-government should be directed, without delay. It would be best if we build hazardous waste treatment facilities in our country, for example, on the premises of former large chemical plants, using the latest technologies, instead of exporting hazardous waste for processing abroad which includes enormous costs.

EP The new draft of the "Law on Climate Change" brings changes in almost all segments of environmental protection. What should the associations make a comment on?

Dragan Randjelovic The new Law on Climate Change solves only a part of the climate change problem. Far more is expected from the plans and regulations concerning different measures of adaptation to climate change. Our comments regarding the law were associated primarily with the imperative to involve the public, or moreover the civil society organisations and, of course, the citizens, for reviewing the situation and for the establishment and implementation of measures in the fight against climate change.

Without the development of environmental awareness, it is impossible to improve the quality of the environment

Also, we need to overcome the narrow sectoral approach we need to overcome because climate changes affect a large number of sectors and the actions in the fight against climate change and adaptation to it must be taken immediately, and not at some point in the future.

EP How much are ecological civil society organisations in Serbia interested in solving environmental problems?

Dragan Randjelovic Civil society organisations, which are genuinely oriented towards environmental protection, and not just by their declaration, are incredibly interested in solving environmental problems. According to the Aarhus Convention, which is passed on in a significant number of our environmental regulations, ecological civil society organisations have the role of stakeholders in all stages of identification and implementation of environmental policies, regulations, and plans. This role cannot be reduced only to participation in formal public hearings, or in environmental education and familiarisation, volunteer cleaning actions, etc. The latest regulations, such as the Planning Law, amendments to the Law on State Administration and Local Self-Government, and others, in addition to environmental legislation, such as laws on Strategic Environmental Assessment and Environmental Impact Assessment, really emphasise this role of civil society organisations.

EP Can the environmental awareness of citizens change and what actions and steps we need to take to improve the quality of the environment?

Dragan Randjelovic It can, and it must, because without the development of environmental awareness (in which we should include ecological knowledge), it is impossible to improve the quality of the environment. In Bor, we recognised the importance of environmental awareness and knowledge a long time ago, and that is why one of the priorities of our Local Environmental Action Plan is the development of ecological awareness and expertise. Of course, this is not a short-term and straightforward activity because it requires long-term educational programs, familiarisation, the popularisation of critical environmental issues and innovative approach. The Society of Young Researchers in Bor has been implementing the complex program "Ecological Days of Bor" for years, which includes educational, informative and promotional activities with more than 30 ecological topics, and a multi-year plan for promoting natural and technical sciences through science festivals.

Interview by: Milisav Pajevic

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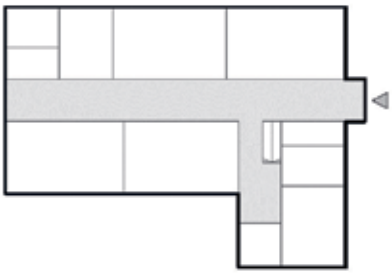
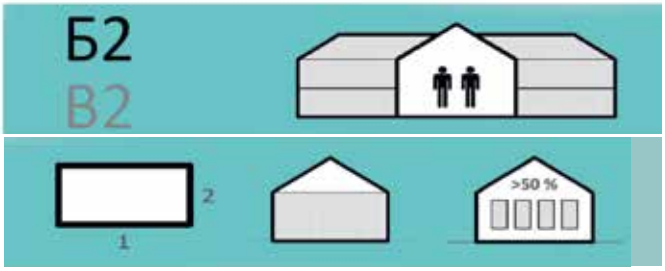
The Step Towards the Energy Efficiency – The First Typology of Schools In Serbia

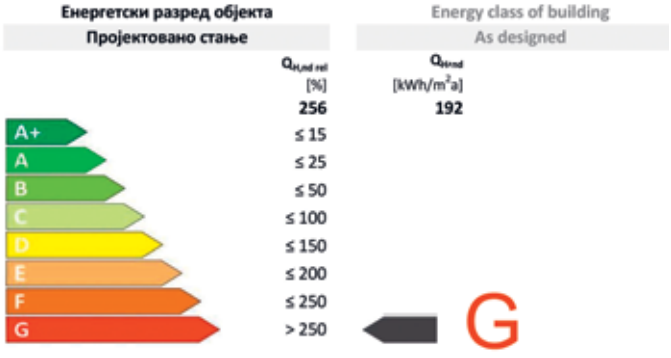
The "National School Typology" study has recently been presented on the most suitable approaches to the renovation of school buildings and the improvement of energy efficiency, which will be the basis for making further strategic decisions regarding the restoration of school buildings. The study was carried out as part of the German-Serbian Development Cooperation project, which was implemented by the German Organization for International Cooperation GIZ, with a participation of a team of experts from the Faculty of Architecture, Mechanical and Electrical Engineering at the University of Belgrade, supported by the line ministries of the Government of Serbia. Based on this typology, now every school can recognise its facility from the models defined in the study and choose the most appropriate type of restoration.

Professors Branislav Zivkovic from the Faculty of Mechanical Engineering and Dusan Ignjatovic from the Faculty of Architecture participated in the preparation of this study, which included the database of 1,857 school buildings, out of 3,890 schools in Serbia, which was more than sufficient amount of sample for statistical analysis. This base has suffered a certain "cleansing," and the sample for analysis has been reduced to 1,268 buildings. The buildings themselves are from different periods, most of them built between 1946 and 1970. "Considering that the greatest number of school buildings dated from the period when energy consumption was not taken into account, and when the building's envelope was not thermally isolated, it can be concluded that schools are relatively big consumers of energy per unit area," Professor Zivkovic says. The buildings themselves are mostly commission buildings, structures planned throughout the territory of the Republic of Serbia, regardless of their geographical disposition, size, and age. According to their structure, they correspond to the specific requirements of the educational process that has changed significantly during history. The beginnings are mainly related to the development of the educational

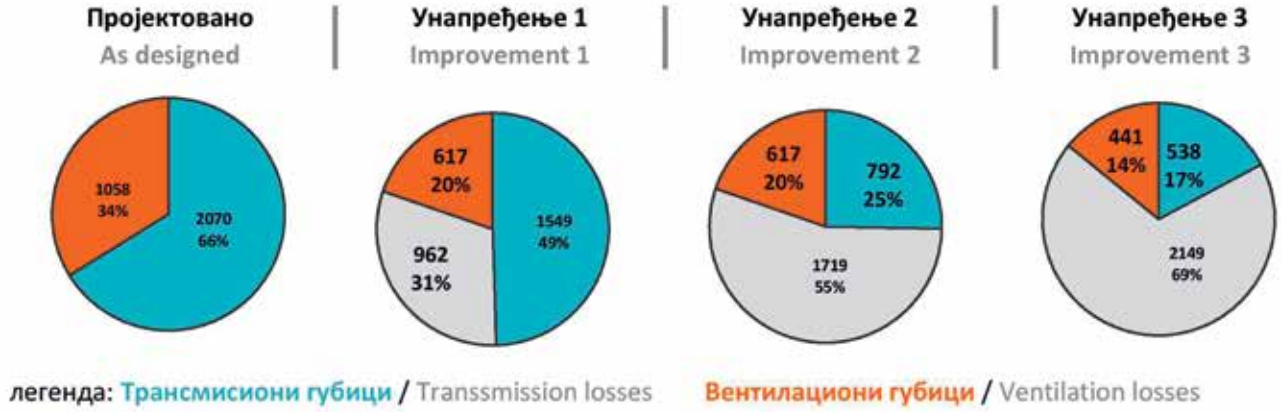
Photograph: Pixabay

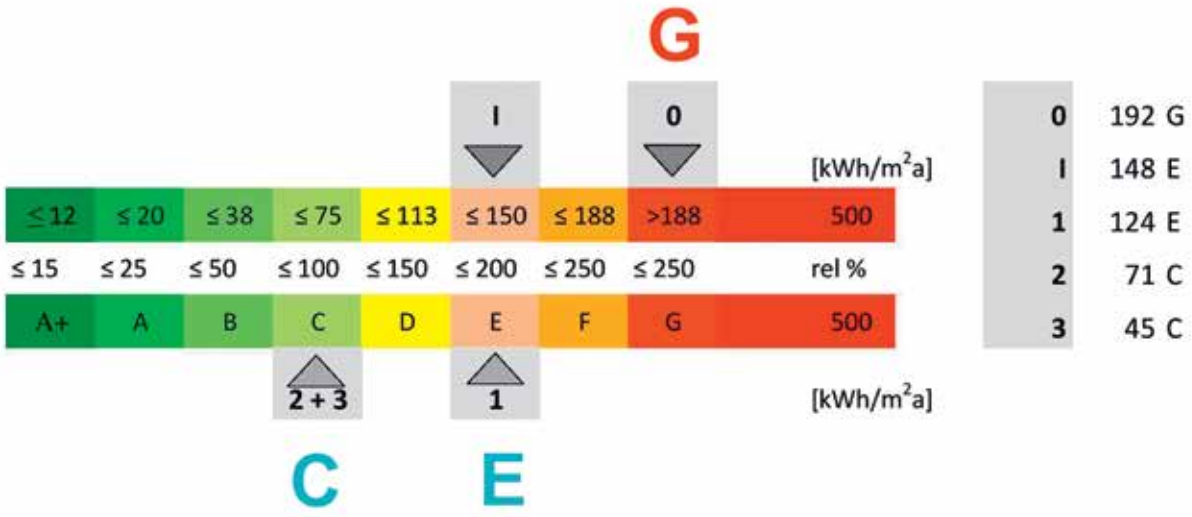






Унапређење термичког омотача-енергетски биланс
Thermal envelope - energy balance





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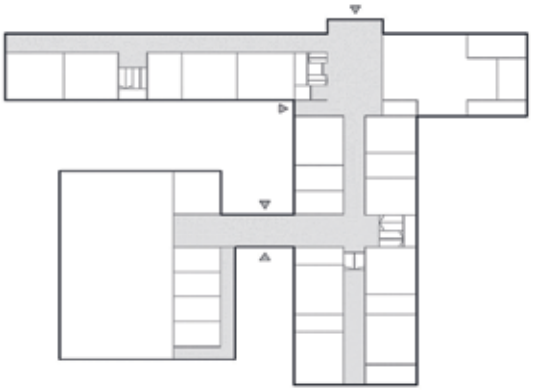
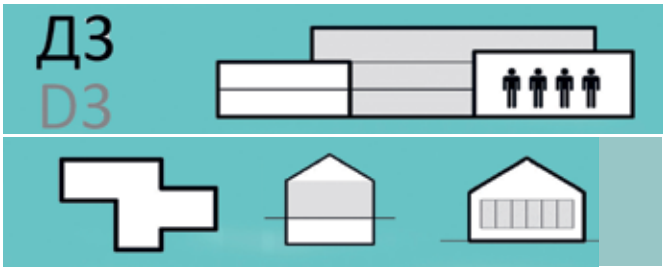
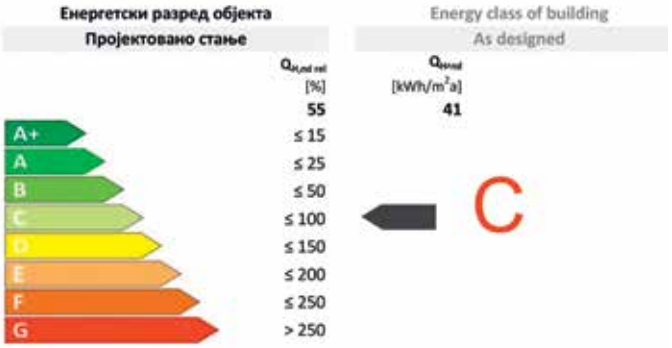
Photogrpahs: German Organization for International Cooperation GIZ

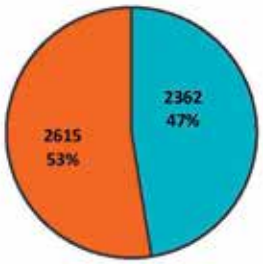




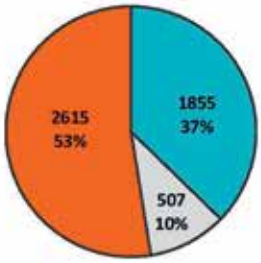


Унапређење термичког омотача-енергетски биланс
Thermal envelope - energy balance

Пројектовано
As designed



Унапређење 1
Improvement 1



легенда: **Трансмисиони губици** / Transsmission losses **Вентилациони губици** / Ventilation losses

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process itself while fulfilling the minimum requirements, whereas at the end of the 20th century we can see complex structures with very diverse contents. Diversity is mostly related to the arrangement of the buildings or whether they are planned for rural or urban areas or the sheer size of the school building itself. Smaller buildings are simple structures, composed of several units with almost no additional rooms, while large buildings are very complex. Thus, "in the field" we can encounter objects that, besides classrooms, barely possess elementary hygienic facilities, but also those that have many different halls or swimming pools in their facilities.

Dusan Ignjatovic, the professor at the Faculty of Architecture, says that from the historical point of view, important symbolic functions have been linked to the massive buildings so that they are often seen as very representative structures and, in a way, a "decoration" of the cities in which they were built. As of lately, they are in fact almost considered as theoretical models of the development of the educational process. "Given this diversity, it is clear that it is a question of the quality improvement, especially regarding the energy efficiency, and a very diverse one indeed. It ranges from simple material and technical improvements to the building envelope and installed systems to the structural changes to raise the general level of the educational process with the addition of new functional units. The variety of forms of presentation is one of the most significant challenges for the process of reconstruction and improvement," Professor Ignjatovic says.

The authors of the "National School Typology" Study

By the analysis and statistical processing of 1,268 schools, which formed the sample for the study, ten types and three subtypes of schools were selected in 10 basic categories. The buildings were classified according to the construction period, the gross area of the building, the characteristics of the thermal coating (façade, wall and roof materials, the existence of thermal insulation, the size, and the type of windows), number of floors and compactness of the building. The model structure has been chosen for each category, which represents a real building with all its installations and architectural and constructional characteristics. Given that the model's building characteristics

The energy efficiency measures should be applied to a fully functional facility to reduce the energy consumption

HOW WE APPLY THE CONCEPT OF GREEN ARCHITECTURE IN OUR COUNTRY

Green architecture represents a kind of trend which, according to Prof. Ignjatovic, unfortunately, a small number of people, including experts in the field, fully understand. "It is a common occurrence that a building with a green roof or façade, or the one that uses modern systems, for example, heat pumps, is considered 'green.' These elements can be a part of the overall strategy, but not its bearers, or direct symbols. The basis of the concept rests on the minimisation of the impact of buildings on their surroundings throughout their lifetime, which is a very complicated task. We need to design, build (from the appropriate materials), use, modify, maintain and "demolish" our buildings so that they do the least harm to the environment as possible. This requires the change in the way of thinking, the raising of awareness that construction is a process whose results are 'on the market' for tens or even hundreds of years, and that the decisions we have to make must be analyzed from some significantly different standpoints," Prof. Ignjatovic warns.

In Serbia, where about 1 per cent of new apartments (buildings) are built annually, the main topics of the future will be related to the functioning of existing buildings, their reconstruction, and restoration, rather than to the construction of "green" buildings. At the moment they should be seen as the models that demonstrate the principles, the potentials, and the opportunities for achieving better, "sustainable" buildings, or the direction that we will have to take to preserve our environment.

Photogrpahs: German Organization for International Cooperation GIZ

are "the most typical", we can say that the implementation of the relevant principles of improvement is universal and can be replicated to other similar objects.

Professor Zivkovic states that this study provides, in addition to the analysis of the existing conditions, also the report of the three improvement scenarios that include the improvement of the thermal insulation of the building's construction envelope, the installation of the windows with better quality, and the renovation or replacement of the thermo-technical and electrical installations. Improvements have been made at several levels, starting from the simpler ones to the most up-to-date ones who are at the same time economically viable solutions at the moment.

As part of the **Improvement no. 1** which consists of the small-scale works on the building's envelope in order to reduce the energy required for heating, the existing heating system has been retained, except in cases when there was a transfer from the local heating appliances (furnaces) to central heating or by switching from liquid fuel to biomass. The **Improvement no. 2** in all buildings involves adapting to the biomass use (pellets in smaller buildings and wood chips in larger buildings) unless the facilities are located in an urban area and are already connected to the local heating system from the heating plant that uses natural gas which is the most environmentally friendly fossil fuel. The **Improvement no. 3** contemplates the extensive reconstruction of the building, the heating of the space and preparation of DHW, which is achieved by using the air-water heat pumps.

Professor Ignjatovic says that it should be emphasized, that the energy consumption has been calculated according to the established bylaws for each of the selected models, both for its projected state and for the current (existing) situation. In this way, the basis for evaluating the effectiveness of the future measures has been it outlined.

The Old and Neglected School Buildings

The lack of thermal insulation in the exterior walls and roof, especially in school buildings built before 1980, is one of the main reasons for the high energy consumption for the heating. From the architectural and construction domain a similar effect comes from the worn-out windows that have poor thermal characteristics. As far as the thermo-technical installations are concerned, the heating systems are over 30 years old, and they generally have a low degree of exploitation of the energy from fuels, Professor Zivkovic says. Also, the automatic regulation of the heating installations found in most schools from the earlier construction period is very modest (central, or even manual), which further increases the heating cost.

The lack of thermal insulation in the exterior walls and roof is one of the main reasons for the high energy consumption for the heating

Professor Ignjatovic confirms that the question of the efficiency of the buildings started to appear barely in 1970 with the introduction of the first solemn regulations in construction practices, but that it was in 1980 when more comprehensive regulations became adopted in this field. Considering that a significant number of buildings were built before this period, their characteristics according to modern standards can be regarded as inadequate. "On the other hand, there is an apparent problem of the management of the buildings, or their maintenance, which is a reflection of the times we live in but also the chaotic situations in our country. We are witnessing minimal investments in building maintenance over the extended period that has resulted in their degradation, but at the same time, in recent years significant efforts have been made to improve this situation. The issue regarding the use and functioning of the school buildings is defined by significant demographic changes that have occurred. Some neighbourhoods have been 'abandoned,' and schools that had once hundreds of students attended, today hardly have one class or not even that much," Prof. Ignjatovic says.

The energy-efficient building is a building that meets all the comfort requirements with the minimal (established) energy consumption. Consequently, all buildings which will be improved according to the principles found in the research will provide greater comfort for students, teaching, and non-teaching staff, and will reduce the current level of energy consumption.

"The particular importance of energy efficiency in school buildings is especially reflected in the educational process because it introduces children to the basic principles and postulates of the conscious energy management which represents the significant potential for the future. In this sense, schools somewhat represent a testing ground, and the introduction of the more complex material and technical systems with the use of renewable energy sources is a good educational foundation, which should not be considered as an expense but as future savings," Prof. Ignjatovic says.

According to Prof. Zivkovic, the energy efficiency measures should be applied to a fully functional facility to reduce the energy consumption. In practice, the restoration of buildings is usually carried out when the problems already exist such as the building utility (the walls and the roof are not insulated, rotten windows, leaky roofs) or the

heating installation is in a partially functional state. In this case, the repair, which also includes the energy recovery, leads to the improving benefits of thermal conditions and better air quality in schools. "But with this kind of reconstruction that improves the functionality of the building, what can happen is that the building may start to consume more energy after the reconstruction than before taking all the measures to repair the building. Just remember that a parked car consumes the least gasoline per month," Prof. Zivkovic explains.

The Renovation of Preschool Facilities

The Government of the Republic of Serbia has also made the renewal of kindergartens as one of its priorities to make them more favourable for children, so from the very beginning, the entire research process during the preparation of this study included the preschool institutions in the territory of the Republic of Serbia. Professor Ignjatovic

The Government of the Republic of Serbia has also made the renovation of the kindergartens as one of its priorities

confirmed that at the moment the research of these institutions has been completed and that a draft of the monography with results is in process.

"The issue of the preschool institutions was a specific problem primarily due to their organisational structure because in most cases it represents a single institution with a large number of individual units. Thus, for example, Belgrade has 17 institutions, some of which have dozens of different units. Also, a large number of units are not located in purpose-designed buildings but share the premises with the school facilities, or they are located in facilities for other purposes, for example, in residential buildings," Prof. Ignjatovic states.

Prepared by: Tamara Zjacic

Photograph: Pixabay

Milka Drezgic
Professor of Internal Medicine at the
Faculty of Medicine, the Belgrade University

Man Is Healthy Only if He Takes Care of His Health

The advancement of preventive medicine, diagnostics and therapies, as well as technological breakthroughs in the 20th century, contribute to better understanding of health and disease on a genetic, molecular and cellular level. Along with the longer life expectancy, achieving the optimal human health becomes a special goal. We talked to professor Milka Drezgic , M.D, in an attempt to get an answer to the question that is puzzling each one of us: do we take care of our health in a proper way?

Professor Drezgic is a renowned scientist and excellent expert, internist, endocrinologist, with a corpus of 308 scientific articles and teaching materials and to our readers, she explains the significance of this vital issue in simple words. There is no doubt that health is an intricate term, and what exactly it implies nowadays we asked professor Drezgic.

Milka Drezgic Freud bore down that the moment a man asks himself whether there is a meaning of life, he becomes sick. As determined by the World Health Organization (WHO), health is a state of complete physical, mental and social well-being, not just an absence of diseases and enervation. It's important here to define what social welfare is according to WHO. That would be a state of peace and security where every person regardless of religion, race, political conviction, economic conditions and gender has a right to education and work, and that gives him the opportunity to live harmoniously in a healthy environment and provides protection in sickness, enervation and old age. However, having in mind today's life circumstances and all that is happening to us, it is entirely reasonable to pose a question if there is a healthy person at all and who meets the criteria for social welfare.

EP This means that the health of any individual or the one of the whole nation should be considered in the light of the interaction with the environment because the health is not just a biological phenomenon.

Milka Drezgic Various scientific disciplines, such as biology, psychology and sociology, have their own apparent and distinct concepts which serve as a starting point in the process of defining health and diseases. Societal value criteria, predominant culture and philosophy of social units in specific periods of human history and at some territories also had a significant influence on how the health and disease were perceived.

Social medicine is as a science that examines the health of an individual in reference to his interactions with an environment. The development of social medicine has also brought a definition of health which takes health not only as a biological and psychological but also as a social phenomenon. The World Health Organization (WHO) defined human health in a broader sense in its 1948 constitution having underlined for the first time the social element as of great importance.

I want to point out that the civilisation and the life rhythm come with a substantial risk which is reflected in chronic stress. It is not manifested in apparent physical changes but in the form of mental exhaustion which leads to depression, mental disorders, reduced working ability and problems in family and social life.

EP How to deal with the exhaustion syndrome?

Milka Drezgic Just as we take care of our body's hygiene, we have to take care of our mental hygiene which is necessary to lead the quality life. Fromm said a long time ago that a healthy man was able to work and love, so we must learn to love ourselves, to observe the world around us, and we have to learn how to enjoy in each day of our life, and not to dwell upon an uncertain future or a pleasant past.

EP Who has the supervision of whether we are physically and mentally ready to deal with everyday life problems?

Milka Drezgic Starting from the birth, the watchful eye of parents and routine check-ups of babies, and later toddlers, at primary health care, stand as the leading method for monitoring of the physical and mental development of the child. Parents and doctors have a prominent role as they react to every sign and symptom which might indicate the onset of the disease. However, it is not rare that a parent leaves a child in front of 'the lord and master' in the house, namely the TV, and therefore he doesn't communicate enough with his own child, only to reveal that his toddler at the age of two is deaf, which is precisely what happened recently in one city in Serbia. Unfortunately, by the time children grow up and enter adolescence, there are even fewer check-ups, or they are not carried out thoroughly, which ends up recognising mainly the physical defects in young people. On the other hand, the information and even interest in the mental and emotional social welfare are lacking.

EP What would be the most important feature of the modern lifestyle?

Milka Drezgic Modern ways of living and persuasive media industry with soap operas and various TV shows that offer a chance to live other people's lives, while yours gets neglected, result in a complete destruction of the family conversation and atmosphere, yet just by interacting with the family members in the domestic environment children develop secure attachment and sense of being able to overcome the obstacles with a helping hand of parents. Overall dissociation and termination of verbal communication, which have been replaced by text messages and e-mails, are destroying a friendship. Over the past 25 years, our society has gone through difficult times and the following results we are

Photographs: (Milka Drezgic) private archive; (bottom) Pixabay

experiencing today. Negative birth rates, unemployment, general life insecurity, the outflow of high-educated people, colossal money hunger in contrast to a lack of desire to bend one's effort, increasing number of depressed people - all of this makes the most visible consequences of that period.

EP In spite of all the problems we are confined to, could healthy lifestyle help us alleviate risk factors?

Milka Drezgic Risk factors that impair the integrity of an organism might come as a hereditary predisposition or bad habits (alcohol, cigarettes, drugs, excessive food consumption, promiscuity, etc.) but there are also those that come from the environment (pollution of air, soil and food). By drawing attention to a healthy lifestyle, we can help in preventing the incidence of some diseases, provided the education starts in early childhood and includes the parents above all. Hardly any advice could bring about a change in a child's behaviour if the role model in the house is a smoker, an alcoholic or obese. Modern studies show undoubtedly that 67 per cent of smokers get lung cancer. The message on cigarette packages warns that 'smoking kills', but that's not enough to shy smoker away from cigarettes and he eases his mind by saying that we're all going to die one day, or that even those who don't smoke, get lung cancer. And while it's true that we're all going to die one day, it remains unclear why someone would want to shorten his life and in such a way that leads to dying in agonising pain. Obese people probably know that they are at greater risk of getting the diseases as a result of changes in their blood vessels, such as a heart attack or stroke. When it comes to obese women, they are also at higher risk to get endometrial or breast cancer, while men who are significantly overweight tend to get colon or prostate cancer. However, this, unfortunately, doesn't give them enough motivation to lose their weight by reducing the food intake. The problem with weight is only taken into consideration when serious complications have emerged as a result of obesity, but at that point, the only thing left to do is to address the consequences, and with great difficulties, because there's usually an entire cascade of health problems. As far as sexually transmitted diseases are concerned, there is no continuous and argumentative campaign which would build the awareness in teenagers about the need to be informed on the dangers and consequences of those diseases. This field is where the state has failed us in terms of both the school curriculum and insufficiently harsh penalties for everyone who poison our youth with drugs, alcohol, cigarettes and misbehaviour.

I believe that in the future it will be possible to change a hereditary characteristic with treatment and that way practically heal a person who has a gene for some disease. Modern pharmaceutical industry offers countless combinations of treatments for diseases, but the disease is a result of a change, and it is in the interest of the humanity to prevent, wherever that is possible, the incidence of definite changes in the body which is what the disease is about.Let's not forget that even Hippocrates forewarned that the disease doesn't come suddenly, out of the clear blue sky, but it's a consequence of a long chain of minor, negligible health mistakes which had been piling up one on top of another having caused a snowball effect, until it all eventually topples down on the mistaker's head. That's why it's essential to have our best interest in mind every day whenever we make choices and decisions that can have an impact on our health.

Interview by: Milka Zelic

Photograph: Pixabay

PREVENTION AND CHECK-UPS

Professor Drezgic points out that it is possible, if a person has a hereditary predisposition to the disease, to prevent the development of this disease provided that the person eliminates the environmental factors. "This means that if there is a predisposition to diabetes, then the nutrition plan and obesity prevention may be an appropriate way to keep that hereditary propensity at bay. If there is a hereditary predisposition to the breast or colon cancer, the key is to maintain healthy body weight and have regular check-ups, so that, in case the disease occurs, timely treatment can be provided which enables healing. Today, many cancers are curable, as opposed to the time when I started to work. However, it is still crucial that disease is detected in early stages. Many patients are fearful of what a doctor might say, so they don't go to the doctor's for check-ups, they miss follow-ups, thus a precious time, only to show up at the doctor's office when the disease has already run rampant, and by that time the chances of healing are considerably less", urges Professor Drezgic.

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THE BEST EVER

CONVERSE

After the 62nd International Technical Fair: The Result to Praise

The International Fair of Technics and Technical Achievements, held on May 21 – 25, the most respected, largest and oldest regional fair event devoted to technics, technical-technological achievements, and innovations, confirmed its undoubtedly high rating also this year, not only as the presentation point of the current technical-technological civilisation but also as a representative section of the regional and global exhibition industry. Mr Nenad Popović, Minister without Portfolio in the Government of the Republic of Serbia, in charge for Innovations and Technological Development, also spoke about this, while he was festively opening the Fair.

Six hundred and ten direct, or represented exhibitors and other participants (281 of them the international ones) presented themselves at the Fair with their technical-technological achievements and innovations, from manufacturing or design companies, through the science research and educational institutions and Business Associations, to the startup projects and innovative individuals, this time from 30 countries from the European, American, African, Australian and Asian continents – Serbia, Australia, Belgium, Austria, Former Yugoslav Republic of Macedonia, Denmark, Egypt, Bosnia and Herzegovina, Bulgaria, the Czech Republic, France, the Netherlands, Italy, Croatia, Japan, China, Hungary, the Republic of Korea, Germany, Poland, Russia, United States of America, Slovakia, Slovenia, Taiwan (PR of China), Switzerland, Turkey, Sweden, the United Arab Emirates, the United Kingdom.

Besides the individual exhibitors, National and Group Exhibitions of Austria, the Czech Republic, Slovenia, Slovakia, Turkey, Republic of Srpska (Bosnia and Herzegovina) were organised and, for the first time at a fair event in Serbia – the United Arab Emirates. The organisers in all cases were the relevant Ministries and other public authorities. Under the auspices of the Serbian Chamber of Commerce and Industry, many Chamber and trade organisations, Regional Chambers of Commerce and in different ways organised Serbian businesspeople were featured in groups.

The exhibiting and trade side event programs, executed at about 16,000 m^2 of exhibiting space, in Belgrade Fair seven halls and the entire outdoor area, attracted 21,593 visitors, mostly the business ones. Among them, there is a considerably increased number of business visitors, including many international ones. The growing trend of the regional group visits was continued.

Photographs: Belgrade Fair

The traditional basis of the exhibitions consisted of the demonstration of tools, processing technics, robots, software and communication lines necessary in the production processes characteristic for the Industry 4.0 and industrial automation, then metal processing machines, tools, and accessories, welding, compressors. The electrical engineering and thermal technics sector were presented by the electric power production, transfer and distribution and telecommunications, measurement and supply sources, installations, office and home lighting, energy, industrial and home electronics, HVAC, transport and logistics, metallurgy and metal casting, etc. were not missing, either. Compared with the last year, more expansive exhibitors' attendance was noticed within the additive and 3D technology, manufacturing of the equipment and technologies for wastewater and gas preparation and cleaning, manufacturers of packaging, industrial packing machines and equipment and installations (electrical installation materials, cables, conductors, etc.).

Related to the support to the innovation enthusiasm was also featuring of all six final teams in The Best Technological Innovation competition 2017 in Serbia. The winner there was Carp System – Dot Spod from Zrenjanin, with the Fish Feeding Rocket and the remaining five were Ingel, Rakovac (The Opportunities of the Use of Low Voltage with the Increased Value for the Electric Power Supply to the Sealing Systems), Hibridni Klavir, Belgrade (Piano MIDI Converter); Swiftbuild, Belgrade (Swiftty Convertor); Fluid Plus, Belgrade (High Efficient Dispersion Dryer); Zeobion, Belgrade (Zeobion).

The peak of the scientific research section in the technical-technological fields presented at the Fair was the presentation of 31 scientific research organisations in Serbia introducing their research projects, supported by the relevant Ministry of Education, Science and Technological Development.

The plentiful professional Side Event Program of this year's Technical Fair focused the problems of energy efficiency and the next generation technologies – Industry 4.0 (Solfins, CadCam Data), 3D and additive technologies and the innovativeness as a must. In addition to the already mentioned, the Ministry of Education, Science and Technological Development organised also a Round Table Conference with the topic 'The Best Technological Innovation: How to Move Serbia by Innovations'. The Innovation Fund of the Republic of Serbia had already on the first Fair day the presentation with the topic 'By Innovations to the Market: Irretrievable Funds for the Innovative Solutions of Serbian Companies'. The Innovation Center of the Faculty of Mechanical Engineering in Belgrade, together with Tehimpuls from Timisoara, its partner from the European Entrepreneurship Network, organised meetings of Serbian and Romanian small and medium-sized enterprises. The Association of Inventors Serbia was the youth competition host for the entrepreneurship and innovations.

Belgrade Fair Professional Jury also granted the traditional awards to the most successful participants in various sectors and the most valuable one – Great Award A Step in the Future – was won by Kaldera Company Ltd. from the Republic of Srpska/Bosnia and Herzegovina (for the automatic APGS Anti-hail Station), Grindex from Kikinda (for the Cut Grinding Machine Model BBN 300 CNC L) and Proficut from Backi Petrovac (for the laser cutting with the Option 3D F 45) – all of them in the "Integra" field; Proficut from Bački Petrovac, for the Welding Simulator S/N 00001288 (Welding field) Mikro Kontrol from Belgrade (for the Yokogawa TDLS 8000 Laser Gas Analyzer), Measuring Equipment and Instruments field.

All these are adequate reasons to declare the previous 62nd International Fair of Technics and Technical Achievements successful and wait impatiently for the next one.

FRUITFUL COOPERATION BETWEEN THE LOCAL SELF-GOVERNMENT AND THE CIVIL SECTOR IN PARACIN

At the end of the 1980s in Paracin, the local Ecological Movement and the Young Researchers division were established thanks to liberal ideas of the youth organisation of that time. These were the first steps towards the initiation of the environmental protection conception in Pomoravlje region. Apart from the local topics regarding the conservation of nature, the same group of enthusiasts copied and printed the first environmentally friendly poster. They also organised the national Antinuclear Caricature Competition as part of the moratorium campaign against the construction of nuclear power plants in former Yugoslavia. Among these fighters for the protection of the natural environment was Vladimir Jankovic, the advocate for sustainable development and the founder of the civil society organisation (CSO) UNECOOP, who is now trying to ensure that as many citizens as possible learn about the importance of sustainable management of natural resources.

There are four centres within UNECOOP: alternative energy and energy efficiency centre, green building centre, rural development centre and waste management centre. Starting from the UNECOOP engagement in promoting new standards and best practices, Vladimir says that they are also trying to support locally the introduction of measures to improve energy management and energy efficiency. "We actively participate in the preparation of action documents, training and project implementation. Bearing in mind the limited capacities of the local administration, we think that it is possible to raise the partnership level which would result in the assignment of certain tasks to the public sector. It is known that CSOs in many countries act as service providers for the public sector. In this way, it would improve the quality of work the local government provides and it would make the foundation for the institutional sustainability of the CSOs, "Vladimir says.

Vladimir Jankovic, the founder of the civil society organisation (CSO) UNECOOP

Photographs: (previous page) Pixabay; (all others) Vladimir Jnakovic

A small number of people approaches this subject as the obligation of the civilisation to preserve the Earth itself and the life on it

Achieving the ecological balance at the local and national level is a very demanding and long-term process. The situation in Pomoravlje reflects the general situation in the country where high unemployment rate and poor economic situation make it a priority to open new commercial facilities and bring about employment which often conceals the negative impacts of the newly opened plants on environmental and health safety of citizens and sustainable management of natural resources. It is necessary to work on raising awareness of the citizens of the need for environmental protection, although Vladimir believes that we can talk about this only to some extent if we as individuals equate this topic with problems of endangering the health and healthy lifestyles. "A small number of people approaches this subject as the obligation of the civilisation to preserve the Earth itself and the life on it."

The focus of UNECOOP is not the local community only, because they have been more involved in creating public policies at the national level and participating in activities related to the chapter 27 negotiation in recent years. Considering that many pilot activities are carried out in the Municipality of Paracin, the local self-government recognised the importance of such initiatives which brought about numerous partnerships.

Given the importance and complexity of the activities in negotiations chapter 27, Vladimir believes that the civil sector should replace the apparent lack of capacity of the public sector through constructive cooperation. "This partnership should not be the obstacle for the negotiation team towards the objective correctional factor, to minimise resolutions that would have negative consequences. UNECOOP is directly involved in these activities through participation in several working groups of the National Convention regarding the EU. Due to the CSOnnect program that is implemented by REC with the financial assistance of the Swedish Development Agency SIDA, CSO activities are lately gaining momentum and quality," Vladimir explains.

UNECOOP also pays considerable attention to the green building segment. The engagement in this field represents the advancement of continuing activities towards the use of biomass, and above all the cultivation of the fast-growing en-

ergy crops. "We strive to be promoters of the "BioBeton" use – the low-carbon building materials based on Miscanthus reed and industrial hemp, and the use of the hydraulic lime as the replacement for the conventional Portland cement," Vladimir says. He adds that "apart from the fact that these materials meet the "green building" requirements, they are also fully consistent with the principles of the circular economy, they ensure the reduction of the greenhouse gas emissions and, thanks to their natural properties, they provide healthy living conditions in buildings made of these materials. "This is especially important when there is a growing number of allergy-related diseases. The use of these materi-

We strive to be promoters of the "BioBeton" use – the low-carbon building materials based on Miscanthus reed and industrial hemp, and the use of the hydraulic lime as the replacement for the conventional Portland cement

THE ROUNDTABLE "TOGETHER AGAINST THE WASTE IMPORT"

At the end of June, the UNECOOP Association from Paracin organised a roundtable meeting to discuss the waste import issue, attended by the representatives of the civil society organisations and specialists in the field of environmental protection, medicine and the implementation of environmental regulations. With their expert presentations, they familiarised the other participants and the public with certain harmful effects of waste combustion on human health and the environment.

The participants pointed out that the Proposed amendments of the Waste Management Law are in contradiction with the principles of sustainable development, the circular - green economy, as well as the hierarchy and the principles of waste management.

Jovan Nesovic from the "Novi put" Association from Kraljevo said that Serbia has no waste shortage but does not have the established waste management system.

It has been mentioned that the European Union currently has a "surplus" of installed capacities for waste energy utilisation, so it brings up the question of controversial interest in exporting and burning waste in the Republic of Serbia.

Dr Ilija Vukadinovic, the representative of the Kosjeric Ecological Movement, mentioned all the severe consequences that the products of combustion waste had on human health and noticed that in the proposed amendments of the Waste Management Law explanation there is no assessment of consequences for the environment and human health.

"Together Against Waste Import " roundtable is part of the public advocacy campaign under the Civil Society Support Program in Serbia in the field of environment – (CSOnnect), which is implemented by the REC. It aims to suspend all the activities related to the amendments of the Waste Management Law which would allow the import of the non-hazardous waste for the co-processing purposes. By adopting the proposed amendments of the Waste Management Law, the import of the non-hazardous waste would be permitted, and its use as a fuel in cement factories would directly affect the quality of air, as well as the health of the citizens of the Republic of Serbia, Vladimir Jankovic from UNECOOP said. He added that efforts are being made to mobilise civil society organisations, the professional public, and the media to prevent it.

als has a minimal carbon footprint since raw materials can be obtained from the immediate surroundings of the buildings that are being built.

On the other hand, the production of "BioBeton" creates new local value chains that contribute to the socio-economic empowerment of the local communities."

Vladimir was one of the founders of the Biomass National Association SERBIO, which was created as part of the project funded by the Embassy of the Kingdom of Norway. The UNECOOP's references in the field of fast-growing energy crops cultivation favoured them as the participants of the Initiative Committee for the establishment of this Association. He believes that we should invest more time and put more effort into promoting sustainable forest management and the use of wood and agro-waste. "But above all, we should work on raising awareness about the need for the better energy-efficient use of biomass. We are witnesses that in our country biomass combusts in quite primitive heating devices such as the traditional "Smederevac" with a huge loss of energy and the release of undesirable products into the environment, "Vladimir says.

The UNECOOP's enormous success, according to Vladimir, represents at least the partial contribution to Serbia's "decentralisation" as far as the civil sector is concerned, in the field of environment and climate change. "Due to the reputation that we have built over the years, many organisations and institutions have recognised us as a reliable partner. The latest confirmation of UNECOOP's successful work is the fact that our project idea "PLANTING ENERGY FOR A BETTER CLIMATE" has been supported for further development within the UNDP-GEF Program "Local Development Resistant to Climate Change," Vladimir said. When it comes to undeniable results, one should also mention the successful campaign from 2013, in which UNECOOP has publicly advocated that the spring of the river Grza be declared the first natural protected area in the municipality of Paracin.

Prepared by: Tamara Zjacic

THE OBSTACLES TO GREATER USE OF RENEWABLE ENERGY

Vladimir Jankovic says that if we examine this topic from the commercial production of renewable energy aspect, numerous technical and non-technical constraints come about from the procedure for obtaining different permits.

"In circumstances of the underdeveloped institutions and the lack of the stable and predictable political and legal framework in the Republic of Serbia, there are no conditions for the "fair" investment competition in this area. The greater use of renewable energy in the individual sector is impossible until we raise the "energy awareness" at the national level. Also, instead of unreasonable pressure for the options based on lignite and imported gas, we turn towards the renewable energy subsidy in order to achieve the energy independence and increase ecological and health safety of the citizens," Vladimir says, and adds that we would indirectly fulfill the commitments to reduce the greenhouse gas emissions we assumed as a country.

Jankovic says that the ultimate goal of the campaign is that the Ministry of Environmental Protection issues a decision to withdraw the disputed acts from the proposed amendments of the Waste Management Law.

At the roundtable "Together Against the Waste Import," which brought together civil society organisations that deal with the waste problem in Serbia, it was decided to appear in front of the Ministry of Environmental Protection with the request for declaration and for convening the urgent meeting regarding this issue.

It was decided to initiate a petition with the aim to withdraw the disputed articles from the proposed amendments of the Waste Management Law, as well as to increase the number of activities within the public advocacy media campaign.

There is also going to be a demand for the support from the national and international "green groupings" for this initiative, as well as the pressing concern for the involvement of the civil society organisations representatives in the draft process of the National Waste Management Strategy of the Republic of Serbia.

Prepared by: Milisav Pajevic

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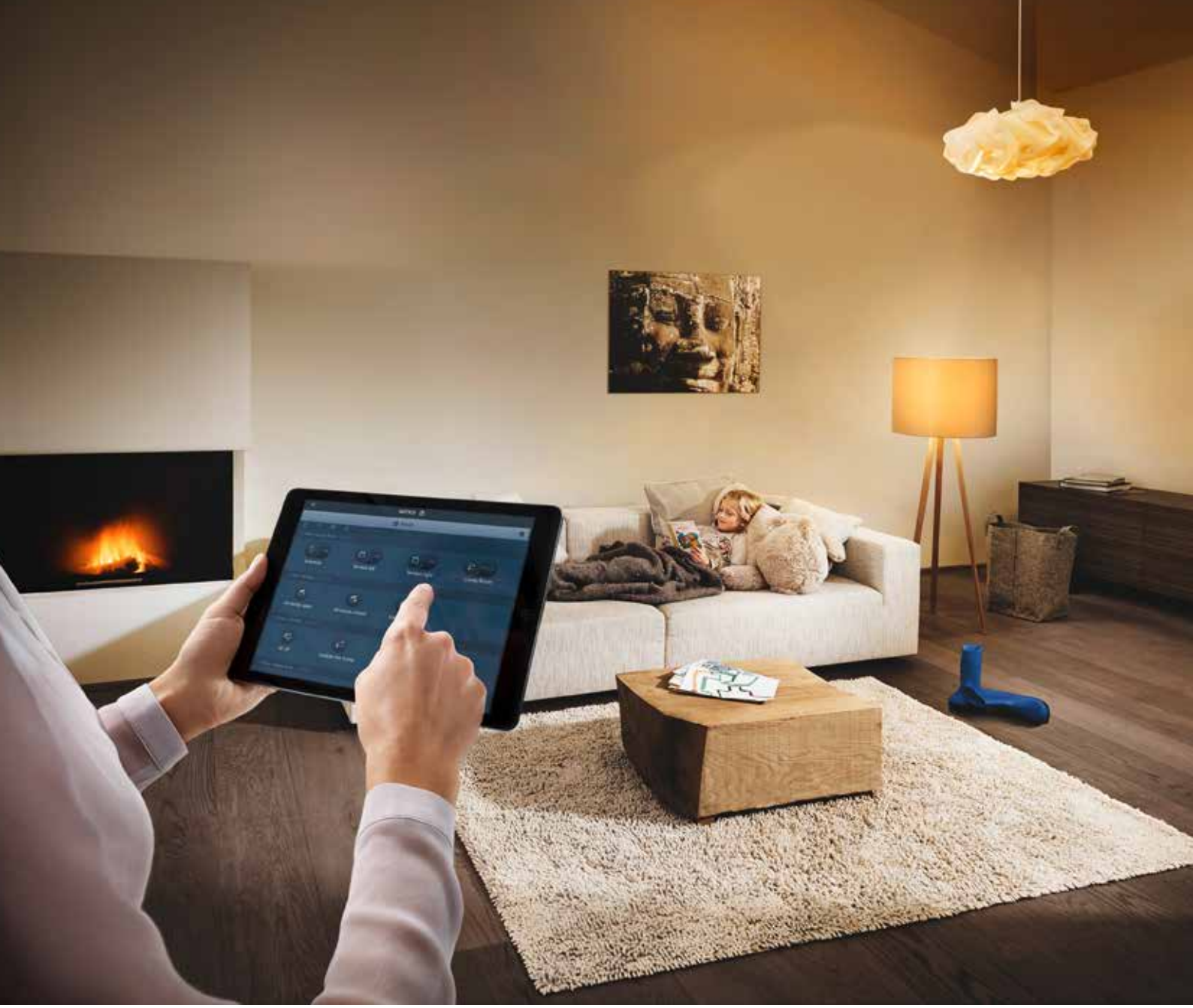

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