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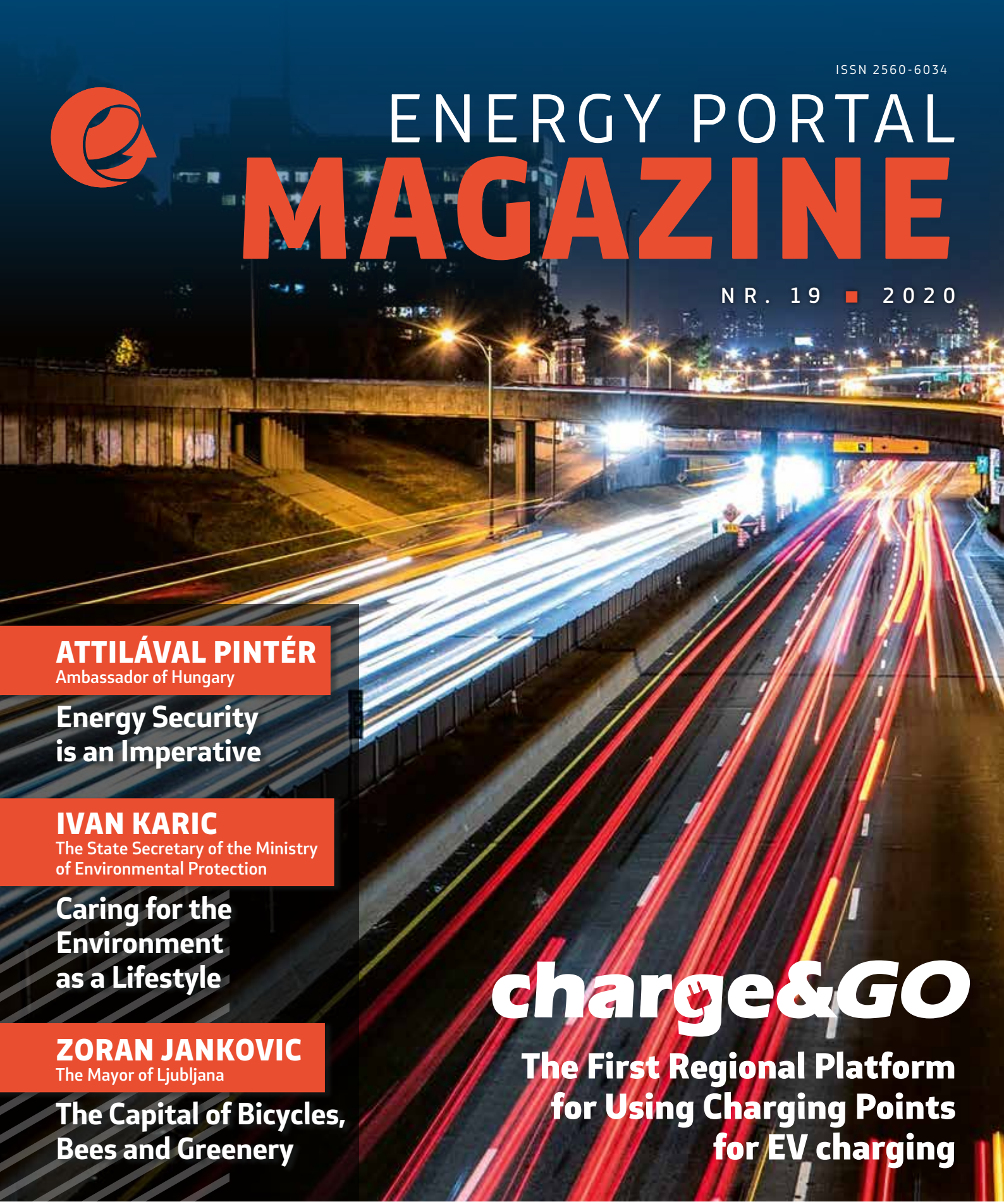

ATTILÁVAL PINTÉR
Ambassador of Hungary

Energy Security is an Imperative

IVAN KARIC
The State Secretary of the Ministry of Environmental Protection

Caring for the Environment as a Lifestyle

ZORAN JANKOVIC
The Mayor of Ljubljana

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Photo competition "Natura 2000 in the frame"!

If you care about the protection of nature and rare plant and animal species – you are the one we want! We invite you to participate in the photo competition "Natura 2000 in the frame", which will last until November 27

You can sign up here. Our intention is to show the importance of preserving biodiversity in Serbia, and at the same time to show the beauty of our nature and the diversity of landscapes within the Natura 2000 network. The topics you should focus on are nature (national parks, natural beauties, flora and fauna, water resources) and sustainability of human activities in protected areas, sustainable agriculture, sustainable tourism, and other commercial activities. Focus on nature and win valuable prizes in the form of equipment vouchers:

- **Prize 60,000 RSD**
- **Prize 45,000 RSD**
- **Prize 35,000 RSD**

The submitted works will be evaluated every week by our expert jury consisting of Team Leader of the EU project team for Natura 2000 in Serbia Ana Iñigo, Project Manager in the EU Delegation to Serbia Antoine Avignon, Project Coordinator at the Ministry of Environment Snezana Prokic, photographer Bojan Dzodan, multimedia artist Mina Radovic, and the Editor in Chief of Energy Portal Nevena Djukic.

Each week we will be publishing the best photos from the contest on our website. On these pages, you can see which photos were shortlisted in the first week of the photo competition "Natura 2000 in the frame". The photo competition is jointly organised by Energy Portal and the EU project Natura 2000. The Natura 2000 network is a network of protected areas in all European countries, which aims to preserve the most valuable species and habitats.

FRAME SOME IMPORTANT MOMENT IN NATURE. WE ARE EXPECTING YOUR PHOTOS – YOU ARE MOST WELCOME!

ENERGETSKI PORTAL
energetskiportal.rs

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Photographs: (Pinter) the Embassy of Hungary; (Karic) courtesy of Ivan Karic

Photographs: (Iñigo) courtesy of Ana Iñigo; Uros Hocevar (bottom left) Pixabay/Gerd Altmann

ENERGY SECURITY IS AN IMPERATIVE BOTH FOR HUNGARY AND SERBIA

Establishing a new high voltage electricity interconnector that will double by 2036 electricity interconnection capacity between Hungary and Serbia, is merely one of many bilateral and regional projects run by these two neighboring countries. What are other mutual projects that will improve lives of our citizens and what we can learn from the example of our neighbors in terms of environmental protection, we asked the ambassador of Hungary in Serbia, Mr. Attilával Pintér.

There are a lot of things Hungary has been doing in recent years that not only countries in the region but in the whole Europe can take as an example. Although there we should also include how successful they were combating the first wave of the Covid-19, we will keep our focus on the energy and ecology sector where Hungary in a short span of time has scored the impressive results. Above all, there is a record in environmental improving which has been noted as a huge success on a global level too. Even though there is no the separate Ministry for environmental protection, Hungarian Government introduced efficient measures and managed to save the habitats, clean the air in the cities and provide stable electricity supply with the increasing share of renewables, which in return brought some interesting scores, among which the fact that the purchase of vehicles on alternative fuels in the EU has increased the most in Hungary in the first quarter of this year. The Ambassador of Hungary in Serbia Attilával Pintér believes that they owe their success to an approach taken by the Government who doesn't take and solve ecological problems as isolated cases but more like a mutual problem of all the sectors in the economy. He is equally assured that the cooperation between our two countries in the field of energy and ecology will improve the lives of all our citizens and promote European integration of Serbia.

EP ***Hungary is currently on the 33rd place on the EPI list (Environmental Protection Index), and just two years ago you were on the 43rd place. How did you manage to improve the index in such a short notice, especially given that you are one of the four countries in the world which do not have an independent Ministry of Environmental protection?***

Attilával Pintér,
The Ambassador of Hungary

Attilával Pintér Yes, the EPI ranking is really impressive. Moreover, Hungary's improvements in the field of environmental protection are also acknowledged by relevant international organizations. According to OECD, Hungary has made "significant progress" in decoupling its output economic growth from environmental pressures by gradually reducing greenhouse gas emissions. The Hungarian Government has introduced substantial measures in favor of meeting targeted environmental objectives, not only in a narrow sense but also within other economic sectors. In the case of complex environmental issues, the measures must be implemented in all relevant sectors in order to improve the state of the environment significantly. I believe that the EPI ranking also attests to the success of integrating environmental policy as a cross-cutting/cross-sectoral issue. The Hungarian Government is working on and allocating considerable resources in favor of fostering economic development while maintaining and sustainably utilizing natural resources. For this purpose, responsible ministries cooperate closely and endeavor to prevent the emergence of environmental problems. These problems are not only isolated cases. Therefore, we are implementing a comprehensive environment policy planning.

EP ***According to this ranking, the weakest points of Hungary in terms of environmental protection are the loss of forests and wetlands as well as the air quality. What are the plans for tackling these problems?***

Attilával Pintér The mentioned -4.1 per cent change within 10 years in a forested area is based on the Global Forest Watch data, which in our opinion is inherently less capable to provide reliable information on forest cover changes in the case of smaller countries. Hungary has nearly doubled its forest area since the post-World Wars era - increasing its forest land from 12 per cent to 21 per cent (1,867,479 ha in 2018), reflecting a significant increase. Forests are under strict legal protection in Hungary, reinforced by our strategic vision to continue the cultivation work. Guided by such aims, we increased the unit prices of afforestation subsidies in 2019 and launched a national program to increase areas with tree cover. Our latest campaign for increasing areas covered by forests has been just launched on 11 September by our Minister of Agriculture.

From 2007 onwards, more than 75 billion HUF (approx. 210 million EUR) have been invested into, among others, restoration of degraded natural habitats – including wetlands and forests - and into improving the efficiency of habitat management. The focus of these projects is mostly the remaining parts of our formerly vast grasslands that often create a mosaic-like pattern with wetland habitats. It is of utmost importance to maintain the achieved good condition after habitat restoration. One of the key instruments to this end is livestock pasturing (Hungarian Grey Cattle, Water Buffalo, Racka Sheep or Hucul Horses), which also serves gene preservation purposes.

Water deficiency and a disturbed hydrological regime are problematic both in grasslands and in wetlands. Numerous projects aim at ensuring water supply in some of Hungary's large wetlands, such as mortlakes, bogs and lakes.

Air quality in Hungary generally corresponds to the EU average. However, it does not mean that we can be relaxed at this regard. Moreover, air quality improvement requires concerted national and international efforts from various sectors such as the energy sector, transportation, agriculture, industry or households. Both households and the mobility sector have huge potential for further improve-

All photographs: Embassy of Hungary

The larger city parks of Budapest have had a history of decades or even **centuries**. Besides preserving their historical values, it is important to align them with the needs of the 21st century, developing park functions and infrastructure in modern and innovative ways

ments. Increasing electromobility is a key policy objective in Hungary. We are also taking steps to introduce green buses in our public transport system. The national bus strategy aims to replace the 7,500 buses used in public transport in the next 10 years with new buses that meet environmental criteria with at least 50 per cent domestic added value, so passengers should be able to travel with green buses. Emissions caused by household heating also presents a challenge for us, for which we launched the so-called "Heat wise!" awareness-raising campaign. With the timely implementation of our National Air Pollution Control Program, ambitious emission reduction obligations can be fulfilled, and air quality is expected to improve.

EP ***Hungary is planning to phase out coal-fired electricity generation by 2050 to help reduce emissions and tackle climate change. Does that goal in 2020 seem achievable?***

Attilával Pintér Based on the latest currently available Eurostat data, Hungary is meeting its share of renewable energy over its time-proportionate commitment. The RES share was 12.5 per cent in 2018, which is close to the 13 per cent plan for 2020. There has been a spectacular increase in the renewable electricity sector and the renewable share in the transport sector is steadily increasing, too. The most dynamic growth has been shown by solar energy. Photovoltaic power generation is expected to double every year, just as it has in the past four years. We also want to give new inputs to the expansion of geothermal energy use.

EP ***A Hungarian enterprise has started to produce solar collecting pavement blocks from recycled plastic, and even the international press caught attention. Do you have similar patents which are environmentally friendly?***

Attilával Pintér Yes, the great thing in the so-called Patio panels is that they are 90 per cent made of recycled materials, which is to be further improved to 100 per cent. With this invention the Hungarian enterprise got to the list of New Europe 100, that ranks the most promising start-ups. Such smart eco-innovations have great potential both to tackle environmental problems and to create new business opportunities. I think we can be proud of our internationally acknowledged scientists and patents invented by

them during the course of history. There are several initiatives, technical solutions for improving environmental quality. To mention one, a Hungarian engineer has invented a radically new procedure to make car washing more environmentally-friendly. Based on nanotechnology, the new method removes dirt stuck onto the hood of a car with using 1.5 decilitres of water and a tissue paper. There is an endless list of great ideas. Let me draw your attention to the Budapest Sustainability EXPO and Summit 2021, where we are expecting to welcome enterprises from all around the world with their innovative products or services that can solve environmental problems. I truly hope that Serbian companies will be interested and use the exhibition to find business opportunities.

EP ***Hungary and Serbia plan to double their electricity interconnection capacity by establishing a regional electricity exchange. Can you tell us something more about this project and when do you expect that it will be implemented?***

regularly, and in June 2020, they signed a Memorandum of Understanding on future projects, including the establishment of a new high voltage electricity interconnector. Negotiations started between the Hungarian and Serbian transmission system operators as well. An agreement was

An agreement was reached that in the coming years the two companies will jointly aspire to include the new Hungarian-Serbian interconnector in the 10-year network development plan of the European Network of Transmission System Operators for Electricity

Attilával Pintér Energy security is imperative; both on a national and a regional level. To that end, Serbia and Hungary attribute great importance to connecting their existing energy networks, developing their electricity interconnection capacity, to establish an electricity power exchange and make the region's electricity supply more predictable. The Hungarian and Serbian electricity providers cooperate reached that in the coming years the two companies will jointly aspire to include the new Hungarian-Serbian interconnector in the 10-year network development plan of the European Network of Transmission System Operators for Electricity. As a result of this close cooperation, it is expected that the interconnection capacity of the Serbian and Hungarian networks will be doubled by 2036.

EP ***Budapest has recently got an astonishing green oasis Széllkapu on the right bank of the Danube River, and you even managed to have the approximately same number of parking lots on that place. Will you continue with the similar parks in other cities and in which other ways will you make the capital greener?***

Attilával Pintér Only a few new parks have been established in recent decades in Budapest, so the Millenáris Széllkapu is a significant step for the capital, mainly because it has been realized as a brownfield investment. In addition to the establishment of new parks, great emphasis has been placed on the quality development and transformation of our existing parks. The larger city parks of Budapest have had a history of decades or even centuries. Besides preserving their historical values, it is important to align them with the needs of the 21st century, developing park functions and infrastructure in modern and innovative ways. The Government of Hungary has supported several park development projects in the last 10 years. Orczy Park and Margaret Island have been renewed lately, the well-known City Park is under construction, and two more parks, Városmajor and Gellért Hill are planned to be developed.

EP ***Norway is the leading country in the world in terms of using electric vehicles. How developed is the charging network in Hungary? What kind of subsidies do the people have for using sustainable transportation what is the percentage of electric vehicles in your country?***

Attilával Pintér Automotive industry is among the most important driving sectors of the Hungarian economy, therefore strengthening electromobility is one of the top

According to the statistics of the European Automobile Manufacturer's Association **there is no other country in the EU, where the purchase of alternative fueled cars has increased more than in Hungary** in the first quarter of this year

By August 2020, **more than 20,000 passenger cars were registered with green registration plates**, almost half of which are battery electric vehicles

priorities of Hungarian economic policy. According to the statistics of the European Automobile Manufacturer's Association there is no other country in the EU, where the purchase of alternative fuelled cars has increased more than in Hungary in the first quarter of this year. Development of appropriate charging infrastructure is of paramount importance. As the legal background related to electromobility is already in place, public charging infrastructure can operate on a market basis, therefore the Hungarian Government assists in the procurement of electric vehicles. This year support schemes were designed to reach a wider audience – with an opening to the direction of micro-mobility, it means that companies, sole proprietors have the opportunity to purchase a purely electric motorbike (scooter) with the help of the support. To reduce urban, local emissions, the tender scheme provides support for persons providing passenger taxi services. Thanks to the incentives and the market-friendly regulatory and strategic background of the electromobility sector, by August 2020, more

than 20,000 passenger cars were registered with green registration plates, almost half of which are battery electric vehicles. In addition to the available grant assistance, a number of tax advantages, exemption from costs or expenses, and other forms of support have been introduced in recent years, such as exemption from the vehicle tax, from the taxation of company cars, from the registration tax and the transcription tax. Furthermore, municipalities may provide free parking and entrance to these vehicles.

EP ***Hortobágy National Park is one of Hungary's 10 national parks, and the Government has this year introduced a "core area" zone there. Why was this necessary?***

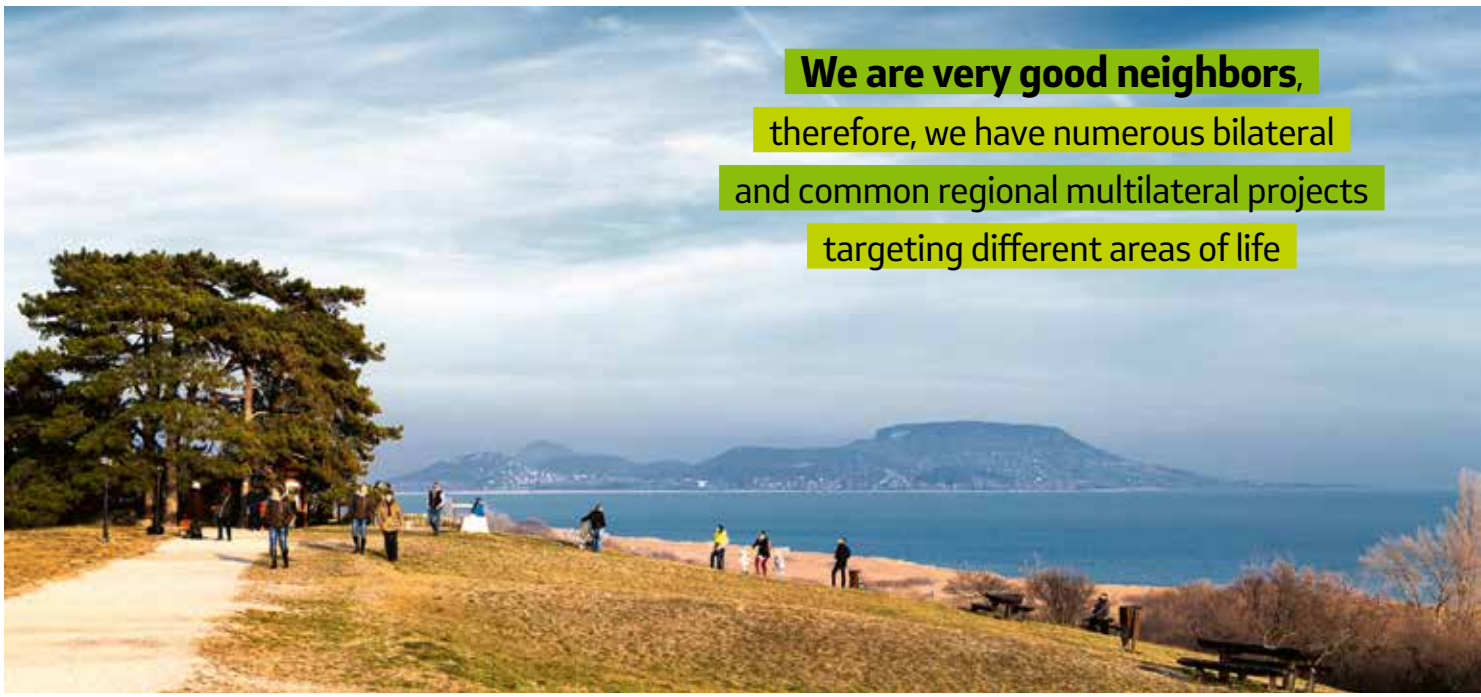
Attilával Pintér Coverage of natural areas under legislative protection is increasing both in Europe and the World. However, degradation of habitats and biological diversity are still showing rising tendencies because – among others – legislative protection is not enough effective in practice. Zonation of national parks provide an effective tool for the enforcement of legislative protection, and at the same time, it gives the opportunity for sustainable, legal and calculable utilization of natural resources. According to the Act on Nature Conservation, national parks have to be classified to natural zone (the "core area"), the zone of nature-friendly utilization and service zone. Within natural zones, only conservational management activities are allowed; which are defined in details in the relevant ministerial decree. These requirements have been in force in Hortobágy Nati-

onal park's natural zone (11 per cent of the whole area), like the "Pentezug" Wild Horse Reservation, the Kunkápolnás swampland and other sites from June 2020. In case of Hortobágy National Park designation of the natural zone and the whole zonation system contribute to protect and maintain not only national-level landscape and natural assets but globally recognized outstanding universal values since the national park was declared World Heritage Site as "Hortobágy National Park – the Puszta" by UNESCO in 1999.

EP ***As we are bordering countries, we have many projects we work on together, so which one would you be selecting as the most prosperous for both countries?***

Attilával Pintér We are neighbors, moreover, we very good neighbors, therefore, we have numerous bilateral and common regional multilateral projects targeting different areas of life. Therefore, it is not easy to select the most prosperous one. As water is becoming a scarce resource, driven by climate change, increased water demand in all economic sectors, I believe bilateral cooperation on water management is of utmost importance. We are proud to the Budapest Waterworks, who is the lead member of a consortium of three companies, which has won the opportunity to elaborate the Financial and Operational Performance Improvement Programme for the Water and Sewage Company of the City of Belgrade. Another good example is the cooperation in preserving our common beautiful river, the Tisza.

Hungary has also supported Serbian nomination for the potential transboundary biosphere reserve (prepared by



We are very good neighbors, therefore, we have numerous bilateral and common regional multilateral projects targeting different areas of life

MUTUAL INTERESTS AND PROJECTS

The Western Balkans Green Fund Project is definitely work mentioning here as it has a considerable effect in both countries. It consists of two major milestones: the Western Balkans Green Centre contributes to the climate protection efforts and the multi-donor Green Investment Fund that provides financial instruments for project financing.

Bilateral cooperation between Serbia and Hungary in the field of energy is also crucially important. It can facilitate the European integration of Serbia, which is considered to be the most prosperous for both countries due to it enhances the security of supply. Serbia and Hungary work towards effectively connecting their existing energy networks as well as developing and connecting new energy networks. Ensuring a continuous and stable gas supply is a common interest. In the field of electricity, the common objective is the establishment of the Hungarian-Serbian new high voltage electricity interconnector to make the electricity supply of the region more predictable. The fuel storage and logistics facility investment in Sremski Karlovci contributes to Serbia's fuel supply security with top quality products arriving directly from the largest Hungarian oil company.

It is also worthwhile to mention the large, and still untapped geothermal potential shared between the Southern parts of Hungary and Vojvodina in Serbia. Thanks to the DARLING project (Danube Region Leading Geothermal Energy), Serbia has gotten first geothermal district heating system in Bogatic.

the Institute for Nature Conservation of Vojvodina Province) Mura-Drava-Danube Biosphere Reserve submitted to UNESCO in 2013. The area of the proposed Biosphere Reserve is the largest conserved floodplain complex in the upper course of the Danube River in Serbia and also one of the largest floodplains along the middle section of the Danube. This year we have submitted a five-lateral (Austria, Croatia, Serbia, Slovenia and Hungary) joint nomination application to UNESCO of the "5-country Biosphere Reserve Mura-Drava-Danube" We believe we have good reason to remain confident about the success of approval next year, what would result from the world's first 5-country transboundary biosphere reserve.

EP ***How is Hungary getting ready for the expected new wave of the Covid-19 in the autumn and would you say the way Hungary handled the crisis in spring accordingly?***

Attilával Pintér After the victory over the first wave of the epidemic, our Covid team had immediately urged preparations for the second wave and spent the whole summer doing that. In the spring, Hungarian health care underwent a drill so that today we know precisely what we must do even in the worst imaginable scenario. In the whole of Europe, Hungary contained the virus most successfully, and therefore we must be cautious with any change in order not to create a situation that is worse than what we have managed to achieve so far. We've got into the second wave of the epidemic and the most important tasks now are saving lives – protecting those most at risk, creating the conditions necessary for the operation of schools, and boosting the economy. Young people play a significant role, as their grandparents' and parents' lives are primarily in their hands, and if they are undisciplined, they will pose a great threat to the elderly. In order to slow down and curb the spread of the virus within our borders, we had to cut the virus's external supply lines and to do so, new travel restrictions have been introduced.

Interview by: Nevena Djukic

Hungary has supported Serbian nomination for the transboundary biosphere reserve Mura-Drava-Danube submitted to UNESCO in 2013

HOW DOES A SOLAR--POWERED SLOTH ROBOT HELP TO PRESERVE ANIMALS AND PLANTS?

If you have come in contact with literature from the newsstand, you are familiar with the worn-out saying that life is not measured by the number of breaths we take, but by the moments that take our breath away. In my case, it turned out to be true, so in these few brain lines of mine, in addition to the definition of cell and multiplication table that are stored there, there is also the fact how ugly and shrivelled my brother was in the hands of a nurse when he was born, and my first, and so far only, encounter with my favourite animals – sloths, that took place in Budapest three years ago.

After theatrically acting out a breakup to bring some fun to the relationship (Oscar for the lady!), and then reconciling with my then-boyfriend for two burgers and dessert, we went to the zoo. Aside from the fact that I try not to support such places, at that moment the animal shelter, unfortunately, proved to be the ultimate source of my happiness. In order to comprise to the extreme, I will only write that in front of the cages of the sloth I took an appearance of a smiley like this – 😊😊😊, and I am glad that the stars of today's post are exactly them, although not in their original fur form, in an extremely noble mission to preserve the environment.

Bot without a negative connotation

SlothBotis a slow-moving, solar-powered robot built by Georgia Institute of Technology (United States). He is employed as a security guard for animals and plants.

The inventors kept in mind thatspeed is not necessarily an advantage in all aspects of everyday life - remember the fable about the turtle and the rabbit!The low-energy lifestyle preferred by lazy people has prompted them to implement this approach in the sweet tin guard and can-

Photographs: (bottom left) Pixabay; (bottom right) Unsplash/Yu Kato; (robot) Pixabay

conservator. SlothBot is powered by solar panels, and with the aim of increasing energy efficiency, researchers have built an innovative power management technology into the robot.

He moves along a cable (about 30 meters long) strung between two large trees, monitoring temperature, weather, carbon dioxide levels and other information important for scientists. In the future, he could travel longer distances if he does well at his first job and is relocated to some slightly wilder areas.

Cutting-edge technology (batteries, monitors, equipment, sensors) in his body, about 1 m long, is protected by a 3D-printed shell. SlothBot moves only when necessary and will locate sunlight when its batteries need recharging.

Although still in a development phase, SlothBot has the potential to become an important tool in the fight against the loss of diversity, which will provide experts with a better understanding of abiotic factors that affect critical ecosystems.

Jelena Kozbasic

CARING FOR THE ENVIRONMENT SHOULD BE A LIFESTYLE

Traffic belongs to major air pollutants, and selection of the mode of transport is considered as one of the main factors of influence. We all have the opportunity to make that choice. At the same time, many countries in the world are recording a decreasing number of cars on the streets, which was additionally impacted by the current crisis caused by COVID-19 virus epidemic together with the benefits in the form of subsidies for the purchase of electric vehicles. Since it is estimated that every third vehicle in the world will be a hybrid or electric by 2025 and that China will be the market leader by 2040 with 14.5 million of such vehicles, we were interested in our status regarding the development of electromobility. We directed our questions concerning the investment in sustainable modes of transport in our country as well as the maintenance of the healthy environment and public health to Ivan Karic, the State Secretary of the Ministry of Environmental Protection.

EP ***How far have we come with regards to the development of new modes of transport and the introduction of electromobility in particular?***

Photograph: (background) Dragana-Nikolic; (on the next page at the top right) courtesy of Ivan Karic

Ivan Karic, State Secretary at the Ministry of Environmental Protection

Ivan Karic The traffic in big cities, especially during the so-called rush hours is without a doubt a significant contributor to air pollution, even though it is a fact that the primary sources of air pollution in Serbia remain the energy sector and the industry that uses fossil fuels. All modes of transport, whether individual or collective, whose propulsion is not based on fossil fuels, could contribute to a better-quality of ambient air. The decreasing number of cars on the streets during the COVID-19 crisis unequivocally contributed to better air quality in all world capitals.

Electromobility is becoming a necessity, and the Government of the Republic of Serbia is making an effort to promote the development and use of hybrid and electric vehicles, as well as the construction of the supporting infrastructure. As part of the implementation of measures for air quality improvement and with the aim to improve the quality of the environment, our government has passed a Decree which directly encourages the use of an environmentally friendly mode of transport. The right to a subsidised purchase of vehicles for legal entities and individuals has been prescribed by law. Subsidies apply to mopeds, light tricycles, motorcycles, passenger vehicles with a maximum of nine

"I am sure that we would very quickly recognise the benefits of investment in the environment through **the reduction of the health budget, fewer sick days** and, most importantly, through **the decrease in the number of premature deaths caused by pollution**"

IN EXPECTATION OF A LARGER NUMBER OF TREETOPS

According to the Spatial Plan of the Republic of Serbia, the optimal forest cover in Serbia should be 41 per cent. According to the Secretary of State, we are still far from that goal, and we need to work hard to increase the forest cover. He is sure that the Government of the Republic of Serbia will have the knowledge and will and money for that in the coming period, and the results of such an approach will be visible in a very short time.

"Let's take a closer look at the forest - it is a perfect ecological factory. It is an ideal habitat for many living things and is precious for humans. Using the carbon dioxide and water - so only natural raw materials, the sun, as the people call it "the Solar Furnace" as a source of energy, can produce significant amounts of biomass, with some "waste" in this production process called - oxygen! In this process, the trees will retain substantial amounts of dust from the air, favourably affect the circulation of water in nature, as well as atmospheric conditions - both weather and climate. It is enough to roam around the city in the summer and having walked the street without trees, you come across the street with a tree line. What you feel then – that's it!", Ivan Karic says.

seats and light trucks. All this can be found on the website of the Ministry of Environmental Protection.

The plan is to encourage innovation, particularly on the subject of urban mobility, as well as the development of new models of intercity transport for passengers and goods. I would say that river and railway transport have been neglected in recent decades, and not only in our country, but it is one of the initiatives of the European Green Plan. The construction of the railway to Budapest and the connection with Thessaloniki, on which the government is working intensively, will undoubtedly make a significant contribution to the reduction of carbon emissions, especially in the zone of Belgrade-Nis motorway, one of the vital Balkan roads.

EP ***Is there a plan to draft new regulations on incentives, particularly the co-financing the purchase of electric vehicles?***

Ivan Karic I am sure that in the coming period, we must contemplate new regulations that would include a wide range of hybrid and electric vehicles, as well as fuel cell vehicles. They need to include buses, trucks and other vehicles that are already widely used in Europe. Such incentives are favourable for the economy, business and affect the air quality, which is of major significance. Imagine what it would mean for public companies and city public transport to switch to alternative propulsion systems. How much savings it would bring to the business, and above all how much the air quality in the most polluted city streets would improve. Not only that but what is most important to me personally, is how much it would reduce the number of respiratory and other diseases, especially with children. I want to emphasise that the future must be without fossil fuels, and I am satisfied that Serbia is already preparing for that transition.

Ivan Karic The use of bicycles and walking is not only environmentally friendly but also a health matter of much more significance. Every individual within a society should be able to recognise the importance of protecting their health status. It can be achieved with mobility, physical activity, by walking, cycling or using public transport.

In order to achieve the goals of cycling mobility development in urban and rural areas, the Republic of Serbia has planned a significant number of bicycle paths, the so-called "bicycle streets", keeping in view the increasing number of electric scooters. The promotion of cycling in the mountains of southwestern Serbia aims to present the landscape diversity, unique multicultural heritage and the original local population, colourful and attractive local customs, which are interesting to visitors, all with the desire to discover the unexplored landscapes and experiences and not just as mere tourists. This is indeed a specific type of economic development, and many countries have adopted

Photograph: Marina Stancevic

Photograph: Dragan Holcer

a serious approach towards it. For us, the environmentalists, the improvement of health status that comes with it is equally important.

Within the principles of the circular economy, we should certainly think about mass purchases of bicycles through subsidies. From the remuneration for pollution from exhaust emissions from vehicles on fossil fuels, we should not only finance the purchase of bikes but also encourage their domestic production. We still remember factories and companies where people came to work exclusively by bicycle, and most of them were domestically produced. I am a great advocate of the safe return of bicycles to the streets of Serbian towns and villages, and I, myself very often use a bicycle as a means of transportation, but also for recreation with my family.

EP ***You participated in the establishment of the automatic monitoring station in Obrenovac for twenty-four-hour air quality monitoring and providing real-time information. What do you consider a key element in the fight against air pollution in Serbia?***

Ivan Karic The Ecology Fund of the Municipality of Obrenovac was one of the first local green funds in Serbia. Fifteen years ago, I was the Deputy Director of the Eco Fund, and I launched an initiative to establish a continuous automatic system for air quality monitoring, primarily due to poor environmental conditions in this city and the presence of large thermal power plants. I wanted the data to be available to all citizens, in real-time, 24 hours a day. The goal was to deliver complete daily information on pollution, similar to the reports on meteorological conditions, and I am glad that we succeeded in that. I can say that I am proud that we were the sole local government that has been doing that. We were monitoring the content of SO2, PM10, NOx and had an internet connection. After that, the electric power industry invested considerable funds in environmental protection.

I am confident that the installation of air quality monitoring stations across Serbia is the first and most important step, and not only for air monitoring but also surface and groundwater, as well as soil. Accurate and accessible information is the foundation in the fight against pollution, and we are achieving that due to modern technologies. Today, as part of the system which is monitored by the Ministry of Environmental Protection and the Environmental Protection Agency, there are more than 50 measuring points, which can be read in real-time. That is still an insufficient number; therefore, it is steadily increasing following the plans for the improvement and expansion of measuring points. After all, it is part of our obligations to meet environmental standards during negotiations with the European Union.

EP ***How can public reporting on the level of pollution contribute to a faster and more efficient solution to this problem?***

Ivan Karic The Government of the Republic of Serbia and the Ministry of Environmental Protection have set the timely and accurate reporting as one of the priorities in the coming period. The citizens of Serbia have the right to be aware of the conditions they live in, and we adhere to that. The public and media pressure can help us complete more quickly and successfully the environmental transition we have commenced. The awareness and knowledge that we

do not live in an ecologically ideal environment will help us accelerate the started processes and increase the government budget allocations to ecology in the following period. I am sure that we would very quickly recognise the benefits of investment in the environment through the reduction of the health budget, fewer sick days and, most importantly, through the decrease in the number of premature deaths caused by pollution. Therefore, we cannot regard investments in environmental protection as a cost any more, but as a modern patriotism in the fight for health and nature preservation of the country we love and live in.

EP ***The opening of Negotiating Position for Chapter 27 is a significant step towards an improvement of the quality of the environment in Serbia. In what areas can we expect help from the European Union the most? How does submitting this document to Brussels bring us closer to the standards we strive for?***

Ivan Karic The most significant environmental event in the previous period has been the preparation and sending of the Negotiating Position for Chapter 27 to Brussels. As the head of the Negotiating Group for Chapter 27, I can say that together with the team we have made an enormous effort to have the Negotiating Position with all its relevant annexes adopted at the session of the Government of the Republic of Serbia and submitted to the European Council. Serbia has thus created the condition for the opening of a critical chapter within the process of accession to the European Union.

The Negotiating Position is a complex document that contains 14 annexes that assess the current situation, propose legal, institutional and implementation measures, identify the necessary costs and the financing model, through which Serbia would be able to reach the standards in the field of environmental protection in the coming period. According to current estimates, investments in the waste and water sectors could reach around 7.5 billion euros. It is contemplated that such investments would be financed from EU funds (64 per cent), the state (18 per cent) and local budgets (4 per cent), as well as other funds and loans (14 per cent). To fully transpose all the necessary EU regulations into national legislation, it is essential to adopt about 130 additional legal acts in the period until the end of 2021. I see the legislative activity in the field of environment and regulation of legal frameworks as one of the most important, but also the most difficult tasks in the period that awaits us. I would like to point out that the opening of Chapter 27 is crucial because it should enable the promotion of sustainable development and the preservation of the quality of the environment for the present and future generations. Just imagine what kind of a country would that be if people left because of pollution. The establishment of environmental standards is essential to us because of ourselves, because of the people close to us,

and not because of EU membership. We have a responsibility to do the best we can.

EP ***Where do you recognise the greatest potential of Serbia in the fight to protect the environment? Would you say that afforestation is the most widespread measure of that struggle in our country?***

Ivan Karic Serbia's greatest potential is young, interested and educated people. The Ministry's competitions receive far more great ideas than our modest budget can finance. As far as afforestation is concerned, it is one of the most accessible, most efficient and cheapest forms of the fight to preserve and improve the environment. This may not be the most

Photographs: (top left) Florin Stefan; (middle right) Energy portal

important measure of environmental struggle. Still, due to the wide range of positive effects it brings, it is undoubtedly one of the key ones. Mass afforestation is also a form of fight against climate change because forests prevent erosion, soil run-off, torrents, floods ... In the postulates of the circular economy, it is recognised as a good solution for the rapid opening of green jobs. I will remind you that the biggest afforestation campaigns took place in the middle of the last century through the work actions that were popular then and which gave excellent results that can be perceived even today. We are now working on modern models of afforestation, which will employ the young and unemployed professionals, primarily through massive public works. These new approaches show that at the same time planted trees can be multifunctional - ecological, energy and anti-erosion effective. Afforestation has a long-term character, so I am happy to say that every newly planted tree is a gift to future generations.

EP ***How certain is a more drastic turning point towards renewable energy sources in Serbia in the coming years to reduce harmful gas emissions and switch to clean energy?***

Ivan Karic Serbia must turn to cleaner production. We are already facing emissions trading, carbon credits and major innovations in the energy sector. Some countries have become energy positive using renewables. We must not close our eyes either when it comes to energy transition and independence, or when it comes to renewable sources. However, a proper energy transition and transformation must happen and must be planned very carefully, so that we do not endanger the energy stability and independence at any moment. I think that this topic is one of the biggest challenges for Serbia. For institutions, scientists, innovators, the economy, educational institutions and civil society. Only by installing solar collectors on public facilities can we exempt hospitals, schools, the army, the police from paying for energy. That is a significant saving.

We must involve young and professional people because it is our duty to encourage innovation in this sector. We are the country that bore Tesla, Pupin, Milankovic and other scientists. As a "child" of the Petnica Research Station, I firmly believe that there are many more talented, smart people and experts among us, especially among young people, who love this country. Many international awards that our innovators receive, especially students, assure me of that. So here is a simple answer to your question: this must be our future, and I am sure we will not wait long for it.

Dealing with the environment is not just a social topic; it should be a lifestyle. During the pandemic, many citizens remembered having a house in the village, many returned there, renovated the garden, planted onions, tomatoes, lettuce. They noticed that their children changed, with rosy cheeks and fell in love with that natural space. This shows that we must give priority to the primordial connection between man and nature. If every foreigner who visits this Serbia of ours is delighted with what he sees, then we should be proud of that, but also preserve, improve and do something useful for our country every day.

Interview by Jelena Cvetic

WORK ON IMPROVING THE STATE OF THE ENVIRONMENT NEVER STOPS

The Republic of Serbia has enough money and resources intended for ecology that should be invested wisely, our interlocutor claims, and the main task is first to preserve the health of our citizens because without healthy people there is no healthy economy and no future of the state.

"When I say that there is 'enough' money, I mean the present moment and the necessary interventions. We need institutional and social changes in all areas of the environment and in all activities that, in any way, affect the quality of the environment. It is an area in which we simply must not come to a halt. The most developed countries in Europe are continually reviewing their documents, strategies, laws with criticism and are very effective when a problem arises somewhere. They do not even hesitate to say that they made a mistake. The European Green Deal document was published last year, which can be called strategic", Ivan Karic says, emphasising that it includes many solutions that we could say we had thirty years ago.

Fast Chargers for Faster Development of Electromobility

Electric buses and cars that are increasingly seen on the streets of European cities will be an everyday occurrence on our roads in the near future. Not only because of the environmental awareness of the citizens but also because of the fact that it will simply be a European standard. Many countries have already advanced far in the strategy of developing electromobility and in every way, motivate citizens to switch to this type of transport as much as possible. Of course, while developing the network of chargers in parallel, which is the most important precondition for driving your electric car, when you have already bought it, you can drive without interruption, without thinking about whether your battery will run out halfway and you have nowhere to charge it. Our country also has a strategy for the development of electromobility, which is why in March the Serbian government passed a decree on subsidised purchase of electric or hybrid vehicles, based on which, for example, a subsidy of 5,000 euros is approved for the purchase of a fully electric vehicle with up to nine seats. This is a significant help if we take into account that the prices of the average city car with electric drive range from 10,000 to 30,000 euros. However, the main obstacle for citizens to take advantage of this benefit is the insufficiently developed infrastructure network that would provide a sufficient number of chargers. Therefore, it should not be surprising that the Ministry of the Interior has so far registered a bit more than 200 electric passenger vehicles in Serbia. You can charge your electric car, via an ordinary single-phase socket, and at home, in the garage. But it will take seven, eight hours, and your range is limited until you return home. At several locations along Corridor 10, as well as at several places in Belgrade, there are electric chargers installed, but their number is currently insufficient. In essence, chargers as chargers are the smallest problem, especially since ABB has been operating in our country for 28 years, and is among other things, a world leader in the production of electric chargers, with the largest installed base of fast-charging stations for electric vehicles worldwide, and a partner of Formula E in international organisations for electric motorsports. They also offer 600-kilowatt chargers, which can charge the battery of an electric vehicle in just a few minutes. However, for our conditions, it is still science fiction. In the realm of reality, two fast chargers, Terra 53 and Terra 54, which ABB installed at the location of the Porsche SCG company in Belgrade and in the parking lot in front of its company headquarters, make the suffering of electric vehicles on our roads much easier.

All photographs: ABB

The power of these so-called fast chargers is 50 kilowatts, which means that you can charge the battery on it in 15 minutes to half an hour, or in one hour if the battery is completely empty. Forty-three kilowatt AC chargers are also available at these stations, where charging takes several hours, as well as DC chargers with direct voltage. So-called ultra-fast chargers, with a capacity of 75 to 600 kilowatts, which significantly shorten the charging speed, require much more energy than is currently available at our charging stations. Drivers of electric cars in our country are certainly already aware that ABB's fast chargers are located in front of the Hyundai representative office in New Belgrade, as well as in the Navak Center in Subotiste, which is 40 km away from Belgrade. In Navak, the fast charger will be used to test new models of electric cars. It is very important that the number of fast chargers grows, because the owners in many locations, where there is no long delay, expect the battery of the electric car to be recharged in a short time. In contrast, slow chargers are mostly installed in shopping malls, because it is calculated that users will spend more time in those places. As many as 16 slow AC chargers have been installed in Ada Mall, and while electric cars are being charged in the parking lot of this shopping centre, their owners can make purchases, complete tasks that they didn't manage during the workweek or spend time with their family, easily and without haste. Their electric cars will be ready to go. The expansion of ABB's network of fast chargers is also underway, as the implementation of new projects is expected to begin. Drivers will soon have at their disposal 3 high-power chargers, 175 kW, as well as 3 50 kW chargers, on the Novi Sad-Belgrade highway, at the Pan-Ledi charging station.

"It is certainly necessary to build infrastructure, provide energy, and of course, regulate all that with regulations so that we would have a developed network of chargers in the near future. Of all this, it is easiest to build infrastructure, but energy supply will be a problem when the use of electric vehicles becomes more widespread. That is why we should go in the direction of developing new types of energy, because, for example, chargers can also be powered by solar energy if a roof with solar panels is placed on them. This would give us the point of the whole story - that electric cars do not pollute the environment and do not consume the energy produced in thermal power plants that pollute the environment, but that the energy is obtained from wind generators or solar panels. In Serbia, that has been recognised, and work is already underway on the installation of wind generators ", says Dejan Desic, head of the Infrastructure and Transport segment at ABB.

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LJUBLJANA, THE CAPITAL OF BICYCLES, BEES AND GREENERY

The city government of the Slovenian capital defined the goals of sustainable mobility in 2007, and in the priorities, in accordance with the Plan for Sustainable Urban Movement adopted in 2017, they made an effort so that by 2027 citizens will mostly do their jobs by walking or using bicycles and public transport. Today, Ljubljana can boast of new and reconstructed bridges that shorten the walking distance for citizens, as well as well-maintained bicycle paths in the length of 300 km and electric vehicles for senior citizens.

The mayor of Ljubljana, Zoran Jankovic, an economist who was very successful in running the Mercator business system for several years, has been taking care of the direction in which the capital of Slovenia is developing for the last 14 years. How this destination in the future looks

Photograph: Doris Kordic

Photograph: Uros Hočevar

ZORAN JANKOVIC

The mayor of Ljubljana, Zoran Jankovic, was born in 1953 in the village of Saraoci near Smederevo, and he finished primary and secondary school in Ljubljana, where he graduated from the Faculty of Economics. He was first elected mayor of the capital of Slovenia in 2006 and has held this position ever since. Citizens trusted him for the fifth time in the elections two years ago, each time he won the first round with a large majority. Zoran Jankovic is also adorned with numerous flattering awards. The City of Mayors Foundation ranked him among the 25 best mayors in the world in 2012, and in the same year, he was awarded the recognition for the best mayor of the last decade in Southeast and Central Europe. During his tenure, the City of Ljubljana also received numerous awards, including World Book Capital 2010, the safest city in Southeast Europe, and according to research published in the magazine "Reader's Digest" - the fairest city in the world. Also, the Slovenian capital took fifth place in the category "The most digital place to live in Europe".

People usually take changes with suspicion, they prefer what is known, while change brings uncertainty and something new, unknown. Many people thought that the city centre would die if we stopped the motor traffic in it, and the opposite happened - the centre came to life again, became the centre of events and a favourite gathering place, like a living room, where various events take place. Today, there is almost no one who would like to return to the old, and many, especially the younger generation, do not even like, to which Ljubljana, under his leadership, aspires, and which goals have already been achieved, are just some of the questions to which Zoran Jankovic gave us exhaustive answers, in which the real refreshment was the absence of desire for any politicking.

EP ***How difficult is it for citizens to adapt to a new sustainable mode of transport?***

Zoran Jankovic In the beginning of my first term in 2007, we adopted the strategic document Vision of Ljubljana 2025, which outlined the direction of sustainable development of the city. This was the basis for all subsequent documents, including the Comprehensive Transport Strategy from 2017. At the beginning, it was not easy because it was necessary to change the established habits of the citizens.

"Ljubljana was the Green Capital of Europe in 2016. When awarding the title, the European Commission stated that we had achieved the most changes in sustainable development in the shortest time and that we were following our vision of development, which we had outlined in 2007. It is interesting that the title did not even exist at the time"

remember that a city bus used to pass there. In the centre of the city, we have intended more than 12 ha of area for pedestrians, and cycling is also allowed while respecting pedestrian precedence. In order to make it easier for elderly citizens and those who have difficulty walking, we have introduced 6 electric vehicles - cavaliers, which take them free of charge to their destination within the pedestrian zone. We are also proud of our electric train - Urban, which allows you to reach the most prominent areas of the city. We have reconstructed or built as many as 13 bridges over the river Ljubljanica and thus reduced the distance for pedestrians.

EP ***Ljubljana is one of the best cities for cyclists in the world. What contributed most, apart from the relief potential, to the development of cycling and the safety of cyclists in traffic?***

Zoran Jankovic We are proud of that, and we invest a lot in cycling infrastructure. With every renovation or construction of a new road, we must add bike paths. Last year alone, we allocated more than 20 million euros for the area of

traffic infrastructure, which also includes bicycle paths. We must not forget the very popular bicycle rental system - BicikeLJ, which has greatly contributed to the popularization of cycling, especially because the first hour of riding is free. And Ljubljana is a city where you can get from one end of the city to the other in just that time.

"We have arranged **more than 300 km of bicycle paths**, and for three years now we have been among the 20 cities in the world that stand out with their best-arranged bicycle infrastructure"

EP ***Ljubljana has 300 kilometres of bike paths. What are the further plans related to relieving traffic from motor vehicles?***

Zoran Jankovic We follow the models of the countries that are most developed in that area, such as Denmark and the Netherlands, in order to adapt and fit them into our space. As you have noticed, we have arranged more than 300 km of bicycle paths, and for three years now we have been among the 20 cities in the world that stand out with their best-arranged bicycle infrastructure. This is probably one of the reasons why the annual conference of the European Cycling Federation Velo-city was supposed to be held in Ljubljana this year, which was postponed to 2022 due to the situation with the coronavirus. One of the key moments in relieving the traffic happened when we disabled access to motor vehicles on the part of the main road, on Slovenski road, and rearranged it into a space for pedestrians, cyclists and public transport, in the so-called shared space. It means that each traffic participant must be careful and watch out for all other participants. We are also introducing a number of other changes that we want to alleviate motor traffic. In certain places we limit the speed to 30 km/h, we introduce one-way streets for motor vehicles, and those same streets become two-way for bicycles, at some intersections with

Photographs: (middle left) Unsplash/Bram Van Geerenstein; (top) N. Rovan

EP ***Since you introduced "BicikeLJ", the number of bicycles rented has reached more than seven million. In what way, a system like this, as a supplement to public transport, but also counters for cyclists, by promoting urban cycling, change the consciousness of citizens and help them in their decision to turn to green transport?***

Zoran Jankovic In addition to arranging infrastructure for bicycles, BicikeLJ, as a well-designed, simple and easily accessible bicycle rental system, is a magnet for even greater use of this means of transport. We try to enable our citizens to use alternative means of transport in various ways. We are building public parking lots P+R (park and ride) on the outskirts of the city, which citizens can reach with their vehicles, pay 1.2 euros for all-day parking and get a return ticket for public transport. In some of these parking lots, we have BicikeLJ checkpoints, and bicycle parking stands. There are 6 P+R parking lots in Ljubljana. During last year's visit of the representatives of the company "JCDecaux", who designed the bike rental system, we were pleasantly surprised by the information that Ljubljana is the first in the world to use BickeLJ. On average, each bike is used 8 times a day. We have 620 bicycles in that system, the first hour of renting is free, and more than 99 per cent of them are used.

Photograph: Unsplash/Bram Van Geerenstein

traffic lights we give priority to pedestrians and bicycles so that they get a green light before cars. At some at intersections, cyclists can be in front of cars. However, we must not forget that, as in everything, it is important to find the right measure. Until recently, cars dominated the public space, the situation is now changing, but we cannot completely exclude them. We will certainly continue to pursue our set goals towards sustainable development.

EP ***How did you manage to support the breakthrough of electric vehicles on the streets of the capital, and how did the development of the electric charger network go?***

Zoran Jankovic You probably know that Ljubljana was the Green Capital of Europe in 2016, which we are very proud of. When awarding the title, the European Commission stated that we had achieved the most changes in sustainable development in the shortest time and that we were following our vision of development, which we had outlined in 2007. It is interesting that the title did not even exist at the time. I always say that all cities should live by the principles of green capital if we want to save our planet for generations to come. As part of the Green Capital of Europe, we have introduced a so-called vehicle sharing system. "Car sharing" model of Avant2Go of the company "Avant car", which has exclusively electric cars in its fleet. The system is based on the principles of sustainable development and is among the first in Europe. There are currently approximately 120 electric charging stations in Ljubljana, set up by private companies in line with the city's strategy. This year, we were declared the second city in the world in the category of up to 750,000 inhabitants, which stands out with this model of "car sharing", which makes us especially happy.

EP ***Residents of Ljubljana are at most 300 m away from green areas, regardless of the part of the city in which they live, indigenous forests are represented on 46 per cent of the total area on the hills surrounding the city. In 2018, you arranged the largest bicycle park in Slovenia - KoloPark Fuzine - which, of course, is not the only one. To what extent is the combination of nature and physical activity implemented in the model of urban life and proved to be important for the health of the inhabitants?***

Photographs: (bottom right) Unsplash/Miha Rekar

Zoran Jankovic We are proud of the fact that in Ljubljana we have even more than 542 m2 of green space per capita, which puts us at the very top of Europe. Tivoli Park, our largest green oasis, is located in the heart of the city, and indigenous forests are located in many locations around. Anyone who wants can recreate in nature, in many places we have set up the exercise equipment, where everyone can choose the type of physical activity that suits them best. Also, we are arranging public playgrounds, and we have more than 200 of them, as well as the aforementioned koloparks with which we want to attract young people to ride bikes as much as possible. The combination of nature and urban lifestyle is essential, and according to the National Institute of Public Health, Ljubljana is better than the national average, which means that we succeeded to engage our locals in various sports activities.

EP ***It seems that bees are Ljubljana's favourites. They can be seen on the oldest inscription in the city at the entrance to the City Savings Bank, but also in more than 4,500 hives of Slovenian beekeepers. The beekeeping tradition has been present since ancient times. Can you tell us a bit more about the Bee Path network?***

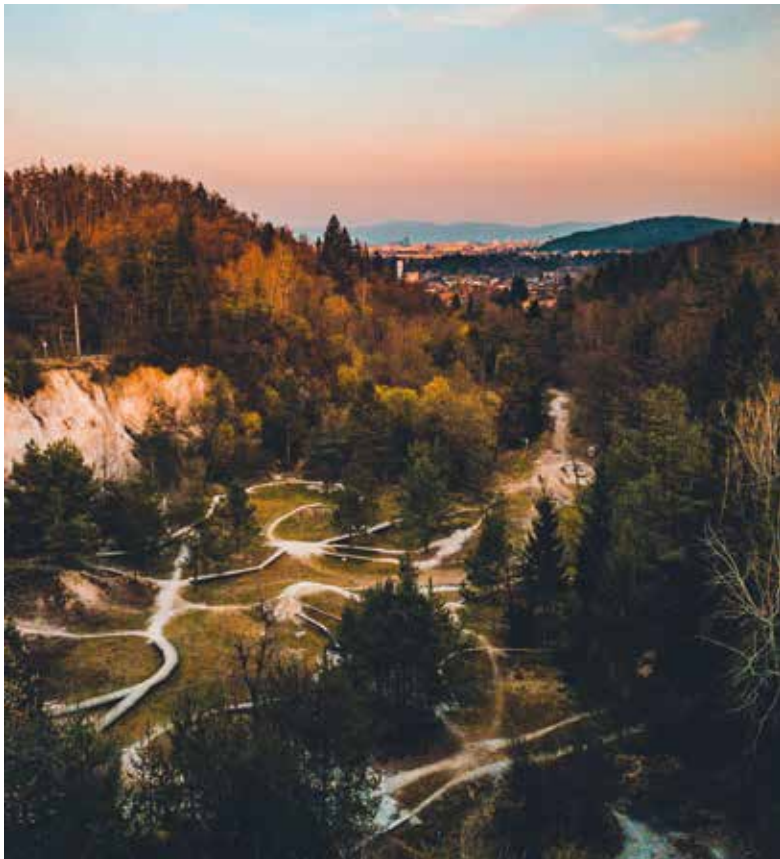
Ljubljana can brag with a flattering title that it **is the first and** (for now) **the only European capital with zero-waste**

Zoran Jankovic We are very proud that in Ljubljana we also take great care of diligent bees, so we have twice won the title of the most pleasant municipality for bees in the country. Already in 2015, we designed the Bee Path, which connects 35 members – from beekeepers, NGOs, educational and cultural institutions, various companies, to future individuals. All of them cooperate well with each other, and every year in the city centre, they present their various bee products to the public. We also have a special garden, so-called garden with honey plants that attract bees, where we educate our youngest from kindergartens and schools. This year, we cut the grass in some places a little later than usual, because we first waited for the bees to finish grazing. The honey that bees collect in Ljubljana is of very high quality, and we also give it as a protocol gift.

EP ***Ljubljana can brag with a flattering title that it is the first and (for now) the only European capital with zero-waste. How did you "earn" this flattering title?***

Zoran Jankovic Our citizens are the most successful in Europe in separating waste, which means that as much as 69 per cent of waste is already separated in the household. As much as a third of waste in Slovenia is disposed of and processed in the Ljubljana Regional Centre, which is the largest in the country. It is characterized by modern technology based on the model of sustainable development, so it serves as a model and example of good practice for many. We have visits from many countries around the world during which guests want to learn as much as possible about our way of waste management. We also pay great attention to the circular economy. One of the projects is Applause, which we apply to control invasive plants successfully, which we both process and make various things from, such as paper, wooden objects, paints, and some we even use to prepare meals. In addition, we have the Reuse Centre, where you can bring old things to be renewed, repaired and put back into use. It is very important for our entire future to live by the principles adopted in green capitals and to follow sustainable development in order to preserve our planet for new generations. We, in Ljubljana, are aware of this need and plan to follow a proven good model for a better future.

Interview by: Jelena Cvetic



Photographs: (middle left) JP Snaga; (bottom right) Unsplash/Miha Rekar

SUSTAINABLE TRANSPORT AND OPTIMISATION IN ENERGY CONSUMPTION

Dragan Buaca, MSc,
electrical engineer
Sales Director – Commercial Industrial Buildings

Urbanisation and sustainability

Researches show that by 2050, another 2.5 billion people will move to cities, which will be the largest migration of the population in the history of mankind so far. It will put enormous pressure on cities, especially on space that will be in shortage, while expectations in comfort will be higher. City planners will have to solve that pressure by introducing regulations on traffic control, encouraging citizens to use electric vehicles in densely populated city zones but also in optimising the use of energy, especially electricity.

Energy and transport are the two main pillars of these transformations, and both areas need to undergo serious adjustment to keep pace with demographic and economic growth but without increasing environmental pollution. Optimisation in energy consumption and sustainable transport are opportunities that companies, business leaders and global policymakers must use to increase the living comfort of the population around the planet while providing greater efficiency but also the expected and economic progress. The fourth industrial revolution provides a great opportunity to make that happen.

The mode of transport is changing

In an effort to reduce traffic and optimise car driving, some governments have introduced lanes for vehicles with more passengers (HOV-high-occupancy vehicle) in which the movement of vehicles with two or more passengers is allowed.

HOV lanes provide a strong incentive to transport more passengers by car, reducing travel time and costs (Ride-sharing). This mode of transport is developing rapidly, with estimates that by 2030, more than 25 per cent of all kilometres travelled in the world will be this way, which is an increase of 4 per cent compared to today.

On the other hand, due to the development of technology and environmental subsidies, the price of electric vehicles is falling, and it will become more accessible to citizens. The fact is that the costs of using electric vehicles per kilometre of the road will soon be significantly lower than the costs of using vehicles with internal combustion; and the increase in their use will lead to a reduction in pollution, but also a smaller number of traffic accidents. Very conservative predictions say that by the end of the next

Photographs: (Buaca) courtesy of Dragan Buaca; (other photographs) Schneider Electric

decade, every third car sold in the world will be electric.

Schneider Electric has recognised these trends and to achieve its ambition to reach net-zero operational carbon emissions by 2030. The company has joined The Climate Group # EV100 initiative which also includes the replacement of 14,000 company cars with electric vehicles. At Schneider Electric, they believe that electricity is the future of mobility, and the company desires is to show that in 10 years, the set volume of electric vehicles in its own fleet can be achieved quickly.

All of the above is just a hint of what will happen in the very near future. We will soon meet autonomous vehicles (AV) on the roads but also electric vehicles as part of the fleets of public services, and large companies will become a part of everyday life.

At the same time, the way energy is produced, distributed and used is changing

Global evolution in the development of energy systems is increasingly turning to cleaner, decentralised sources with energy that is generated, stored and distributed closer to end-users, using renewable energy sources and new storage technologies. At the same time, the technology will enable customers and operators of the power system to control where, when and how electricity is used and from which sources it is obtained. This will open new business models in the production, distribution and use of electricity, and as the use of electric vehicles and the need for energy to charge them will increase, it is clear that transport is one of the key links in the development of these models. These trends have the potential to complement each other and to actively contribute to making energy use and transport sustainable and making the cities we live in smarter.

A good charging network infrastructure is the starting point for sustainability

The infrastructure of the electric charger network should be developed along the highways, but also near the junctions of key roads and public transport stations. This is important for three reasons, and the first is to meet the need for the current demand for electric car charging resources. The second is to make electric chargers accessible but also easy

to find, and the third is to promote the use of electric vehicles for public and private needs.

It is necessary for electric chargers to be compatible with different types of electric vehicles, and also to be able to offer fast or standard charging, depending on the location where they are installed. For example, fast chargers are installed in parking lots or locations where retention lasts shorter (gas stations, highways, etc.) and users are willing to pay more expensive refuelling costs. On the other hand, standard chargers are installed in locations where the retention is longer, the charging period is longer, but there are also lower charging costs, or it is free of charge (public garages, hotels, shopping malls, office buildings, etc.).

Schneider Electric can offer both types of chargers, fast and standard. Today, there are about 100,000 electric vehicle charging stations in Europe, supplied by Schneider Electric. When it comes to Serbia and Montenegro, about 100 electric chargers have been installed so far.

A smart network of electric chargers that enables savings and sustainability

Once the charger infrastructure is installed, the next challenge is to connect all the chargers to the power system so that their use is easy and sustainable. For power system operators, a large network of installed electric chargers is a great opportunity to sell more electricity to consumers. Nevertheless, new, modern types of electric chargers connected to the power grid, provide an opportunity to increase the efficiency of that network, with a new approach in the use of electric chargers themselves.

The analysis of the needs of electric car drivers for charging vehicles leads to the conclusion that vehicles are charged with energy most often three times during the day, in the morning, during the lunch break and in the evening (night). For that reason, investing in full energy capacity (expected simultaneous power) for connecting each electric charger to the grid is very expensive and unprofitable, because not every electric charger is used at full capacity throughout the day. A much more pragmatic approach is to invest in a system of electric chargers that have the ability to store energy in their own battery modules.

The battery modules of such electric chargers can be charged during the day when the network is not loaded or at night (when the price of kWh is lower), and drivers will charge their cars directly from the network or from the battery module, depending on what is cheaper for them at that time. The charging station for electric vehicles can be programmed to select the charging period of its battery module when the tariff is most favourable during the day but also to allow the consumer to charge his vehicle at the best price, also depending on the part of the day when he charges it.

It was Schneider Electric, as a global leader in the digital transformation of energy management and automation

solutions at all levels of business, that recognised these trends and developed a comprehensive solution called EcoStruxure. It is a platform that provides complete cybersecurity and what today's systems often lack - complete analytics, monitoring and reporting at all levels, which allows the management of such complex charging systems for electric vehicles.

Use of green energy sources and return of excess energy to the grid

The concept of using electric chargers with own battery modules and the possibility of choosing when and from which source the battery modules will be charged, significantly affect the savings in the construction of electricity network infrastructure and power sources, because the need to build new resources is reduced (transmission network, transformer stations, etc.). On the other hand, organisations with large fleets that use electric vehicles can use solar or wind energy by charging the battery modules in their own electric chargers through solar panels installed on the roofs of their facilities. In this way, clean green energy is used to start electric vehicles.

For charging their battery module, smart charging stations for electric vehicles can use energy from the grid, but also solar and wind energy, depending on the conditions. By using advanced software solutions and artificial intelligence, it is possible to return the energy stored in battery modules to the grid if necessary. We conclude that smart charging stations for electric vehicles will be points connected to the power grid that will contribute to maintaining stability and help balance the needs in the power system.

In the future, we can expect that electric vehicles will also become decentralised points in the electric power system, which will be able to return the energy stored in their batteries back to the electric power network through smart electric chargers. Drivers will thus be able to, for example, charge their vehicles at night in their garages at the price of the night tariff for residential buildings, and during the day return some of the energy stored in the batteries of vehicles they do not need to the network at a commercial price. In markets that allow this, electric vehicles will practically become flexible energy points in the system, "batteries on wheels" capable of freely disposing of the energy they possess.

A good example is the pilot project launched in Denmark, where Enel and Nissan developed the first vehicle-to-grid commercial hub. With this project, electric vehicles are able to return to the grid energy worth about € 1,500 per year and thus help balance the system.

Prepared by: Tamara Zjacic

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THE FUTURE IS IN NUCLEAR ENERGY

Why are wind and sun as renewable energy sources less environmentally acceptable and economically less profitable than nuclear energy, and how much France as an example can help us in the strategy of developing the power system, explains Professor Milenko Djuric, PhD

Switching to the use of renewable energy sources, as a strategy for the future of the power system, is not such a simple task, nor it is applicable in every country. Since Serbia has used its hydro potential to a great extent, solar and wind energy are not as clean as it seems at first glance, and we cannot get rid of coal-fired power plants for at least another 30 years, one of our most eminent experts in power systems, Professor Milenko Djuric, PhD, a retired professor at the Faculty of Electrical Engineering, warns that we must be sober-minded in choosing a strategy for the future. As a small country, we cannot afford expensive experiments, which is why the professor suggests analysing France as an example, which has reoriented itself to nuclear power plants and produces twice as cheap electricity as Germany, which has invested in the development of RES.

EP ***Last year, we broke infamous records in air pollution in the capital during the heating season, and we are facing a colder time of the year. Is coal the only cause of the problem and do you think the scenario will be repeated this winter?***

Milenko Djuric I can't say anything about the whole of Belgrade because I don't have reliable data. I live in Vracar, near the church of Saint Sava. I walk around the whole neighbourhood walking my dogs, and last fall, I didn't notice that anyone got coal. However, the air was heavily polluted on several occasions in unfavourable weather conditions. I am convinced that the cause was the car traffic. I think that the age of cars contributes very little to the increase in air pollution. The main reason is the enormous number of cars that has surpassed the tolerable figure in Belgrade a long time ago. I believe that the environmental tax should be introduced on fuel, and not on cars because a parked car does not pollute the air.

Photograph: Unsplash/Trey Rops

EP ***European countries have come a long way in implementing plans to decarbonise power systems and switch to renewable energy sources. When do you expect that conditions will be created in our country to switch to this strategy operationally?***

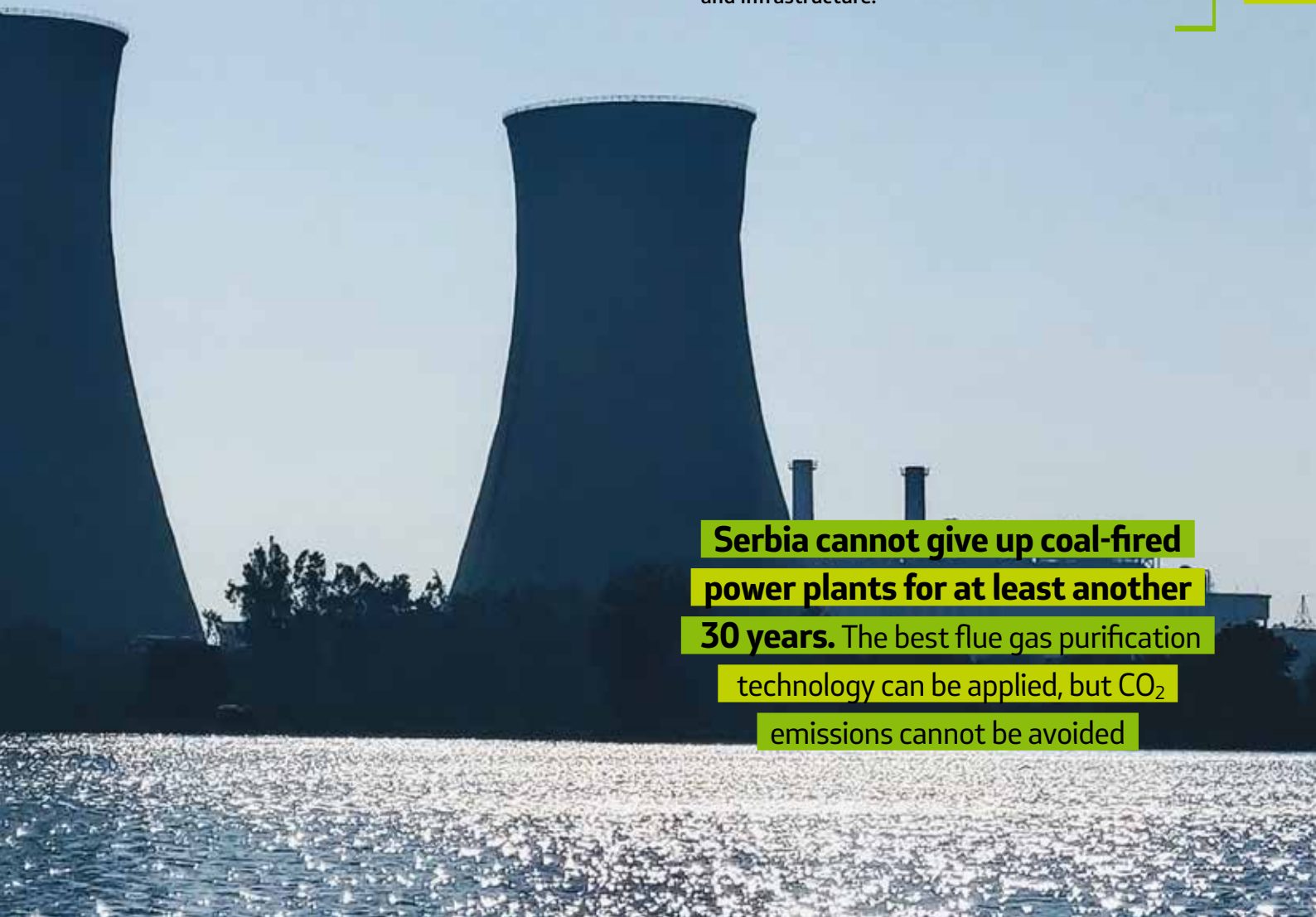
Milenko Djuric I believe that Serbia cannot give up coal-fired power plants for at least another 30 years. The best flue gas purification technology can be applied, but CO2 emissions cannot be avoided.

EP ***It was recently announced that the latest research is very encouraging because the results suggest that the profession can successfully exploit power systems with as much as 100 per cent of electricity production from RES. What does that practically mean?***

Milenko Djuric I'm not sure the information you provide is correct. Wind and solar power plants generate electricity of the worst quality because their production is of a stochastic character. Such sources require the existence of a basic electricity system that can cover the needs of consumption at any time, when the production of wind and solar power plants falls, which, unfortunately, can happen in a very short period.

EP ***Even children in primary school learn that our hydro potential is above the European average but insufficiently used. Do we have the potential for more large hydropower plants?***

PROF. MILENKO DJURIC graduated from the Faculty of Electrical Engineering in Belgrade in 1973, where he received his master's degree and then worked as an assistant trainee at the Department of Power Systems. During 1999, he was elected full professor. He also taught at the Faculty of Electrical Engineering in Pristina, Nis, Banja Luka and in East Sarajevo. Milenko Djuric deals with the following areas of power systems: stability of electric power systems, relay protection, distribution plants and overhead lines. He is the author of professional literature and monographs of national importance, and his co-authored works have been published in numerous international journals. According to the criterion of citations of papers published in foreign journals, the number of citations is about 500, and even one of his papers has citations of more than 100 times. Milenko Djuric has been a member of the Republic Audit Commission for twelve years, which controls the technical documentation for facilities of importance to the Republic, at the Ministry of Construction, Transport and Infrastructure.



Serbia cannot give up coal-fired power plants for at least another 30 years. The best flue gas purification technology can be applied, but CO_2 emissions cannot be avoided

Milenko Djuric The fact that children learn in primary school may have been true for the former Yugoslavia. The hydro potential of Serbia has been largely used. There is potential on the Ibar (those hydropower plants have been designed, but I don't know how far they have come in realisation) and on the Drina, where the potential will have to be shared with the Republika Srpska.

EP ***What is the future of mini hydropower plants in Serbia, from the aspect of cost-effectiveness, ecology, political will, and even the rights of citizens?***

Milenko Djuric The potential of mini hydropower plants is small, and from the aspect of the state, negligible. The environmental damage that can result from the construction of such facilities can be great, especially if it is allowed that investors' profit is the main driver for such investments. I think that the local population should be in charge of the potentials for small hydropower plants, on whose territory those potentials are located. That way, solutions that could damage the environment will surely be avoided.

EP ***What is the potential of Serbia for the production of solar energy and how much do we use it now?***

Milenko Djuric The potential of Serbia for the production of solar energy is quite large when you look at the surface of the whole country. However, one should be honest and say that solar energy is not as clean as it seems at first glance. Solar panels must be produced somewhere, and in the process, aluminium and other raw materials that use energy for production are used. There is also the question of putting aside the panels when they expire. Then, the power density of solar sources is small. One megawatt (1 MW) of power requires an area of about one hectare. For a capacity of 1,000 MW, 1,000 hectares of land are needed. The impact of the panels on that land is deadly to the living world. The only way to solve the energy problem in the world, even in Serbia, is to use nuclear energy. One 1,000 MW nuclear power plant occupies about 10 hectares of land. So, concerning the solar power plant, 990 hectares remain free for forests, meadows and the like. Nuclear energy is, in the ecological sense, the cleanest energy, certainly much cleaner than solar and wind.

EP ***There are more and more citizens who would like to install solar panels on their houses but complain that the procedure is complicated, they are informed that solar panels cannot be connected to the same installation from which the meter is powered. In Europe, the trend of prosumers is encouraged, but not here. Why?***

Milenko Djuric I cannot answer this question. If one thinks domestically, at the level of the household but also the state, it is clear that the installation of solar panels on roofs should be supported in every respect. Such solar sources do not occupy the land but are built on the location where some facility already occupies the land. This increases the functionality of the already occupied land, without endangering the environment in the slightest. I can only guess why the situation in Serbia is like this, but it is better not to make that assumption publicly because it would not be pleasant to those who pass regulations and rulebooks on the operation of the electricity distribution network, which is still state-owned.

EP ***Of all renewable energy sources, wind power generation in Europe has grown the fastest in recent years. How much potential do we have for this type of energy, how much is it used, and how much is wind energy profitable compared to other RES?***

Photograph: Pixabay

Milenko Djuric The situation with wind energy in Serbia is similar to that for solar energy. When considering Europe, one should always keep in mind that Europe has a seacoast with a shallow coastal sea, thousands of kilometres long. Serbia does not have that. Wind farms have a very unfavourable impact on the ecosystem if they are built on land inhabited by humans and animals. Wind power is of the worst quality. Wind farms require the existence of stable energy sources of exactly the same capacity. Therefore, wind farms only save energy but do not reduce the need to invest in stable energy sources. I repeat the only way to solve the energy problem is to use nuclear energy. Nuclear energy also has great stability in production.

Photograph: Jan Valo

EP ***It is clear to everyone that RES is the energy future but that it also requires the modernisation of the existing power system. What should be modernised in that system first?***

Milenko Djuric The electricity system cannot rest on RES, because the energy quality of RES is simply poor. This limits the future of RES. RES are not so harmless when it comes to their impact on the ecosystem. These are relatively new sources, and we haven't even begun considering their recycling.

The installation of high capacity of RES requires the construction of equivalent stable energy sources and the reconstruction and upgrade of the transmission and distribution network. All this requires large investments, which, when it comes to RES, are often not spoken of.

Our country is small, and we must not allow expensive experiments, so it is good to consider France and Germany, two developed European countries that have adopted different strategies in the development of the power industry.

France has focused on nuclear power plants and receives about 70 per cent of its electricity from this source. Germany imposed a moratorium on nuclear power plants and focused on RES. But Germany had large capacities in thermal power plants with coal mines that were at the end of the lifespan. So, Germany had a large base capacity whose lifespan they wanted to extend by replacing part of the energy using RES and thus extending the lifecycle of the existing thermal power plants. The German power system could accept the installation of high-capacity RES without having to invest in the base part of the power system.

The result of these two strategies is as follows: electricity in France is about twice as cheap as in Germany. This should be considered in Serbia as well. One should be soberminded. The problem of the power system should not be approached using the methods of religion. Things must be deeply understood if optimal solutions are to be reached, without a priori accepting or rejecting any possible path in the development of the power industry.

Interview by: Tamara Zjacic

PROTECTED AREAS ARE THE BEST "TOOL" FOR NATURE CONSERVATION

Headlines about the extinction of numerous plant and animal species have experienced the fate of the majority of bad news. They are multiplying and, unfortunately, drowning in a sea of information that fails to encourage society to take adequate action. Footage of endangered animals from our exotic areas once seemed far and foreign to us, but they managed to melt our hearts or worry us. Today, numerous plant varieties and animal species are slowly disappearing from our region, almost under our windows, in silence.

However, in order not to be in a situation to make sure if there will be someone to at least shed a tear for the last specimens of a species, it is necessary to determine to which local plants and animals, as well as habitats, endangerment or rarity criteria can be applied. The key step after the formation of such a database is to facilitate and ensure their long-term survival.

One such project is currently being implemented in our country called "EU for Natura 2000 in Serbia", with the aim of supporting activities for the conservation of biological diversity. It should help our Ministry of Environmental Protection and other competent institutions in establishing the first list of potential sites that will be included in the international ecological network of protected areas of the European Union. This largest network is known as the Natura 2000 network and consists of 26,106 areas classified into two categories, according to the Birds and Habitats Directive.

In most areas, **the survival of species and habitats may be entirely dependent on the man** and his activities

Although the development of a geographic information system for the Natura 2000 network in our country is underway, the main goal is not to form a list of locations. It is just the initial step. We asked Ana Iñigo, Team Leader of the "EU for Natura 2000 in Serbia" project funded by the European Union, why it is important for our natural areas to be part of this European network. The main goal of this project is to provide assistance to the Republic of Serbia in preparing for the establishment of the Natura 2000 network.

"Membership in the Natura 2000 network implies legal regulation following the Birds and Habitats Directive, European regulations that ensure the conservation of the most important habitats and species in Europe. This system enables the long-term survival of rare and endangered species and habitats thanks to the support of the European Commission and European legislation", says Ana, who with her team has been supporting our institutions in preparing a list of potential locations in Serbia for a year. She says the sites were chosen in a different way than it is done when declaring national parks or nature reserves.

"Among the main differences are the criteria for designating protected areas within the Natura 2000 network. They highlight specific habitats and species that are not always a priority in naming other protected areas, where different values of biodiversity or ecosystems can be preferred," explains Ana, adding that aims to ensure the conservation of all habitats and very rare species in Europe.

ANA IÑIGO

A biologist with more than 17 years of experience working on nature protection, Ana Iñigo is an expert on birds and has been a member of the BirdLife International Association for more than 15 years. She was born in Spain and has lived in numerous countries in Europe and South America. During her years of work, Ana has coordinated international projects, developed communication strategies, and tried to influence advocacy and environmental policy development. She is currently the Team Leader of the project "EU for Natura 2000 in Serbia".

Photographs: (on the previous page) Mihailo Rakonjac; (top right) courtesy of Ana Iñigo; (bottom right) Ljubica Stivic

From a socio-economic point of view, it is also important to emphasise that the Natura 2000 network does not exclude or limit the possibility of performing certain economic activities, such as agriculture and livestock. Quite the opposite. These activities are fully compatible with the purpose of these areas, as long as they do not endanger species and/or habitats.

When it comes to data on biological diversity in Serbia, Ana Iñigo points out that we have solid records. "A large number of institutions are developing various research and monitoring programs to obtain key scientific data, which are also important for naming Natura 2000 sites. However, there is no centralized database, and the main difficulty for institutions responsible for implementing and declaring Natura 2000 sites is the ability to access those data, as well as to determine the most relevant data in the central information system."

The project led by Ana Iñigo will contribute to nature protection in two very important ways. The first refers to data collection because the project largely includes such activities in the field, with the cooperation of Serbian experts who are part of the project. The second value of the project is the development of the Information System and the contribution to the development of the central database, which will facilitate the future process of implementing the Natura 2000 network.

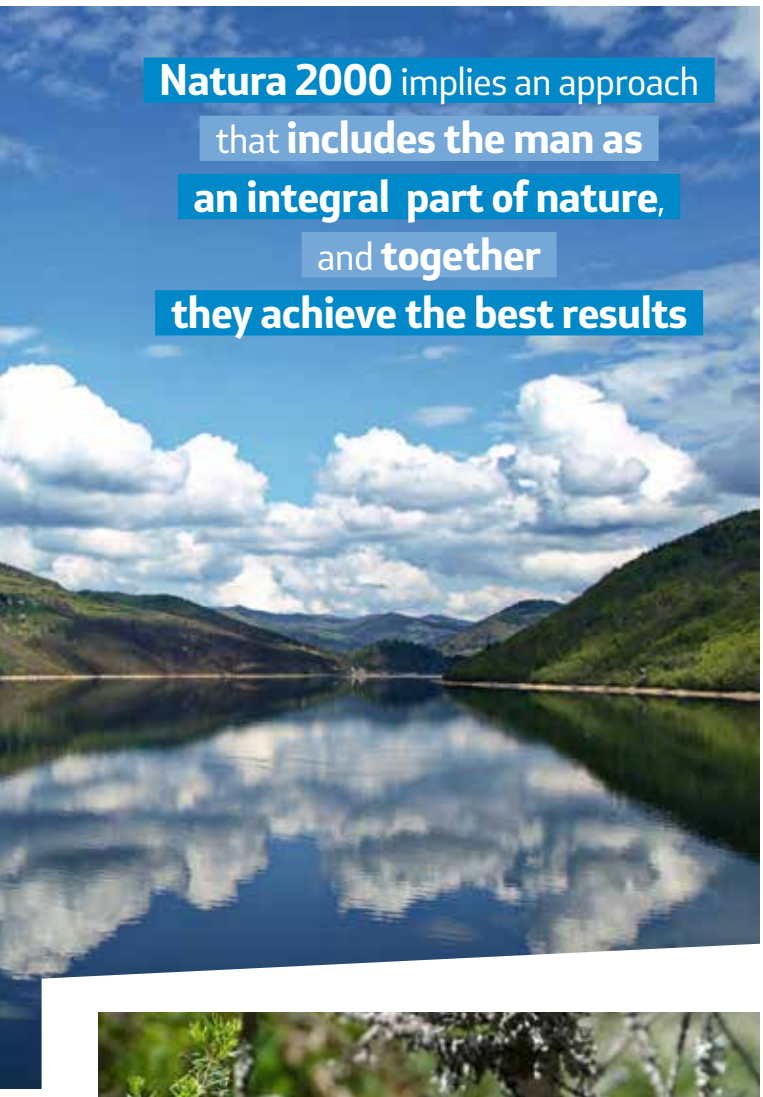
Asked about the criteria for selecting and including sites in the European network of protected areas, Ana Iñigo said that the member states themselves select sites according

to precise scientific criteria and that the selection procedure differs depending on which of the two Directives Birds or Habitats provides the basis to declare a location.

Based on the Habitats Directive (Articles 3 and 4), Serbia will designate Special Areas of Conservation (SACs) to ensure favourable conservation status for each habitat type and species in their territory. According to the Birds Directive (Article 4), the network must include Special Protection Areas (SPAs), which are set aside for particularly endangered species and all migratory bird species. Based on scientific data on the distribution, population, and representativeness of these species and habitats, Serbia will apply the criteria of the Directives in determining and selecting locations.

There is no reason for **landowners** to **see Natura 2000** as a threat but **as a new opportunity for activities** that will always be undertaken in accordance with the requirements for nature conservation

Photographs: (left) Natura 2000; (top) Vojislav Stanic



"I would like to point out that there is no reason for landowners to see this project as a threat but as a new opportunity for activities that they will always be undertaken in accordance with the requirements for nature conservation." This means that hunting will still be possible but only permitted species, and all sustainable agricultural activities will continue to take place. It is clear to me that this concept of sustainability can bring unrest among people. However, our obligation is to provide information to landowners and to consider all possibilities jointly", says Ana, and then explains the frequent reasons for not understanding this concept.

"People mostly bring nature conservation into direct connection with the protected natural asset and with a strict protection regime where activities are systematically restricted or prohibited. Natura 2000 implies a different approach that includes the man as an integral part of nature, and together they achieve the best results."

Although not all economic activities will be interrupted in Natura 2000 sites, in some cases some adjustments may be necessary to preserve species and habitats whose protection was the purpose of declaring a special area of protection or to encourage their restoration. In all other cases, normal activities will continue to run smoothly. In fact, in most areas, the survival of species and habitats may be entirely dependent on the man and his activities. With that in mind, Ana says that finding a solution that will continue to support and improve such activities will be essential.

Although it is early to discuss individual areas in Serbia that will be included in the Natura 2000 list, it is natural to expect that the current network of protected areas in Serbia will be included in the mentioned European group. When it comes to biological diversity, the biggest surprise for Ana was the fact that despite the intensive use of land, a surprisingly large number of species still survive in our country.

"In Serbia, there are species that do not grow in any other place, such as the beautiful flower Serbian Ramonda (Ramonda serbica). Other species growing in this region are also worth mentioning. This includes Pančić's spruce (Picea omorika), ie Serbian spruce, an endemic species whose natural habitat is the Drina river valley in western Serbia and eastern Bosnia and Herzegovina. It is a great value of these habitats and species that obliges citizens to protect and preserve them."

This is the purpose of the projects that are being implemented in our country, and among them is the one that Ana Iñigo has been leading for more than a year now. Although provided funding is the foundation of each project, she points out that without good governance, the participation of all actors, and cooperation with stakeholders, there is no long-term success.

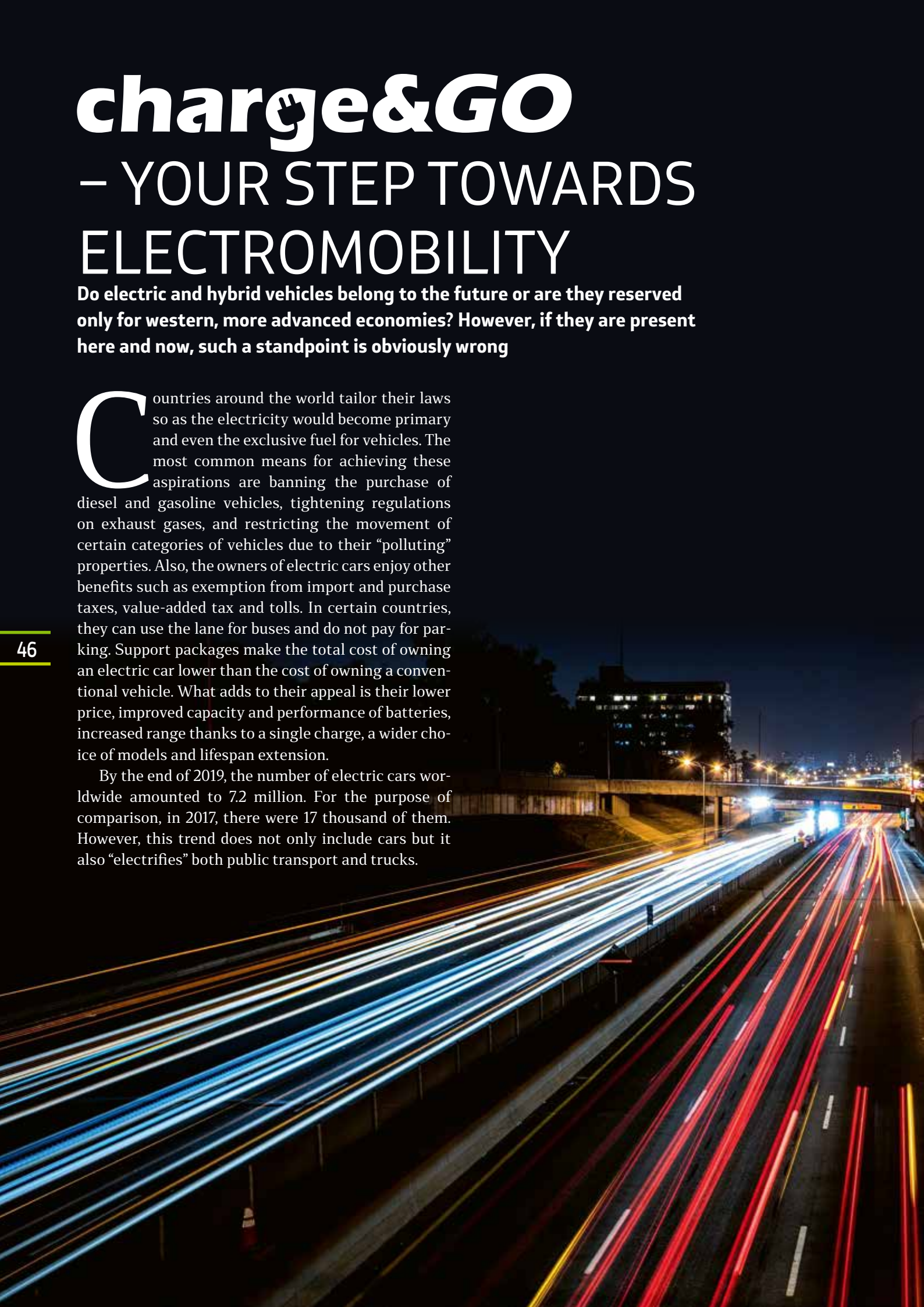
Photographs: Natura 2000

charge&GO – YOUR STEP TOWARDS ELECTROMOBILITY

Do electric and hybrid vehicles belong to the future or are they reserved only for western, more advanced economies? However, if they are present here and now, such a standpoint is obviously wrong

Countries around the world tailor their laws so as the electricity would become primary and even the exclusive fuel for vehicles. The most common means for achieving these aspirations are banning the purchase of diesel and gasoline vehicles, tightening regulations on exhaust gases, and restricting the movement of certain categories of vehicles due to their "polluting" properties. Also, the owners of electric cars enjoy other benefits such as exemption from import and purchase taxes, value-added tax and tolls. In certain countries, they can use the lane for buses and do not pay for parking. Support packages make the total cost of owning an electric car lower than the cost of owning a conventional vehicle. What adds to their appeal is their lower price, improved capacity and performance of batteries, increased range thanks to a single charge, a wider choice of models and lifespan extension.

By the end of 2019, the number of electric cars worldwide amounted to 7.2 million. For the purpose of comparison, in 2017, there were 17 thousand of them. However, this trend does not only include cars but it also "electrifies" both public transport and trucks.



Although Serbia has a reputation that it is always lagging behind the West, sustainable transport is slowly but definitely, being popularised in our country. As one of the levers for this progress, the Government allocated 120 million dinars (one million euros) to subsidy the purchase of electric and hybrid vehicles, to improve air quality and preserve the environment.

About 200 registered electric cars are now cruising throughout our country together with 1,500 hybrids.

For electric driving to come to life in this region, it is necessary to develop an appropriate charging infrastructure. To ensure that eco-alternatives to diesel and gasoline vehicles do not remain with "empty batteries", we surely need electric chargers.

Four Tesla superchargers, which were installed at the beginning of the year in the parking of Ikea department store in Belgrade, are in favour of replacing diesel and gasoline with electricity, as well as the announced expansion of charging capacities on domestic highways.

The company MT-KOMEX, as one of the leaders in the shift towards electromobility in our country, has recognised the need of the market for installed chargers to be connected in one integral set, so that drivers could find a place to recharge their electric cars more easily. As you might guess, unlike gas stations, there are no electric chargers on every corner. This idea has been put into practice in cooperation with the Finnish company Virta, which is the world's leading vehicle-to-grid technology provider. This is how **charge&GO** has emerged as the first regional platform for charging electric vehicles, which will include neighbouring countries in addition to Serbia.

MT-KOMEX encourages all interested companies to include their chargers in the charge&GO network

ELECTROMOBILITY IS NOT GREEN WITHOUT GREEN ENERGY

Even though electric cars do not emit greenhouse gases, many experts point out that these vehicles are an insufficiently clean alternative to diesel or gasoline vehicles in countries whose energy mix relies heavily on coal. Serbia is among them. Although electric cars do not emit pollution on roads, they indirectly participate in the emissions in Kostolac. MT-KOMEX is also trying to change that, by building more than 4,000 kW of small solar power plants across the country and region.

How does charge&GO work?

The software allows users to quickly find the nearest charger within charge&GO network, as well as vacant charging stations. In just a few clicks, electric car drivers can book the desired charger. They need to create an account on the platform for "booking", and when they do, they get the opportunity to use other benefits such as lower price. Unregistered users of charge&GO, use charging points for their four-wheelers with a one-time payment. Of course, there is always a possibility to register and use the platform with the mentioned benefits.

As of October, a mobile app for iOS and Android mobile platforms is also available, which will make charging even easier since drivers will be able to start charging process faster and easier by merely selecting the charger on the map.

Apart from the fact that users will be able to move around the country and the region without any worries, thanks to the cooperation of MT-KOMEX and Virta, they will have electric chargers in 28 countries around the world that are part of this global platform at their disposal. And without the additional cost of roaming!

Prepared by: Jelena Kozbasic

ABOUT MT-KOMEX

MT-KOMEX company offers its clients expertise, security, and reliability based on 27 years of experience. In the past ten years, they have gradually complemented their core business thanks to their participation in the branching of the charging network for electric vehicles, as well as in numerous power plant construction projects. Along with technological changes in various industrial sectors, they were also adopting new skills and knowledge. Employees are trained to install chargers, both in smaller residential and business units and in larger facilities with more demanding infrastructure, in parking lots, gas stations and corridors and highways.

Their skills are evident, and it is enough to take a look at their portfolio – they earned the trust of car manufacturers and their representatives such as BMW, British Motors, Hyundai, Fiat, Renault as well as public garages, hotels, shopping malls and gas stations on Serbian highways.

It is quite possible that you will also recharge your electric vehicle on their electric charger which you have reached through charge&GO platform.

"We are sure of ourselves, and that is why you can be sure about us", is the message of MT-KOMEX.

Photograph: Unsplash/Guillaume Jaillet

TASMANIAN DEVILS RETURN TO AUSTRALIA'S MAINLAND AFTER 3,000 YEARS

The world's largest surviving marsupial carnivore, the Tasmanian Devil, has been returned to the wild on Australia's mainland for the first time in 3,000 years.

Actor couple Chris Hemsworth and Elsa Pataky joined conservation groups last month to release 11 of the animals into a wildlife sanctuary in New South Wales, with more releases to follow.

Devils, the size of a small dog and made famous by the fierce Looney Tunes cartoon character known as "Taz", were listed as endangered on the United Nation's Red List in 2008.

It is the "the first time in 3,000 years, or thereabouts, that the Tasmanian Devil has roamed mainland forests and as an apex predator, it's critically important," said Tim Faulkner, president of conservation group Aussie Ark.

Aussie Ark, which has worked on the programme with Global Wildlife Conservation and WildArk, has been breeding young devils and plans to release 20 more next year, and another 20 the following year.

Faulkner said it was a "monumental" moment in rebuilding Australia's ecosystem.

Tasmanian Devils were wiped out from the mainland after being hunted by dingoes, a pack animal, and have been confined to the island state of Tasmania.

Australia has the worst mammal extinction rate in the world, and the re-introduction will help re-balance the ecology that was damaged by the introduction of invasive predators, Faulkner said.

Source: weforum

NIŠ AND SOMBOR RECEIVE 600 GLASS RECYCLING BINS

Niš and Sombor will be the first cities to receive about 600 bins for collecting glass packaging, as a donation from NALED and German Development Aid, in order to improve the primary selection of waste at the local level.

Recycling one ton of glass reduces air pollution by 20 per cent compared to the emission of gases during the production of a new one, and great savings in water and energy are achieved. Today, most of it ends up in landfills, where this type of packaging takes more than 5.000 years to decompose.

Due to shortcomings in waste management at the local and national level, the amount of glass packaging collected that operators take over is small and unprofitable for recycling. The main reason is the high transport costs to other countries because there are no capacities for complete processing in Serbia.

"In Serbia, between 320.000 and 350.000 tons of glass packaging are placed on the market annually, which means that 51 kilograms of packaging waste are generated per capita. Compared to other waste, glass is heavier, so transportation costs are significantly higher, which reduces the value of glass as a recyclable resource. Increased quantities of collected waste would lay the foundation for a more cost-effective treatment and reuse of recycled glass in the region", says Slobodanka Cucic, Vice President of NALED's Environment Protection Alliance and Corporate Affairs Manager at the Apatin Brewery.

The goal of the project is to increase glass recycling in the pilot municipalities by 20 per cent, and by 2022 the network is expected to expand to other local governments.

Currently, 43 per cent of glass from the total annual quantities placed on the market is collected in Serbia, while the EU countries' average is 60 per cent.

Source: NALED

Photographs: (left) Unsplash/Li Aan Lim; (right) Unsplash/Andrew Ridley

A HIGHER-YIELD RICE VARIETY MOVES MADAGASCAR FURTHER ON THE PATH TO SELF-SUFFICIENCY

Madagascar has a rich history of rice cultivation. For the Malagasy people, rice is a core part of their diet: many families eat it three times a day, and most of it is homegrown. On special occasions, Ranonapango may be served – a traditional drink made from toasted rice and boiling water.

In Madagascar, however, people earn less than US 1.90 per day on average, and the Malagasy population is severely affected by food insecurity, including food shortages. Domestic production of rice, for example, still does not meet the needs of the island, and the country has to rely heavily on imported rice to help ensure national food security.

Hopefully, not for much longer, however: Madagascar has set itself the goal of being rice self-sufficient by the end of 2020.

To work towards this, an FAO South-South Cooperation project began in late 2019 between China and Madagascar. Chinese experts on rice production came to Madagascar to introduce a greater-yielding type of rice, as well as to provide training to farmers on how to grow and harvest it.

The new kind of rice seeds is better suited to the Malagasy subtropical climate, which consists of a hot and rainy season between November and the end of March and a cooler dry season from May to October. This Weichu rice variety has been especially developed to fit the climatic and soil conditions of Madagascar.

Across three areas of the island, 124 rice farmers took part in the project, working together with a Chinese expert team, to benefit from both theoretical and field training on rice cultivation. So far, the participants are happy with the results.

To date, the harvest has yielded approximately 8.45 tonnes on average per hectare compared to the 2.8 tonnes per hectare that was harvested before the project.

Source: FAO

Photographs: (bottom left) Unsplash/Markus Spiske; (top right) Unsplash/Eduardo Prim

JUST HOW MUCH IS THE EARTH HEATING UP?

Data from NASA shows the Earth gradually heating up since the late 19th century. Since the year 2000, this trend seems to have accelerated, as shown in the visualization of the data released. August 2020 was about 2.14° C hotter than the average month recorded on Earth since 1880.

As seen by the monthly temperatures of selected years since 1880, winter temperature is naturally below the multiyear mean of the reference period, which is a single figure showing the monthly mean temperature over a long period of time irrespective of seasons. Summer temperatures are naturally above the base period multiyear mean but have been diverging further and further from it.

As confirmed by NASA and NOAA, the months from February to April as well August 2020 were the second-warmest of their kind ever recorded, while January and May and July 2020 about tied for second place.

Scientists at NOAA are projecting that 2020 will become the second-hottest year ever recorded. As of now, 2016 exceeded the Earth's mean temperature most (calculated for the years from 1980 to 2015 and used as a reference period for the chart). 2019 was also really scorching and is currently the second-hottest year on record.

The global data for near-surface temperatures comes from onshore weather stations as well as from ship, buoys and satellite measurements of the oceans. According to scientific findings, the continuing global warming will lead to changes in the strength, frequency, spatial extent and duration of extreme weather events.

Source: weforum

THE DUKE OF CAMBRIDGE HAS JUST LAUNCHED THE EARTHSHOT PRIZE

The Duke of Cambridge launched a multi-million-pound environmental prize, teaming up with celebrities from around the world, to launch a prize aimed at tackling the world's climate problems.

The Earthshot Prize will award five one-million-pound prizes each year for the next 10 years under the categories of protecting and restoring nature, cleaning our air, reviving our oceans, building a waste-free world, and fixing our climate.

Dozen global celebrities will join the Earthshot Prize Council to decide the winners.

Prince Philip and Prince Charles have both spoken for decades about the importance of conservation and the impact of climate change, years before such ideas became mainstream.

The Duke told BBC Radio it was now his responsibility to take on that baton because the world was at a tipping point and he owed it to his children and grandchildren to leave the world in a better condition.

"I really feel that we are at a tipping point. By 2030 we really hope to have made huge strides in fixing some of the biggest problems the Earth faces" he said.

The Earthshot Prize is about harnessing optimism and urgency to find solutions to some of the world's greatest environmental problems.

Nominations open on 1 November ahead of the first awards ceremony in the autumn next year. Further members of the Earthshot Prize Council will be announced in the coming months.

Source: World Economic Forum

VEGAN LEATHER MADE FROM MUSHROOMS COULD MOULD THE FUTURE OF SUSTAINABLE FASHION

Fungus-derived leather technologies were first patented by US companies MycoWorks and Ecovative Design about five years ago.

These technologies take advantage of the root-like structure of mushrooms, called mycelium, which contains the same polymer found in crab shells. When mushroom roots are grown on sawdust or agricultural waste, they form a thick mat that can then be treated to resemble leather. Because it's the roots and not the mushrooms being used, this natural biological process can be carried out anywhere. It does not require light, converts waste into useful materials and stores carbon by accumulating it in the growing fungus.

Going from a single spore to a finished "fungi leather" (or "mycelium leather") product takes a couple of weeks, compared with years required to raise a cow to maturity. Mild acids, alcohols and dyes are typically used to modify the fungal material, which is then compressed, dried and embossed. The process is quite simple and can be completed with minimal equipment and resources by artisans. It can also be industrially scaled for mass production. The final product looks and feels like animal leather and has similar durability.

Commercial products made with fungi-derived leather are expected to be on sale soon. Prototypes were released last year in the US, Italy and Indonesia, in products including watches, purses, bags and shoes.

And while these fundraiser items were a little pricey – with one designer bag selling for US$500 – manufacturing cost estimates indicate the material could become economically competitive with traditional leather once manufactured on a larger scale.

Nonetheless, using creativity to harness new technologies can only be a step in the right direction. As the world continues its gradual shift towards sustainable living, perhaps seeing progress in one domain will inspire hope for others.

Source: World Economic Forum

Photographs: (left) Unsplash/Li Aan Lim; (right) Unsplash/Andrew Ridley

IS IT POSSIBLE TO GROW BERRIES UNDER SOLAR PANELS?

Together with its Dutch subsidiary, GroenLeven, BayWa r.e. has now built one of Europe's largest AgriPV projects at the Piet Albers fruit farm in Babberich, as well as four new test projects across the Netherlands.

Stephan Schindele, Product Manager AgriPV at BayWa r.e., said: "Following the success of our pilot project last year, we have now expanded the project to increase its size to 2.7MWp, this latest extension to the project involves the installation of 10,250 solar panels across 3.2 hectares of raspberry crops, generating enough clean energy to power close to 1,250 households. Careful monitoring throughout the pilot study showed that the climate under the panels is in fact, more stable than under traditional plastic arches. The panels created a more favorable lower temperature and better protected the crops from the weather."

The successful AgriPV project had to overcome a number of challenges in its development.

Piet Albers, the berry producer, confirms: "The solar panels are a more sustainable form of protection for the crops. Whereas previously we used traditional plastic arches, these had to be removed yearly, tore in strong winds and were thrown away every six years. Hail and extreme heat also remained a risk, but with the solar panels, we are no longer affected by this, and at the same time, we also generate green energy."

Alongside to the AgriPV project at the Piet Albers fruit farm, GroenLeven has teamed up with Wageningen University (WUR) to investigate four additional test projects which involve other berry crops including red currant, blueberries, blackberries and strawberries.

"Our new study will investigate the effect of the solar panels on these soft fruits and sensors will monitor the climate under the panels. In addition, we will monitor the plants' health and fruit growth", explains Stephan Schindele.

The ultimate goal is that through research and monitoring, the BayWa r.e. AgriPV projects will not only promote the use of solar panels with crops but show that they actually improve the quality of the fruit and reduce the cost of its production. A win-win for the agricultural and renewable sector – together against global warming.

Source: BayWa r.e

Photographs: (bottom left) Unsplash/Jason Leung; (top right) Unsplash/Cecilia Par

HONEY BEES FEEL STING OF VIRAL DISEASE

There's nothing new in nature. Viruses have been around for as long as plants and animals, if not longer. Most viruses are benign to humans and other animals and in fact, are essential for life. Some—as humans are finding out with COVID-19—have negative consequences.

Chronic bee paralysis is a well-defined viral disease of honey bees across the world. Until recently, according to a study in Nature Communications, it caused rare, but severe, symptoms, including colony loss. While the vast majority of pollinator species are wild, including more than 20,000 species of wild bees, the mass breeding and large-scale transport of pollinators, such as honey bees, can pose risks for the transmission of pathogens and parasites, says Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

The study finds that the global trade in honey bees has expanded massively, owing to their use for managed pollination and honey production. This trade can also increase the geographic distribution of viral, bacterial and fungal honey bee parasites and pathogens. Consequently, it could increase the prevalence of emerging infectious diseases, some of which have been implicated in large-scale population (colony) losses.

Chronic bee paralysis has a worldwide distribution, with a recent increased incidence reported in Asia, Europe and North America, the study adds.

Bees are important pollinators, and pollination is a fundamental process for the survival of our ecosystems. Nearly 90 per cent of the world's wild flowering plant species depend, entirely, or at least in part, on animal pollination, along with more than 75 per cent of the world's food crops and 35 per cent of global agricultural land. Not only do pollinators contribute directly to food security, but they are key to conserving biodiversity.

To raise awareness of the importance of pollinators, the threats they face and their contribution to sustainable development, the United Nations designated 20 May as World Bee Day.

Source: UNEP

WATER, OUR ALLY IN ADAPTING TO CLIMATE CHANGE IN THE WESTERN BALKANS

The Western Balkans are highly prone to climate change, affecting water resources, while predictions indicate increases in extreme weather events leading to repeated disasters

In times of crisis, such as the one we are facing right now due to COVID-19, proper hygiene and access to clean water are crucial. Just as important is a set of measures that adequately addresses the challenges faced by society. This holds true for emergencies of public health as much as for other types of societal challenges and disasters.

While increased focus over the last few weeks and months has been placed on adequate protection from the pandemic, achieving long-term resilience requires a closer look at the numerous related challenges that affect ecosystem health and societal wellbeing across different regions. These challenges are often exacerbated by climate change.

According to the European Environment Agency report on Climate change, impacts and vulnerabilities in Europe, south-eastern and southern Europe are considered highly prone to climate change effects. This means that the region faces the highest impact of climate change with a number of sectors and domains severely affected, including water resources and related ecosystems as well as water infrastructure. Climate change projections for the Western Balkans indicate increases in extreme weather events over the next decades. Land-use changes are predicted to be the dominant factor in determining water availability in the short-term, while the intensity of climate change is likely to become the principal factor over the long-term.

The International Panel on Climate Change (IPCC) also identified the Western Balkans as one of the most vulnerable areas in Europe. The region will face rises in temperature larger than the European average, changes in precipitation patterns, leading to increased flood risk, extended periods of drought, soil erosion and forest fires. Climate change will most probably increase negative impacts, resulting in significant habitat, human and economic losses. The floods in 2014 demonstrated that the region is not prepared nor adequately equipped to deal with the increasing dangers posed by climate-related impacts. Although improvements in flood prevention and protection systems have been made since 2014, more recent flood events in 2019 and 2020 showed that more needs to be done to adequately address floods and related disasters.

Rivers are considered one of the most productive ecosystems and important biodiversity areas and play a vital role in the life of humans providing key ecosystem goods and services. The Aoos/Vjosa River in Greece and

All photographs: IUCN

South-eastern and southern Europe are facing the highest impact of climate change with **a number of sectors and domains severely affected, including water resources and related ecosystems** as well as water infrastructure

Albania, for example, is of regional and even European importance. However, this unparalleled resource of outstanding natural and social values is threatened by the construction of about 40 hydropower projects endangering the entire ecosystem. If these plans are materialised they will transform the water catchments into a chain of accumulation lakes, interrupting any natural river flow and biodiversity functions. The project "Saving Europe's last free flowing wild river – Vjosa/Aoos" is currently working towards the prevention of the devastating developments aiming also to designate the river catchments as a transboundary protected area.

Managing competing ecosystem and societal needs and priorities is a key challenge when balancing human wellbeing against ecosystem health and biodiversity conservation. A vision for conservation of biodiversity and ecosystem services in the Vjosa catchment area is being developed to enable the protection of critical freshwater ecosystems and at the same time support local communities' livelihoods through safeguarding the provision of vital ecosystem services.

Decisions need to be taken now that will determine how the region will respond to the challenges that lie ahead. Nature-based Solutions can provide a cost-effective, no-regret solution to reduce disasters and increase societal resilience, while producing other benefits, such as increased ecosystem health (e.g. cleaner water). Such solutions can take various forms. The goal is to protect and sustainably manage ecosystems in the first instance, while it may also be necessary to take restoration or re-creation actions. A new IUCN initiative – ADAPT: Nature-based Solutions for resilient societies in the Western Balkans – helps countries to tap into the power of Nature-based Solutions in the Western Balkans by generating knowledge, demonstrating the application of such solutions through pilot projects and building capacities in order to make the case for increased linkages between water resources management, climate adaptation, ecosystem services and related biodiversity benefits. The recently launched IUCN Global Standard for Nature-based Solutions provides an important common framework, setting clear parameters to define and guide Nature-based Solutions interventions.

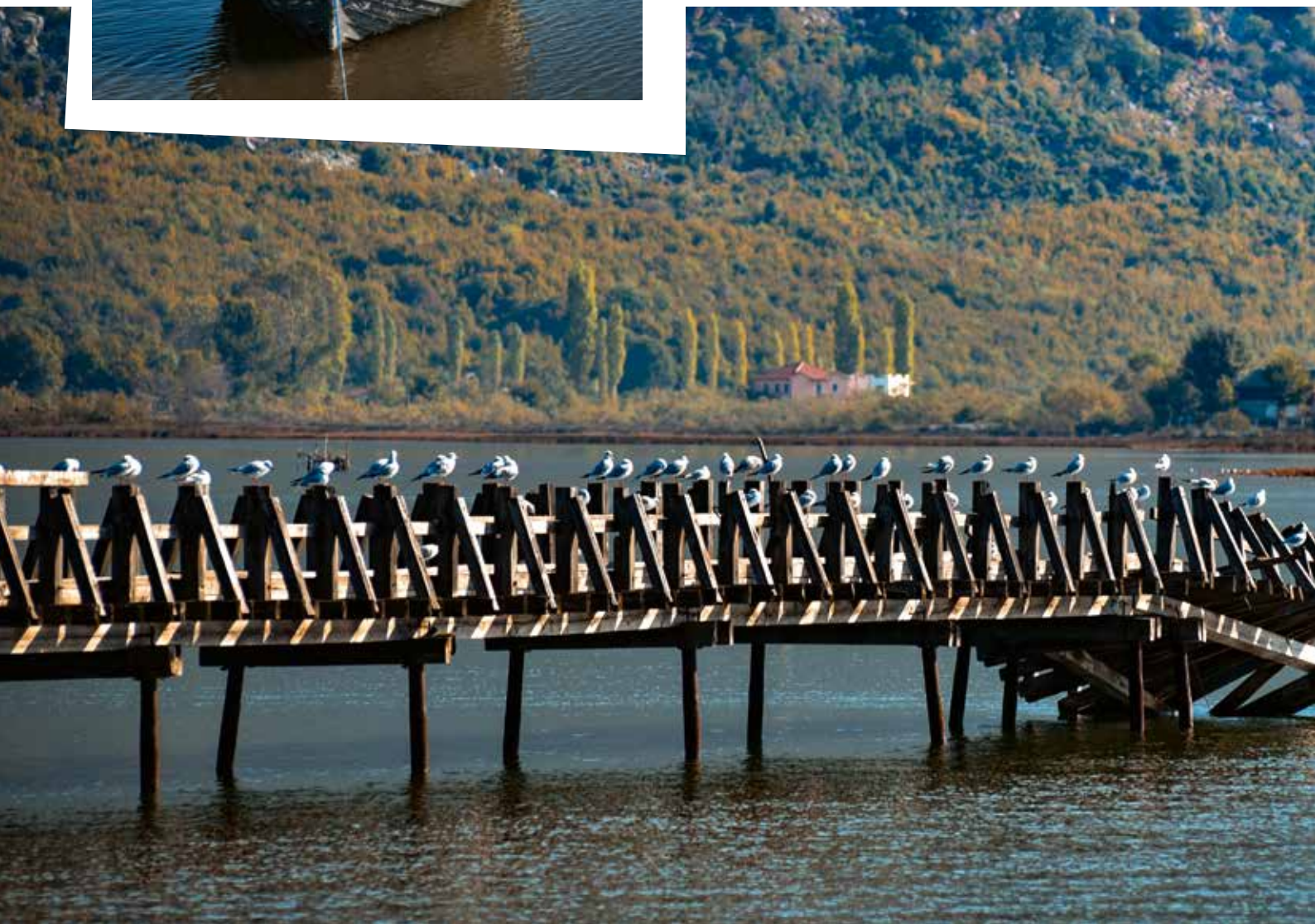
One example of a Nature-based Solution involving the water sector are wetlands. Wetlands, all over the world offer invaluable benefits for nature and human beings, but at the same time, are among the most fragile and threatened ecosystems declining at an alarming

rate. In the 20th century, between 64-71 per cent of wetlands have been lost globally. The protection and restoration of wetlands is critical as they perform various roles and provided essential services, including cleaning the water that flows through them, mitigating floods and weather extremes, such as storm surges in coastal areas, recharging aquifers, providing fisheries for local communities, water for agriculture and rich habitats for wildlife. More recently, wetlands have become more popular ecotourism destinations, providing spaces for inspiration, education or simply recreation.

To take advantage of the full spectrum of benefits, actions need to be taken to preserve wetlands of high ecological values. These actions should create an enabling environment for sustainable conditions and uses of these ecosystems, through the mechanisms of good, effective and equitable governance. The "Mediterranean Coastal Wetlands: Governance Handbook", developed as part of the overarching initiative of the MAVA Foundation "Coastal Wetland Action Plan", is designed as a practical guide for the governance of coastal wetlands around the Mediterranean and gives wetland managers online planning tools filled with innovative solutions and useful tips to achieve excellence in governance.

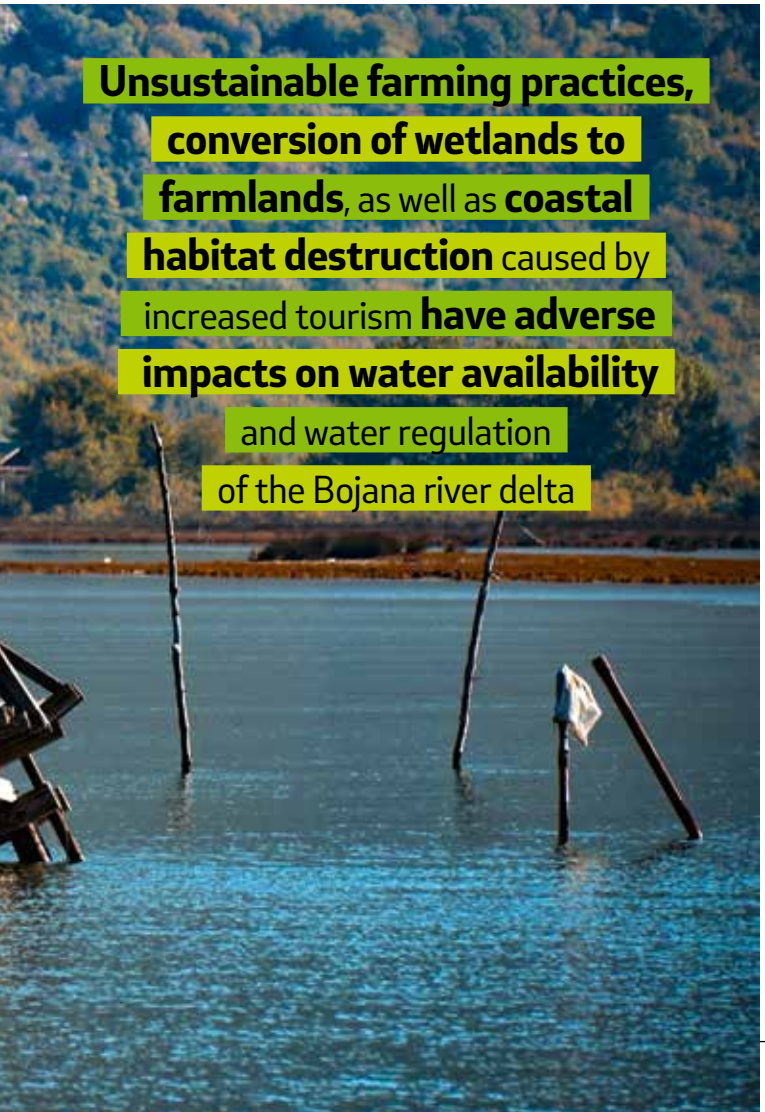
Wetlands also provide important functions in the context of coastal areas. The river Buna/Bojana is an important river of the South Western Balkans. Its delta features a diverse range of unique natural habitats, including wetlands of international importance. Besides supporting a wealth of native and protected wildlife and vegetation (the recent IUCN Red List of Albanian Flora identified around 320 threatened and rare species), the Buna/Bojana river delta is also known for its distinct cultural landscape providing dwellings for around 36,000 people. Unfortunately, the region's economy is weak and underdeveloped. Unsustainable farming practices, conversion of wetlands to farmlands, as well as coastal habitat destruction caused by increased tourism have adverse impacts on water availability and water regulation of the area.

To address these challenges, IUCN and partners launched a Small Grants Programme in the frame of the Living Buna project. The grants support local communities' livelihoods by expanding sustainable nature friendly



business practices. It is expected that these projects will help preserve wetlands and stimulate the sustainable use of water resources as a consequence of the increased awareness and knowledge of the local population. In concrete terms this means that targeted activities will reduce water usage on farms, support restoration of wetland habitats and provide new economic opportunities by introducing nature-friendly eco-tourism approaches.

Much remains to be done to address the challenges in the Western Balkans. COVID-19 is a test on how to address common societal challenges that know no borders. Climate change and its impacts are felt across boundaries affecting water management and supply decisions – whether related to droughts, floods or other challenges. Cooperation and action across sectors will be key to overcome these challenges and to make our societies more resilient. Nature plays a major role in achieving sustainable development goals and reducing disaster risks.



Text prepared by: Kristin Meyer and Sofia Tvaradze
from IUCN Regional office for Eastern Europe and Central Asia, Belgrade

DEVELOPMENT OF ELECTROMOBILITY IN SERBIA

STAIRWAY TO HEAVEN OR HIGHWAY TO HELL?

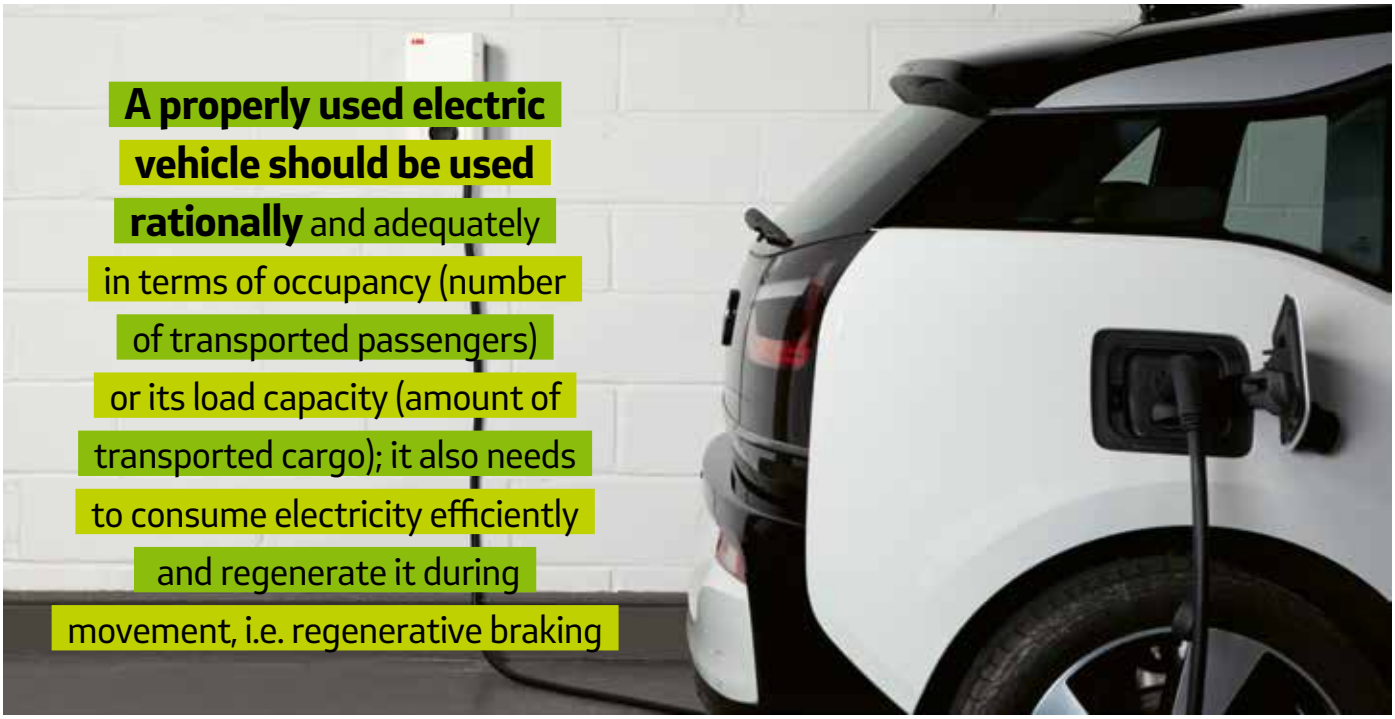
Achieving sustainability in transportation is based on increasing its cost-effectiveness while at the same time increasing the energy efficiency, reducing the negative impact on the environment, preventing (or at least limiting) the harmful consequences on the life and health of the population and the use of renewable energy sources.

When it comes to road and urban public passenger and freight transport, their sustainability depends on the increase in the cost, environmental and energy efficiency. This does not only mean reducing emissions of harmful substances and gases with the greenhouse effect, but also energy saving (in terms of both cost and energy). With the synergy of all three factors we can expect: the reduction of imports and dependence on non-renewable (fossil) energy sources, an increase of vehicle and fleet energy efficiency, a decrease of transport costs and their share in the price of a product, and thus greater product competitiveness, increased traffic safety, a cleaner and healthier environment, better living conditions, as well as more secure future for new generations.

In order to introduce the principles of traffic safety and environmental protection besides the economisation in (poorer), developing countries as part of the requirements in vehicle procurement can only be done by strengthening the awareness of the population and influential social groups that fight for better living conditions. In addition to the emissions of harmful gases from the transport vehicle itself at the point of consumption (i.e. in the immediate vicinity of the vehicle), the environmental criteria must also include the pollution of the environment which is a consequence of the way of obtaining propulsion energy in the energy sector (i.e. the pollution from nuclear and thermal power plants in electricity generation), but also pollution from vehicle production, i.e. from the automotive industry.

With all this in mind, we can consider the electric vehicles a sustainable form of transport, but only under certain

PROFESSOR VLADIMIR MOMCILOVIC, PHD, was born in Belgrade in 1970. He completed his undergraduate, postgraduate (MBA) and doctoral studies at the Department for Road and Urban Traffic at the Faculty of Transportation and Traffic Engineering in Belgrade. From 1996 until today, he has been employed at the Faculty of Transportation, University of Belgrade, where he has been appointed Associate Professor at the Department of Technical Exploitation of Road Vehicles. He is a principal lecturer of the following subjects: Operational and technical properties of motor vehicles, Technical logistics of road vehicles, Vehicle Fleet Energy Efficiency and Vehicle Fleet Maintenance on basic academic studies, Methods of Research, Surveys and Measurements in Transport and Technical Logistics of Vehicle Fleets on master studies and Information systems in transportation means operation and maintenance on doctoral studies. He is fluent in English, French and Spanish.



A properly used electric vehicle should be used rationally and adequately in terms of occupancy (number of transported passengers) or its load capacity (amount of transported cargo); it also needs to consume electricity efficiently and regenerate it during movement, i.e. regenerative braking

Photographs: (on the previous page) Unsplash/Lars Kuczynski; (Momcilovic) courtesy of Vladimir Momcilovic; (bottom) Schneider Electric

conditions. A properly used electric vehicle should be used rationally and adequately in terms of occupancy (number of transported passengers) or its load capacity (amount of transported cargo); it also needs to consume electricity efficiently and regenerate it during movement, i.e. regenerative braking. On the other hand, we must not leave out the economy factor of electricity production, i.e. necessary increase in investment in infrastructure for energy production, storage and distribution. This is of great importance because we are witnessing a rapid increase in the number of consumer electronics in every household. If each household were to purchase only one electric vehicle at a time, we would face a severe blow to the electricity system, the lack of capacity of the electricity distribution network and "restrictions" so well known to us, and not only in developing countries but also in the most developed ones.

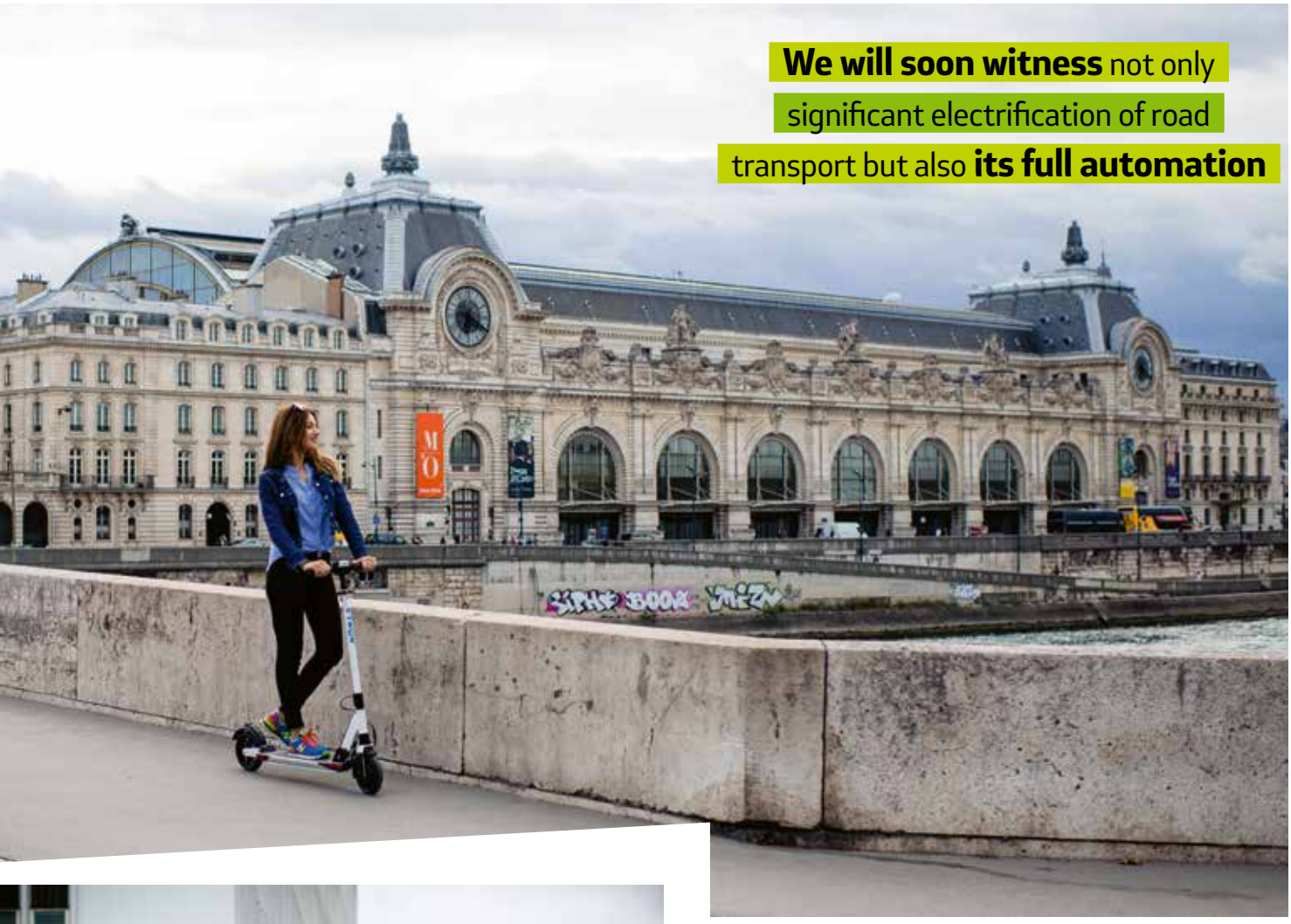
Hybrid electric vehicles which both produce electricity and use other forms of propulsion as a substitute, mostly ones based on fossil fuels, have been introduced as a transitional solution towards complete transport electrification. Developed countries, aware of their social responsibility and the consequences of their current actions on the

future, are solving the road transport efficiency problem by focusing on increasing the energy and environmental efficiency of newly manufactured passenger cars while at the same time promoting and subsidising the broader use of sustainable and renewable propulsion vehicles. Whereas in Serbia, the only criterion is still the economic importance of procurement and exploitation of vehicles of certain propulsion. In other words, individual (but also corporate) motor vehicle users do not have the motivation or a "susceptibility" to perceive the importance of the reduction of harmful effects on their surroundings and the environment. The lack of joint and coordinated strategic action of

executive authorities is also noticeable (both the Ministry of Environmental Protection and Ministry of Energy on the one hand, and ministries responsible for finance, transport and internal affairs, on the other hand).

Nevertheless, the Republic of Serbia has slightly opened the door to a considerable number of electric and hybrid vehicles by abolishing the tax on the use of electric motor vehicles. This is the first important step towards the electrification of the motor vehicle fleet. Although the transition to a fully electric vehicle fleet could pose a problem, we can conclude that Serbia is still far from that "challenge". Furthermore, few electric vehicles are registered in Serbia (less than one per mille), which is a consequence not of a well-designed policy, but exclusively of the enthusiasm of their owners. The popularisation of electric vehicles must come from the state administration and local self-governments. They should, in addition to the implied tax breaks and subsidies (because the purchase price of an electric vehicle is almost twice the price of the same petrol or diesel vehicle), find a way to introduce them into utility companies, such as urban and suburban passenger transport. As a result, they would influence the users of this type of transportation, as well as the drivers. Only then can we expect a significant increase in the number of individual

Photographs: (middle left) Schneider Electric; (top) Florin Stefan; (on the next page at the bottom) UITP



We will soon witness not only significant electrification of road transport but also **its full automation**

car users who are ready to replace conventional cars with electric cars.

Today, the electromobility in Serbia is somewhat more present in the individual, so-called micro-mobility domain, in the cities with a high level of traffic congestion. In those environments, the use of e-scooters has proven to be very effective; however, this solution is still taken with a grain of salt due to it being a traffic participant of an unregulated status (in some countries also illegal). It can endanger the safety of pedestrians and cyclists since it is mostly driven on surfaces intended for those users, but at a higher speed and soundlessly.

Still, not all is bad. The statistics show the growth of the number of public charging stations for the supply of electric vehicles in Serbia (which was discussed in the article "Development of the network of electric chargers" in the previous issue of the Energy Portal Magazine). Technological development and current trends in the global automotive industry will not bypass Serbia, as was the case with computers and mobile phones. So, we will soon witness not only the significant electrification of road transport but also its full automation, for example, the introduction of autonomous (so-called "self-driving") cars, both passenger and perhaps even sooner the commercial (cargo) vehicles. ■

STRAIGHT TO THE POINT

Waste management is a sector that, in addition to improving the environment, has the potential to improve the economy. The authorities increasingly understand the importance and benefits of the "circulation" of the economy. For this reason, besides the recycling, they encourage the waste reduction, the production of articles from recycled raw materials and conservation of resources, thus providing financial gain for their countries through economic growth and job creation. As a candidate for membership of the European Union, but also as an environmentally conscious and socially responsible country, Serbia too should "green" the scene of this sector

In our country, the largest part of the municipal waste is being disposed of in landfills, which is the least desirable option in the hierarchy of waste management. It should be preceded by the prevention of waste generation, reuse, recycling and other types of waste recovery under the principles of the circular economy, such as the incineration of non-recyclable waste with the aim to exploit the energy from waste.

By the unification of the municipalities in favour of the cooperative waste management, a system of regional centres will be established in Serbia, which includes a local landfill for municipal waste, a line for separation of recyclable waste, a transfer station, as well as the necessary infrastructure for composting. Sombor will also be part of this network.

The Ministry of Environmental Protection recognised the importance of the construction of the Regional Waste Management Centre in Rancevo, a community in the municipality of Sombor, by allocating funds for the implementation of this project. What will make this regional centre different from the others is that it will be the first in our country, but also in the wider vicinity, to use the mechanical-biological treatment of municipal waste in its processes.

After the tender and conducted public procurement procedures, the citizens of Sombor have given the task of designing of the Regional Centre for Waste Management in Rancevo to the design company CEEFOR (Centre for Energy Efficiency and Sustainable Development) from Belgrade as the leader of a consortium of several companies.

Photograph: Unsplash/Immo Wegmann

What does the mechanical-biological treatment of waste involve?

The construction of the Regional Centre for Waste Management complex in Rancevo, Sombor, will create conditions for safe waste disposal. Apart from disposing of solid waste, the treatment of clean packaging recyclable waste is also contemplated, which should brighten the gloomy picture Serbia paints in this field because only 5 per cent of municipal waste is currently being recycled.

Within the bounds of the Waste Management Centre, it will be possible to construct the facilities for collection, primary selection and storage of non-hazardous household and industrial waste, the facilities for mechanical-biological waste treatment, as well as all complemental units contemplated for the plant of this purpose, such as manipulative plateaus, facilities for storage of waste and secondary raw materials, administration facilities, workshops and other components.

MBT (mechanical-biological treatment) is designed for mixed municipal waste treatment in the complex. All mixed municipal waste (except the bulky waste) is first being preliminarily mechanically calibrated - the granulation up to 250 mm and metals are separated, after which biological treatment is performed.

The biological treatment process includes bio-drying, aerobic decomposition and anaerobic digestion of waste. The treatment enables efficient separation of biodegradable waste from the rest of the waste through sieving.

The remaining biodegradable waste after sieving is additionally bio-stabilised and prepared as material for recultivation of sanitary landfills.

The complex will also include the treatment of recycling materials (recyclates) such as certain types of plastic (PET, PP, HDPE, LDPE), aluminium, tetra packs and paper, found in mixed waste.

For the design of the Regional Centre for Waste Management, the citizens of Sombor have commissioned experienced engineers from the design company CEEFOR from Belgrade

THE PROJECTS OF CEEFOR COMPANY RESULT FROM TEN YEARS OF EXPERIENCE!

CEEFOR was established in 2010 in Belgrade. Their clients have at their disposal a diverse and well-coordinated team with more than 20 experts with many years of work experience - from mechanical, electrical and civil engineers, through engineers of technology, architecture, traffic and fire protection, to economic and financial experts and translators.

The successful completion of projects in the field of energy efficiency and sustainable development, allowed CEEFOR to reduce not only the costs for its customers but also the emissions of harmful substances and gases. This has put the company among the domestic economic elites that strive towards social responsibility.

The company also offers consulting and project design services in the field of renewable energy, where is especially highlighted its engagement in mitigating the carbon footprint of our country.

Shredders, conveyors, vortex separators, sieves and other equipment are commonly used for the activities aforementioned, while the sorting of recyclables is done manually in hand sorting stations.

After bio-drying is finished, the preparation process begins, or the production of SRF alternative fuel (Solid Recovered Fuel) to be specific. Up to 30 per cent of waste in Sombor, will be used for the preparation of alternative fuels, which can be used in cement plants or by other consumers.

"Considering that this project is a pioneering endeavour for Serbia, it was very challenging, but we gladly tackled the task. Thanks to the knowledge and skills of our entire team, each in their own fields, we managed to complete the project-technical documentation, obtain a building permit for the centre as well as the decision on approval of works for the switchgear facility, all in record time, over four months of this year. I should stress that all members of the team worked in difficult conditions due to pandemic caused by the COVID-19 virus, which is even greater success," the responsible designer Milos Saleta explained.

Prepared by: Jelena Kozbasic

Photograph: CEEFOR

Carport with 8 parking lots and solar power plant with 20 kW capacity

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ADA CIGANLIJA – THE BELGRADE SEA

How much electromobility is represented in Ada Ciganlija, why the blue flag flies at the beginning of the public bath, if the current health crisis has affected the number of visitors, which animal species swim in Lake Sava and how to have fun at the Belgrade Sea while the weather is still nice, reports PE "Ada Ciganlija"

Ada Ciganlija is undoubtedly one of the central ecological oases of the city of Belgrade. Having in mind the necessity of protection of flora and fauna, PE "Ada Ciganlija" has provided a special shuttle service for visitors in parts that are not accessible to motor vehicles. Management of the company, in cooperation with the city of Belgrade, provided completely free transportation for all visitors from the parking space at the "Belgrade Bathroom" facility to the swimming pool at Lake Sava with 4 electric-powered resort vehicles. These vehicles are extremely quiet and unique means of transport that achieve great savings on fuel. A new mode of transport is available to visitors to Ada. At the very beginning of the promenade, on the Sava side, there is a station for renting electric scooters. Electric scooters became popular around the world in a short time, and in our country, the interest in this alternative mode of transport is growing. The e-scooter is an ecological means of transport and easy to fold, which enables sufficient speed and a comfortable ride to the desired destination in the city. The ideal opportunity to try out the electric scooter is now available every day on Ada Ciganlija, where you can rent it for an hour or all day. Electric scooters can develop a speed of up to 35 km per hour, and the battery range is 40 km. Maximum load is 110 kg.

When driving an electric scooter, no harmful gases are released into the air, so it is an environmentally friendly solution, especially for Ada Ciganlija. Seven electric scooters were procured for the needs of the services of the PE "Ada Ciganlija" and are used for performing regular work activities, all in accordance with the commitment to ecologically clean Ada. About 450 species of plants have been registered on Ada Ciganlija so far, and above all white poplar, black poplar, white willow, pedunculate oak, field ash, Euro-American poplar, elm embroidery, ash-shaped maple, American ash. In addition to woody plants, there is an abundance of shrubby and grassy vegetation that is characteristic of alluvial habitats. During 2013, the Provisional Authority of the City of Belgrade passed a Decision on declaring a protected habitat "Fungi of Ada Ciganlija", whereby the natural habitat on Ada Ciganlija was declared one known habitat of the fungus Myriostoma coliforme in the Republic of Serbia. This fungus is exposed to a very strong anthropogenic influence and is, therefore, a highly endangered and strictly protected species. Its growth area of 21.25 hectares is classified in category II, as a protected habitat of local importance. There is a diverse fauna - a large number of birds, such as the little crow, thrush, woodpecker, titmouse and 94 species of insects, as well as about 250 species of fungi. The lake is the home to 13 species of fish, snails, crabs, jellyfish, shellfish and turtles. The California tortoise is a rare inhabitant, pikeperch and perch – the most numerous population in the lake, pike, silver carp - ecosystem cleaner, marsh snails and river shells also swim in the waters of Ada Ciganlija. All these species indicate the quality of water in the lake.

Since this is a protected water source and the largest bathing area, special emphasis is placed on monitoring and tracking the water quality in Lake Sava. Water quality is continuously monitored by high-frequency measurement in cooperation with researchers from the Institute for Multidisciplinary Research, Faculty of Biology and Faculty of Civil Engineering in Belgrade. During the summer bathing season, water sampling and microbiological tests are performed in cooperation with the City Institute for Public Health, which controls the water in Lake Sava twice a week at four reference points. Based on the results of field and laboratory tests of samples, the water of Lake Sava is qualified within the limits of I and II category of surface waters, which meet the quality of water that can be used for drinking, with prior treatment by filtration and disinfection, bathing and recreation, irrigation and industrial use. All tested water samples in the previous five years, according to the chemical, physicochemical and biological parameters of the ecological potential, corresponded to a good and better ecological potential, that is, all examined parameters did not exceed the values that may affect the functionality and development of the aquatic ecosystem. Such values of the water quality of the Lake Sava showed a very low level of changes caused by human activity and a

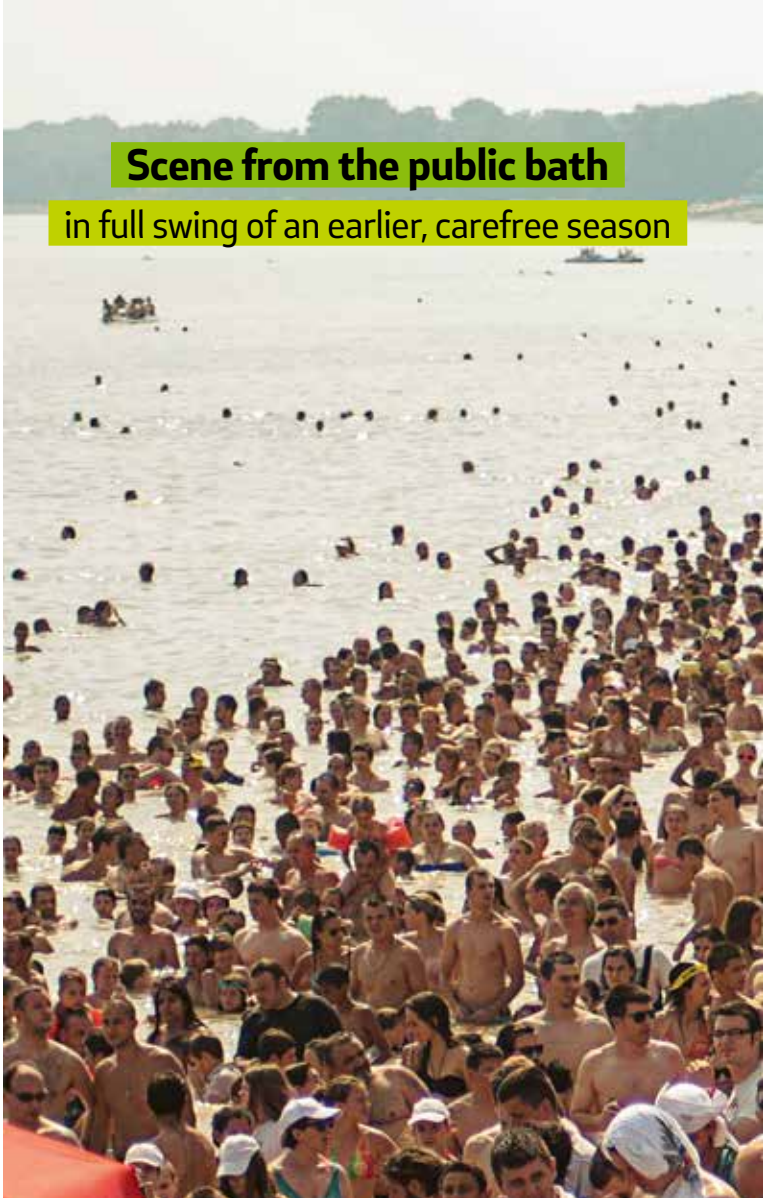
Diverse fauna is present - a large number of birds such as the **little crow**, **thrush**, **woodpecker**, **titmouse** and **94 species of insects**, as well as about **250 species of fungi**

At the beginning of promenade, on the Sava side, there is a **point for renting electric scooters**

Photographs: (on the previous page) Bojan Dzodan; JP „Ada Ciganlija" except (bottom right) MTKomex

slight deviation from the values that are usual for the natural type of water bodies which, according to the general conditions, are most similar to Lake Sava.

Ada Ciganlija has been the holder of the "Blue Flag" for many years in a row, which is an internationally accepted and recognisable symbol for quality in tourism and environmental protection. PE "Ada Ciganlija" is obliged to meet the very strict requirements of the international jury, which consists of representatives of the World Tourism Organization, the United Nations Environment Program, the International Rescue Federation, the European Union for Coastal Protection and the Foundation for Environmental Education. The "Blue Flag" in Ada Ciganlija promoted the highest values from four very important areas during the previous period: water quality, services and safety on beaches, environmental standards, as well as education and informing the public about environmental values. This year, the opening season of the swimming pool was opened on June 26, due to weather conditions. Given the situation, it was necessary to respect the general measures of recommendations relating to respect for physical distance, enhanced personal hygiene, hand disinfection, use of personal protective equipment and mandatory wearing



Scene from the public bath

in full swing of an earlier, carefree season

Today Ada Ciganlija is the greatest **sport-recreational-cultural--entertainment centre**

of masks, both indoors and outdoors. All these measures were displayed on the visible parts of the swimming pool. Regardless of the epidemiological situation, the number of visitors reached 200,000 at weekends. At the beach itself, the measures were mostly respected.

The situation caused by the coronavirus partially affected some plans regarding the improvement of the quality of services for visitors, because every investment is intended for them and for the enjoyment of all fans of the green oasis and to enhance the offer of Ada Ciganlija. The reconstruction of the marina has been postponed, but the project of building a fountain on the roundabout and the reconstruction of the walking path remain in the plan for this year. Today, Ada Ciganlija is the largest sports-recreational-cultural-entertainment centre, which offers more than 50 outdoor sports fields (handball, football, tennis, basketball, baseball, rugby, golf, beach volleyball), adrenaline activities (bungee jumping, adventure park, paintball, aqua ski, skiing, diving), wellness programs, water entertainment programs, recreational activities (trim park, trim trails, cycling, rollerblading, mini-golf). Ada Ciganlija is a city park fully accessible, arranged and adapted to people with special needs. The football fields, when the protocol on cooperation on the use of the football complex on Ada Ciganlija was signed, were given to the Football Association of Belgrade, which gave the football players a modern football centre. This sports facility is available to Belgrade football clubs throughout the year. At the roundabout on the left bank of Lake Sava, there are four playgrounds that are extremely visited and are most often used for indoor soccer. Different types of events are organised on these playgrounds. In the area of Ada Ciganlija, there are four basketball courts of non-standard dimensions, as well as seven playgrounds of standard dimensions. Within the central sports fields, on the left bank of Lake Sava, there are three volleyball courts. Also, on Ada Ciganlija, there is the most modern bicycle path, 11.2 kilometres long, which leads to Lake Sava. Bicycles can be rented at 3 locations throughout the year. The rollerblading school on Ada Ciganlija was founded in 2006 as one of the first of its kind. Sportfishing on Ada takes place on the entire territory of Ada and is one of the favourite sports of visitors. Fishing does not take place only during the competition in water sports, as well as during the bathing season. Then fishing is allowed only in fenced areas. A novelty this year is a new trim track with a rubber base that is 500 meters long and has a circular shape. It is located at the roundabout in a beautiful natural environment.

PE "Ada Ciganlija"

Photographs: (previous page) PE "Ada Ciganlija"; (top) Bojan Dzodan

Electromobility and Clean Energy as a Way of Fighting against Pollution and Climate Change

Black smoke trailing behind the vehicles at the streets of our towns are not such a rare sight, so we frequently end up coughing when we get accidentally targeted by their tailpipes. Although such an occasion amounts to just a few seconds of our lives in a day, the exhaust gases make a markedly profound impact on our health and the health of our planet. We were warned about it during last winter when the record level air-pollution registered throughout our country – from Subotica and Novi Sad, through Pancevo and Belgrade, till Valjevo and Uzice - was hitting the headlines.

According to the WHO's report, in Serbia 3,600 premature deaths every year are attributable to exposure to fine particulate matter (PM 2.5) in air. Old vehicles also act as a factor to this problem.

Aside from filters and engines with better performances, electric and hybrid vehicles are part of the solution for neutralizing the negative effect of the traffic. They are increasingly seen cruising on the streets of our country.

The Ministry of Interior's records show that there are approximately 100 electric passenger cars registered in Serbia, and 1,500 hybrid passenger cars. The number of EV includes 7 VW e-Ups and 8 e-Golf, 10 Hyundai Ioniq Plug-in Hybrid and 7 Toyota Prius, the last ones in the fleet of ProCredit bank.

Many experts disapprove of EV as they, in our country, run on electricity mainly generated in coal-fired thermal power plants and rule them out as insufficiently clean alternative to diesel-powered and petrol engine cars. Still, that is not the case with the ProCredit bank fleet of EV and hybrids. So, what is the story?

In order to provide clean energy for their vehicles, the ProCredit bank signed the agreement with the Public Enterprise Elektroprivreda Serbia. It became the first company in the country to use electric energy with a certificate of green origin which means that purchased energy was generated solely from renewable energy sources. Additionally, the bank has recently installed a solar power plant on the roof of their headquarters, whose capacity is 40 kW. However, that is not the only place at the bank's headquarters where sunny kilowatts are being produced! In front of the facility, the solar canopy was installed to supply the charger with electricity and to be at disposal to EV drivers. The charger is available to all EV drivers to fill up their electric or hybrid vehicles.

The electricity generated from the mentioned energy sources is also used for supplying additional 15 chargers

Photographs: ProCredit bank

The advantages of going electric are also in the money saved on petrol, which is, apart from environmental protection, another reason for buyers to make a turn to electromobility

that belong to this bank and that were installed at their offices in major cities and in front of their training centre at the Avala Mountain. Therefore, the term "zero emission of harmful gases and particles" isn't just some empty talk, as it would have been, had the vehicle been supplied with electricity coming from the Kostolac power plant. Thus, the ProCredit bank employees have a really minimal negative impact on the environment while driving around, and the complete electrification of their fleet is something that awaits them in the future.

Offering investment credit with a good interest rate for the EV and hybrid purchase, the bank at the same time contributes indirectly in the reduction of the carbon footprint of their clients. It takes an additional share in fighting the pollution and climate change. The advantages of going electric are also in the money saved on petrol, which is, apart from environmental protection, another reason for buyers to make a turn to electromobility – just like the ProCredit bank has done.

The success of the banks endeavour towards accomplishing sustainable development and environmental protection, has been confirmed by Danko Kalkan, the coordinator of the energy efficiency and environmental protection sectors. "The ProCredit bank was among the first companies to include hybrid vehicles at first and then later, fully electric vehicles in its fleet. The fact that we have managed to replace two-thirds of fossil fuel vehicles in three years speaks volumes about our determination for reduction of impact on the environment. To provide further carbon neutrality, we charge vehicles with energy generated from renewable energy sources such as our small power plants, and with green energy that we are supplied by Elektroprivreda Serbia", Danko explains.

Prepared by: Jelena Kozbasic

SUPPORT IN A CRISIS AND CREATIVE DEVELOPMENT PROGRAMS

Photograph: Unsplash/United Nations - Covid 19 - response

The success of any crisis management is affected by a number of factors, including the availability of the necessary equipment. It is a crucial lesson that we, as a society, had difficulties revising during the spring, amid the global epidemic caused by the COVID-19 virus. The lack of protective and medical equipment prompted the United Nation's agency, called the United Nations Development Program (UNDP), to launch a local public call for innovative solutions in April, that would contribute to the strengthening of the domestic capacity for long-term production of that equipment and its components, while significantly reducing the reliance on imports.

We received 50 applications with innovative ideas for reducing and mitigating the effects of the pandemic for the challenge call, addressed to legal entities and scientific research institutions in Serbia. The UNDP's Portfolio Manager for Serbia, Miroslav Tadic, says that 23 proposals for inventive ways of producing and procuring personal protective and medical equipment were selected, such as the clinical respirators, COVID-19 test kits, as well as the healthcare waste management processes and equipment.

An overview of all solutions can be found on the UNDP's platform "Local solutions for maintaining health and greater resilience of the health system": https://covid19response.undp.org.rs/sr/. Miroslav points out that in this manner, UNDP is helping all of the shortlisted candidates to promote themselves further and find additional sources of funding or to establish possible partnerships. As for the question regarding the criteria for selecting proposals, our interlocutor says they were based on the expected outputs vs the invested funds.

"We were selecting the solutions that would be able to provide an immediate response to the effects of the pandemic (such as the personal protective equipment, i.e. protective masks) and also the solutions that would be particularly useful in the medium-term (such as the respirators in domestic production). With the initial financial support from the German Embassy in Serbia, the USAID and the Austrian Development Agency, we are going to support the production of biodegradable face masks, respiratory protective masks made of PVC material with a replaceable SMS filter, subsequently the development and implementation of an automated system for monitoring hand disinfection in health care institutions, and finally, the production of medical respirators using 3D printers and lasers."

Very interesting solutions are also those that promote the application of artificial intelligence in the processing of test results for the presence of coronavirus, as well as promote smart monitoring systems for the control of sanitary conditions in the healthcare surroundings. A special group includes solutions for detection of viruses or antibodies against the virus, of which the proposal for the sustainable

Miroslav Tadic,
Portfolio Manager of UNDP in Serbia

production of serological ELISA test for antibodies for the SARS-CoV-2 virus in Serbia stood out.

The implementation of these innovations should provide citizens with improved services in four key areas: prevention, disinfection of premises and people to reduce the likelihood of the virus spread, new and improved methods of virus and antibody detection, treatment of COVID-19 infection's consequences (especially acute respiratory syndrome) and the treatment of hazardous medical waste contaminated with the virus.

Constructive Responses to Environmental Challenges

In addition to this program, which can significantly improve our response to the health crisis, especially before the announced new wave of the epidemic, Miroslav mentions other UNDP's programs that deserve our attention because of the clear benefits they bring to our society.

"Our public call in the format of Climate Smart Urban Development Innovation Challenge received more than 100 project idea proposals. Among the proposers were rep-

It would be ideal to power the electric chargers from renewable energy sources (such as solar) because the effect of the emission reduction would then be more significant

Photographs: (top right) courtesy of Miroslav Tadic; (bottom right) Unsplash/Ani Kollesh

resentatives of public and private companies, the scientific research community, civil society organisations, local governments, but also private individuals - innovators. We had a similar result with the Bio-Waste Management Challenge. It speaks to the fact that the public in Serbia is particularly interested in new opportunities to express their creativity and propose some new, innovative ideas that they have not had the chance to present or encounter the right interlocutors until now", Miroslav says. He points out that, in cooperation with the national and local institutions, they have provided a unique platform for creative individuals, corporations and the scientific research community where they can find sources of funding, make new partnerships and push the boundaries towards social transformation in compliance with the European and global trends. This change has been facilitated by the UNDP's introduction of new mechanisms much like the concept of challenges instead of the standard public calls, the innovation awards, as well as the so-called *Performance-based payment agreements* (the specific type of contracts through which the funds for implementation are allocated based on the success of the achieved results, where the company selection is made by in-depth analysis and verification according to several criteria).

wise be used as an energy source.

According to data that Miroslav provided, from the total amount of discarded food globally (about 1.3 billion tonnes/year), about 4.4 gigatonnes of greenhouse gas emissions are generated. If it were only the emissions of a single country, then that country would be in third place in terms of emissions of these gases, right after China and the United States. A total of 900,000 tonnes of biodegradable waste is produced in Serbia annually, of which more than 500,000 tonnes end up in communal landfills. Out of that, 250,000 tonnes is just the waste that comes from food that we don't use. At EU level, almost 88 million tonnes of food are thrown away each year, which could be enough to feed 200 million people. With this challenge, Miroslav says, they wanted to provide an opportunity to change this negative trend and to provide the support to citizens, companies and decision-makers. "More than 30 innovative ideas and solutions for bio-waste management have been submitted. By the implementation of these ideas, we will engage the private sector in solving climate change problems through innovative technical-technological solutions and business models, such as composting, converting waste into energy, and reducing waste generation.

Around 3,600 premature deaths occur in Serbia annually, which can be related to poor air quality

When it comes to current programs, UNDP launched the "Bio-Waste Management Challenge" in March with the support of the Swedish International Development Cooperation Agency, and in cooperation with the Ministry of Environmental Protection. Biodegradable waste management in Serbia is still not at a satisfactory level, so the largest amount of that waste ends up in landfills, where it decomposes into methane, a greenhouse gas, which is also highly flammable and makes entire landfills burn uncontrollably. Under controlled conditions, this gas can otherInteresting and innovative ideas came from private companies, public companies, local governments, scientific research organisations and the non-governmental sector, and the five most developed projects will receive co-financing for their implementation." Miroslav assures us that their realisation will contribute to the management of food and kitchen waste disposal, as well as of the green waste coming from the parks and gardens. He also directs all those interested in the success of this project to the site: http://inovacije.klimatskepromene.rs/.

Photograph: Unsplash/Alexander Mils

About the cause of the high concentration of pollutants in the air

Traffic has often been identified as the cause of pollution in urban areas, and during the last autumn and winter, we witnessed a record concentration of PM 2.5 and PM 10 harmful particles in the cities across Serbia. Besides, transport is one of the critical sectors that emit greenhouse gases and thus lead to global warming and climate change. Miroslav states that Serbia recognised the importance of reduction of greenhouse gas emissions from the transport sector and has incorporated measures into Low Carbon Development Strategy draft, among which, one of the options is to limit the increase of emissions from this sector to 10 per cent by 2030 and to reduce its emissions by 30–54 per cent by 2050.

One of the measures proposed by the strategy refers to the renewal of passenger vehicles' fleet and the promotion of sustainable passenger transport. This measure is partly regulatory, and it suggests the introduction of several reliefs, such as the subsidised purchase of electric vehicles, the tax reduction during the registration of electric cars, but also the gradual decrease in a number of older vehicles still in traffic which emits even more harmful gases. With the support of the state, it also contemplates the need for greater investment in the development of the network of charging stations for electric vehicles from renewable sources. Such measures have a positive collective effect, i.e. they serve both to fight against climate change and to improve air quality in urban areas.

A ban on the import of vehicles with a Euro 3 engine would also further reduce emissions of the transport sector, given that emissions generated from the Euro 6 engine are twice as low. It would be ideal to power the electric chargers from renewable energy sources (such as the solar) because the effect of the emission reduction would then be more significant since the energy is not coming from the grid which in largest percentage is still produced from fossil fuels in Serbia. Miroslav points out that the most significant effect would be the development and the increase in the rate of the public transport utilisation (to some 33 per cent by 2030, compared to 2010), but it would be best to renew the public fleet with vehicles using LPG or electric propulsion.

"This must be founded in a reformed traffic development strategy, but also in local plans for sustainable urban mobility, for which the local self-government units are responsible." Also, the alternative types of urban transport, such as cycling, have an important role, before electromobility itself. The city of Belgrade has made significant steps in that direction, and "Cycle through Belgrade" strategy envisages four principles of cycling development in the capital (construction of a primary network of 120 kilometres of bicycle paths, installation of 200 bicycle parking spaces, bike-sharing system and education of the population). UNDP has previously supported the development of the foundations of the Urban Mobility Plan for the City of Belgrade; furthermore, the bicycle lanes have been marked, such as the paths to Avala and Bojcinska Forest. This document is also important for changing the citizens' habits regarding the urban mobility", Miroslav says, reminding us that car sharing is still a sporadic phenomenon in our country, despite the massive traffic jams.

A major problem in urban areas is the emission of suspended PM 2.5 particles generated by the combustion of fossil fuels, primarily from individual furnaces, and then from the thermal power plants, but also traffic. The data show that around 3,600 premature deaths occur in Serbia annually, which can be related to poor air quality, which originates, among other things, from the emission of PM 2.5 suspended particles. That is why the fight for sustainable transportation is, in fact, a fight for preserving the health of the population.

In this regard, Miroslav says, it is essential that the local self-government units adopt and implement air quality protection plans, as well as improve the national network for air quality monitoring and map all sources of pollution with accuracy. The adoption of the Air Quality Protection Strategy is a priority in the coming period, alongside the urgent implementation of the contemplated priority measures.

Many cities around the world are committed to the development of sustainable mobility systems and the reduction of emissions from the transport sector. The World Economic Forum has formed a list of the cities that have advanced towards the concept of sustainable transport determined by the following parameters: the percentage of bicycle paths, the development of the subway and overground railway infrastructure, the proportion of electric vehicles in traffic, etc. Among the top cities on that list are: Hong Kong, Zurich, Paris, Seoul, Prague, Vienna, London.

UNDP already traditionally supports the celebration of European Mobility Week in Serbia. Although the largest number of events on that occasion takes place in Belgrade, in 2019 the City of Krusevac won in the category of large municipalities: https://mobilityweek.eu/emw-awards/.

Prepared by: Tamara Zjacic

Photograph: (top right) Unsplash/Saketh Garuda

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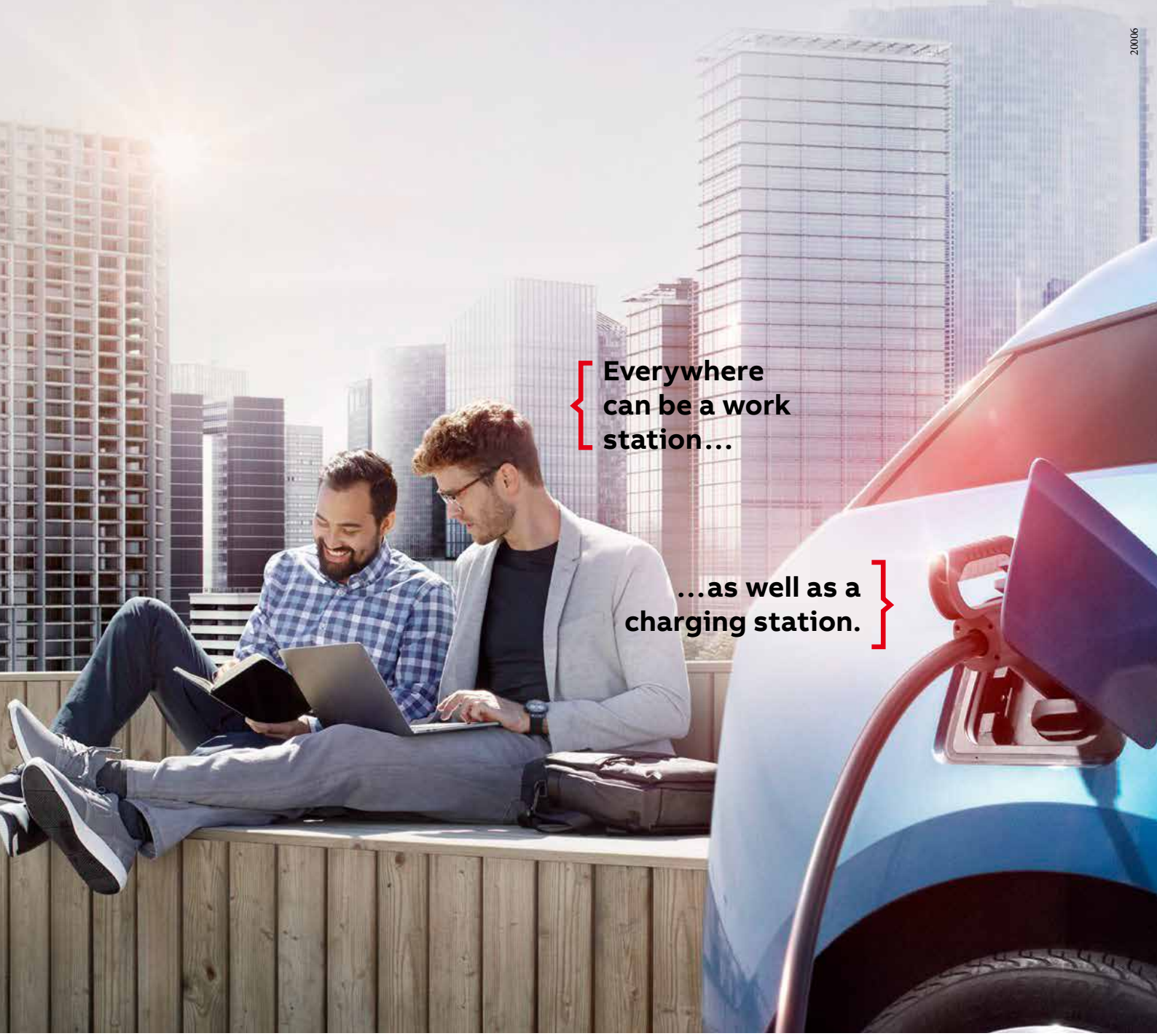

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