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INTERVJU AMBASADOR REPUBLIKE SLOVENIJE

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INTERVJU POTPREDSEDNICA VLADE I MINISTARKA ZAŠTITE ŽIVOTNE SREDINE

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GLAVNI I ODGOVORNI UREDNIK
Olivera Krstić
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REČ UREDNIKA

Dragi čitaoci,

Dobrodošli u novo izdanje Green News, vašeg vodiča kroz svet obnovljivih izvora energije i zaštite životne sredine. U vremenu kada se svet suočava sa ozbiljnim ekološkim izazovima, mi verujemo da je ključno da osnažimo svakog pojedinca, zajednicu i preduzeće da učestvuje u stvaranju održive budućnosti.

U ovom broju posebnu pažnju posvećujemo razvoju tehnologija koje omogućavaju čistiju energiju – solarnu, vetroenergiju, hidroenergiju i biomasu. Sve ove alternative ne samo da smanjuju našu zavisnost od fosilnih goriva, već i direktno doprinose smanjenju emisija štetnih gasova i očuvanju prirodnih resursa.

Pored tema o energiji, donosimo vam i priče o inovativnim projektima zaštite prirodnih staništa, borbi protiv zagađenja i novim zakonima koji će oblikovati budućnost ekološke politike u našoj zemlji i svetu. Svedoci smo velikih promena, ali verujemo da svaki korak ka održivosti, ma koliko bio mali, vodi ka svetlijoj i zdravijoj budućnosti za sve nas.

Pozivamo vas da nastavite da nas pratite, postavljate pitanja i delite ideje jer samo zajedno možemo graditi svet koji ćemo sa ponosom ostaviti budućim generacijama.

Hvala vam na podršci i poverenju.

S poštovanjem,
Olivera Krstić

EDITOR WORDS

Dear readers,

Welcome to the new issue of Green News, your guide through the world of renewable energy and environmental protection. At a time when the world is facing serious ecological challenges, we believe it is crucial to empower every individual, community, and business to participate in creating a sustainable future.

In this issue, we place special focus on the development of technologies that enable cleaner energy—solar, wind, hydro, and biomass. All of these alternatives not only reduce our dependence on fossil fuels, but also directly contribute to lowering harmful emissions and preserving natural resources.

In addition to energy topics, we bring you stories about innovative projects for the protection of natural habitats, the fight against pollution, and new laws that will shape the future of environmental policies in our country and around the world. We are witnessing significant changes, but we believe that every step toward sustainability, no matter how small, leads to a brighter and healthier future for all of us.

We invite you to continue following us, asking questions, and sharing ideas because only together can we build a world we will proudly leave to future generations.

Thank you for your support and trust.

Sincerely,
Olivera Krstić

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Damjan Bergant

AMBASADOR REPUBLIKE SLOVENIJE U SRBIJI

Slovenija ima ambiciozne ciljeve za prelazak na održiviju budućnost

Ovi ciljevi su usklađeni sa evropskim i međunarodnim ekološko-klimatskim ciljevima i deo su šire strategije za prelazak na niskougljenično društvo, koje se zasniva na održivoj upotrebi prirodnih resursa, smanjenju zagađenja i podsticanju zelenih tehnologija

Slovenija teži da postane lider u oblasti održivog razvoja i zelene energije u regionu i da doprinese globalnim naporima u borbi protiv klimatskih promena i drugih gorućih ekoloških kriza, kao što su zagađenje i gubitak biodiverziteta, kaže u ekskluzivnom intervjuu za naš magazin Damjan Bergant, ambasador Republike Slovenije u Srbiji.

Možete li nam reći nešto više o trenutnim inicijativama i projektima u Sloveniji koji se bave pitanjem ekologije i održive energije?

- Ako se fokusiram na oblast energetike, to podrazumeva usmeravanje ka smanjenju potrošnje energije i mere energetske efikasnosti na svim nivoima (domaćinstva, industrijski i uslužni sektor, šira javna uprava, sistemski nivo i problem gubitaka u mreži), kao i usmeravanje ka obnovljivim izvorima energije. Rast proizvodnih kapaciteta solarnih elektrana u 2023. godini u Sloveniji, gledano po broju stanovnika, bila je najveća među svim zemljama EU. Takav porast – približno 400 MW dodatnih kapaciteta godišnje – moramo održavati svake godine ako želimo ostvariti cilj postavljen u Nacionalnom energetskom i klimatskom planu. S druge strane, moramo još mnogo toga učiniti, pre svega u korišćenju energije vetra, gde smo među poslednjima u EU, a najveći problem imamo sa prostornim planiranjem projekata.

Na polju zaštite životne sredine mogu istaći sanaciju starih ekoloških opterećenja i zatvaranje poslednjih u nizu nelegalnih deponija, zbog kojih je državi pretila kazna od strane EU. Takođe ističem i mere za poboljšanje kvaliteta spoljašnjeg vazduha, pre svega kroz bespovratne finansijske podsticaje socijalno ugroženim građanima za zamenu starih grejnih uređaja i kredite za kupovinu ekološki prihvatljivih vozila, kao i kontinuirano unapređenje sistema upravljanja otpadom, iako smo po procentu odvojeno prikupljenog otpada među vodećima u EU.

Koji su glavni ciljevi Slovenije u oblasti zelene energije i održivog razvoja u narednih deset godina?

- Slovenija je sebi postavila ambiciozne klimatsko-energetske ciljeve za prelazak na održiviju budućnost. Ovi ciljevi su usklađeni sa evropskim i međunarodnim ekološko-klimatskim ciljevima i deo su šire strategije za prelazak na niskougljenično društvo, koje se zasniva na održivoj upotrebi prirodnih resursa, smanjenju zagađenja i podsticanju zelenih tehnologija. Sveobuhvatni cilj koji sledimo je postizanje klimatske neutralnosti najkasnije do 2050. godine, odnosno predlog prvog klimatskog zakona u Sloveniji sada predviđa postizanje klimatske neutralnosti najkasnije do 2045. godine, dakle pet godina ranije nego što je prvobitno predloženo. Za ostvarivanje ovog cilja potrebno je mnogo strukturnih i sistemskih, društvenih, političkih i ekonomskih promena za koje znamo da se ne dešavaju (a nije ni dobro da se dese) preko noći. Potrebno je vreme, zato će narednih 10 godina zapravo biti ključne za održivi proboj.

Slovenija teži da postane lider u oblasti održivog razvoja i zelene energije u regionu i da doprinese globalnim naporima u borbi protiv klimatskih promena i drugih gorućih ekoloških kriza, kao što su zagađenje i gubitak biodiverziteta.

H.E. Mr Damjan Bergant

AMBASSADOR EXTRAORDINARY AND PLENIPOTENTIARY OF THE REPUBLIC OF SLOVENIA TO SERBIA

N: Slovenia Has Ambitious Goals for the Transition to a More Sustainable Future

These goals are aligned with European and international environmental and climate goals, and they are part of a broader strategy for the transition to a low-carbon society, which is based on the sustainable use of natural resources, reducing pollution and encouraging green technologies

Slovenia aspires to become a leader in the field of sustainable development and green energy in the region, and contribute to global efforts in the fight against climate change and other pressing environmental crises, such as pollution and the loss of biodiversity, says Damjan Bergant, Ambassador of the Republic of Slovenia to Serbia, in an exclusive interview for our magazine.

Could you tell us more about current initiatives and projects in Slovenia that deal with issues of ecology and sustainable energy?

- If I focus on the field of energy, it means the reduction of energy consumption, and measures of energy efficiency at all levels (households, industrial and service sectors, public administration, systemic level, and the problem of grid losses), as well as renewable energy sources. The growth of production capacities of solar power plants in 2023 in Slovenia, in terms of population, was the highest among all EU countries. Such an increase - approximately 400 MW of additional capacity annually - must be maintained every year if we want to achieve the goal set in the National Energy and Climate Plan. On the other hand, we still have a lot to do, above all, in the use of wind energy, where we are among the last ones in the EU, and we have the biggest problem with the spatial planning of projects.

In the field of environmental protection, I can point out the rehabilitation of old environmental burdens and the closing of the last in a series of illegal landfills, for which the state was threatened with a fine by the EU. I also highlight the measures to improve the quality of outdoor air, primarily through non-refundable financial incentives to socially vulnerable citizens for the replacement of old heating devices, and loans for the purchase of environmentally friendly vehicles, as well as the continuous improvement of the waste management system, even though we are among the leaders in the EU in terms of the percentage of separately collected waste.

What are the main goals of Slovenia in the field of green energy and sustainable development in the next ten years?

- Slovenia has set ambitious climate and energy goals for the transition to a more sustainable future. These goals are aligned with European and international environmental and climate goals, and they are part of a broader strategy for the transition to a low-carbon society, which is based on the sustainable use of natural resources, reducing pollution and encouraging green technologies. The overall goal we are pursuing is to achieve climate neutrality by 2050 at the latest, that is, a proposal for the first climate law in Slovenia now envisages achieving climate neutrality by 2045 at the latest, i.e. five years earlier than originally proposed. Achieving this goal requires many structural and systemic, social, political and economic changes, which, as we know, do not happen (and it is not good to happen) overnight. It takes time, so the next 10 years will actually be crucial for a sustainable breakthrough.

Slovenia aspires to become a leader in the field of sustainable development and green energy in the region, and to contribute to global efforts in the fight against climate change and other pressing environmental crises, such as pollution and the loss of biodiversity.

Damjan Bergant

AMBASADOR REPUBLIKE SLOVENIJE U SRBIJI

Primećujemo da Srbija ima veliki potencijal u oblasti obnovljivih izvora energije. Taj potencijal je delimično već počela da koristi, a očekuje se da će ovo područje u narednim godinama dobiti još veći zamah

GN Kako Slovenija balansira potrebe industrijskog razvoja sa očuvanjem životne sredine?

- Usklađivanje potreba industrijskog razvoja sa očuvanjem životne sredine je složen proces koji zahteva stalne napore, a posebno mnogo saradnje i dijaloga između svih zainteresovanih strana. Slovenija je na ovom polju postigla određene uspehe, ali nas još uvek čeka mnogo izazova koje rešavamo kombinacijom regulatornih mera, finansijskih podsticaja, podrške inovacijama i saradnje između različitih aktera. U tome nam pomažu smernice EU, koje postavljaju ekološke standarde važeće za celo unutrašnje tržište EU, pa stoga uvođenje strožih standarda ne ugrožava konkurentnost naše privrede u odnosu na evropsku konkurenciju. Naime, industrijska politika EU nalaže da industrija ima centralnu ulogu u zelenoj tranziciji i zato teži ubrzanju transformacije industrije ka nultoj stopi neto emisija, preusmeravajući tako Evropu ka klimatskoj neutralnosti. Pri tome se uzimaju u obzir i drugi ekološki izazovi, koji čine tzv. trostruku ekološku krizu – pored klimatskih promena, tu su i zagađenje, posebno plastikom, kao i gubitak biodiverziteta.

GN Koje konkretne mere je Slovenija preduzela kako bi smanjila emisiju ugljen-dioksida i povećala korišćenje obnovljivih izvora energije?

- U ažuriranju Nacionalnog energetskog i klimatskog plana postavljen je cilj smanjenja ukupnih emisija gasova sa efektom staklene bašte za najmanje 55% do 2033. godine u poređenju sa 2005. godinom. Shodno tome, utvrđene su mere koje uključuju, na primer, povećanje učešća obnovljivih izvora energije (OIE), poboljšanje energetske efikasnosti, dekarbonizaciju proizvodnje električne energije, ukidanje svih podsticaja za upotrebu fosilnih goriva do 2030. godine, prelazak na niskougljeničnu cirkularnu ekonomiju kroz podsticanje održive potrošnje i proizvodnje, ulaganje u ljudske resurse i nova znanja, kao i mnoge druge mere, posebno u sektorima saobraćaja, široke potrošnje, poljoprivrede, upravljanja otpadom, industrije i, naravno, energetike.

Sa ciljem omogućavanja bržeg postavljanja OIE u prostor, prošle godine je usvojen Zakon o uvođenju uređaja za proizvodnju električne energije iz obnovljivih izvora energije. Zakonom su određene potencijalne prioritetne zone za solarne i vetroelektrane i uspostavljena su propisana prioritetna područja za solarne elektrane. Zakon takođe predviđa da su fotonaponski i vetrogeneratori od javnog interesa i služe interesu javnog zdravlja i bezbednosti, propisuje obaveznu instalaciju solarnih elektrana kod novih građevinskih objekata (preko 1.000 m²) i postojećih objekata i parkinga (preko 1.700 m²), kao

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H.E. Mr Damjan Bergant

AMBASSADOR EXTRAORDINARY AND PLENIPOTENTIARY OF THE REPUBLIC OF SLOVENIA TO SERBIA

Climate change knows no national borders, therefore international cooperation and action are crucial. Common approaches, the exchange of knowledge and technology, as well as shared financial resources are key to achieving global climate change goals, and international cooperation enables developed countries to help less developed countries mitigate and adapt to climate change

GN How does Slovenia balance the needs of industrial development with the protection of the environment?

- Harmonizing the needs of industrial development with the protection of the environment is a complex process that requires constant efforts, and especially a lot of cooperation and dialogue between all interested parties. Slovenia has achieved certain successes in this field, but there are still many challenges ahead, which we are solving through a combination of regulatory measures, financial incentives, innovation support and cooperation between different stakeholders. The EU guidelines help us in this, which set environmental standards valid for the entire EU internal market, and therefore the introduction of stricter standards does not threaten the competitiveness of our economy in relation to European competitors. Namely, the EU's industrial policy dictates that industry has a central role in the green transition and therefore strives to accelerate the transformation of industry towards zero net emissions, thus redirecting Europe towards climate neutrality. In doing so, other environmental challenges are also taken into account, which make up the so-called a triple environmental crisis - in addition to climate change, there is also pollution, especially by plastics, as well as the loss of biodiversity.

GN What concrete measures has Slovenia taken to reduce carbon emissions and increase the use of renewable energy sources?

- In the update of the National Energy and Climate Plan, the goal of reducing total greenhouse gas emissions by at least 55% by 2033 compared to 2005 has been set. Accordingly, measures have been established that include, for example, increasing the share of renewable energy sources (RES), improving energy efficiency, decarbonizing electricity production, ending all incentives for the use of fossil fuels by 2030, transitioning to a low-carbon circular economy by encouraging sustainable consumption and production, investing in human resources and new knowledge, as well as many other measures, especially in the sectors of transport, consumer goods, agriculture, waste management, industry and, of course, energy.

With the aim of enabling faster installation of renewable energy sources in the area, the Law on the Introduction of Devices for the Production of Electricity from renewable energy sources was adopted last year. The law determines potential priority zones for solar and wind power plants, and establishes prescribed priority areas for solar power plants. The law also stipulates that photovoltaic and wind generators are of public interest, and serve public health and safety, prescribes the mandatory installation of solar power plants in new buildings (over 1,000 m²) and existing buildings and parking lots (over 1,700 m²), as well as the simplification and acceleration of certain procedures. Furthermore, the law enables energy activities on certain lands where they were previously prohibited (agricultural, forest, water areas, closed landfills, traffic areas, etc.), lowers the threshold for obtaining consent to 75% for solar power plants in the case of multi-storey properties, introduces the possibility of assigning free easement rights on facilities owned by the state or local government for joint solar power plants, and enables additional one-time compensation to municipalities for wind power plants.

At the same time, Slovenia has increased investments in RES measures, and there are currently open public calls and tenders for the co-financing of RES projects (solar power plants on public buildings and parking lots, independent production, joint RES projects, etc.), and many more are being prepared.

GN How do Slovenia and Serbia cooperate in ecology and sustainable energy? Are there joint projects or initiatives?

- Slovenian companies invest in projects of renewable energy sources in Serbia, and a good example of such cooperation is one of the largest wind farms in Southeast Europe - Krivača, which is about cooperation between Slovenian and Serbian investors. We encourage such cooperation and want to see projects of renewable energy sources that Serbian companies would realize in Slovenia.

In addition, a large number of Slovenian companies in the field of energy efficiency and wastewater treatment operate in Serbia. There are public-private partnership projects in several local communities in Serbia where Slovenian companies work to improve the energy efficiency of public lighting.

Through development cooperation, Slovenia also finances a project to build a system for wastewater treatment using plant purifiers. This project is expected to be completed by the end of the year.

GN How do you evaluate Serbia's efforts in the direction of the green transition? Where do you see the greatest potential for improvement?

- We have noticed that Serbia has great potential in the field of renewable energy sources. It has

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Damjan Bergant

AMBASADOR REPUBLIKE SLOVENIJE U SRBIJI

Usklađivanje potreba industrijskog razvoja sa očuvanjem životne sredine je složen proces koji zahteva stalne napore, a posebno mnogo saradnje i dijaloga između svih zainteresovanih strana

i pojednostavljenje i ubrzanje određenih procedura. Dalje, zakon omogućava energetske aktivnosti na određenim zemljištima gde su ranije bile zabranjene (poljoprivredna, šumska, vodena područja, zatvorene deponije, saobraćajne površine itd.), snižava prag za dobijanje saglasnosti na 75% za solarne elektrane u slučaju višeetažne svojine, uvodi mogućnost dodeljivanja besplatnog prava službenosti na objektima u vlasništvu države ili lokalne samouprave za zajedničke solarne elektrane i omogućava dodatnu jednokratnu naknadu opštinama za vetroelektrane.

Istovremeno, Slovenija je povećala investicije u OIE mere, a trenutno su u toku neki otvoreni javni pozivi i konkursi za sufinansiranje OIE projekata (solarne elektrane na javnim zgradama i parkiralištima, samostalna proizvodnja, zajednički projekti OIE itd.), a još veći broj je u pripremi.

Na koji način Slovenija i Srbija sarađuju po pitanju ekologije i održive energije? Da li postoje zajednički projekti ili inicijative?

- Slovenačke kompanije ulažu u projekte obnovljivih izvora energije u Srbiji, a dobar primer takve saradnje je jedna od najvećih vetroelektrana u jugoistočnoj Evropi – Krivača, gde se radi o saradnji slovenačkih i srpskih investitora. Podstičemo takvu saradnju i želimo da vidimo projekte obnovljivih izvora energije koje bi srpske kompanije realizovale u Sloveniji.

Dodatno, u Srbiji posluje veliki broj slovenačkih kompanija iz oblasti energetske efikasnosti i prečišćavanja otpadnih voda. Postoje projekti javno-privatnog partnerstva u nekoliko lokalnih zajednica u Srbiji gde slovenačke kompanije rade na unapređenju energetske efikasnosti javne rasvete. Kroz razvojnu saradnju, Slovenija finansira i projekat izgradnje sistema za prečišćavanje otpadnih voda putem biljnih prečišćivača. Očekuje se da ovaj projekat bude završen do kraja godine.

Kako ocenjujete napore Srbije u pravcu zelene tranzicije? Gde vidite najveće potencijale za napredak?

- Primećujemo da Srbija ima veliki potencijal u oblasti obnovljivih izvora energije. Taj potencijal je delimično već počela da koristi, a očekuje se da će ovo područje u narednim godinama dobiti još veći zamah. To je delimično i zbog procesa približavanja EU, u okviru kojeg je potrebno sprovoditi aktivnosti zelene tranzicije.

U Srbiji je upravo u toku javna rasprava o Nacrtu strategije razvoja energetike, koji treba da bude kamen temeljac budućeg energetskog sistema Srbije, sa ciljem uspostavljanja energetske sigurnosti i stabilnosti zasnovane na sopstvenoj proizvodnji električne energije iz obnovljivih izvora energije i diversifikaciji izvora energije.

Kako se Slovenija priprema za sve veći porast temperature i klimatske promene? Koje konkretne mere su preduzete ili se planiraju?

- Evropska agencija za životnu sredinu je pre nekoliko meseci objavila prvi izveštaj o klimatskim rizicima u EU, u kojem upozorava da su južnoevropske zemlje, uključujući i Sloveniju, „vruće tačke“ za klimatske rizike, kao što su poremećaji energetskog sistema zbog vrućine i suše, nedostatak vode koji utiče na privredne aktivnosti i prinose, kao i šumski požari koji ugrožavaju ekosisteme i staništa ljudi. Izveštaj takođe upozorava da su neki klimatski rizici već danas kritični i da, ukoliko ne preduzmemo mere, mogu do kraja veka dovesti do katastrofalnih posledica. Podsetimo se samo prošlogodišnjih oluja sa poplavama u Sloveniji, koje su snažno pogodile našu zemlju i izazvale veliku štetu. Spomenuti izveštaj ih navodi kao primer ekstremnog klimatskog događaja.

Svesni smo da, sa povećanjem rizika od ekstremnih vremenskih pojava, moramo jačati našu sposobnost prilagođavanja na klimatske promene — često zapostavljenu granu klimatske politike. Zbog toga je uspostavljeno ministarstvo za klimu s ambicioznom klimatskom politikom, koju želimo sprovoditi kroz zakon o klimi — on je trenutno u pripremi i očekuje se da bude usvojen do kraja godine. Usvojen je i novi program Fonda za klimatske promene 2023-2026, preko kojeg usmeravamo sredstva za klimatske mere kako za ublažavanje, tako i za prilagođavanje klimatskim promenama.

Važeći strateški okvir za prilagođavanje klimatskim promenama definiše četiri ključne korake za jačanje kapaciteta za prilagođavanje i upravljanje rizicima povezanim s klimatskim promenama: uključivanje uticaja klimatskih promena u planiranje i sprovođenje svih politika, kako na lokalnom tako i na državnom nivou; šire angažovanje različitih sektora i zainteresovane i stručne javnosti u planiranju i sprovođenju mera; kontinuirano jačanje znanja o klimatskim promenama - u tome značajnu ulogu igra Agencija Republike Slovenije za okolje - kao i stalno obrazovanje, obuku, podizanje svesti i komunikacija sa javnošću.

Duboko smo svesni da se ceo svet suočava sa klimatskom krizom i da je neophodno preduzeti odgovarajuće mere koje moraju biti brze i odlučne. Stoga smo trenutno u završnoj fazi pripreme ažuriranog Celovitog nacionalnog energetskog i klimatskog plana, koji će biti usvojen još ove godine i dodatno povećati ambicije smanjenja emisije gasova sa efektom staklene bašte. Plan obuhvata više od 200 mera iz različitih sektora (korišćenje zemljišta, promena korišćenja zemljišta i šumarstvo, poljoprivreda, otpad, energija, saobraćaj itd.), koje će doprineti dekarbonizaciji i postizanju klimatske neutralnosti.

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H.E. Mr Damjan Bergant

AMBASSADOR EXTRAORDINARY AND PLENIPOTENTIARY OF THE REPUBLIC OF SLOVENIA TO SERBIA

Harmonizing the needs of industrial development with the protection of the environment is a complex process that requires constant efforts, and especially a lot of cooperation and dialogue between all interested parties

already started to use this potential partially, and it is expected that this area will gain even more momentum in the coming years. This is partly due to the process of rapprochement with the EU, within which it is necessary to carry out green transition activities.

In Serbia, a public debate is currently underway on the Draft Energy Development Strategy, which should be the cornerstone of Serbia‘s future energy system, with the aim of establishing energy security and stability based on its own production of electricity from renewable energy sources and diversification of energy sources.

How is Slovenia preparing for rising temperatures and climate change? What specific measures have been taken or are being planned?

- A few months ago, the European Environment Agency published the first report on climate risks in the EU, in which it warns that southern European countries, including Slovenia, are „hot spots“ for climate risks, such as disruptions in the energy system due to the heat and drought, lack of of water that affects economic activities and outputs, as well as wildfires that threaten ecosystems and human habitats. The report also warns that some climate risks have already been critical today and that, if we do not take measures, they could lead to catastrophic consequences by the end of the century. Let‘s just remember last year‘s storms with floods in Slovenia, which hit our country hard and caused a lot of damage. The aforementioned report cites them as an example of an extreme climate event.

We are aware that, as the risk of extreme weather events increases, we must strengthen our ability to adapt to climate change — often a neglected branch of climate policy. That is why the Ministry of the Environment, Climate and Energy was established with an ambitious climate policy, which we want to implement through the climate law — it is currently being prepared, and is expected to be adopted by the

Damjan Bergant

AMBASADOR REPUBLIKE SLOVENIJE U SRBIJI

Kako ocenjujete napredak održive ekonomije u Evropskoj uniji? Da li postoje specifične politike ili strategije koje bi posebno izdvojili?

- Evropska unija je u poslednjim godinama postigla značajan napredak, posebno u prelazu na cirkularnu ekonomiju, smanjenju emisija gasova sa efektom staklene bašte i povećanju udela obnovljivih izvora energije. Ključni uspeh je Evropski zeleni dogovor, ambiciozan plan za transformaciju EU u klimatski neutralnu i ekološki održivu ekonomiju do 2050. godine. EU je uspela značajno da smanji emisije gasova sa efektom staklene bašte u poređenju sa 1990. godinom, prvenstveno zahvaljujući prelazu na energetske izvore sa manjim ugljeničnim intenzitetom i poboljšanju energetske efikasnosti. Udeo obnovljivih izvora energije u ukupnoj potrošnji energije u EU je značajno povećan, dok je EU takođe usvojila brojne mere za zaštitu biološke raznovrsnosti i očuvanje prirodnih ekosistema.

Koje su, po Vašem mišljenju, ključne prepreke s kojima se zemlje suočavaju u tranziciji ka održivoj energiji i kako ih prevazići?

- Slovenija se suočava sa izazovima u prelasku na obnovljive izvore energije (OIE), posebno kada je reč o vetroenergiji. Trenutno Slovenija dobija samo 0,06 % svoje električne energije iz vetra, dok je u EU 2022. godine ovaj udeo iznosio 16 % ukupne potrošnje električne energije. Jedan od ograničavajućih faktora je velik udeo zaštićenih područja Natura 2000, koja pokrivaju oko 37 % slovenačkog teritorija. Slovenija je zbog toga jedna od najbiotskije raznovrsnih zemalja u evropskom i svetskom merilu ali baš to otežavagradnju vetroparkova.

Pored toga, druge kategorije zaštite, koje uključuju zaštitu prirode, voda, poljoprivrednih i šumskih zemljišta kao i kvalitet života, predstavljaju dodatne prepreke u implementaciji OIE. Retka naseljenost i nizak stepen urbanizacije (45 % domaćinstava živi na selu, što je znatno iznad proseka EU) takođe utiču na mogućnosti za postavljanje vetrogeneratora, budući da samo retke lokacije ispunjavaju zahteve za odgovarajuću udaljenost od naselja zbog zaštite od buke. Zbog toga se često suočavamo sa protivljenjem projektima na lokalnim nivoima.

Kakva su vaša predviđanja za budućnost u pogledu klimatskih promena i šta mislite da su najefikasnija rešenja za borbu protiv njih?

- Nauka je u vezi sa klimatskim promenama potpuno jasna: globalno zagrevanje će uzrokovati porast prosečne temperature, učestalije i intenzivnije ekstremne vremenske pojave, gubitak arktičkog leda i glečera, kao i porast nivoa mora. Takođe, u Sloveniji smo već osetili posledice klimatskih promena kroz poplave, požare i suše, što ukazuje na ozbiljnost klimatske krize. Stoga je svaki korak i svaka akcija važna; države, preduzeća i pojedinci moraju zajedno, odlučno i odmah da deluju.

S obzirom na trenutne trendove i naučne projekte, možemo očekivati da će se klimatske promene u budućnosti još pogoršati. Generalni sekretar Ujedinjenih nacija je više puta upozorio da čovečanstvo gubi trku sa vremenom. Ove godine, temperaturni rekordi koji ne prestaju da se obaraju daju nam jasne signale da moramo da preduzmemo akciju. I svi moramo da delujemo, od lokalne do međunarodne razine. Klimatske promene ne poznaju granice, stoga je međunarodna saradnja i akcija od suštinskog značaja. Zajednički pristupi, razmena znanja i tehnologija, kao i zajednička finansijska sredstva su ključni za postizanje globalnih ciljeva u vezi sa klimatskim promenama, a međunarodna saradnja omogućava razvijenim zemljama da pomognu manje razvijenim zemljama u ublažavanju i prilagođavanju klimatskim promenama.

H.E. Mr Damjan Bergant

AMBASSADOR EXTRAORDINARY AND PLENIPOTENTIARY OF THE REPUBLIC OF SLOVENIA TO SERBIA

We have noticed that Serbia has great potential in the field of renewable energy sources. It has already started to use this potential partially, and it is expected that this area will gain even more momentum in the coming years

end of the year. A new program of the Climate Change Fund 2023-2026 has also been adopted, through which we direct funds for climate measures both for mitigation and adaptation to climate change.

The current strategic framework for adaptation to climate change defines four key steps to strengthen capacity for adaptation and risk management related to climate change: inclusion of the impact of climate change in the planning and implementation of all policies, both at the local and state level; wider engagement of various sectors, and interested and expert public in planning and implementing measures; continuous strengthening of knowledge about climate change - the Environmental Agency of the Republic of Slovenia plays a significant role in this - as well as constant education, training, raising awareness and communication with the public.

We are deeply aware that the whole world is facing a climate crisis, and that it is necessary to take appropriate measures, which must be fast and decisive. Therefore, we are currently in the final phase of preparing the updated Integrated National Energy and Climate Plan, which will be adopted this year, and further increase the ambition of reducing greenhouse gas emissions. The plan includes more than 200 measures from different sectors (land use, the change of land use and forestry, agriculture, waste, energy, transport, etc.), which will contribute to decarbonization and achievement of climate neutrality.

How do you assess the progress of sustainable economies in the European Union? Are there specific policies or strategies that you would single out?

- In recent years, the European Union has achieved significant progress, especially in the transition to a circular economy, reducing greenhouse gas emissions and increasing the share of renewable energy sources. A key success is the European Green Deal, an ambitious plan to transform the EU into a climate-neutral and environmentally sustainable economy by 2050. The EU has managed to reduce significantly greenhouse gas emissions compared to 1990, primarily thanks to the transition to energy sources with lower carbon intensity and improved energy efficiency. The share of renewable energy sources in the total energy consumption in the EU has increased significantly, while the EU has also adopted numerous measures to protect biological diversity and preserve natural ecosystems.

In your opinion, what are key obstacles that countries face in the transition to sustainable energy, and how to overcome them?

- Slovenia faces challenges in the transition to renewable energy sources (RES), especially when it comes to wind energy. Currently, Slovenia receives only 0.06% of its electricity from wind, while in the EU in 2022 this share amounted to 16% of total electricity consumption. One of the limiting factors is the large share of Natura 2000 protected areas, which cover about 37% of the Slovenian territory. Because of this, Slovenia is one of the most biodiverse countries on European and global scale, but that is exactly what makes the construction of wind farms difficult.

In addition, other categories of protection, which include the protection of nature, water, agricultural and forest lands as well as the quality of life, represent additional obstacles in the implementation of RES. Sparse population and low level of urbanization (45% of households are in the countryside, which is well above the EU average) also affect the possibilities for installing wind turbines, since only rare locations meet the requirements for an appropriate distance from settlements for noise protection. This is why we often face opposition to projects at local levels.

What are your predictions for the future regarding climate change, and what do you think are the most effective solutions to combat it?

- The science is crystal clear on climate change: global warming will cause the rise of average temperatures, more frequent and intense extreme weather events, the loss of Arctic ice and glaciers, and the rise of sea levels. Also, in Slovenia, we have already felt the consequences of climate change through floods, wildfires and droughts, which indicate the seriousness of the climate crisis. Therefore, every step and every action are important; States, companies and individuals must act together, decisively and immediately.

Considering current trends and scientific projects, we can expect climate change to worsen in the future. The Secretary General of the United Nations has repeatedly warned that humanity is losing the race against time. This year, temperature records that keep breaking are giving us clear signals that we need to take action. And we all have to act, from local to international level. Climate change knows no national borders, therefore international cooperation and action are crucial. Common approaches, the exchange of knowledge and technology, as well as shared financial resources are key to achieving global climate change goals, and international cooperation enables developed countries to help less developed countries mitigate and adapt to climate change.

Zašto karbonski krediti ne usmeravaju novac u siromašne zemlje

Ideja je da će kompanije koje žele da „nadoknade“ svoj klimatski otisak pomoći da plate razvoj projekata koji sprečavaju emisije gasova staklene bašte, nastojanja kao što su sadnja drveća za isisavanje ugljenika iz atmosfere ili zaštita šuma koje su navodno bile u opasnosti od seče

Zagovornici dobrovoljnog tržišta ugljenika kažu da je to mehanizam ne samo za unapređenje ciljeva održivosti, već i za usmeravanje preko potrebnog novca u neke od najsiromašnijih zemalja sveta.

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Ovi projekti, koji generišu razmjenjive „kredite“ koji predstavljaju jednu metričku tonu emisije gasova staklene bašte, dolaze uz obećanje poslova za lokalno stanovništvo, a programeri projekata se često obavezuju da će deo svog prihoda posvetiti javnoj infrastrukturi poput škola.

U Africi, dobrovoljno tržište ugljenika je „moćno sredstvo za rešavanje klimatskih promena i podizanje zajednice“, prema jednoj neprofitnoj organizaciji koja piše neobavezujuće standarde za sektor.

Niz izveštaja koje je od prošlog novembra objavila neprofitna organizacija Carbon Market Watch, ili CMV, istakla je skoro potpuni nedostatak objavljenih istraživanja o tome koliko novca koji se uliva na tržište ugljenika zapravo završava za podršku projektima ublažavanja klimatskih promena ili doprema do lokalnih zajednica.

Jedan izveštaj je skrenuo pažnju na nedostatak fer i transparentnih sporazuma o podeli beneficija, klauzule u projektnim dokumentima koje detaljno navode kako će raspodeliti prihode i nenovčane koristi ljudima na koje utiču.

Nedavno je analiza koju je grupa objavila prošle nedelje pokazala da, iako se većina projekata kredita za ugljenik nalazi u siromašnim zemljama, u velikoj meri ih kontrolišu kompanije sa sedištem u bogatijim severnoameričkim i evropskim zemljama. Autori su rekli da nema „dokaza“ da dobrovoljno tržište ugljenika, ili VCM, donosi ekonomske koristi zajednicama u kojima se zasnivaju projekti, na šta su grupe za ljudska prava i zaštitu životne sredine već dugo govorile.

- Kada je u pitanju saznanje da li VCM zapravo radi kao alat za kanalisanje finansija sa globalnog severa na globalni jug, tu nema informacija - rekao je Inigo Vajburd, stručnjak za politiku za Carbon Market Watch i autor najnovijeg izveštaja.

Najnoviji izveštaj razmatra dva uzorka projekata kredita za ugljenik: jedan sastavljen od 30 iz celog sveta, a drugi od 39 projekata samo u Africi. Samo 13 procenata projekata u globalnom uzorku nalazi se u zemljama sa najvišim nivoom „ljudskog razvoja“, na osnovu metrike UN koja obuhvata obrazovanje, zdravlje i životni standard. Ali skoro 60 procenata kompanija koje poseduju, razvijaju, nadgledaju i proveravaju projekte nalazi se u najrazvijenijim zemljama sveta.

Prema Vajburdu, to ne znači nužno da kompanije sa sedištem u bogatim zemljama ne usmeravaju prihod lokalnim zajednicama. Na neki način, logično je da će više kompanija iz bogatih zemalja učestvovati u projektima

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Why Don’t Carbon Credits Direct Money to Poor Countries?

The idea is that companies seeking to „offset” their climate footprint will help pay for the development of projects that prevent greenhouse gas emissions, efforts such as planting trees to suck carbon out of the atmosphere or protecting forests that were allegedly at risk of being chopped down

Proponents of a voluntary carbon market say it is a mechanism not only to advance sustainability goals, but also to direct much-needed money to some of the world’s poorest countries.

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These projects, which generate exchangable „credits” that represent one metric ton of greenhouse gas emissions each, come with the promise of jobs for local residents, and project developers often pledge to devote part of their revenue to public infrastructure like schools.

In Africa, the voluntary carbon market is „a powerful means to address climate change and uplift communities,” according to a non-profit organization writing non-binding standards for the sector.

A series of reports released since last November by the nonprofit Carbon Market Watch, or CMW, has highlighted an almost complete lack of published research on how much money flowing into the carbon market actually winds up supporting climate change mitigation projects or reaching local communities.

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Ovi projekti, koji generišu razmjenjive „kredite“ koji predstavljaju jednu metričku tonu emisije gasova staklene bašte, dolaze uz obećanje poslova za lokalno stanovništvo, **a programeri projekata se često obavezuju da će deo svog prihoda posvetiti javnoj infrastrukturi poput škola**

karbonskih kredita, jer imaju bolji pristup kapitalu i tehnologiji. Ali, uparen sa nedostatkom transparentnosti finansijskih tokova, geografski disparitet je zabrinjavajući.

- Pošto mnoge kompanije nisu smeštene u istom regionu gde se njihov projekat sprovodi, svaki novac koji nije direktno dodeljen za realizaciju projekta potencijalno je preusmeren da postane profit za aktere koji se nalaze na globalnom severu - kaže se u izveštaju. Značajno je da je analiza otkrila da najmanje u 10 projekata u oba uzorka nedostaje dokumentacija o stvarima kao što su praćenje i verifikacija.

Dokument CMV-a samo nagoveštava ono što su afričke grupe za prava i zaštitu životne sredine govorile mnogo snažnije. Prošle godine, koalicija organizacija širom kontinenta objavila je oštru kritiku Inicijative za tržište ugljenika u Africi, nastojanja da se razvije dobrovoljno i državno vođeno tržište ugljenika na kontinentu i donese mu godišnji prihod od 6 milijardi dolara do 2050. godine.

Dok je Inicijativa za tržište ugljenika u Africi obećala da će ravnopravno i transparentno podeliti prihod sa lokalnim zajednicama, grupe za zaštitu životne sredine nazvale su program „novim oblikom kolonijalizma“, rekavši da će pogoršati klimatske promene i ometati „postizanje istinskih afričkih puteva razvoja“. U širem smislu, kritikovali su sve projekte karbonskih kredita, za koje su rekli da bi komodificirali afričku zemlju i druge resurse kako bi bili od koristi stranim korporacijama.

– Bogate zemlje prenose teret klimatskih akcija sa bogatih na najsiromašnije zemlje - napisali su autori.

Ovaj problem se već pojavio širom Afrike, Azije i Južne Amerike, gde su zajednice u više navrata prijavljivale da ih kompanije koje žele da generišu karbonske kredite napuštaju. U jednom slučaju, švajcarska kompanija South Pole i Carbon Green Investments - firma koju je osnovao bogati zimbabveanski biznismen da bi primala prihode sa Južnog pola - pokušala je da stvori kredite tako što je navodno sprečila krčenje šuma oko jezera Kariba u Zimbabveu. Kao i drugi projekti, deo njegove privlačnosti bio je i to što će prikupljati novac za lokalne zajednice.

Ali istraga sa sajta Follow the Money, nemačkog lista Die Zeit i švajcarskog emitera SRF utvrdila je da je firma dala samo mali deo sredstava koja su obećana za podršku školama, zdravstvenim klinikama i povrtnjacima. Desetine seoskih poglavara, lokalnih političara i seljaka rekli su medijima da sumnjaju u projekat; a neki i da im novac ne stiže.

One report drew attention to the lack of fair and transparent benefit-sharing agreements, clauses in project documents detailing how they will distribute revenues and non-monetary benefits to the people they affect.

Most recently, an analysis released by the group last week found that while most carbon credit projects are located in poor countries, they are largely controlled by companies based in wealthier North American and European countries. The authors said there is „no evidence” that the voluntary carbon market, or VCM, brings economic benefits to the communities where the projects are based, as human rights and environmental groups have long argued.

„When it comes to knowing if the VCM is actually working as a tool to channel finance from the Global North to the Global South, there’s no information,” said Inigo Wyburd, a policy expert for Carbon Market Watch and the author of the latest report.

The latest report looks at two samples of carbon credit projects: one made up of 30 from around the world and the other of 39 projects in Africa alone. Only 13 percent of projects in the global sample are located in countries with the highest level of „human development,” based on a UN metric that includes education, health and living standards. But almost 60 percent of the companies that own, develop, monitor and verify projects are located in the most developed countries of the world.

According to Wyburd, this does not necessarily mean that companies based in rich countries do not direct revenue to local communities. In a way, it makes sense that more companies from rich countries will participate in carbon credit projects because they have better access to capital and technology. But, paired with the lack of transparency of financial flows, the geographical disparity is concerning.

- As many companies are not based in the same region where their project is carried out, any money that is not directly assigned to project implementation is potentially diverted to become profit for actors located in the Global North - the report says. Notably, the analysis found that at least 10 projects in both samples lacked documentation on things like monitoring and verification.

The CMV document only hints at what African rights and environmental groups have been saying much more forcefully. Last year, a coalition of organizations across the continent issued a scathing critique of the Africa Carbon Markets Initiative, an effort to develop a voluntary and government-run carbon markets on the continent and bring it $6 billion in annual revenue by 2050.

While the Africa Carbon Market Initiative has promised to share revenue equitably and transparently with local communities, environmental groups have called the program „a new form of colonialism”, saying it will exacerbate climate change and hinder „the achievement of genuine African development pathways”. More broadly, they criticized all carbon credit projects, which they said would commodify African land and other resources in order to benefit foreign corporations.

Rich countries are passing the burden of climate action from rich to the poorest countries - wrote the authors.

This problem has already emerged across Africa, Asia and South America, where communities have repeatedly reported being abandoned by companies seeking to generate carbon credits. In one case, the Swiss company South Pole and Carbon Green Investments - a firm set up by a wealthy Zimbabwean businessman to receive revenue from the South Pole - tried to generate credits by allegedly preventing deforestation around Lake Kariba in Zimbabwe. Like other projects, part of its appeal was that it would raise money for local communities.

But an investigation by the website Follow the Money, the German newspaper Die Zeit and the Swiss broadcaster SRF found that the firm had given only a fraction of the funds promised to support schools, health clinics and vegetable gardens. Dozens of village chiefs, local politicians and peasants told the media that they had doubts about the project; and some said that there was no money reaching them.

Ponovna upotreba vode pretvara otpadnu u resurs

Prečišćavanje CED otpadnih voda u osnovi je sistem koji vodu šalje kroz trofiltracioni sistem, a zatim prema Grundfos BM jedinici reverzne osmoze. Konačno, prečišćena voda se vraća u fabričke CED rezervoare

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Water Reuse Turns Wastewater into Resource

The CED wastewater treatment is basically a system that sends the water through a three-filtration system and then onward to a Grundfos BM reverse osmosis unit. Finally, the purified water is returned to the factory's CED tanks

In a part of Grundfos factory in Bjerringbro, Denmark, something almost magical takes place. Among forklifts and pallets, workers hang shiny metal parts on racks. The hanging pump bases, motor stools, flanges and other components are then moved into a giant machine that dips them successively into a series of chemical or water baths for surface treatment and rinsing. This continues to a bath in which components are electrostatically coated with a layer of paint. This is called cathodic electrodeposition (CED) or cataphoresis. The process protects the objects from rust and gives them a nice finish. From there, they go into a hot air dryer, then exit the system back to the factory. Workers then take them off the hooks and load them into pallets to be transported to other parts of the factory.

The water baths use about 5,000 cubic meters of water to rinse nearly 8 million components per year.

„This is the process in our Bjerringbro factory that consumes the most water," says Anders Lund Hansen, Senior Manufacturing Director at Grundfos in Denmark. „The CED process impacts the environment, and that concerns us a great deal. Grundfos has a sustainability agenda that aims at reducing our water use by 50% by 2025."

Grundfos is located in Bjerringbro, a town of about 8,000 people in the Danish province.

„We get our water from the underground just like anyone else in town. We're using from the same source that Mr. and Mrs. Bjerringbro are using for showering or drinking at home. If we can recycle this CED water, instead of taking in new water, we'll save water for the community, for the people who live here."

THE SOLUTION

Previously, Grundfos sent dirty CED process water to an on-site pre-treatment center. In this way, the water went through basic filtering and pre-treatment before reaching the city's municipal wastewater treatment facility.

This was where Grundfos saw the potential to build a full wastewater treatment and recycling system for the CED rinsing water.

„We put together a specialist team with knowledge of products, environmental issues, chemistry and production processes," says Anders. „Together they built this and made it possible with some of the newest technology in water and wastewater treatment."

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U jednom delu Grundfos fabrike u Bjerringbrou, u Danskoj, događa se nešto gotovo čarobno. Među viljuškarima i paletama radnici kače sjajne metalne delove na stalke. Viseća postolja pumpi, osnove motora, prirubnice i druge komponente zatim se premeštaju u džinovsku mašinu koja ih sukcesivno uranja u niz hemijskih ili vodenih rastvora za površinsku obradu i ispiranje. To se nastavlja do rastvora gde se komponente elektrostatički oblažu slojem boje. To se naziva katodna elektrodepozicija (CED) ili kataforeza. Proces štiti predmete od rđe i daje im lep oblik. Odatle odlaze na sušenje na topao vazduh, a zatim napuštaju sistem nazad u fabriku. Radnici ih potom skidaju sa kuka i utovaravaju na palete kako bi se prevozili u druge delove fabrike.

Vodeni rastvori koriste oko 5000 kubnih metara vode za ispiranje gotovo 8 miliona komponenati godišnje.

„Ovaj proces u našoj Bjerringbro fabrici troši najviše vode", kaže Anders Lund Hansen, Senior Manufacturing Director u Grundfos Danskoj. „Proces CED utiče na životnu sredinu i to nas veoma zabrinjava. Grundfos ima plan održivog razvoja čiji je cilj da smanjimo upotrebu vode za 50% do 2025."

Grundfos se nalazi u Bjerringbrou, gradu sa oko 8.000 ljudi u danskoj provinciji.

„Vodu dobijamo iz istog izvora kao i bilo ko u gradu, iz podzemlja. Koristimo isti izvor kao i g-din. i g-đa. Bjerringbro što vodu koriste za tuširanje ili kao pijaću vodu kod kuće. Ako CED vodu možemo da recikliramo, umesto da koristimo novu, uštedećemo vodu za zajednicu, za ljude koji ovde žive."

REŠENJE

Prethodno, Grundfos je slao prljavu CED procesnu vodu u on-site centar za predčišćenje. Na taj način, voda je prolazila kroz osnovno filtriranje i prečišćavanje pre nego što stigne do gradskog komunalnog uređaja za prečišćavanje otpadnih voda.

Tu je Grundfos video potencijal za izgradnju celovitog sistema za prečišćavanje i recikliranje za CED ispiranje vodom.

„Sazvali smo tim stručnjaka koji imaju znanje o proizvodima, pitanjima zaštite životne sredine, hemiji i proizvodnim procesima", kaže Anders. „Zajedno su izgradili i omogućili neke od najnovijih tehnologija u obradi vode i otpadnih voda."

Prečišćavanje CED otpadnih voda u osnovi je sistem koji vodu šalje kroz trofiltracioni sistem, a zatim prema Grundfos BM jedinici reverzne osmoze. Konačno, prečišćena voda se vraća u fabričke CED rezervoare.

ZATVORENI KRUG VODE

Postrojenje tretira 5.000 m3 vode godišnje - količinu koju koristi 100 danskih domaćinstava godišnje ili količinu koja može napuniti dva olimpijska bazena. Na ovaj način reciklira se 80% procesne vode, a preostalih 20% su čvrste čestice ili se koristi za ispiranje filtera. Prve godine, ovaj zatvoreni krug vode je radio sa samo pola kapaciteta, tako da će na kraju obrađivati 10.000 m3 vode godišnje.

Anders Lund Hansen kaže da motivacija za izgradnju ovog sistema nije bila finansijska.

„Poenta nije bila u stvaranju dobre poslovne priče", kaže on. „To nije bio pokretač. Motivacija je bila održivi razvoj - ambicija da se smanji potrošnja vode.

„To takođe pomaže Grundfosu da shvati kako naši proizvodi doprinose održivoj agendi. Ovo možete posmatrati kao malu laboratoriju. Istraživački centar iz kojeg možemo izvući puno informacija iz svojih proizvoda. Kako mogu dodatno doprineti racionalnoj upotrebi vode i energije."

THE CLOSED WATER CIRCUIT

The plant treats 5,000 m3 of water a year - the amount used by 100 Danish households annually, or what can fill two Olympic-sized swimming pools. In this way, 80% of the process water is recycled, and the remaining 20% is solid particles or is used to flush filters. In the first year, this closed water circuit operated at only half capacity, so it will eventually treat 10,000 m3 of water a year.

Anders Lund Hansen says that the motivation for building this system was not financial.

„The point was not to create a good business case," he says. „That was not the driver. The motivation was sustainability - the ambition to reduce water consumption.

„It also helps Grundfos understand how our products contribute to the sustainable agenda. You may view this as a small laboratory. A research center where we can extract a lot of learning from our products. How can they contribute further to the agenda of water and energy."

OTPADNE VODE KAO RESURS

Grundfosov direktor za ekologiju, Karen Touborg, kaže da u poređenju sa drugim vrstama industrije, Grundfos ne koristi toliko vode.
„Ali kao i bilo koji drugi industrijski pogon, Grundfos aktivnosti ostavljaju trag na okruženje. Odlučili smo da recikliramo vodu u Bjerringbro fabrici kako bismo objasnili šta se sve može učiniti i da možete napraviti razliku čak i kad imate malu ili srednju proizvodnu jedinicu.”
Karen Touborg dodaje da je ovaj projekat deo veće slike u radu sa današnjim izazovima u oblasti ekologije, koji zahtevaju da drugačije postupamo sa resursima poput vode.
„Ne vidimo korišćenu vodu kao otpadnu vodu. Mi to doživljavamo kao resurs koji se nakon tretmana može ponovo koristiti i vratiti u proizvodnju. Zato što nemamo otpad, već samo resurse.

WASTEWATER AS A RESOURCE

Grundfos’ director of environmental services, Karen Touborg, says that compared to other types of industries, Grundfos does not use so much water.
`„But like any other industrial plant, Grundfos’ activities do leave an environmental footprint. We chose to recycle water at the Bjerringbro factory to exemplify what can be done, and that you can make a difference even when you have a small or medium-sized production unit. „
Karen Touborg adds that this project is part of a bigger picture in dealing with today’s environmental challenges, which demand that we act differently with resources like water.
„We don’t see used water as wastewater. We see it as a resource that can be reused when it’s treated and can be looped back into production. Because we don’t have waste, only resources.”
GN`

Irena Vujović

POTPREDSEDNICA VLADE I MINISTARKA ZAŠTITE ŽIVOTNE SREDINE

Uvešćemo red u oblast zaštite životne sredine

Zelena tranzicija je važna za održiv razvoj društva i zato i mi u Srbiji gledamo na taj proces kao na jedan od prioriteta, kako bismo sustigli i držali korak sa EU zemljama. Pripremamo se kroz stalni rad na unapređenju strateškogokvira i kroz značajne investicije

Ako bih izdvojila projekat u oblasti upravljanja otpadnim vodama po kilometrima koje gradimo ili po kapacitetu postrojenja, najveći realizujemo u Nišu. U Nišu gradimo 46,6 kilometara kanalizacione mreže i najveće postrojenje za preradu otpadnih voda čiji kapacitet iznosi 286.000 ekvivalent stanovnika, kaže u intervjuu za naš magazin Irena Vujović, potpredsednica Vlade i ministarka zaštite životne sredine.

Koji su konkretni koraci koje Ministarstvo preduzima za unapređenje infrastrukture za upravljanje otpadnim vodama u Srbiji?

- Odlučni smo u nameri da uvedemo red u oblast zaštite životne sredine i u protekle četiri godine napravili smo značajan pomak u tom smeru. Menjamo stanje životne sredine, a time i kvalitet života građana na bolje. Jedna od prioritetnih i veoma zahtevnih oblasti kojom se bavimo jeste upravo upravljanje otpadnim vodama.

Nakon faze pregledanja projekata, njihove dorade ili ponovnog projektovanja, kako bismo bili sigurni da će izgrađena infrastruktura u potpunosti odgovoriti potrebama građana, krenuli smo u realizaciju. U ovom trenutku, ugovoreno je ili je u izgradnji više od 340 kilometara kanalizacione mreže širom Srbije, koja je i preduslov za izgradnju postrojenja koja takođe gradimo.

Možete li navesti nekoliko najznačajnijih tekućih projekata iz ove oblasti?

- Svi projekti su podjednako značajni, jer uvode sistem zaštite životne sredine po savremenim standardima u gradovima i opštinama u kojima se realizuju a to, ponoviću, pozitivno utiče i na kvalitet života građana što nam je najvažnije i krajnji je cilj našeg rada.

Ako bih izdvojila projekat u oblasti upravljanja otpadnim vodama po kilometrima koje gradimo ili po kapacitetu postrojenja, najveći realizujemo u Nišu. U Nišu gradimo 46,6 kilometara kanalizacione mreže i najveće postrojenje za preradu otpadnih voda čiji kapacitet iznosi 286.000 ekvivalent stanovnika. Kapitalni projekat realizujemo i u Pećincima gde u više naselja gradimo oko 78 kilometara nedostajuće kanalizacije, a isto toliko gradimo i u Leskovcu.

Realizujemo i manje projekte po kapacitetu, ali svakako jednake po važnosti za građane. Primer za to je projekat hitne sanacije regionalnog kolektora u Staroj Pazovi. Kolektor se prostire na svega jednom kilometru, ali je jako važan za stanovnike opštine Stara Pazova, kao i gradske opštine Zemun. Zbog pucanja kolektora u Staroj Pazovi ranije je dolazilo do izlivanja otpadnih voda i fekalne kanalizacije koja je stizala do kanalske mreže u zemunskom naselju Busije. Zato ovim projektom rešavamo veliki problem građana.

Koliko postrojenja za preradu otpadnih voda je trenutno u izgradnji ili planirano za izgradnju, i gde se nalaze? Koji su vremenski okviri za završetak tih projekata?

- U ovom trenutku ugovoreno je ili je u izgradnji više od 340 kilometara kanalizacione mreže širom Srbije, koja je i preduslov za izgradnju postrojenja za preradu otpadnih voda. Kako sam rekla, radimo 46,6 kilometara kanalizacione mreže u Nišu, 78 kilometara u Leskovcu, 78,4 kilometara u Pećincima, zatim u Raškoj, Boljevcu, Temerinu. U Staroj Pazovi radimo na hitnoj sanaciji kolektora, dok su ugovoreni i očekuje se da uskoro počnu radovi na teritoriji Bečeja, Priboja i Zrenjanina. Sledi ugovaranje za izradnju kanalizacione mreže i u Topoli, Vrbasu, Valjevu itd.

Kada je reč o postrojenjima za preradu otpadnih voda, do sada je ugovorena izgradnja u Nišu, Sečnju i Apatinu, a njihova rekonstrukcija u Bečeju i Beloj Palanci.Plan za tekuću godinu obuhvata i početak realizacije projekata u Valjevu, Bačkoj Palanci, Pećincima i u drugim lokalnim samoupravama.

Ovi kapitalni projekti iz oblasti upravljanja otpadnim vodama deo su vizije razvoja Srbije do 2027. godine, koju je predstavio predsednik Aleksandar Vučić. Taj

Irena Vujović

DEPUTY PRIME MINISTER AND THE MINISTER OF ENVIRONMENTAL PROTECTION

We Will Bring Order in the Area of Environmental Protection

The green transition is important for the sustainable development of society, and that is why we look at that process as one of the priorities in Serbia, in order to catch up and keep pace with the EU countries. We are preparing by working constantly on the improvement of the strategic framework, and through significant investments

If I were to single out a project in the field of wastewater management by the kilometers we are building or by the capacity of a plant, that is the largest one we are realizing in Niš. We are building 46.6 kilometers of a sewage network and the largest wastewater treatment plant with a capacity of 286,000 population equivalent there, says Irena Vujović, Deputy Prime Minister and the Minister of Environmental Protection, in an interview for our magazine.

What are concrete steps that the Ministry is taking to improve the infrastructure for wastewater management in Serbia?

- We are determined to bring order to the field of environmental protection, and in the past four years we have made significant progress in that direction. We are changing the state of the environment, and thus the quality of life of citizens, for the better. One of priorities and very demanding areas we deal with is wastewater management.

After the phase of reviewing projects, their refinement or re-design, in order to make sure that the built infrastructure will fully meet the needs of the citizens, we have started implementation. At this moment, more than 340 kilometers of sewage networks throughout Serbia have been contracted or are under construction, which is a prerequisite for the construction of a plant that we are also building.

Can you name a few of the most significant ongoing projects in this area?

- All projects are equally important, because they introduce a system of environmental protection according to modern standards in the cities and municipalities where they are implemented, and this, I will repeat, has a positive effect on the quality of life of citizens, which is the most important thing for us and the ultimate goal of our work.

If I were to single out a project in the field of wastewater management by the kilometers we are building or by the capacity of a plant, that is the largest one we are realizing in Niš. We are building 46.6 kilometers of a sewage network and the largest wastewater treatment plant with a capacity of 286,000 population equivalent there. We are also implementing a capital project in Pećinci, where we are building about 78 kilometers of missing sewage system in several neighborhoods, and in Leskovac as well.

We also implement smaller projects in terms of capacity, but certainly equal in importance for citizens. An example of this is the project of emergency rehabilitation of the regional collector in Stara Pazova. The collector covers only one kilometer, but it is very important for the population of the municipality of Stara Pazova, as well as the city municipality of Zemun. Due to the rupture of the collector in Stara Pazova, previously there was overflow of wastewater and fecal sewage that reached the canal network in the Zemun neighborhood of Busije. That is why we are going to solve a big problem of citizens with this project.

How many wastewater treatment plants are currently under construction or planned for construction, and where are they located? What are deadlines for the completion of those projects?

- At the moment, more than 340 kilometers of sewage networks throughout Serbia have been contracted or are under construction, which is also a prerequisite for the construction of wastewater treatment plants. As I have mentioned, we are working on 46.6 kilometers of the sewage network in Niš, 78 kilometers in Leskovac, 78.4 kilometers in Pećinci, also in Raška, Boljevac, and Temerin. In Stara Pazova, we are working on the urgent rehabilitation of collectors, while the work has been contracted and is expected to start soon on territories of Bečej, Priboj and Zrenjanin. Then follow the contracting for the construction of sewage networks in Topola, Vrbas, Valjevo, etc.

When it comes to wastewater treatment facilities, so far, the construction has been contracted in Nis, Sečanj and Apatin, and the reconstruction in Bečej and Bela Palanka. The plan for the current year includes the start of projects in Valjevo, Bačka Palanka, Pećinci and other local governments.

These capital projects in the field of wastewater management are part of the vision of the development of Serbia until 2027, presented by the President Aleksandar Vučić. That plan envisages that, through the projects of the Ministry of Environmental Protection and projects of other ministries of the Government of Serbia, by 2027, wastewater

Irena Vujović

POTPREDSEDNICA VLADE I MINISTARKA ZAŠTITE ŽIVOTNE SREDINE

Nedavno smo pod zaštitu stavili Rajac, koji se nalazi na teritoriji Ljiga i Gornjeg Milanovca i naziva se “raj na zemlji”. Proglašenjem Predela izuzetnih odlika Rajac sada imamo 474 zaštićena područja, dok je pod zaštitom države skoro 10% teritorije Srbije

plan predviđa da, kroz projekte Ministarstva zaštite životne sredine i projekte drugih ministarstava u Vladi Srbije, do 2027. godine u 35 lokalnih samouprava bude izgrađeno postrojenje za preradu otpadnih voda i da nivo izgrađenosti kanalizacione mreže pređe 80%, što je po evropskim standardima.

GN *Na koji način Ministarstvo planira smanjenje zagađenja reka i jezera u Srbiji? Koje su ključne mere koje sprovodite u ovom trenutku?*

- Upravo na ovaj način,o čemu sam govorila. Izgradnjom kanalizacione mreže stvaramo uslov za izgradnju postrojenja za preradu otpadnih voda iz kojeg, nakon prerade, u recipijent odlazi tehnički ispravna voda. Tako štitimo naše reke, jezera i životnu sredinu u celini.

Mi smo svoj posao ozbiljno shvatili i uvodimo red u ovu oblast. I industrija je u obavezi da odjanuara 2026. godineprečisti otpadnu vodu pre ispuštanja. Prelazni rok za privredu propisan je Uredbom o graničnim vrednostima emisije zagađujućih materija u vode, a po isteku tog roka neće biti tolerisano nikakvo odstupanje od propisanih vrednosti.Ukoliko svaki privredni subjekt ispuni propisanu obavezu i pre ispuštanja otpadne vode uradi predtretman, zajedno ćemo uspeti mnogo efikasnije da sačuvamo reke, jezera i životnu sredinu za sve građane.

GN *Posvećujete pažnju i čišćenju deponija. Šta je sve urađeno u toj oblasti?*

- Regionalni centri upravo predstavljaju zelenu infrastrukturu o kojoj govorimo i koju sada i gradimo. Do 2027. godine planirana je izgradnja devet regionalnih centara za upravljanje otpadom, a kroz projekte Ministarstva koje vodim izgradićemo ili rekonstruisati sedam takvih centara.

U ovom momentu, izvode se radovi na regionalnom centru u Pirotu, ali i na najvećem regionalnom centru u Srbiji Ub-Kalenić, ka kojem će gravitirati 15 gradova i opština. Do kraja godine očekujem da će početi radovi i na regionalnoj deponiji Užice, u koju ćemo uložiti oko 30 miliona evra, kako bi funkcionisala kao moderan centar, u kojem se otpad odlaže po savremenim standardima.

Centri su krovno rešenje i glavni preduslov da nastavimo da zatvaramo gradske nesanitarne i čistimo divlje deponije. U poslednje četiri godine, sanirali smo osam nesanitarnih deponija u Šapcu, Prijepolju, Bogatiću, zatim u Čačku, Trsteniku, Bečeju, Priboju i jalovište u Loznici. Pri kraju su radovi na sanaciji deponija u Požegi, Rumi i Zrenjaninu, a ove godine saniramo i deponije u Subotici, Prokuplju i Topoli.

Kada je reč o manjim, divljim deponijama, za četiri godine smo očistili više od 1.000 lokacija i nastavićemo da odvajamo sredstva dok ih sve ne očistimo.

GN *Koje subvencije i olakšice su trenutno dostupne građanima za kupovinu električnih vozila? Planirate li dodatne podsticaje kako bi se povećala upotreba ovih vozila?*

- Ministarstvo zaštite životne sredine i ove godine obezbeđuje sredstva za podršku kupovini električnih vozila, što je jedna odvažnih mera države za unapređenje

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Irena Vujović

DEPUTY PRIME MINISTER AND THE MINISTER OF ENVIRONMENTAL PROTECTION

We are changing the state of the environment and thus the quality of life of citizens, for the better

treatment plants will be built in 35 local governments, and the construction level of sewage networks will exceed 80%, which is according to European standards.

GN *How does the Ministry plan to reduce the pollution of rivers and lakes in Serbia? What are the key measures you are implementing at the moment?*

- Exactly the way I have been talking about. By building a sewage network, we create a condition for the construction of a wastewater treatment plant from which, after treatment, technically pure water goes to a recipient. This is how we protect our rivers, lakes and the environment as a whole.

We have taken our job seriously and bring order to this area. The industry will also be obliged to treat wastewater before discharging it, from January 2026. The transition period for the economy is prescribed by the Regulation on threshold values for the emission of polluting substances into water, and after the expiry of that period, no deviation from the prescribed values will be tolerated. If every business entity fulfills the prescribed obligation and performs pre-treatment before discharging waste water, together, we will be able to save rivers, lakes and the environment much more efficiently for all citizens.

GN *You also pay attention to cleaning landfills. What has been done in that area so far?*

- Regional centers represent exactly the green infrastructure we are talking about and that we are building now. By 2027, the construction of nine regional centers for waste management is planned, and through the projects of the Ministry that I lead, we will build or reconstruct seven such centers.

At this moment, works are being carried out on the regional center in Pirot, but also on the largest regional center in Serbia, Ub-Kalenić, towards which 15 cities and municipalities will gravitate. By the end of the year, I expect that the work will also begin on the regional landfill in Užice, in which we will invest around 30 million euros, so that it functions as a modern center where waste is disposed of according to modern standards.

The centers are an umbrella solution and the main prerequisite for us to continue to close and clean cities’ unsanitary illegal landfills. In the last four years, we have rehabilitated eight unsanitary landfills in Šabac, Prijepolje, Bogatić, Čačak, Trstenik, Bečej, Priboj and a tailing dump in Loznica. The works on the rehabilitation of landfills in Požega, Ruma and Zrenjanin have almost been completed, and this year we are also rehabilitating landfills in Subotica, Prokuplje and Topola.

When it comes to smaller, wild dumps, we have cleaned up more than 1,000 sites in four years, and will continue to allocate funds until we clean them all up.

GN *What subsidies and incentives are currently available to citizens for the purchase of electric vehicles? Are you planning additional incentives to increase the use of these vehicles?*

- This year, the Ministry of Environmental Protection has also provided funds to support the purchase of electric vehicles, which is one of the state’s bold measures to improve air quality. The subsidy of 250 euros has been planned for mopeds and light tricycles, and the subsidy of 500 euros for motorcycles, heavy tricycles, light and heavy quadricycles and the subsidy of 5,000 euros for passenger vehicles with a maximum of nine seats and trucks up to 3.5 tons. Individuals, legal entities or entrepreneurs can apply until the funds are used up or no later than October 31 this year.

For 2024, we have allocated 170 million dinars, and so far 134 million have been reserved for the purchase of 236 electric vehicles. Previously, when the demand exceeded the planned funds, we managed to secure additional funds, because we care about supporting everyone who chooses this type of vehicle that does not emit carbon dioxide or other pollutants, and thus directly contributes to the protection of the environment.

I believe that the demand will be greater when the new electric model „Fiat Grand Panda” from the Kragujevac factory is available on the market, and we will do our best to provide funding for subsidies.

GN *How much has the Ministry invested in protected areas in Serbia so far, and how do you plan further development of those areas?*

- There is only one earth, and our task is to preserve our pearls for future generations. We have taken this work seriously, so year after year we invest more and more funds in protected areas, while simultaneously increasing the area under the protection of the state.

This year, we have invested almost twice as much in protected areas of national importance compared to 2021. Four years ago, we invested 264.8 million dinars, and in the current year even 500 million, or half a billion dinars.

In order to further develop protected areas, last year, for the first time, the Ministry of Environmental Protection provided additional funds in the amount of 45 million dinars, which were directly allocated to projects in those areas in six local governments. This year, for these purposes, we have allocated 100 million dinars for the projects of 14 local governments in protected areas.

We have recently placed Rajac under the protection, which is located in the territory of Ljig and Gornji Milanovac, and is called „heaven on earth”. With the declaration of the landscape of exceptional characteristics Rajac, now we have 474 protected areas, while almost 10 percent of Serbia’s territory is under the protection of the state.

GN *How are you preparing for the green transition?*

- The green transition is important for the sustainable development of society and that is why we look at that process as one of the priorities in Serbia, in order to catch up and keep pace with the EU countries. We are preparing by working constantly on the improvement of the strategic framework, and through significant investments.

When it comes to harmonizing regulations, we have achieved significant results and we will continue with it. We are preparing an important planning document, the Environmental Protection Strategy - Green Agenda, with which we are going to complete the strategic framework relevant to this area. On the other hand, our task is to create an environment for green transformation, to encourage investments and the economy to adapt as soon as possible to the increasing demands of the EU market in order to maintain competitiveness. Serbia is a leader in relation to other

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Irena Vujović

POTPREDSEDNICA VLADE I MINISTARKA ZAŠTITE ŽIVOTNE SREDINE

Pripremamo važan planski dokument, Strategiju zaštite životne sredine - Zelena agenda, kojom ćemo zaokružiti strateški okvir relevantan za ovu oblast. Sa druge strane, naš zadatak je i da stvaramo ambijent za zelenu transformaciju, da podstaknemo investicije i privredu da se što pre prilagode sve većim zahtevima EU tržišta kako bismo održali konkurentnost

kvaliteta vazduha.Predviđena je podrška od 250 evra za mopede i lake tricikle, od 500 evra za motocikle, teške tricikle, lake i teške četvorocikle i od 5.000 evra za putnička vozila do devet sedišta i teretna vozila do 3,5 tona. Mogu da konkurišu fizička, pravna lica ili preduzetnici i to do utroška sredstava ili najkasnije do 31. oktobra ove godine.

Za 2024.godinusmo opredelili 170 miliona dinara, a do sada je rezervisano 134 miliona za kupovinu 236 električnih vozila. Ranije smo, kada tražnja nadmaši planirana sredstva, uspevali da obezbedimo i dodatna sredstva, jer nam je stalo da podržimo sve koji se odluče za ovu vrstu vozila koja ne emituju ugljen-dioksid, niti druge zagađujuće materije ina taj način direktno doprinose zaštiti životne sredine.

Verujem da će tražnja biti veća kada na tržištu bude dostupan novi električni model "fijat grande panda" iz kragujevačke fabrike, a mi ćemo se potruditi da obezbedimo sredstva za subvencionisanje.

Koliko je Ministarstvo do sada investiralo u zaštićena područja u Srbiji i kako planirate dalji razvoj tih područja?

- Priroda je samo jedna i naš zadatak je da sačuvamo naše bisere za buduće generacije. Mi smo taj posao ozbiljno shvatili, pa iz godine u godinu ulažemo sve veća sredstva u zaštićena područja, istovremeno povećavajući površinu pod zaštitom države.

Ove godine smo u zaštićena područja od nacionalnog značaja uložili gotovo dvostruko više u odnosu na 2021. godinu. Pre četiri godine, uložili smo 264,8 miliona dinara, a u tekućoj godini čak 500 miliona, odnosno pola milijarde dinara.

Ministarstvo zaštite životne sredine je, u cilju daljeg razvoja zaštićenih područja, prošle godine po prvi put obezbedilo i dodatna sredstva u iznosu od45 miliona dinara, koja su direktno dodeljenaza projekte u tim područjima u šest lokalnih samouprava. Ove godine smo u te svrhe dodelili 100 miliona dinara za projekte 14 lokalnih samouprava u zaštićenim područjima.

Nedavno smo pod zaštitu stavili Rajac, koji se nalazi na teritoriji Ljiga i Gornjeg Milanovca i naziva se "raj na zemlji". Proglašenjem Predela izuzetnih odlika Rajac sada imamo 474 zaštićena područja, dok je pod zaštitom države skoro 10 odsto teritorije Srbije.

Kako se pripremate za zelenu tranziciju?

- Zelena tranzicija je važna za održiv razvoj društva i zato i mi u Srbiji gledamo na taj proces kao na jedan od prioriteta, kako bismo sustigli i držali korak sa EU zemljama.Pripremamo se kroz stalni rad na unapređenju strateškogokvira i kroz značajne investicije.

Kada je reč o usklađivanju propisa, ostvarili smo zapažene rezultate i nastavljamo dalje. Pripremamo važan planski dokument, Strategiju zaštite životne sredine - Zelena agenda, kojom ćemo zaokružiti strateški okvir relevantan za ovu oblast. Sa druge strane, naš zadatak je i da stvaramo ambijent za zelenu transformaciju, da podstaknemo investicije i privredu da se što pre prilagode sve većim zahtevima EU tržišta kako bismo održali konkurentnost. Srbija je lider u odnosu na ostale zemlje Zapadnog Balkana, sa ukupnim investicijama koje premašuju pet milijardi evra, a namenjena su, kroz različita ministarstva, izgradnji zelene infrastrukture i poboljšanju kvaliteta vazduha.

Na koji način Ministarstvo balansira između ekonomskog razvoja i očuvanja ekološke ravnoteže? Koji su glavni izazovi sa kojima se susrećete u ovom kontekstu?

- Zelena tranzicija o kojoj sam govorila je naš put i proces kojem jetim Vlade Srbije potpuno posvećen. Taj koncept u suštini predstavljasinergiju privrede i ekologije – održiv razvoj koji podrazumeva privrednu aktivnost uz primenu visokih standarda zaštite životne sredine.

Sa druge strane, važno je istaći da ekonomski razvoj svakako nije faktor koji isključivo negativno utiče na životnu sredinu, pre svega zahvaljujući tehnološkom razvoju i primeni modernih tehnoloških rešenja. IT sektor i visokotehnološka industrija, primera radi, uopšte ne zagađuju okruženje, a kada je reč o prerađivačkoj industriji propisima je regulisano poslovanje kako bi se uticaj na životnu sredinu sveo na granične vrednosti. Ministarstvo koje vodim se snažno zalaže za dalji razvoj zemlje i nove investicije i u drugim oblastima, ali od svakog investitora zahtevamo da poštuje stroge standarde zaštite životne sredine, kakvi se poštuju i u EU. Zaštita životne sredine je za nas imperativ i nećemo dozvoliti realizaciju projekata, koji ne zadovoljavaju propisane kriterijume.

Podsetiću da smo, samo u protekle četiri godine, mnogo uradili nausklađivanju zakona i podzakonskih akata sa EU direktivama i da su zahtevi zaštite životne sredine strogi i u regulativi Republike Srbije. Nastavićemo da usklađujemo propise i u narednom periodu.Nemar prema ovoj oblasti je isključivo stvar prošlosti. Ono što razlikuje ovu vlast od svih prethodnih, jeste što smo mi jedini bili odlučni u tome da napravimo snažan zaokret ka očuvanju životne sredine i odlučni smo da menjamo ekološku sliku Srbije na bolje.

Najveći izazov u ovom velikom poslu svakako je loše ekološko nasleđe, istorijski nagomilani problemi u čije rešavanje ulažemo više nego što se ikada pre ulagalo, ali i navike pojedinih neodgovornih fizičkih i pravnih lica da ne moraju da poštuju propise koji se odnose na ovu oblast. Od kad sam pre četiri godine preuzela resor, jasno smo pokazali da nećemo tolerisati loše navike iz prošlosti. Danas gotovo da nema lokalne samouprave u kojoj se ne realizuje bar jedan ekološki projekat. Gradimo zelenu infrastrukturu koju Srbija nikada nije imala i to je glavni preduslov da podižemo standarde na evropski nivo, a time i kvalitet života građana.

Irena Vujović

DEPUTY PRIME MINISTER AND THE MINISTER OF ENVIRONMENTAL PROTECTION

We have recently placed Rajac under the protection, which is located in the territory of Ljig and Gornji Milanovac, and is called „heaven on earth". With the declaration of the landscape of exceptional characteristics Rajac, now we have 474 protected areas, while almost 10 percent of Serbia's territory is under the protection of the state

countries of the Western Balkans, with total investments that exceed five billion euros, intended, through various ministries, to build green infrastructure and improve air quality.

How does the Ministry balance between economic development and preservation of the ecological balance? What are the main challenges you face in this context?

- The green transition that I have spoken about is our path and a process to which the Government of Serbia is fully committed. That concept essentially represents the synergy of economy and ecology – the sustainable development that implies economic activity with the application of high standards of environmental protection.

On the other hand, it is important to point out that economic development is certainly not a factor that only negatively affects the environment, primarily thanks to technological development and the application of modern technological solutions. The IT sector and the high-tech industry, for example, do not pollute the environment at all, and when it comes to the processing industry, the business is regulated so as to reduce the impact on the environment to threshold values. The Ministry I lead strongly advocates for further development of the country and new investments in other areas as well, but we require every investor to respect the strict standards of environmental protection, that are also respected in the EU. Environmental protection is an imperative for us, and we will not allow the implementation of projects that do not meet prescribed criteria.

I will remind you that, in the past four years, we have done a lot to harmonize laws and by-laws with EU directives and that the requirements of environmental protection are strict in the regulations of the Republic of Serbia. We will continue to harmonize regulations in the coming period as well. Negligence in this area is a matter of the past. What distinguishes this government from all the previous ones is that we have been the only ones determined to make a strong turn towards environmental protection, and we are determined to change the ecological image of Serbia for the better.

The greatest challenge in this big business is certainly bad ecological legacy, historically accumulated problems in whose solving we have invested more than ever before, but also the habits of certain irresponsible individuals and legal persons who do not respect the regulations in this area. Since I took over this sector four years ago, we have clearly shown that we will not tolerate bad habits from the past. Today, there is almost no local government in which at least one ecological project has not been implemented. We are building the green infrastructure that Serbia has never had, and that is the main prerequisite for raising standards to the European level, and thus the quality of life of citizens.

EKOSISTEM

Biotički i abiotički faktori

Ekolozi koriste biotičke i abiotičke faktore kako bi predvideli promene u populaciji i ekološke događaje

U ekologiji, biotički i abiotički faktori obuhvataju sve žive i nežive delove ekosistema. Biotički faktori odnose se na žive organizme i njihove odnose. Abiotički faktori su neživi sastojci ekosistema, uključujući sunčevu svetlost, vodu, temperaturu, vetar i hranljive materije.

Ekolozi koriste biotičke i abiotičke faktore kako bi predvideli promene u populaciji i ekološke događaje. Ispitujući kako ovi faktori međusobno deluju, ekolozi mogu proceniti šta se dešava u ekosistemu tokom vremena. Takođe, mogu predvideti ekološke događaje poput izumiranja vrsta, prekomerne populacije, promena u stopama rasta i izbijanja bolesti.

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ECOSYSTEM

Biotic and Abiotic Factors

In ecology, biotic and abiotic factors include all living and non-living parts of an ecosystem. Biotic factors refer to living organisms and their relationships. Abiotic factors are the non-living components of an ecosystem, including sunlight, water, temperature, wind and nutrients.

Ecologists use biotic and abiotic factors to predict population changes and ecological events. By examining how these factors interact, ecologists can assess what is happening in an ecosystem over time. They can also predict ecological events such as species extinction, overpopulation, changes in growth rates, and disease outbreaks.

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Ecologists use biotic and abiotic factors to predict population changes and ecological events

Biotički faktori uključuju interakcije između organizama, kao što su bolesti, predacija, parazitizam i konkurencija među vrstama ili unutar jedne vrste

Biotički faktori

Biotički faktori uključuju interakcije između organizama, kao što su bolesti, predacija, parazitizam i konkurencija među vrstama ili unutar jedne vrste. Pored toga, sami živi organizmi su biotički faktori. Oni spadaju u tri glavne kategorije: proizvođači, potrošači i razlagači.

Proizvođači Ovi organizmi, koji uključuju biljke i alge, pretvaraju abiotičke faktore u hranu. Većina proizvođača koristi sunčevu energiju zajedno sa vodom i ugljen-dioksidom u procesu zvanom fotosinteza. Ovo rezultira energijom kojom se proizvođači hrane. Zapravo, proizvođači se nazivaju i autotrofima jer se sami hrane: na grčkom, „auto“ znači sam, a „troph“ znači hranjenje ili ishrana. Autotrofi koriste abiotičke faktore da bi proizveli sopstvenu hranu.

Potrošači Većina potrošača su životinje, i oni ne prave sopstvenu hranu. Umesto toga, oni konzumiraju proizvođače ili druge potrošače kako bi dobili energiju iz hrane. Zato se potrošači nazivaju heterotrofima: „hetero“ znači različit ili drugi, jer se hrane vrstama različitim od sebe. Potrošači mogu biti biljojedi, mesojedi ili svaštojedi. Biljojedi se hrane proizvođačima; uključuju životinje poput konja, slonova i morskih krava. Mesojedi se hrane drugim potrošačima. Oni uključuju lavove, vukove i orke. Svaštojedi, kao što su ptice, medvedi i jastozi, hrane se i proizvođačima i potrošačima.

Razlagači To su organizmi koji razgrađuju organsku materiju iz mrtvih biljaka i životinja u neorganske komponente, poput ugljenika i azota, koje su neophodne za život. Neorganska materija se zatim vraća u zemlju i vodu kao hranljive materije koje proizvođači mogu ponovo koristiti, čime se ciklus nastavlja. Razlagači se takođe nazivaju saprotrofima: od grčke reči „saprós“, što znači trulo, jer se hrane trulom organskom materijom. Primeri razlagača uključuju bakterije, gljive, gliste i neke insekte.

Abiotički faktori

Abiotički faktori su neživi sastojci ekosistema, uključujući njegove hemijske i fizičke faktore. Abiotički faktori utiču na druge abiotičke faktore. Pored toga, oni imaju dubok uticaj na raznovrsnost i obilje života u ekosistemu, bilo na kopnu ili u vodi. Bez abiotičkih faktora, živi organizmi ne bi mogli da jedu, rastu i razmnožavaju se. Ispod je lista nekih od najznačajnijih abiotičkih faktora.

Sunčeva svetlost: Kao najveći izvor energije na svetu, sunčeva svetlost igra ključnu ulogu u većini ekosistema. Ona obezbeđuje energiju koju biljke koriste za proizvodnju hrane i utiče na temperaturu. Organizmi moraju da se prilagode u zavisnosti od toga koliko imaju pristup sunčevoj svetlosti.

Kiseonik Kiseonik je neophodan za većinu oblika života na Zemlji. Razlog? Potreban im je kiseonik da bi disali i oslobađali energiju iz hrane. Na ovaj način, kiseonik pokreće metabolizam većine organizama.

Temperatura Prosečna temperatura, raspon temperature i ekstremne temperature u vazduhu i vodi su sve važne za način na koji organizmi žive i preživljavaju u ekosistemu. Temperatura takođe utiče na metabolizam organizma, a vrste su evoluirale da napreduju u tipičnom temperaturnom rasponu u svom ekosistemu.

Vetar Vetar može imati mnoge efekte na ekosistem. On pokreće druge abiotičke faktore, poput tla i vode. Vetar raspršuje seme i širi vatru. Takođe utiče na temperaturu kao i na isparavanje iz tla, vazduha, površinskih voda i biljaka, menjajući nivo vlažnosti.

Voda Voda je neophodna za sav život. U kopnenim ekosistemima gde je voda oskudna, kao što su pustinje, organizmi razvijaju osobine i ponašanja koja im pomažu da prežive tako što efikasno skupljaju i skladište vodu. Ovo ponekad može stvoriti izvor vode i za druge vrste. U ekosistemima poput kišnih šuma, gde obilje vode osiromašuje hranljive materije iz tla, mnoge biljke imaju posebne osobine koje im omogućavaju da sakupe hranljive materije pre nego što voda ih ispere. Voda takođe sadrži hranljive materije, gasove i izvore hrane od kojih zavise vodene i morske vrste, i ona olakšava kretanje i druge životne funkcije.

Okeanske struje Okeanske struje uključuju kretanje vode, što zauzvrat olakšava kretanje biotičkih i abiotičkih faktora poput organizama i hranljivih materija. Struje takođe utiču na temperaturu vode i klimu. One igraju važnu ulogu u preživljavanju i ponašanju organizama koji žive u vodi, jer struje mogu uticati na stvari kao što su dostupnost hrane, reprodukcija i migracija vrsta.

Hranljive materije Zemlja i voda sadrže neorganske hranljive materije koje su organizmima potrebne za ishranu i rast. Na primer, minerali poput fosfora, kalijuma i azota pronađeni u zemljištu su važni za rast biljaka. Voda sadrži mnoge rastvorene hranljive materije, a oticanje tla može preneti hranljive materije u vodene i morske sredine.

Biotic factors

Biotic factors include interactions between organisms, like disease, predation, parasitism, and competition among species or within a single species. In addition, living organisms themselves are biotic factors. They fall into three main categories: producers, consumers, and decomposers.

Producers These organisms, which include plants and algae, convert abiotic factors into food. Most producers use the sun's energy along with water and carbon dioxide in a process called photosynthesis. This results in energy that producers can feed on. In fact, producers are also called autotrophs because they feed themselves: in Greek, „auto" means self and „troph" means to feed or nourishment. Autotrophs use abiotic factors to produce their own food.

Consumers Most consumers are animals, and they do not make their own food. Instead, they consume producers or other consumers to obtain food energy. That is why consumers are called heterotrophs: „hetero" means different or other, because they feed on species different from themselves. Consumers can be herbivores, carnivores or omnivores. Herbivores feed on producers; they include animals like horses, elephants and manatees. Carnivores feed on other consumers. They include lions, wolves and orcas. Omnivores, such as birds, bears and lobsters, feed on both producers and consumers.

Decomposers These are organisms that break down organic matter from dead plants and animals into inorganic components, such as carbon and nitrogen, that are necessary for life. The inorganic matter is then returned to the soil and water as nutrients that can be reused by producers, continuing the cycle. Decomposers are also called saprotrophs: from the Greek word „saprós", meaning rotten, because they feed on rotting organic matter. Examples of decomposers include bacteria, fungi, earthworms and some insects.

Abiotic factors

Abiotic factors are the non-living components of an ecosystem, including its chemical and physical factors. Abiotic factors affect other abiotic factors. In addition, they have a profound effect on the diversity and abundance of life in an ecosystem, whether on land or in water. Without abiotic factors, living organisms would not be able to eat, grow and reproduce. Below is a list of some of the most important abiotic factors.

Abiotic factors are the non-living components of an ecosystem, including its chemical and physical factors

Sunlight As the world's largest source of energy, sunlight plays a key role in most ecosystems. It provides energy that plants use to produce food and affects temperature. Organisms have to adapt depending on how much access they have to sunlight.

Oxygen Oxygen is essential for most life forms on Earth. The reason? They need oxygen to breathe and release energy from food. In this way, oxygen drives the metabolism of most organisms.

Temperature The average temperature, the range of temperatures, and extremes of temperature in air and water are all important in how organisms live and survive in an ecosystem. Temperature also affects an organism's metabolism, and species have evolved to thrive within the typical temperature range in their ecosystem.

Wind Wind can have many effects on an ecosystem. It moves other abiotic factors, such as soil and water. The wind disperses seeds and spreads fire. It also affects temperature as well as evaporation from soil, air, surface water and plants, changing humidity levels.

Water Water is essential for all life. In terrestrial ecosystems where water is scarce, such as deserts, organisms develop traits and behaviors that help them survive by collecting and storing water efficiently. This can sometimes create a water source for other species as well. In ecosystems like rain forests, where abundant water depletes nutrients from the soil, many plants have special properties that allow them to collect nutrients before water washes them away. Water also contains nutrients, gases, and food sources that aquatic and marine species depend on, and it facilitates movement and other life functions.

Ocean currents Ocean currents involve the movement of water, which in turn facilitates the movement of biotic and abiotic factors such as organisms and nutrients. Currents also affect water temperature and climate. They play an important role in the survival and behavior of aquatic organisms, as currents can affect things like food availability, reproduction, and species migration.

Nutrients Soil and water contain inorganic nutrients that organisms need for nutrition and growth. For example, minerals like phosphorus, potassium and nitrogen found in soil are important for plant growth. Water contains many dissolved nutrients, and soil runoff can transport nutrients to aquatic and marine environments.

GREENNEWS

ODNOS IZMEĐU BIOTIČKIH I ABIOTIČKIH FAKTORA

I biotički i abiotički faktori mogu uticati na populaciju neke vrste. Faktori u ekosistemu koji inhibiraju biotičke procese, kao što je rast populacije, nazivaju se ograničavajućim faktorima.

OKEANSKI BIOTIČKI I ABIOTIČKI FAKTORI

Razmislite o razlici između života u površinskim vodama okeana i ekosistema duboko u okeanu, 4000 metara ispod površine. Blizu površine okeana, sitne biljke zvane fitoplankton pretvaraju obilje sunčeve svetlosti u energiju. Fitoplankton formira osnovu ogromne prehrambene mreže od koje zavisi mnoštvo drugih vrsta, od delfina i riba do različitih organizama koji čine koralne grebene. Vode su toplije blizu površine i ima više kiseonika. Ovi abiotički faktori, poput sunčeve svetlosti, kiseonika i temperature, između ostalih, utiču na karakteristike i ponašanje organizama u celom ekosistemu.

Nasuprot tome, malo ili nimalo sunčeve svetlosti ne prodire u duboke okeanske vode; jedino svetlo koje postoji proizvode stvorenja koja tamo žive. Na tim dubinama, organizmi moraju biti prilagođeni ekstremnom pritisku, koji je više od 110 puta veći od pritiska površinskih voda. Život ovde mora izdržati temperature blizu tačke smrzavanja. Ima manje hrane i manje kiseonika, što zahteva sporiji metabolizam. U ovom ekosistemu, niski nivoi svetlosti, kiseonika i hrane, zajedno sa hladnim temperaturama vode, predstavljaju ograničavajuće faktore koji ograničavaju organizme koji ovde žive.

Abiotički faktori imaju dubok uticaj na raznovrsnost i obilje života u ekosistemu, bilo u vodi ili na kopnu. Ali ovo funkcioniše u oba smera: biotički faktori takođe mogu promeniti abiotičke faktore. Sav onaj fitoplankton u okeanu proizvodi obilje kiseonika. Veće biljke, poput šuma algi, filtriraju sunčevu svetlost, hlade vode i utiču na okeanske struje.

INVAZIVNE VRSTE

Proučavanje ovih odnosa može biti korisno i u kontroli invazivnih vrsta. Druga nedavna studija istraživala je koji biotički i abiotički faktori najviše utiču na divlje svinje, invazivnog sisara prisutnog na pet kontinenata.

Koristeći modele koji su generisali podatke o interakcijama divljih svinja sa faktorima poput dostupnosti vode, temperature, produktivnosti biljaka, predacije i promene korišćenja zemljišta izazvane ljudskim aktivnostima, istraživači su stvorili globalnu mapu predviđanja gustine populacije divljih svinja. Identifikovanje faktora koji su najviše povezani sa gustinom populacije pomaže u upravljanju ovom invazivnom vrstom. Korišćenjem takvih pristupa, ekolozi mogu osmisliti načine za zaštitu biodiverziteta ekosistema.

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Abiotički faktori su neživi sastojci ekosistema, uključujući njegove hemijske i fizičke faktore

Biotic factors include interactions between organisms, like disease, predation, parasitism, and competition among species or within a single species

THE RELATIONSHIP BETWEEN BIOTIC AND ABIOTIC FACTORS

Both biotic and abiotic factors can affect the population of a species. Factors in an ecosystem that inhibit biotic processes, such as population growth, are called limiting factors.

OCEANIC BIOTIC AND ABIOTIC FACTORS

Think about the difference between life in surface waters of the ocean and ecosystems deep in it, 4,000 meters below the surface. Near the surface of the ocean, tiny plants called phytoplankton convert the abundance of sunlight into energy. The phytoplankton form the basis of a vast food web which many other species depend on, from dolphins and fish to various organisms that compose coral reefs. Waters are warmer near the surface, and there is more oxygen. These abiotic factors, such as sunlight, oxygen, and temperature, among others, affect the characteristics and behavior of organisms in the entire ecosystem.

By contrast, little or no sunlight permeates deep ocean waters; the only light that exists is produced by creatures that live there. At these depths, organisms must be adapted to extreme pressure, which is more than 110 times greater than surface water pressure. Life here must endure temperatures close to freezing. There is less food and less oxygen, which requires slower metabolisms. In this ecosystem, low levels of light, oxygen, and food, along with cold water temperatures, are limiting factors that constrain the organisms that live here.

Abiotic factors have a profound effect on the diversity and abundance of life in an ecosystem, whether in water or on land. But this works both ways: biotic factors can also change abiotic factors. All that phytoplankton in the ocean produces plenty of oxygen. Larger plants, such as kelp forests, filter sunlight, cool the waters, and affect ocean currents.

INVASIVE SPECIES

Studying these relationships can also be useful in the control of invasive species. Another recent study investigated which biotic and abiotic factors most affect wild boar, an invasive mammal present on five continents.

Using models that generated data on wild boar interactions with factors such as water availability, temperature, plant productivity, predation and human-induced land-use change, the researchers created a global map predicting wild boar population density. Identifying the factors most closely related to population density helps manage this invasive species. Using such approaches, ecologists can devise ways to protect ecosystem biodiversity.

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Biotički i abiotički faktori u Jeloustonu

Na kopnu, biotički faktori takođe pokreću promene koje mogu proći kroz ekosistem. Na primer, jedno istraživanje u Nacionalnom parku Jelouston pokazalo je da su tokom decenija u kojima su sivi vukovi bili odsutni iz parka, jeleni losovi se manje kretali jer su imali manje predatora. Umesto toga, losovi su pasli na drvenastim biljkama i žbunju blizu potoka, smanjujući broj i veličinu vrba duž obala potoka. Manje vrba značilo je manje hrane za dabrove, čija je populacija tada opala. Manje dabrova značilo je manje dabrovih brana, što je zauzvrat smanjilo močvarno stanište za vrbe i druge vrste koje su podržavale.

Ponovno uvođenje vukova 1995. godine bio je prekretnica. To je pokrenulo moguću trofičku kaskadu, događaj u kojem promene u prehrambenoj mreži menjaju strukturu ekosistema. U ovom slučaju, vukovi su ograničili populaciju i ponašanje losova, čime su poboljšali šanse za preživljavanje drugih organizama. Losovi su prestali provoditi toliko vremena u blizini potoka. Populacija vrba i dabrova počela je da se oporavlja, a dabrovi su izgradili više brana. To je promenilo tokove potoka, obnavljajući močvarna staništa. Ponovno uvođenje vuka postalo je ograničavajući faktor za losove. Kao rezultat toga, druge biotičke zajednice su se oporavile, delimično zato što su vukovi indirektno uticali na važan abiotički faktor: vodu.

Ekolozi takođe proučavaju odnose između biotičkih i abiotičkih faktora kako bi napravili predviđanja o biotičkim populacijama. Razumevajući kako je ponovno uvođenje vuka u Jeloustonu uticalo na druge faktore, istraživači mogu predvideti kako bi buduće promene u populaciji vukova mogle uticati na ekosistem. GN

Biotic and abiotic factors in Yellowstone National Park

On land, biotic factors also drive changes that can move through an ecosystem. For example, one study in Yellowstone National Park found that during the decades in which gray wolves were absent from the park, elk moved around less because they had fewer predators. Instead, elk grazed on woody plants and shrubs near streams, reducing the number and size of willow trees along stream banks. Fewer willows meant less food for beavers, whose population then declined. Fewer beavers meant fewer beaver dams, which in turn reduced wetland habitat for willows and other species they supported.

The reintroduction of wolves in 1995 was a turning point. It triggered a possible trophic cascade, an event in which changes in the food web alter the structure of an ecosystem. In this case, wolves limited the population and behavior of the elk, conequently improving other organisms' chances of survival. The elk stopped spending so much time near streams. The willow and beaver populations began to recover, and beavers built more dams. This changed the course of streams, restoring wetland habitats. The reintroduction of the wolf was a limiting factor for the elk. As a result, other biotic communities recovered, in part because wolves indirectly affected an important abiotic factor: water.

Ecologists also study relationships between biotic and abiotic factors to make predictions about biotic populations. Understanding how the reintroduction of the wolf to Yellowstone influenced other factors, researchers can predict how future changes in the wolf population might affect the ecosystem. GN

Zanimljive činjenice o infrastrukturi

Godišnje globalno infrastrukturno tržište od 3,6 biliona dolara doprinosi našem kvalitetu života na mnoštvo načina – od aerodroma, vetroelektrana i gasovoda do širokopojasnih mreža, železnica, zgrada i puteva, svakodnevno zavisimo od industrije

Kvalitetna infrastruktura je od suštinskog značaja za napredak: povezuje ljude, omogućava trgovinu, pokreće preduzeća, pruža mogućnosti zajednicama i stimuliše privredu stvarajući milione radnih mesta svake godine.

Godišnje globalno infrastrukturno tržište od 3,6 biliona dolara doprinosi našem kvalitetu života na mnoštvo načina – od aerodroma, vetroelektrana i gasovoda do širokopojasnih mreža, železnica, zgrada i puteva, svakodnevno zavisimo od industrije. Ovo je deset infrastrukturnih činjenica iz celog sveta.

Najstarija zgrada na svetu je Gobekli Tepe u Turskoj

Veruje se da je Gobekli Tepe (Go-Beck-Lee-Te-Peh), oko 9600 godina pre nove ere, najstarija građevina koju je izgradio čovek. Zvanično pod zaštitom UNESCO-a, Gobekli Tepe se nalazi na jugoistoku Turske i njegovo ime se otprilike prevodi na engleski kao „Belli Hill“. Postojeći ostaci drevne građevine obuhvataju više od 200 stubova u oko 20 krugova, pri čemu svaki stub stoji oko šest metara i teži preko sedam tona. Veruje se da je nekada bio hram, a stubovi imaju rezbarije životinja i druge slike.

Interesting Facts About Infrastructure

he $3.6 trillion annual global infrastructure market contributes to our quality of life in a multitude of ways – from airports, wind farms and gas lines to broadband networks, railways, buildings and roads, we depend on industry every day

Quality infrastructure is essential for progress: it connects people, enables trade, powers businesses, provides opportunities for communities and stimulates the economy by creating millions of jobs every year.

The $3.6 trillion annual global infrastructure market contributes to our quality of life in a multitude of ways – from airports, wind farms and gas lines to broadband networks, railways, buildings and roads, we depend on industry every day. These are ten infrastructure facts from around the world.

The oldest building in the world is Göbekli Tepe in Turkey

Göbekli Tepe (Go-Beck-Lee-Te-Peh), around 9600 BC, is believed to be the oldest human-built structure. Officially a UNESCO World Heritage Site, Göbekli Tepe is located in the southeast of Turkey and its name translates roughly into English as „Belly Hill”. The existing remains of the ancient structure include more than 200 pillars in around 20 circles, with each pillar standing about six meters tall and weighing over seven tons. Believed to have once been a temple, the pillars have carvings of animals and other images.

Singapur ima najbolju infrastrukturu na svetu

Prema svetskom istraživanju koje je 2019. sproveo Svetski ekonomski forum, Singapur je na prvom mestu u svetu po svojoj infrastrukturi, sa impresivnom ocenom od 95,4 na skali od 0 do 100. Poređenja radi, Australija je zauzela 29. mesto, sa ocenom od 72,9, dok su SAD na 13, Kanada na 26, Kina na 36. i Novi Zeland na 46. Ovi infrastrukturni rezultati su izračunati na osnovu faktora kao što su kvalitet puteva, gustina pruga, povezanost aerodroma, efikasnost usluga morskih luka, gubici u prenosu i distribuciji električne energije, izloženost nebezbednoj vodi za piće i pouzdanost vodosnabdevanja.

NAJDUŽA PRUGA NA SVETU JE TRANSSIBIRSKA ŽELEZNICA U RUSIJI

Transsibirska železnica se prostire na ogromnih 9.289 kilometara, što je čini najdužom železničkom prugom na svetu. Kao što samo ime kaže, pruga prelazi celu širinu Rusije i zapravo je šira od same Rusije, koja ima maksimalnu udaljenost, istok-zapad, od 9.000 kilometara.

Linija, koja ide od glavnog grada Moskve pa sve do Vladivstoka na Tihom okeanu, takođe je jedna od najprometnijih železničkih linija na svetu. Izgradnja je počela 1891. godine, a završena je osam i po godina kasnije. Uprkos nekim svojim mračnijim doprinosima istorijskim knjigama, kao što je pomoć u podsticanju rata, Transsibirska železnica je prepoznata kao jedan od najimpresivnijih inženjerskih podviga u modernoj istoriji.

Singapore has the best infrastructure in the world

According to a worldwide survey conducted in 2019 by the World Economic Forum, Singapore ranks number one in the world for its infrastructure, with an impressive score of 95.4 on a scale of 0 to 100. By comparison, Australia ranked 29th, with a score of 72.9, while the USA placed 13th, Canada as 26th, China as 36th and New Zealand as 46th on the list.These infrastructure scores were calculated based on factors such as the quality of roads, railroad density, airport connectivity, efficiency of seaport services, electricity transmission and distribution losses, exposure to unsafe drinking water and reliability of water supply.

THE LONGEST RAILWAY IN THE WORLD IS THE TRANS-SIBERIAN RAILWAY IN RUSSIA

The Trans-Siberian Railway spans a whopping 9,289 kilometers, making it the longest railway line in the world. As the name suggests, the railway crosses the entire width of Russia and is actually wider than Russia itself, which has a maximum east-west distance of 9,000 kilometers.

The line, which runs from the capital Moscow all the way to Vladivstok on the Pacific Ocean, is also one of the busiest railway lines in the world. Construction began in 1891 and was completed eight and a half years later. Despite some of its darker contributions to the history books, such as helping to instigate a war, the Trans-Siberian Railway is recognized as one of the most impressive feats of engineering in modern history.

NAJVEĆA INFRASTRUKTURNA INVESTICIJA AUSTRALIJE: 2021-2031

Trenutno, australijska vlada ulaže rekordne iznose u nove infrastrukturne projekte, hraneći desetogodišnji infrastrukturni program vredan 110 milijardi dolara. Dodatnih 15,2 milijarde dolara dodeljeno je za podršku više od 30.000 infrastrukturnih poslova tokom trajanja tih projekata. Ovo se zasniva na 100.000 radnih mesta koja su već podržana projektima koji su trenutno u izgradnji kroz postojeći gasovod. Ova ogromna investicija ima za cilj oživljavanje ekonomije pogođene pandemijom i očekuje se da će australsku građevinsku industriju povećati za 2,2% u 2021. – suprotstavljajući se padu od 2,1% u 2020. Prema trenutnoj putanji, predviđa se da će građevinska industrija Australije zaposliti 1,28 miliona ljudi do 2024.

AUSTRALIA'S LARGEST INFRASTRUCTURE INVESTMENT: 2021-2031

Currently, the Australian government is investing record amounts in new infrastructure projects, fueling a ten-year $110 billion infrastructure program. An additional $15.2 billion has been allocated to help support more than 30,000 infrastructure jobs across the lifespan of those projects. This builds on the 100,000 jobs already being supported by projects currently under construction through the existing pipeline. This massive investment is aimed at reviving the economy hit by the pandemic and is expected to grow Australia's construction industry by 2.2% in 2021 – counteracting a 2.1% decline in 2020. On its current trajectory, Australia's construction industry is forecast to employ 1.28 million people by 2024.

Najduži most na svetu je Veliki most Danjang-Kunšan u Kini

Smešten između Nanđinga i Šangaja u Kini, Veliki most Danjang-Kunšan dugačak 164,8 kilometara je daleko najduži most na svetu. Obim kopna i vode, most je više od četiri puta duži od najdužeg mosta na svetu koji pokriva vodu. Izgradnja mosta počela je 2006. i trajala je četiri godine, 10.000 radnika i 8,5 milijardi dolara finansiranja. Izgrađen za prevoz vozova na jednoj od vodećih kineskih brzih železnica, most je jak koliko i dug: dizajniran da izdrži zemljotres jačine osam stepeni Rihterove skale i direktan udar pomorskih brodova težine do 300.000 tona.

NAJVIŠA ZGRADA NA SVETU JE BURDŽ KALIFA U DUBAIJU

THE TALLEST BUILDING IN THE WORLD IS THE BURJ KHALIFA IN DUBAI

Od 2010. godine, Burdž Kalifa u Dubaiju drži rekord najviše zgrade na svetu, sa 828 metara visine. To je više od dva i po puta više od kultne Ajfelove kule, koja je ranije nosila titulu najviše zgrade na svetu više od 40 godina. Nezadovoljan samo jednim rekordom, Burdž Kalifa zapravo drži ukupno sedam svetskih rekorda.

Ako ste jedan od srećnih 30.000 stanovnika zgrade, možete uživati u putovanju između njena rekordna 163 sprata u najbržem - i na najdužoj udaljenosti - liftu na svetu, a možda čak i da bacite pogled sa najvišeg vidikovca na svetu.

Težina betona korišćenog za izgradnju ove ogromne konstrukcije je ekvivalentna 100.000 slonova, dok je ukupna težina upotrebljenog aluminijuma jednaka težini pet aviona A380.

Since 2010, the Burj Khalifa in Dubai has held the record for the tallest building in the world, with a height of 828 meters. That is over two and a half times the height of the iconic Eiffel Tower, which previously held the title of the tallest building in the world for more than 40 years. Not content with just one record, the Burj Khalifa actually holds a total of seven world records. If you are one of the building's lucky 30,000 residents, you can enjoy travelling between its record-breaking 163 floors in the world's fastest - and longest distance - elevator, and perhaps even check out the view from the highest observation deck in the world.

The weight of the concrete used to build this enormous structure is equivalent to 100,000 elephants, while the total weight of the aluminum used is equal to the weight of five A380 aircraft.

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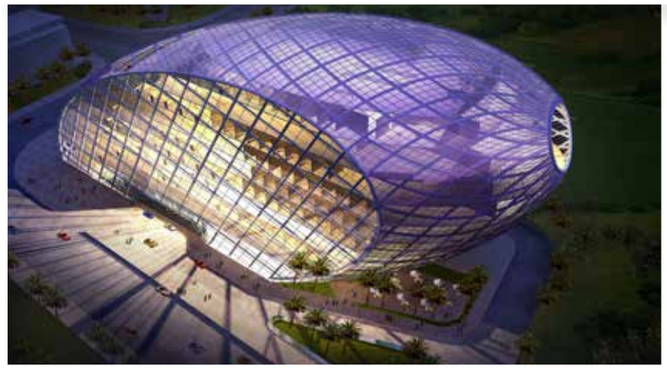
The longest bridge in the world is Danyang-Kunshan Grand Bridge in China

Located between Nanjing and Shanghai in China, the 164.8 kilometer Danyang-Kunshan Grand Bridge is by far the longest bridge in the world. Spanning both land and water, the bridge is more than four times the length of the world's longest water-spanning bridge. Construction of the bridge began in 2006 and took four years, 10,000 workers and $8.5 billion in funding. Built to carry trains on one of China's leading high-speed railways, the bridge is as strong as it is long: designed to withstand a magnitude eight earthquake and direct impact from naval ships weighing up to 300,000 tons.

JEDNA OD NAJČUDNIJIH POSLOVNIH ZGRADA JE CIBERTECTURE EGG U INDIJI



ONE OF THE QUIRKIEST OFFICE BUILDINGS IS THE CYBERTECTURE EGG IN INDIA

Svaka industrija ima kreativne mislioce van okvira, one koji odbijaju da boje između redova, a infrastrukturna industrija se po tome ne razlikuje od drugih. Jedan od najluđih kancelarijskih dizajna ikad smišljenih, ostvario se kao Cibertecture Egg u Mumbaju, Indija. Ova kancelarija inspirisana živinom izgrađena je imajući na umu održivost, sa 33.000 kvadratnih metara poslovnog prostora, uzdignutom baštom i 400 parking mesta, što sve zauzima oko 15 odsto manje prostora od tradicionalne poslovne zgrade. Koliko god da je pametna toliko je i jedinstvena; zgrada ima dijagridni egzoskelet (samonoseća kruta spoljna struktura) koji negira potrebu za potpornim stubovima, omogućavajući da se izgradi sa manje materijala nego što je potrebno za tradicionalnu ortogonalnu zgradu.

Every industry has creative, out-of-the-box thinkers, those who refuse to color between the lines, and the infrastructure industry is no different. One of the most interesting office designs ever conceived has come to life as the Cybertecture Egg in Mumbai, India. This poultry-inspired office was built with sustainability in mind, with 33,000 square meters of office space, an elevated garden and 400 parking spaces, all taking up about 15 percent less space than a traditional office building. As smart as it is, it is also unique; the building has a diagrid exoskeleton (a self-supporting rigid outer structure) that negates the need for support columns, allowing it to be built with less material than required for a traditional orthogonal building.

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Najveći trenutni građevinski projekat na svetu je Međunarodni aerodrom Al Maktum u Dubaiju

Proširenje međunarodnog aerodroma Al Maktum u Dubaiju je najveći građevinski projekat koji je trenutno u toku u svetu. Odobreno 2014. godine, proširenje od 44 milijarde dolara učiniće Al Maktum najvećim aerodromom na svetu kada bude završen, povećavajući kapacitet putnika na 220 miliona godišnje i omogućavajući aerodromu da istovremeno upravlja sa 200 širokotrupnih aviona. Proširenje se izvodi u dve faze u narednih šest do osam godina.

The largest current construction project in the world is Al Maktoum International Airport in Dubai

The expansion of Al Maktoum International Airport in Dubai is the largest construction project currently underway in the world. Approved in 2014, the $44 billion expansion will make Al Maktoum the world's largest airport when completed, increasing passenger capacity to 220 million a year and allowing the airport to handle 200 wide-body aircraft at a time. The expansion is being carried out in two phases over the next six to eight years.

NAJVEĆI TRENUTNI INFRASTRUKTURNI PROJEKAT AUSTRALIJE JE WESTCONNEX

Najveći infrastrukturni projekat u Australiji je WestConnex. Ovaj poduhvat vredan 16 milijardi dolara obuhvata neprekidni autoput od 33 kilometra koji povezuje zapadni i jugozapadni Sidnej sa gradom, aerodromom i lukom. WestConnex omogućava vozačima da zaobiđu 52 seta semafora između Beverli Hilsa i Paramate. Ovaj projekat je stvorio 10.000 direktnih i indirektnih poslova.

AUSTRALIA'S LARGEST CURRENT INFRASTRUCTURE PROJECT IS WESTCONNEX

The largest infrastructure project in Australia is WestConnex. The $16 billion venture includes a 33-kilometre continuous highway linking western and south-western Sydney to the city, airport and port. WestConnex allows drivers to bypass 52 sets of traffic lights between Beverley Hills and Parramatta. This project has created 10,000 direct and indirect jobs.

JEDNA OD NAJPAMETNIJIH ZGRADA NA SVETU JE THE EDGE U AMSTERDAMU

Nazvana jednom od najpametnijih zgrada na svetu od strane Bloomberga, The Edge je poslovna zgrada u Amsterdamu opremljena sa približno 28.000 senzora koji omogućavaju glavnom zakupcu Deloitteu da prati i podržava potrebe svojih 2.850 zaposlenih. Zgrada prepoznaje vaš automobil kada stignete i upućuje vas na slobodno parking mesto. Gde god zaposleni idu, zgrada prilagođava okruženje u skladu sa njihovim individualnim preferencijama za svetlost i temperaturu.

ONE OF THE SMARTEST BUILDINGS IN THE WORLD IS THE EDGE IN AMSTERDAM

Named one of the smartest buildings in the world by Bloomberg, The Edge is an office building in Amsterdam equipped with approximately 28,000 sensors that allow its main tenant Deloitte to monitor and support the needs of its 2,850 employees. ." Wherever employees go, the building adjusts the environment according to their individual preferences for light and temperature.

Lepota neplaniranih zelenih površina

Ono što se za neke ljude može smatrati korovom, za druge bi se moglo smatrati urbanom oazom - svakako za ptice

Možda niste primetili, ali leptir ili pčela svakako jesu. To je traka zemlje i trave između trotoara i ulice, ili prazna parcela, ili zelenilo koje prolazi duž pruge. U poređenju sa zvaničnim gradskim parkom, ove „neformalne zelene površine“ ne dobijaju mnogo ljubavi od ljudi, iako služe kao neprocenjivo utočište za oprašivače i druge urbane vrste.

- Reč je o nekoj vrsti zaboravljenih, nepromišljenih mesta, neplaniranih prostora - rekao je Hju Stenford, istraživač urbane održivosti na Univerzitetu RMIT u Australiji.

- Osećate se kao da ste u nekoj vrsti tajne divljine. Oni, za sve namere i svrhe, pružaju ekološku korist, ali ih formalna tela za planiranje potpuno zanemaruju.

Baš kao što improvizovano druženje može biti zabavno kao i formalna gala večera, čak i neplanirana zelena površina može pružiti prednosti koje ćete dobiti od zvaničnog parka: podržavaju biodiverzitet, njihova prljavština može da upije kišnicu kako bi sprečila poplave i ispuštaju vodu pare za hlađenje okoline. Novo istraživanje Stenforda otkriva da oni takođe dobijaju iznenađujuću količinu angažovanja od prolaznika, što sugeriše da neformalne zelene površine mogu da poboljšaju mentalno zdravlje ponovnim ujedinjenjem urbanog stanovništva - koje eksplodira širom sveta - sa prirodom. A njihovo negovanje bi moglo biti posebno uticajno u nedovoljno opserviranim naseljima bez formalnih zelenih površina.

Stanford i njegove kolege zumirali su Veliki Melburn u Australiji, koristeći podatke o korišćenju zemljišta da identifikuju zelene površine. Oni su sortirali formalne parcele, poput pravih parkova i stambenih vrtova, od ostatka neformalnih zelenih površina. Tim je zatim spojio to mapiranje sa anonimizovanim podacima iz aplikacija za nauku građana kao što je iNaturalist, koje su pokazale gde su u Melburnu ljudi stali da bi komunicirali sa prirodom - da bi identifikovali biljku ili insekte.

- Ljudi koriste neformalne zelene površine otprilike koliko i formalne zelene površine, zaista nismo mogli da razlikujemo jedne od drugih - rekao je Stanford, vodeći autor novog rada koji opisuje nalaze.

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The Beauty of Unplanned Green Spaces

What might be considered weeds to some people might be considered an urban oasis to others - certainly for birds

You may not have noticed, but a butterfly or a bee certainly has. It is a strip of dirt and grass between a sidewalk and a street, or an empty lot, or greenery running along a railway. Compared to an official city park, these „informal green spaces” do not get much love from people, even though they serve as invaluable sanctuaries for pollinators and other urban species.

„They’re the sort of forgotten, unconsidered places, unplanned spaces” - said Hugh Stanford, an urban sustainability researcher at RMIT University in Australia.

„You feel like you’re in a sort of a secret wilderness. They, for all intents and purposes, provide an environmental benefit, but are completely overlooked by formal planning bodies”.

Just as an impromptu hangout can be as fun as formal gala dinner, even an unplanned green space can provide the benefits you would get from an official park: they support biodiversity, their dirt can soak up rainwater to prevent flooding, and they release water vapor to cool the environment. Stanford’s new research finds that they also get a surprising amount of engagement from passers-by, suggesting that informal green spaces can improve mental health by reuniting urban populations — which are exploding worldwide — with nature. And fostering them could be particularly impactful in underserved neighborhoods without formal green spaces.

Stanford and his colleagues zoomed in on Greater Melbourne, Australia, using land-use data to identify green spaces. They sorted formal plots, such as proper parks and residential gardens, from the rest of the informal green spaces. The team then combined that mapping with anonymised data from citizen science apps such as iNaturalist, which showed where in Melbourne people stopped to interact with nature - to identify a plant or insect.

-”People are using informal green spaces about as much as they’re using formal green spaces, we really couldn’t distinguish the two of them,” said Stanford, lead author of a new paper describing the findings.

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Tim je pronašao posebno veliko angažovanje oko zelenila oko železnice i komunalne infrastrukture. To bi moglo biti zato što su ta područja ostavljena da rastu tokom dužih vremenskih perioda. U poređenju sa travnjakom u gradskom parku koji stalno seče kosilica, u neformalnom svemiru vrste dolaze i odlaze sa godišnjim dobima: cveće cveta, privlači oprašivače i hrani biljojede.

Ono što se za neke ljude može smatrati korovom, za druge bi se moglo smatrati urbanom oazom - svakako za ptice. Domaći oprašivači takođe vole dobar nered u zelenilu, kako za hranu tako i za zaštitu: na velikom otvorenom polju, nema gde da se sakriju od predatora.

Osim Melburna, drugi istraživači su takođe počeli da kvantifikuju ove zelene površine kojima se ne upravlja. Godine 2019. naučnici su pretražili satelitske snimke dva kvarta u Filadelfiji, South Kensington i Old Kensington, a zatim su prošetali kroz svaki blok kako bi potvrdili delove zelenila.

Pronašli su 351 zelenu površinu, ukupne površine od milion kvadratnih metara, od kojih je više dve trećine bilo neformalno. (Razmislite o svom neiskorišćenom zemljištu koje se proteže ispod visokonaponskih dalekovoda.)

Negovanje ovih prostora ponekad znači samo puštanje da rastu divlje, neometano. U drugim slučajevima, grad bi mogao da pretvori prazne parcele u društvene bašte, obezbeđujući hranu za ljude i staništa za životinje. Članovi zajednice takođe mogu brinuti o manjim parcelama pored puta, koristeći znakove poput malih ograda ili znakova da telegramiraju pešacima da je oblast pod aktivnim upravljanjem.

U nedovoljno pokrivenim naseljima, gde gradske vlasti nisu investirale u parkove, neformalne zelene površine mogu pružiti očajnički potrebna utočišta za ljude da se bave prirodom. Ali, Foster upozorava, gradovi ne bi trebalo da rade ovu vrstu rehabilitacije bez doprinosa zajednice o tome šta stanovnici zapravo žele za svoj komšiluk - na primer, baštu u odnosu na više rekreativni park na praznom zemljištu.

I baš kao što su gradski zaposleni plaćeni da održavaju formalne parkove, tako bi i vlada mogla da zaposli lokalno stanovništvo da održava neformalne zelene površine.

- Ljudi u penziji koji bi mogli da koriste posao sa skraćenim radnim vremenom, uz malo ulaganja u seme i alat, mogli bi zaista da brinu o prostoru i vole ga - rekla je Elizabet Savin, direktorka Multi Solving Instituta, koja se zalaže za rešenja koja rešavaju nekoliko problema odjednom.

Kako sve više ljudi dolazi u gradove širom sveta, neformalne zelene površine će biti sve kritičnije za očuvanje te veze sa prirodom.

- Svako ima ovu zaista zamršenu vezu sa verzijama ovog fenomena u svom životu - rekao je Stanford.

The team found particularly high engagement with greenery around railways and utility infrastructure. That might be because those areas have been left to grow for longer periods of time. Compared to a lawn in a city park that is constantly shredded by a lawnmower, in an informal space species come and go with the seasons: Flowers bloom, attract pollinators and feed herbivores.

What might be considered weeds to some people might be considered an urban oasis to others - certainly for birds. Native pollinators also love a good mess of greenery, both for food and protection: in a large open field, there is nowhere to hide from predators.

Beyond Melbourne, other researchers have also begun to quantify these unmanaged green spaces. In 2019, scientists scoured satellite images of two Philadelphia neighborhoods, South Kensington and Olde Kensington, and then walked through each block to confirm patches of greenery.

They found 351 green spaces, with a total area of one million square meters, more than two-thirds of which were informal. (Think about all the unused land that stretches under high-voltage power lines.)

Nurturing these spaces sometimes means just letting them grow wild, undisturbed. In other cases, the city could turn vacant lots into community gardens, providing food for people and habitats for animals. Community members can also look after smaller roadside plots, using cues such as small fences or signs to telegraph to pedestrians that the area is under active management. In underserved neighborhoods, where city governments have not invested in parks, informal green spaces can provide desperately needed refuge for people to engage with nature. But, Foster cautions, cities should not do this kind of rehabilitation without community input on what residents actually want for their neighborhood — for example, a garden versus a more recreational park on a vacant lot.

And just as city employees are paid to maintain formal parks, the government could employ local residents to maintain informal green spaces.

„Retired people who could use a part-time job, with a little investment in seeds and tools, they could really tend and love a space," said Elizabeth Sawin, director of the Multisolving Institute, which advocates for solutions that solve several problems at once.

As more and more people come to cities around the world, informal green spaces will be more critical for preserving that connection to nature.

„Everyone's got this really intricate relationship with versions of this phenomenon in their life," Stanford said.

Solarni balkoni cvetaju u Nemačkoj

Više od 500.000 plug-in solarnih sistema je instalirano u Nemačkoj, od kojih većina zauzima besprekorno mesto na balkonima ljudi

Novi talas proizvođača solarne energije ne daje samo jeftinu električnu energiju, oni takođe učestvuju u energetskoj tranziciji.

Više od 500.000 plug-in solarnih sistema je instalirano u Nemačkoj, od kojih većina zauzima besprekorno mesto na balkonima ljudi.

Novi podaci pokazuju da je još 220.000 fotonaponskih uređaja instalirano u prvoj polovini 2024. Procvat nastao iz nemačke „veoma jake solarne kulture“, prema rečima jednog stručnjaka.

Solarni balkoni su deo šire energetske tranzicije širom Evrope, objašnjava Jan Osenberg, savetnik za politiku u udruženju SolarPower Europe.

- Vidimo ih kao podskup krovne solarne energije, ali i kao nešto drugačije - kaže on za EuronewsGreen.

Zašto druge evropske zemlje sporo usvajaju ovaj metod?

Glavna stvar koja razlikuje solarne balkone od krovnih solarnih je to što su oni mnogo manji sistem. U suštini, tehnologija se sastoji od jednog ili dva panela priključenih na električnu utičnicu.

Oni proizvode samo oko 10 odsto energije stambenih krovnih sistema, kaže Osenberg.

Kao grubu kalkulaciju, on procenjuje da Nemačka ima oko 200 MV instalirane balkonske solarne energije; u poređenju sa kapacitetom od 16 GV iz sektora stambenih krovova.

Sa stanovišta kupaca, glavna razlika je u tome što je PV na balkonu mnogo lakše instalirati.

Komplet možete kupiti na mreži i nije vam potreban električar da ga podesi, za razliku od krovnih instalacija, gde se preporučuju sertifikovani instalateri kako bi se izbegao rizik od požara i oštećenja konstrukcije.

Ukratko: paneli su postavljeni na montažnu konstrukciju i pričvršćeni preko kablova na inverter koji pretvara struju iz jednosmerne u naizmeničnu struju, koja ide u vašu utičnicu preko običnog utikača.

Kome su namenjeni solarni balkoni?

- Glavni razlog uspeha balkonskih solarnih sistema je taj što daje ljudima priliku da koriste solarnu energiju koji ranije nisu mogli da koriste - kaže portparol nemačkog proizvođača Meier Burger.

Solar Balconies Are Booming in Germany

More than 500,000 plug-in solar systems have been installed in Germany, most of them taking up a seamless spot on people's balconies

The new wave of solar power producers are not only providing cheap electricity, they are also participating in the energy transition.

More than 500,000 plug-in solar systems have been installed in Germany, most of them taking up a seamless spot on people's balconies.

New data shows another 220,000 PV devices were installed in the first half of 2024. The boom stemmed from Germany's „very strong solar culture," according to one expert.

Solar balconies are part of a wider energy transition across Europe, explains Jan Osenberg, policy advisor at the SolarPower Europe.

- We see them as a subset of rooftop solar energy, but also as something different - he tells Euronews Green.

Why are other European countries slow to adopt this method?

The main thing that differentiates solar balconies from rooftop solar is that they are a much smaller system. Essentially, the technology consists of one or two panels plugged into an electricity socket.

They only produce about 10 percent of the energy of residential rooftop systems, Osenberg says.

As a rough estimate, he estimates that Germany has about 200 MW of installed balcony solar energy; compared to the capacity of 16 GW capacity from the residential roof sector.

From a customer's point of view, the main difference is that balcony PV is much easier to install.

You can buy the kit online and you do not need an electrician to set it up, unlike for rooftop installations, where certified installers are recommended to avoid the risk of fire and damage to the structure.

In short: the panels are put on a mounting structure and attached via cables to an inverter that converts the electricity from direct current to alternating current, which goes into your socket via a regular plug.

Who are solar balconies for?

- The main reason for the success of balcony solar systems is that it gives people the opportunity to use solar energy that they could not use before - says a spokesperson of the German manufacturer Meyer Burger.

- Većina ljudi nema kuću ili ne mogu da instaliraju solarnu energiju na krovu zbog zaštite nasleđa, senčenja ili drugih uslova konstrukcije krova. Za njih je balkonska solarna energija privlačna jer mogu da koriste solarnu energiju za proizvodnju sopstvene struje i smanjenje računa za struju.

Nemačka je bila jedna od prvih zemalja koja je investirala u solarnu tehnologiju, a sada proizvodi najviše električne energije iz solarne energije u Evropi.

Ovaj „talas“ novih vlasnika solarne energije nema samo koristi od jeftine struje, kaže Osenberg, oni su takođe ovlašćeni da zauzmu svoje mesto u energetskoj tranziciji.

Kako je Nemačka pomogla ljudima da dobiju solarnu energiju na balkonu?

Nemačka je 2000-ih godina bila ispred krivulje u oblasti solarne energije na krovovima. Vlada je podsticala ljude da se uključe tako što ih je nagrađivala fid-in tarifama, na primer, dajući fiksnu cenu za svaku jedinicu električne energije poslatu u mrežu.

- Kupci su već započeli ovaj procvat i uspešno su zahtevali pojednostavljenu birokratiju od politike - rekao je portparol Mejer Burgera.

Zašto druge zemlje „propuštaju“ solarnu energiju na balkonu?

EU je saopštila da zemlje članice mogu pomoći u usvajanju balkonske solarne energije. Ali to nije obavezno i nisu ga prihvatile sve zemlje.

Belgija je, posebno, zabranila solarne uređaje koji se mogu priključiti zbog straha od uticaja neregistrovanih sistema koji se napajaju u električnu mrežu.

Austrija, Francuska, Italija, Poljska i Luksemburg zauzele su ohrabrujući stav prema solarnoj mreži. Dok aktivisti za obnovljivu energiju u Španiji nastoje da nateraju svoju vladu da uskoro olabavi pravila.

Stvari koje treba imati na umu pre kupovine solarne energije za balkon

Naravno, postoje stalne inovacije na solarnoj sceni - i balkoni se ne razlikuju. Ako ste u iskušenju da se pridružite, evo nekoliko stvari koje treba napomenuti.

Malo skladište je opcija. Iako ovi sistemi nemaju tendenciju da proizvode mnogo viška električne energije, sve više proizvođača nudi sisteme za skladištenje solarne energije specifične za balkon. Baterije - koje se uklapaju između panela i invertera - su manje nego za krovove, ali su i dalje zgodne za ljude koji rade odsutni tokom dana i mogu da iskoriste uskladištenu energiju uveče.

Aplikacije mogu pomoći u praćenju potrošnje električne energije. Neki kompleti dolaze sa aplikacijama, što vam omogućava da vidite koliko električne energije proizvodi vaš fotonaponski

sistem i koliko vaše potrebe za energijom zadovoljavaju. Oni se nalaze na sigurnim serverima, tako da vaša digitalna zaštita nije ugrožena.

Balkonski sistemi i dalje moraju biti bezbedno montirani. Iako ohrabruju pristup „uradi sam“, morate ozbiljno shvatiti instalaciju, kaže Osenberg. Dizajn kuka ga čini jednostavnim, ali pošto su moduli teški do 24 kg, mogli bi da izazovu ozbiljnu štetu ako padnu sa 10. sprata.

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- Most people don’t own a house or they can’t install rooftop solar because of their heritage protection, shading or other constructional conditions of the roof. For them, balcony solar is appealing because they can use solar power to generate their own electricity and reduce their electricity bills.

Germany was one of the first countries to invest in solar technology, and now produces the most electricity from solar power in Europe.

This „wave” of new solar owners is not just benefiting from cheap electricity, Osenberg says, they’re also empowered to take up their place in the energy transition.

How has Germany helped people get solar energy on their balconies?

Germany was ahead of the curve in rooftop solar in the 2000s. The government encouraged people to get involved by rewarding them with feed-in tariffs, for example, giving a fixed price for every unit of electricity sent to the grid.

- Customers had already started this boom and successfully demanded a simplified bureaucracy from politics - said Meyer Burger’s spokesperson.

Why do other countries „miss out” on balcony solar energy?

The EU has announced that member states can help adopt balcony solar energy. But it is not mandatory and it has not been embraced by all countries.

Belgium, in particular, has banned plug-in solar devices for fear of the impact of unregistered systems that feed into the electricity grid.

Austria, France, Italy, Poland and Luxembourg have taken an encouraging stance towards the solar grid, while renewable energy campaigners in Spain are seeking to get their government to loosen the rules soon.

Things to bear in mind before buying balcony solar

Of course, there is constant innovation on the solar scene - and balconies are no different. If you are tempted to join in, here are a few things to note.

Small-scale storage is an option. Although these systems do not tend to produce much excess electricity, more and more manufacturers are offering storage systems for balcony specific solar. The batteries - which fit between the panels and inverter - are smaller than for rooftops, but are still handy for people who work away during the day and can use stored energy in the evening.

Apps can help monitor electricity consumption. Some kits come with apps, which allow you to see how much electricity your PV system is producing and how well your energy needs are met. They are hosted on secure servers, so your digital protection is not compromised.

Balcony systems must be safely mounted. While they encourage a do-it-yourself approach, you have to take the installation seriously, Osenberg says. Hooks design make it simple, but as the modules weigh up to 24 kg, they could cause serious damage if dropped from the 10th floor.

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You can buy the kit online and you do not need an electrician to set it up, unlike for rooftop installations, where certified installers are recommended to avoid the risk of fire and damage to the structure

Subvencije na fosilna goriva katastrofalno utiču na zdravlje ljudi

Vlade širom sveta daju trilione novca poreskih obveznika da podrže industriju koja se može pohvaliti milijardama dolara profita svake godine. To je takođe industrija koja se može direktno povezati sa smrću miliona ljudskih bića, koja je najveći doprinos klimatskim promenama i uništavanju ekosistema planete

Uprkos tome što milioni ljudi svake godine umiru od posledica klimatskih promena, vlade i dalje ulažu šest puta više novca u podršku fosilnim gorivima nego u prelazak na obnovljive izvore energije. Međutim, vodeće privredne organizacije slažu se da su ove subvencije skupe, neefikasne i štetne po privredu.

Godine 2022. globalne subvencije za fosilna goriva iznosile su 7 biliona dolara, ili 7% globalnog BDP-a – otprilike jednako ukupnim ekonomijama Ujedinjenog Kraljevstva i Njemačke zajedno. U međuvremenu, 2021. godine, izloženost zagađenju vazduha dovela je do 8,1 miliona smrtnih slučajeva širom sveta.

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Tokom decenija, subvencije za fosilna goriva su pomogle u snižavanju cena energije, doprinoseći povećanju ekonomske proizvodnje i rasta. Vlade takođe koriste ove subvencije da smanje inflaciju smanjenjem cena energije, transporta i čitavog niza drugih proizvoda na koje utiče snabdevanje fosilnim gorivima. Nedavno su vlade povećale subvencije kako bi snizile cene energije koje su naglo porasle zbog rata u Ukrajini i oporavka nakon pandemije.

Kao što nam je prošlost pokazala, ove politike mogu imati pravi uticaj na troškove života. Prema jednoj proceni, smanjenje subvencije od 0,25 dolara po litru rezultira smanjenjem prihoda za 6% za sve grupe u društvu. Dakle, subvencije za fosilna goriva se generalno doživljavaju kao alat koji se koristi za smanjenje troškova života koji posebno pomaže siromašnima. Porast cena fosilnih goriva često izaziva društvene nemire, kao što su protesti žutih prsluka koji su održani u Francuskoj 2018. ili nemiri u naftnom gradu Žanaozen, Kazahstan, 2022. godine.

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Fossil Fuel Subsidies Have a Disastrous Effect on Human Health

Governments around the world give trillions of taxpayers' money to support an industry that boasts of billions of dollars in profits every year. It is also an industry that can be directly linked to deaths of millions of human beings, as the biggest contributor to climate change and the destruction of the planet's ecosystems

Despite millions of people dying every year from the effects of climate change, governments are still investing six times more money in supporting fossil fuels than in transitioning to renewable energy sources. However, leading business organizations agree that these subsidies are expensive, ineffective and harmful to the economy.

In 2022, global fossil fuel subsidies amounted to US$7 trillion, or 7% of global GDP – roughly equal to the total economies of the United Kingdom and Germany combined.

Meanwhile, in 2021, exposure to air pollution led to 8.1 million deaths worldwide.

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So why do governments still subsidize it?

For decades, fossil fuel subsidies have helped bring down energy prices, contributing to increased economic output and growth. Governments also use these subsidies to bring down inflation by reducing the prices of energy, transportation and a whole range of other products affected by the supply of fossil fuels. Recently, governments have increased subsidies to bring down energy prices that have skyrocketed due to the war in Ukraine and the post-pandemic recovery.

As the past has shown us, these policies can have a real impact on the cost of living. According to one estimate, a $0.25 decrease in per liter subsidy results in a 6% decrease in income for all groups in society. Thus, fossil fuel subsidies are generally perceived as a tool used to reduce the cost of living that particularly helps the poor. Rising fossil fuel prices often trigger social unrest, such as the yellow vest protests that took place in France in 2018 or the unrest in the oil town of Zhanaozen, Kazakhstan, in 2022.

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Organizacije kao što su MMF i Svetska banka su odlučne da se subvencije za fosilna goriva moraju ukinuti. Reformisanje cena fosilnih goriva bi prikupilo procenjene prihode od poreza od 4,4 triliona dolara, što je više od ulaganja potrebnih za postizanje ciljeva održivog razvoja UN

Prema studiji Međunarodnog monetarnog fonda (MMF), ove subvencije u velikoj meri favorizuju bogate i izuzetno su neefikasan i skup način za podršku slojevima društva sa nižim prihodima. Procenjuju da 20% najbogatijih društva prima 43% koristi, dok 20% najsiromašnijih dobija samo 7%. Prenos 1 dolara na 20% najsiromašnijih putem subvencija za benzin košta 33 dolara, što znači da na svakih 100 dolara subvencije za benzin, 97 „procuri" u prva četiri kvintila.

Štaviše, ove procene čak ne uzimaju u obzir zdravstvene probleme izazvane zagađenjem vazduha ili posledice klimatskih promena, od kojih nesrazmerno trpe siromašni. I iako subvencije za fosilna goriva mogu kratkoročno smanjiti troškove života, ove subvencije predstavljaju astronomsko opterećenje za javni budžet. To znači da su vlade, da bi platile subvencije, prinuđene da se zadužuju, povećavaju poreze i smanjuju rashode za javne usluge, a sve to dodatno šteti džepu i životnom standardu domaćinstava sa niskim prihodima.

Pored inherentne nejednakosti ovih subvencija, njihovi nedostaci sežu i dalje. Samo 18% subvencija za fosilna goriva u 2022. godini bile su eksplicitne subvencije, kao što su smanjenje poreza, 82% su bile implicitne subvencije, koje su u osnovi niže cene za negativne efekte fosilnih goriva. Na primer, kod proizvoda kao što su duvan, šećer ili plastika, različite strategije kao što su porezi ili naknade često se primenjuju kako bi se povećala njihova cena tako da pokrije stvarne troškove za javno zdravlje i životnu sredinu. U idealnom slučaju, ovo bi trebalo da bude slučaj i sa fosilnim gorivima, a ipak, sve štete sa kojima je industrija povezana sistematski su nedovoljno zastupljene u cenama fosilnih goriva širom sveta.

Fosilna goriva su činila 82% globalnog energetskog miksa u 2023. i glavni su faktori koji doprinose globalnom zagrevanju. Očekuje se da će klimatske promene raseliti 140 miliona ljudi do 2050. godine i koštati 69 biliona dolara do kraja veka, stvarajući nemerljive količine ljudske patnje. Zdravstveni rizici vezani za zagađenje vazduha stvoreno sagorevanjem fosilnih goriva uključuju nekoliko vrsta raka, kardiovaskularne bolesti, pa čak i smanjenje kognitivne sposobnosti. Zagađenje vazduha takođe apsorbuju okeani, menjajući njihovu kiselost i na taj način ugrožavajući čitave ekosisteme, ubijajući i životinje i biljke. Očekuje se da će stotine hiljada vrsta nestati. Oštećujući ekosisteme, zagađenje vazduha takođe ometa ribarstvo i poljoprivredu, pogoršavajući krizu gladi.

Organizations such as the IMF and the World Bank are emphatic that fossil fuel subsidies must be abolished. Reforming fossil fuel pricing would raise an estimated $4.4 trillion in tax revenues, which is more than the investment needed to achieve the UN Sustainable Development Goals

According to a study by the International Monetary Fund (IMF), these subsidies overwhelmingly favor the rich and are an extremely inefficient and expensive way to support the lower-income segments of society. They estimate that the richest 20% of society receive 43% of the benefit, while the poorest 20% receives only 7%. It costs $33 to transfer $1 to the poorest 20% through gasoline subsidies, meaning that for every $100 in gasoline subsidy, 97 leaks to the top four quintiles.

Moreover, these estimations do not even take into account the health problems caused by air pollution or the effects of climate change, which disproportionately affect the poor. Although fossil fuel subsidies may reduce the cost of living in the short term, these subsidies represent an astronomical burden on the public budget. This means that in order to pay for subsidies, governments are forced to borrow, increase taxes and reduce expenditure in public services, all of which further harm the pocket and standard of living of low-income households.

In addition to the inherent inequality of these subsidies, their deficiencies extend further. Only 18% of fossil fuel subsidies in 2022 were explicit subsidies, such as tax cuts, 82% were implicit subsidies, which are basically lower prices for the negative effects of fossil fuels. For example, with products like tobacco, sugar or plastics, various strategies such as taxes or fees are often implemented to increase their price so that it covers the real cost to the public health and environment. Ideally, this should also be the case with fossil fuels, yet all the harms associated with the industry are systematically underrepresented in fossil fuel prices worldwide.

Fossil fuels accounted for 82% of the global energy mix in 2023 and are the main contributors to global warming. Climate change is expected to displace 140 million people by 2050 and cost $69 trillion by the end of the century, creating immeasurable amounts of human suffering. Health risks associated with air pollution created by burning fossil fuels include several types of cancer, cardiovascular disease, and even the reduction of cognitive ability. Air pollution is also absorbed by the oceans, changing their acidity and thus endangering entire ecosystems, killing animals and plants alike. Hundreds of thousands of species are expected to disappear. In addition to damaging ecosystems, air pollution also disrupts fishing and agriculture, exacerbating hunger crisis.

82% globalnog energetskog miksa u 2023. činila su fosilna goriva i glavni su faktori koji doprinose globalnom zagrevanju

Fossil fuels accounted for 82% of the global energy mix in 2023 and are the main contributors to global warming

Šta je alternativa?

Organizacije kao što su MMF i Svetska banka su odlučne da se subvencije za fosilna goriva moraju ukinuti. Reformisanje cena fosilnih goriva bi prikupilo procenjene prihode od poreza od 4,4 triliona dolara, što je više od ulaganja potrebnih za postizanje ciljeva održivog razvoja UN. Ove reforme bi smanjile emisije fosilnih goriva za 34% ispod nivoa iz 2019. godine, stavljajući čovečanstvo na pravi put da ograniči globalno zagrevanje na 1,5-2C u odnosu na predindustrijske nivoe, što je cilj utvrđen Pariskim sporazumom. Takođe se procenjuje da bi ukidanje subvencija sprečilo više od 1,5 miliona smrtnih slučajeva godišnje uzrokovanih zagađenjem vazduha izazvanim fosilnim gorivima.

Subvencije za fosilna goriva značajno podstiču ulaganja u ovu vrstu energije tako što čine investicije profitabilnijim i manje rizičnim. Reforma koja povećava cene fosilnih goriva bi zauzvrat učinila obnovljivu energiju konkurentnijom, povećavajući investicije u ovoj oblasti i ubrzavajući prelazak na zelenu energiju.

Ali reforma sistema nije jednostavan zadatak. Još 2009. godine, zemlje G20 su se obavezale na postepeno ukidanje subvencija za fosilna goriva, ali uprkos skromnom napretku u nekim zemljama, to se nije dogodilo. Vlade su oprezne u pogledu socijalnih nemira koje bi ovo moglo da izazove i potencijalnih efekata na inflaciju, iako su, kao što je ranije pomenuto, ove subvencije izuzetno neefikasan način da se podrže najugroženiji, a postoji nekoliko načina za rešavanje ovih mogućih nedostataka.

Neki od ogromnih poreskih prihoda stvorenih ovim reformama mogli bi se iskoristiti za ublažavanje negativnih efekata na siromašne kroz unapređenje javnih usluga i ulaganja u socijalne programe, kao što su „školski obroci, smanjene naknade za obrazovanje i zdravstvo, subvencionisani masovni gradski prevoz , novčani transferi ugroženim grupama ili subvencije za potrošnju vode i električne energije ispod određenog praga". U zemljama u kojima mreže socijalne zaštite nisu adekvatne, preporučuju se postepene reforme. Pored toga, imperativ su kampanje za edukaciju javnosti o značenju reformi.

Procenjuje da bi ukidanje subvencija sprečilo više od 1,5 miliona smrtnih slučajeva godišnje uzrokovanih zagađenjem vazduha izazvanim fosilnim gorivima

It is also estimated that eliminating subsidies would prevent more than 1.5 million deaths a year caused by fossil fuel-driven air pollution

What is the alternative?

Organizations such as the IMF and the World Bank are emphatic that fossil fuel subsidies must be abolished. Reforming fossil fuel pricing would raise an estimated $4.4 trillion in tax revenues, which is more than the investment needed to achieve the UN Sustainable Development Goals. These reforms would reduce fossil fuel emissions by 34% below 2019 levels, placing humanity on track to limit global warming to 1.5-2C above pre-industrial levels, the goal set by the Paris Agreement. It is also estimated that eliminating subsidies would prevent more than 1.5 million deaths a year caused by fossil fuel-driven air pollution.

Fossil fuel subsidies significantly encourage investments in this type of energy by making investments more profitable and less risky. A reform that increases fossil fuel prices would in turn make renewable energy more competitive, increasing investment in this field and accelerating the transition to green energy.

But reforming the system is not a simple task. Back in 2009, G20 nations committed to phasing out fossil fuel subsidies, but despite modest progress in some countries, this has not happened. Governments are wary of the social unrest this could cause and the potential effects on inflation, although, as mentioned earlier, these subsidies are an extremely inefficient way to support the most vulnerable, and there are several ways to address these potential drawbacks.

Some of the immense tax revenues created by these reforms could be used to mitigate the negative effects on the poor through improved public services and investment in social programs, such as school meals, reduced fees for education and health, subsidized mass urban transport, cash transfers to vulnerable groups or subsidies for water and electricity consumption below a certain threshold. In countries where social safety nets are not adequate, gradual reforms are recommended. In addition, campaigns to educate the public on the meaning of reforms are an imperative.

Ekološke posledice izlivanja nafte

Neke vrste obalnih ptica mogu pobeći ako na vreme osete opasnost, ali morske ptice koje plivaju i rone za hranom najverovatnije će biti prekrivene naftom nakon izlivanja

Nafta oštećuje divlje životinje, morske ekosisteme i priobalna staništa

Izlivanje nafte uzrokovano oštećenim tankerima, naftovodima ili naftnim platformama često rezultira trenutnom i dugotrajnom ekološkom štetom koja može trajati decenijama. Ovo su neki od najznačajnijih primera ekološke štete koju uzrokuju izlivanja.

PLAŽE, MOČVARE I KRHKI VODENI EKOSISTEMI

Izlivanje nafte prekriva sve što dodirne i postaje neželjeni, ali dugotrajni deo svakog ekosistema u koji dospe. Kada naftna mrlja od velikog izlivanja dospe do plaže, nafta prekriva i lepi se za svaki kamen i zrno peska. Ako nafta uđe u priobalne močvare, mangrove šume ili druge močvarne ekosisteme, vlaknaste biljke i trave upijaju naftu, što može oštetiti biljke i učiniti to područje nepogodnim za stanište divljih životinja.

Kada nafta prestane da pluta na površini vode i počne da tone u morsko okruženje, može imati slične štetne efekte na krhke podvodne ekosisteme, ubijajući ili kontaminirajući ribe i manje organizme koji su ključne karike u globalnom lancu ishrane.

Uprkos masovnim naporima za čišćenje nakon izlivanja nafte iz tankera „Exxon Valdez" 1989. godine, studija koju je sprovela Nacionalna okeanska i atmosferska administracija (NOAA) pokazala je da je 26.000 galona nafte još uvek zarobljeno u pesku duž obale Aljaske. Naučnici koji su sproveli studiju utvrdili su da se rezidualna nafta smanjuje za manje od četiri procenta godišnje.

PTICE

Ptice prekrivene naftom su univerzalni simbol ekološke štete izazvane izlivanjem nafte. Neke vrste obalnih ptica mogu pobeći ako na vreme osete opasnost, ali morske ptice koje plivaju i rone za hranom najverovatnije će biti prekrivene naftom nakon izlivanja. Izlivanje nafte takođe oštećuje gnezdišta, potencijalno uzrokujući ozbiljne dugoročne efekte na čitave vrste.

Čak i mala količina nafte može biti smrtonosna za pticu. Prekrivanjem perja, nafta ne samo da onemogućava letenje, već i uništava prirodnu vodootpornost i izolaciju ptica, ostavljajući ih ranjivim na hipotermiju ili pregrevanje. Dok ptice frenetično čiste perje kako bi povratile prirodnu zaštitu, često progutaju naftu, što može ozbiljno oštetiti njihove unutrašnje organe i dovesti do smrti. Procenjuje se da je izlivanje nafte iz tankera „Exxon Valdez" ubilo 250.000 morskih ptica.

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Environmental Consequences of Oil Spills

Some species of shore birds can escape if they sense danger in time, but seabirds that swim and dive for food are most likely to be covered in oil following a spill

Oil damages wildlife, marine ecosystems and coastal habitats

Oil spills caused by damaged tankers, pipelines or oil rigs often result in immediate and long-term environmental damage that can last for decades. These are some of the most significant examples of environmental damage caused by spills.

BEACHES, MARSHLANDS, AND FRAGILE AQUATIC ECOSYSTEMS

Oil spills coat everything they touch and become unwanted but long-lasting part of every ecosystem they enter. When an oil slick from a large spill reaches a beach, oil coats and sticks to every rock and grain of sand. If oil enters coastal marshes, mangrove forests, or other wetland ecosystems, fibrous plants and grasses absorb it, which can damage plants and make the area unsuitable as wildlife habitat.

When oil stops floating on the water's surface and begins to sink into the marine environment, it can have similarly damaging effects on fragile underwater ecosystems, killing or contaminating fish and smaller organisms that are key links in the global food chain.

Despite massive clean-up efforts after the Exxon Valdez oil spill in 1989, a study by the National Oceanic and Atmospheric Administration (NOAA) found that 26,000 gallons of oil were still trapped in the sand along the Alaska shoreline. The scientists who conducted the study determined that residual oil was declining at less than four percent annually.

BIRDS

Oil-covered birds are a universal symbol of environmental damage caused by oil spills. Some species of shore birds can escape if they sense danger in time, but seabirds that swim and dive for food are most likely to be covered in oil following a spill. Oil spills also damage nesting grounds, potentially causing serious long-term effects on entire species.

Even a small amount of oil can be fatal to a bird. By coating feathers, oil not only makes flying impossible, but also destroys birds' natural waterproofing and insulation, leaving them vulnerable to hypothermia or overheating. As birds frantically clean their feathers to restore their natural protection, they often swallow oil, which can seriously damage their internal organs and lead to death. The Exxon Valdez oil spill is estimated to have killed 250,000 seabirds.

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Izlivanje nafte prekriva sve što dodirne i postaje neželjeni, ali dugotrajni deo svakog ekosistema u koji dospe

RIBE

Izlivanje nafte često ima smrtonosan učinak na ribe, školjke i druge morske organizme, posebno ako su jaja ili larve riba izloženi nafti. Ribarska područja uz obalu Luizijane, kao što su farme škampa i ostriga, bila su među prvim žrtvama izlivanja nafte sa naftne platforme „BP Deepwater Horizon". Slično tome, izlivanje nafte iz tankera „Exxon Valdez" uništilo je milijarde jaja lososa i haringe. Ribarskim područjima pogođenim izlivanjem iz tankera „Exxon Valdez" trebalo je više od tri decenije da se oporave.

MORSKI SISARI

Izlivanje nafte često ubija morske sisare kao što su kitovi, delfini, foke i morske vidre. Nafta može zapušiti disajne otvore kitova i delfina, čineći im nemogućim pravilno disanje i ometajući njihovu sposobnost komunikacije. Nafta prekriva krzno vidri i foka, ostavljajući ih ranjivim na hipotermiju.

Čak i kada morski sisari izbegnu neposredne efekte, izlivanje nafte može kontaminirati njihovu hranu. Morski sisari koji jedu ribu ili drugu hranu izloženu nafti mogu biti otrovani naftom i umreti ili doživeti druge zdravstvene probleme.

Izlivanje nafte iz tankera „Exxon Valdez" ubilo je 2.800 morskih vidri, 300 foka i do 22 orke. U godinama nakon izlivanja, naučnici su primetili povećanu stopu smrtnosti među morskim vidrama i drugim vrstama pogođenim izlivanjem, kao i zaostajanje u rastu ili druge štete kod dodatnih vrsta.

Oil spills coat everything they touch and become unwanted but long-lasting part of every ecosystem they enter

MARINE MAMMALS

Oil spills often kill marine mammals such as whales, dolphins, seals and sea otters. Oil can clog blowholes of whales and dolphins, making it impossible for them to breathe properly and disrupting their ability to communicate. Oil coats the fur of otters and seals, leaving them vulnerable to hypothermia.

Even when marine mammals escape immediate effects, an oil spill can contaminate their food. Marine mammals that eat fish or other food exposed to oil can be poisoned by it and die or experience other health problems.

The Exxon Valdez oil spill killed 2,800 sea otters, 300 seals and up to 22 killer whales. In the years following the spill, scientists noted higher death rates among sea otters and other species affected by the spill, as well as stunted growth or other damage among additional species.

FISH

Oil spills often have a lethal effect on fish, shellfish and other marine life, especially if fish eggs or larvae are exposed to oil. Shrimp and oyster fisheries along the Louisiana coast were among the first casualties of the BP Deepwater Horizon oil spill. Similarly, the Exxon Valdez oil spill destroyed billions of salmon and herring eggs. It took more than three decades for fisheries affected by the Exxon Valdez spill to recover.

STANIŠTA DIVLJIH ŽIVOTINJA I MESTA ZA RAZMNOŽAVANJE

Dugoročna šteta na vrstama, njihovim staništima i gnezdištima ili mestima za razmnožavanje jedna je od najdalekosežnijih ekoloških posledica uzrokovanih izlivanjem nafte. Čak i vrste koje veći deo svog života provode na moru, kao što su razne vrste morskih kornjača, moraju izaći na kopno kako bi se gnezdile. Morske kornjače mogu biti oštećene naftom koju susretnu u vodi ili na plaži gde polažu jaja; njihova jaja mogu biti oštećena naftom i ne razviti se pravilno, a novorođene kornjače mogu biti prekrivene naftom dok se žure prema okeanu preko naftom prekrivene plaže.

Na kraju, ozbiljnost ekološke štete uzrokovane izlivanjem nafte zavisi od mnogih faktora, uključujući količinu prosute nafte, vrstu i težinu nafte, lokaciju izlivanja, vrste divljih životinja u tom području, vreme ciklusa razmnožavanja i sezonske migracije, kao i vremenske uslove na moru tokom i nakon izlivanja nafte.

WILDLIFE HABITAT AND BREEDING GROUNDS

Long-term damage to species, their habitats and nesting or breeding grounds is one of the most far-reaching environmental consequences caused by oil spills. Even species that spend most of their lives at sea, such as various species of sea turtles, must come ashore to nest. Sea turtles can be harmed by oil they encounter in the water or on the beach where they lay their eggs; their eggs can be damaged by oil and fail to develop properly, and newly hatched turtles can be covered in oil as they rush toward the ocean across an oil-covered beach.

Ultimately, the severity of environmental damage caused by an oil spill depends on many factors, including the amount of oil spilled, the type and weight of oil, the location of the spill, the species of wildlife in the area, the timing of breeding cycles and seasonal migrations, and weather conditions at sea during and after the oil spill.

Kultura slavnih
& uticaj na životnu sredinu

Primer za to je Eras turneja Tejlor Svift, koja je postala globalna senzacija. Samo u jednom mesecu, letovi tokom pevačicine turneje emitovali su približno 393 metričke tone ugljen-dioksida

Celebrity Culture
& Environmental Impact

A prime example is Taylor Swift's Eras tour, which became a global sensation. In just one month, flights during the singer's tour emitted approximately 393 metric tons of carbon dioxide

U današnjem svetu, privlačnost kulture slavnih je nesumnjivo snažna. Glamurozni životi zvezda su stalno izloženi javnosti, utičući na milione ljudi. Međutim, ova fascinacija često zasenjuje kritično pitanje: značajan uticaj na životnu sredinu koji uzrokuju njihovi stilovi života i karijere.

Od ekstravagantnih koncertnih turneja do česte upotrebe privatnih aviona, industrija zabave masovno doprinosi emisiji ugljen-dioksida. Iako neki poznati počinju da preduzimaju korake ka održivosti, potrebna je šira inicijativa da se ove uticajne ličnosti pozovu na odgovornost za njihov uticaj na životnu sredinu, piše portal earth.org u svom komentaru.

Mnogi poznati žive u balonu privilegija, često ravnodušni prema ekološkoj šteti koju uzrokuju. Njihovi luksuzni stilovi života, obeleženi čestim putovanjima i ekstravagantnom potrošnjom, značajno doprinose emisiji ugljen-dioksida i drugim ekološkim problemima. Koncertne turneje, na primer, sastavni su deo industrije zabave, privlačeći milione obožavalaca širom sveta. Međutim, ekološka cena je zapanjujuća.

Primer za to je Eras turneja Tejlor Svift, koja je postala globalna senzacija. Samo u jednom mesecu, letovi tokom pevačicine turneje emitovali su približno 393 metrička tona ugljen-dioksida (CO2). Poređenja radi, prosečni godišnji ugljenični otisak jedne osobe iznosi oko 5 metričkih tona. Logistika premeštanja opreme, osoblja i izvođača širom zemalja i kontinenata zahteva značajnu upotrebu avio-saobraćaja, što je jedan od oblika transporta sa najintenzivnijom emisijom ugljen-dioksida. Potreba za velikim infrastrukturnim resursima, uključujući osvetljenje, zvučne sisteme i privremene bine, dodatno povećava ugljenični otisak. Iako su ekonomske koristi i kulturni značaj ovih turneja očigledni, ekološki troškovi ne smeju biti zanemareni.

PRIVATNI AVIONI NAJVEĆI ZAGAĐIVAČI

Još jedan značajan problem kod poznatih je njihova upotreba privatnih aviona, koji, iako predstavljaju luksuz i pogodnost, dolaze uz visoku cenu za životnu sredinu. Privatni avioni emituju znatno više CO2 po putniku nego komercijalni letovi. Privatni avion proizvodi približno 2 metrička tona CO2 po satu leta, u poređenju sa oko 0,2 metrička tona CO2 po putniku za isto trajanje na komercijalnom letu.

Iako neki mogu tvrditi da se privatni avioni koriste zbog bezbednosti slavnih, očigledno je da su ti letovi često nepotrebni. Mnogi poznati su koristili svoje privatne avione za ekstremno kratka putovanja koja su se lako mogla obaviti automobilom, bez valjanog opravdanja. Na primer, Kajli Džener je uzela privatni avion za let koji je trajao samo 17 minuta. Reper Drejk je tri puta u jednom mesecu imao letove od 14 minuta. U 2022. godini, Svift je zauzela prvo mesto na listi „najgorih prestupnika privatnih aviona po emisiji CO2" koju je sastavila firma za održivi marketing Yard, nakon što je utvrđeno da je njen avion leteo 170 puta te godine, što je dovelo do emisije od 8.293,54 tone – 1.184,8 puta više nego prosečna osoba.`

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In today's world, the allure of celebrity culture is undeniably strong. The glamorous lives of stars are constantly exposed to the public, influencing millions of people. However, this fascination often overshadows a critical issue: the significant environmental impact caused by their lifestyles and careers.

From extravagant concert tours to the frequent use of private jets, the entertainment industry contributes massively to carbon emissions. Although some celebrities are beginning to take steps towards sustainability, a wider initiative is necessary to hold these influential figures accountable for their impact on the environment, the Earth.org portal writes in its commentary.

Many celebrities live in a bubble of privilege, often indifferent to the environmental damage they cause. Their luxurious lifestyles, marked by frequent travel and extravagant spending, contribute significantly to carbon emissions and other environmental problems. Concert tours, for example, are an integral part of the entertainment industry, attracting millions of fans worldwide. However, the environmental cost is staggering.

A prime example is Taylor Swift's Eras tour, which became a global sensation. In just one month, flights during the singer's tour emitted approximately 393 metric tons of carbon dioxide (CO2). For comparison, the average person's annual carbon footprint is around 5 metric tons. The logistics of moving equipment, staff, and artists across countries and continents require substantial air travel, which is one of the most carbon-intensive forms of transportation. The need for large infrastructural resources, including lighting, sound systems and temporary stages, further increases the carbon footprint. While the economic benefits and cultural importance of these tours are evident, the environmental costs must not be ignored.

PRIVATE JETS ARE THE BIGGEST POLLUTERS

Another significant problem with celebrities is their use of private jets, which, while representing luxury and convenience, come at a high environmental cost. Private jets emit significantly more CO2 per passenger than commercial flights. A private jet produces approximately 2 metric tons of CO2 per hour of flight, compared to about 0.2 metric tons of CO2 per passenger for the same duration on a commercial flight.

While some may argue that private jets are used for the safety of celebrities, it is evident that these flights are often unnecessary. Many celebrities have used their private jets for extremely short trips that could easily have been done by car, without valid justification. For example, Kylie Jenner took a private jet for a flight that lasted only 17 minutes. Rapper Drake took a 14-minute flight three times in a month. In 2022, Swift topped the list of „the worst private jet CO2 offenders" compiled by sustainability marketing firm Yard, after it was found that her jet flew 170 times that year, resulting in emissions of 8,293.54 tons - 1,184.8 times more than the average person.

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Leonardo Dikaprio takođe je bio kritikovan zbog upotrebe privatnih aviona

AKTIVISTI BESNI

Aktivisti za zaštitu klime su više puta osuđivali slavne zbog njihove prekomerne i neodgovorne upotrebe privatnih aviona. U junu, dva klimatska aktivista iz grupe Just Stop Oil su uhapšena nakon što su probila ogradu na londonskom aerodromu i sprejom obojili privatne avione u narandžastu boju.

NEDOSTATAK ODGOVORNOSTI I LICEMERJE

Uprkos očiglednom ekološkom uticaju njihovih dela, mnoge poznate ličnosti ne preuzimaju odgovornost. Neki čak ulažu velike napore da izbegnu odgovornost. Svift je, na primer, naišla na osudu zbog prekomerne upotrebe aviona. Umesto da se pozabavi problemom, zapretila je tužbom studentu koji je pratio i javno objavljivao njene letove privatnim avionom.

Ova reakcija naglašava raskorak između njene javne persone i privatnih dela koja su u suprotnosti sa njenom navodnom posvećenošću ekološkim ciljevima. Takvi odgovori ističu nedostatak istinske odgovornosti kod mnogih poznatih, koji često daju prednost svom imidžu nad značajnom ekološkom odgovornošću.

Poznate ličnosti su takođe često optužene za licemerje. Leonardo Dikaprio, glasni zagovornik očuvanja životne sredine, takođe je bio kritikovan zbog upotrebe privatnih aviona. Godine 2016, koristio je privatni avion kako bi otputovao iz Kana u Njujork da primi nagradu za zaštitu životne sredine, samo da bi se sledećeg dana vratio u Francusku. Ova očigledna kontradikcija između njegovog zagovaranja zaštite planete i postupaka naglašava licemerje koje često prolazi neprimećeno u kulturi slavnih.

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Leonardo DiCaprio has also been criticized for using private jets

ACTIVISTS ARE FURIOUS

Climate activists have repeatedly condemned celebrities for their excessive and irresponsible use of private jets. In June, two climate activists from the Just Stop Oil group were arrested after they broke through a fence at a London airport and spray-painted private jets orange.

LACK OF RESPONSIBILITY AND HYPOCRISY

Despite the obvious environmental impact of their actions, many celebrities do not take responsibility. Some even go to great lengths to avoid responsibility. Swift, for example, faced backlash for her excessive jet usage. Instead of addressing the problem, she threatened to sue a student who tracked and publicly shared her private jet flights.

This reaction underscores the disconnect between her public persona and private actions that contradict her supposed commitment to environmental causes. Such responses highlight the lack of true responsibility among many celebrities, who often prioritize their image over meaningful environmental responsibility.

Celebrities are also often accused of hypocrisy. Leonardo DiCaprio, a vocal advocate for environmental conservation, has also been criticized for using private jets. In 2016, he used a private jet to travel from Cannes to New York to receive an environmental award, only to fly back to France the next day. This apparent contradiction between his advocacy for the protection of the planet and his actions highlights the hypocrisy that often goes unchallenged in celebrity culture.

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Reper Drejk je tri puta u jednom mesecu imao letove od 14 minuta

Rapper Drake took a 14-minute flight three times in a month

Coachella Valley festival muzike i umetnosti, kojem prisustvuje veliki broj slavnih, generiše procenjenih 107 tona otpada svakog dana

OBOŽAVAOCI SAUČESNICI

Obožavaoci igraju značajnu ulogu u proizvodnji ekološke štete koju uzrokuju slavne ličnosti. Njihova nekritička podrška i obožavanje omogućavaju poznatima da nastave sa neodgovornim ponašanjem bez posledica, navodi se u komentaru na portalu Earth.org.

Ne samo da ignorišu ogroman ugljenični otisak svojih omiljenih slavnih faca, već i doprinose problemu kupovinom njihovih brendova. Ova podrška samo pojačava uticaj i ego slavnih, podstičući ih da nastave sa zanemarivanjem važnih ekoloških pitanja.

Primer za to je beskonačna kupovina robe, od koje se mnoga proizvodi u neetičkim i ekološki štetnim uslovima, doprinoseći degradaciji životne sredine i eksploataciji radne snage.

Pored toga, prisustvovanje koncertima i drugim velikim događajima bez preispitivanja njihovog ekološkog otiska štetno je za životnu sredinu. Na primer, tradicionalni festival muzike i umetnosti Coachella Valley, kojem prisustvuje veliki broj slavnih, generiše procenjenih 107 tona otpada svakog dana. Kontradikcija je očigledna: poznati koji propovedaju o klimatskim promenama na društvenim mrežama često su isti oni koji učestvuju na događajima koji ostavljaju za sobom ogromne količine smeća.

VREME ZA PROMENE

Uticaj slavnih na životnu sredinu je kriza koja zahteva hitnu akciju. Obožavaoci imaju odgovornost da prestanu da omogućavaju destruktivno ponašanje svojih idola. Zatvaranje očiju više nije opcija. Vreme je da se divljenje preusmeri ka odgovornosti i promeni način na koji se odnosimo prema kulturi slavnih. Samo zahtevajući stvarnu, merljivu promenu, možemo smanjiti ozbiljan ekološki uticaj ovih slavnih ličnosti i raditi na održivijoj budućnosti za sve.

Moramo iskoristiti njihovu ogromnu moć i uticaj u svoju korist, primoravajući ih da koriste svoje platforme za pokretanje pozitivnih promena. Više ne možemo odbacivati poznate kao puke zabavljače; s obzirom na krizu naše planete, i oni moraju preuzeti odgovornost i delovati kao katalizatori za ekološke i društvene reforme.

Coachella Valley Music and Arts Festival, generates an estimated 107 tons of waste each day

THE FANS ARE COMPLICIT

Fans play a significant role in the production of environmental damage caused by celebrities. Their uncritical support and adoration allow celebrities to continue their irresponsible behavior without consequences, according to a commentary on the Earth.org portal.

Not only do they ignore the huge carbon footprint of their favorite celebrities, but they also contribute to the problem by buying their brands. This endorsement only boosts the influence and ego of celebrities, encouraging them to continue to ignore important environmental issues.

An example of this is the endless purchase of goods, many of which are produced in unethical and environmentally harmful conditions, contributing to environmental degradation and labor exploitation.

In addition, attending concerts and other large-scale events without considering their ecological footprint is harmful to the environment. For example, the annual Coachella Valley Music and Arts Festival, attended by a large number of celebrities, generates an estimated 107 tons of waste each day. The contradiction is obvious: celebrities who preach about climate change on social media are often the same ones who participate in events that leave behind huge amounts of trash.

TIME FOR CHANGE

The environmental impact of celebrities is a crisis that calls for immediate action. Fans have a responsibility to stop enabling the destructive behavior of their idols. Closing your eyes is no longer an option. It is time to shift admiration towards responsibility and change the way we relate to celebrity culture. Only by demanding real, measurable change can we mitigate the serious environmental impact of these celebrities, and work towards a more sustainable future for all.

We must use their enormous power and influence to our advantage, forcing them to use their platforms to drive positive change. We can no longer dismiss celebrities as mere entertainers; with our planet in a crisis, they too must take responsibility and act as catalysts for environmental and social reform.

Roba koja će doživeti procvat u narednih 20 godina

Roba koja će zauzeti centralno mesto u naredne dve decenije je ona koja je potrebna za podršku trima ključnim oblastima globalnih promena: prelazak na održivost; povećana digitalizacija; i zdraviji, bogatiji potrošač

Koja će roba biti najtraženija u narednih 20 godina i koji će faktori pokrenuti ovu promenu? Pogledajmo neke od ključnih proizvoda koji su predodređeni za snažan rast u budućnosti, dok podržavaju svet koji se brzo menja.

Koji su to proizvodi budućnosti? Roba koja će zauzeti centralno mesto u naredne dve decenije je ona koja je potrebna za podršku trima ključnim oblastima globalnih promena: prelazak na održivost; povećana digitalizacija; i zdraviji, bogatiji potrošač. Mineralne i metalne sirovine koje će doživeti procvat uključuju bakar, nikl, aluminijum, litijum, kobalt, kalaj, retke metale, otpadni metal i zeleni čelik. Roba koja će rasti u sektoru poljoprivrede uključuje živinu, mlečne proizvode, ribu i rakove, soju, kukuruz, kakao, voće i povrće, kao i nesintetičke narkotike.

U energetskom sektoru, nisko-karbonski vodonik je označen kao najtraženiji. Roba održava svet u pokretu, a industrijska istraživanja ukazuju na to da će ova roba biti ključna za našu budućnost.

Ključne promene koje pokreću potražnju za ovom robom.

Commodities Set to Boom in the Next 20 Years

Commodities that will take center stage over the next two decades are those needed to support three key areas of global change: a shift towards sustainability; increased digitization; and a healthier, wealthier consumer

Which commodities will be most in demand over the next 20 years and what factors will drive this change? Let's take a look at some of key products poised to experience strong growth in the future while supporting a rapidly changing world.

What are the products of the future? Commodities that will take center stage over the next two decades are those needed to support three key areas of global change: a shift towards sustainability; increased digitization; and a healthier, wealthier consumer. Mineral and metal commodities set to boom include copper, nickel, aluminum, lithium, cobalt, tin, rare-earth elements, metal scraps and green steel. Commodities on the rise in the agricultural sector include poultry, dairy products, fish and crustaceans, soybean, corn, cocoa, fruits and vegetables, and non-synthetic narcotics.

In the energy sector, low-carbon hydrogen is marked as the most in demand. Commodities keep the world moving, and industry research indicates that these commodities will be key to our future.

Key changes driving demand for these commodities

Povećana digitalizacija

Digitalna budućnost zahtevaće posebnu vrstu sirovina da bi se podržala. Standardni pametni telefon sadrži više od 35 minerala i metala, uključujući bakar i litijum. Kalaj je takođe ključni metal koji se koristi u digitalnim proizvodima i zbog toga će uživati snažan rast potražnje u naredne dve decenije. Sam tempo digitalne tranzicije uticaće na količinu energije koju svet zahteva, jer se produktivnost povećava, a svet ostaje „uključen“ duže. Ovo daje svetlu budućnost svim sirovinama koje se koriste za podršku digitalnim proizvodima. Tempo digitalizacije u svetu poljoprivrede takođe će dovesti do povećanja produktivnosti i prinosa, što će zauzvrat povećati potražnju za đubrivima i drugim inputima.

Zelena tranzicija

Globalni ciljevi za smanjenje emisije ugljen-dioksida doveli su do prelaska na robu koja podržava proizvodnju obnovljive energije. Na primer, nikl, litijum i kobalt su potrebni za izradu i rad baterija, bakar se koristi za proizvodnju energije iz solarnih, hidro, termalnih i vetroelektrana, a aluminijum se široko koristi u solarnim poljima. Nisko-karbonski vodonik (plavi i zeleni) će postajati sve zastupljeniji na tržištima energetskih sirovina, jer svet prelazi sa vodonika na bazi fosilnih goriva (sivi, crni i braon). Očekuje se da će proizvodnja zelenog vodonika porasti sa manje od 1% trenutne globalne ponude na 10% do 2030. godine.

GN ▶▶▶

A green transition

Global targets for reducing carbon dioxide emissions have led to a shift towards commodities that support renewable energy production. For example, nickel, lithium, and cobalt are needed to build and run batteries, copper is used to produce energy from solar, hydro, thermal, and wind power plants, and aluminum is widely used in solar fields. Low-carbon hydrogen (blue and green) will become more prevalent in energy markets as the world shifts away from fossil fuel-based hydrogen (grey, black and brown). Green hydrogen production is expected to rise from less than 1% of current global supply to 10% by 2030.

Increased digitization

A digital future will require a special kind of raw material to support it. A standard smartphone contains more than 35 minerals and metals, including copper and lithium. Tin is also a key metal used in digital products and will therefore enjoy a strong increase in demand over the next two decades. The very pace of the digital transition will impact the amount of energy the world requires, as productivity increases and the world remains „on” for longer. This gives a bright future to all raw materials used to support digital products. The pace of digitization in the agricultural world will also lead to increased productivity and outputs, which in turn will increase demand for fertilizers and other inputs.

GN ▶▶▶

Zdraviji, svesni, imućni potrošači

Kao opšti trend, potrošači širom sveta postaju zdraviji, bogatiji i ekološki svesniji, što će uticati na robu koju biraju da konzumiraju. U poljoprivrednom sektoru, to će dovesti do smanjenja potrošnje crvenog mesa, kao što je govedina, i povećanja potrošnje živinskog mesa, ribe i morskih plodova (posebno akvakulture) u narednih 20 godina. Alternativni proteini će doživeti procvat, dok prehrambena industrija brzo inovira u oblasti niskokarbonskih namirnica. Industrijske poljoprivredne sirovine kao što su kukuruz i soja će beležiti povećanu potražnju kako se proizvodnja stoke širi i modernizuje, zahtevajući više „komercijalne“ hrane. Voće i povrće će biti traženi kako se potrošači okreću zdravijoj hrani sa nižim ekološkim otiskom. Iako nikada nije lako predvideti budućnost, industrijski i potrošački trendovi ukazuju na gore navedenu robu kao onu na koju treba obratiti pažnju. GN

Healthy, conscious, wealthy consumers

As a general trend, consumers around the world are becoming healthier, wealthier and more environmentally conscious, which will affect the goods they choose to consume. In the agricultural sector, this will lead to a reduction in the consumption of red meat, such as beef, and an increase in the consumption of poultry, fish and seafood (especially aquaculture) over the next 20 years. Alternative proteins will enjoy a boost, while the food industry rapidly innovates in the area of low-carbon foods. Industrial agricultural commodities such as corn and soybean will see increased demand as livestock production expands and modernizes, requiring more „commercial” feed. Fruits and vegetables will be in demand as consumers turn to healthier foods with a lower environmental footprint.

While it is never easy to predict the future, industry and consumer trends point to the above commodities as ones to watch. GN

Novi fosili otkrivaju Grenland bez leda

Jedne subote popodne u junu 2022, Endru Krist je bio na ivici senzacionalnog otkrića na Univerzitetu u Vermontu. Postdoktorski istraživač koji je proučavao interakcije između glečera i pejzaža u to vreme, ispirao je uzorak uzet sa dna 30 godina starog ledenog jezgra iz centra ledenog pokrivača Grenlanda - samo 30 grama blatne bljuzgavice koja je ostala iza glečeri koji melju o stenu. Dok je posmatrao, talog se složio na dno plastične kade i male crne mrlje su počele da lepršaju u vodi.

On je primetio sličan fenomen u uzorku sa druge lokacije koju je njegova laboratorija ispitivala, ali nije očekivao da će je videti u centru ledenog pokrivača Grenlanda. Nakon što je osmotrio mrlje kroz mikroskop, otkrio je da su to fosilizovani fragmenti, kasnije identifikovani kao ostaci drevnog maka, delova insekata i kore drveća - oličena sećanja na Grenland bez leda, savršeno očuvana u vremenu.

Tim Univerziteta u Vermontu objavio je studiju u kojoj se zaključuje da otkriće biljnog sveta i insekata iz centra kontinenta ukazuje na to da na zemljištu jedva da je bilo leda, ili ga možda uopšte nije bilo, u nekom trenutku u poslednjih 1,1 milion godina.

ZAPANJUJUĆI VOLUMEN

Novi dokazi da je Grenland opravdao svoje zeleno ime u ne tako davnoj prošlosti može predstavljati uzbudljiv naučni proboj, ali takođe najavljuje zloslutne mogućnosti za budućnost čovečanstva.

GN ▶▶▶

New Fossils Reveal Greenland Without Ice

One Saturday afternoon in June 2022, Andrew Christ was on the verge of a sensational discovery at the University of Vermont. A postdoctoral researcher studying interactions between glaciers and the landscape at the time, washed a sample taken from the bottom of a 30-year-old ice core from the center of Greenland's ice sheet — just 30 grams of muddy slush left behind by glaciers grinding against bedrock. As he watched, the sediment settled at the bottom of a plastic tub and small black flecks began to flutter in the water.

He had observed a similar phenomenon in a sample from another location his lab had been examining, but he had not been expecting to see it in the center of Greenland's ice sheet. After looking at the specks through a microscope, he discovered that they were fossilized fragments, later identified as the remains of ancient poppies, insect parts and tree bark - embodied memories of an ice-free Greenland, perfectly preserved in time.

The University of Vermont team published a study concluding that the discovery of plant and insect life from the center of the continent indicates that there was little or no ice on the land at some point in the last 1.1 million years.

A STAGGERING VOLUME

The new evidence that Greenland lived up to its green name in the not-so-distant past may represent an exciting scientific breakthrough, but it also heralds ominous possibilities for the future of humanity.

GN ▶▶▶

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Današnji nivoi ugljen-dioksida u atmosferi su veći nego što su bili milionima godina. Dokazi o Grenlandu bez leda u skorijoj prošlosti znače da bi moglo biti potrebno čak i manje zagrevanja nego što se očekivalo da bi se iscrpio najvažniji ledeni pokrivač na kontinentu. Smrznuto uporište koje pokriva Grenland sadrži dovoljno slatke vode da podigne nivo mora za 23 stope - zapanjujući volumen koji bi preoblikovao obale širom sveta.

Kako globalne temperature premašuju nivoe koji nisu viđeni 125.000 godina, to topljenje je već uveliko u toku. Otkako su satelitski snimci počeli 1992. godine, antarktički i arktički ledeni pokrivači izgubili su zapanjujućih 7,5 biliona tona leda zajedno. Manje od stope porasta nivoa mora od početka veka već je izazvalo poplave u obalnim zajednicama širom sveta.

ARHIVA ZEMLJINE PROŠLOSTI

Za svoju studiju, tim Univerziteta u Vermontu počeo je tako što je zatražio uzorak sedimenta gde je ledena jezgra Grenlanda iz 1993. godine, ili GISP2, udarila u podlogu - jedan od retkih uzoraka te vrste. Došao je sa 2 milje ispod leda i, zajedno sa ostatkom jezgra, bilo je potrebno pet godina bušenja da se izvuče.

- Ledena jezgra su neverovatne knjige, u suštini kao arhiva Zemljine prošlosti - rekao je Halej Mastro, diplomirani student koji je vodio studiju zajedno sa Polom Birmanom, profesorom geologije na Univerzitetu u Vermontu i autorom predstojeće knjige o ledu na Grenlandu.

Prema Mastrou, naučnici su istorijski tražili ledena jezgra za čisti led, gde kristalni mehurići zadržavaju gasove i hemikalije koje ukazuju na klimatske uslove iz prošlosti.

- Ali ono što imamo je 8 centimetara prljavštine od dna, to jednostavno nije bio tako veliki prioritet u to vreme - dodala je ona.

Godine 2021. Birman i Krist su objavili svoja otkrića iz Camp Centurya. Zatim, 2023. godine, datirali su fosilizovanu vegetaciju koju su pronašli i zaključili da potiče od pre 416.000 godina - što ukazuje da je rub Grenlanda tada morao biti bez leda. Sada, nakon što su pronašli fosile u jezgru GISP2 — koji predstavljaju dokaz naprednog ekosistema tundre u centru Grenlanda - Bierman i Mastro smatraju da je kontinent u celini bio najmanje 90 procenata bez leda negde u poslednjih 1,1 milion godina.

- Ako pronađete biljke na dnu, to znači da je leda skoro svuda nestalo - rekla je Doroti Pit, stručnjak za makrofosile koja je pomogla Mastru da analizira uzorak. Istraživači su pronašli fragmente kamene mahovine, gljivice, makovo seme, koru vrbe i oko i noge insekata. Prema Peteet-u, krhkost ovih vrsta uzoraka čini otkriće posebno izvanrednim: to znači da se glečer, kako se formirao, nije morao mnogo pomeriti, ili bi uništio ove fragmente dok je mlatio o stenu.

U međuvremenu, prema Džonsovom mišljenju, dokazi ukazuju na hitnu potrebu da se smanji emisija gasova staklene bašte i ograniči planetarno zagrevanje i porast nivoa mora.

Today's levels of carbon dioxide in the atmosphere are higher than they have been in millions of years. Evidence of ice-free Greenland in the recent past means that it may take even less warming than expected to deplete the continent's most important ice sheet. The frozen stronghold that covers Greenland contains enough fresh water to raise sea levels by 23 feet—a staggering volume that would reshape coastlines around the world.

As global temperatures surpass levels not seen for 125,000 years, that melting is already well underway. Since satellite images began in 1992, the Antarctic and Arctic ice sheets have lost a staggering 7.5 trillion tons of ice combined. Less than a foot of sea level rise since the beginning of the century has already caused flooding in coastal communities around the world.

AN ARCHIVE OF EARTH'S PAST

For their study, the University of Vermont team began by requesting a sample of the sediment where the 1993 Greenland Ice Sheet Project 2, or GISP2, ice core hit bedrock—one of the few samples of its kind. It came from 2 miles below the ice and, along with the rest of the core, took five years of drilling to extract.

„Ice cores are amazing books, basically like an archive of Earth's past," said Halley Mastro, a graduate student who led the study along with Paul Bierman, a geology professor at the University of Vermont and the author of a forthcoming book on Greenland ice loss.

According to Mastro, scientists have historically searched ice cores for the clea ice, where crystalline bubbles trap gases and chemicals that indicate past climate conditions.

- But what we have is 8 centimeters of dirt from the bottom – that was just not as big of a priority at the time," she added.

In 2021, Birman and Krist published their findings from Camp Century. Then, in 2023, they dated the fossilized vegetation they found to 416,000 years ago - indicating that the edge of Greenland must have been ice-free at the time. Now, after finding fossils in the GISP2 core — evidence of a thriving tundra ecosystem in central Greenland — Bierman and Mastro think the continent as a whole was at least 90 percent ice-free sometime in the last 1.1 million years.

- If you find plants at the bottom, that means the ice is pretty much gone everywhere, said Dorothy Peteet, a macrofossil expert who helped Mastro analyze the sample. The researchers found fragments of rock spikemoss, fungus, poppy seeds, willow bark, and an insect eye and legs. According to Peteet, the fragility of these kinds of specimens makes the discovery especially remarkable: it means that as the glacier formed, it must not have moved very much, or it would have destroyed these fragments as it ground against the rock.

Meanwhile, according to Jones, the evidence suggests an urgent need to reduce greenhouse gas emissions and limit global warming and sea level rise.

Biljke koje odbijaju neželjene insekte

Miris nekih biljaka i cveća, koji je rezultat raspodele sitnih kuglica koje sadrže esencijalna ulja, može pomoći u odstranjivanju insekata

U ovom članku ćete saznati o 12 biljaka koje bi vam mogle pomoći da upravljate populacijom insekata u vašoj bašti. Kao bonus, većinu njih možete koristiti da napravite sopstveni prirodni repelent protiv buba. Čak i samo drobljenje lišća u rukama i utrljavanje ulja na kožu dok radite u bašti može odvratiti neke insekte da lete oko vas i grizu sve živo.

Ovo možda nije tako efikasno kao konvencionalne formule za repelent, ali će donekle pomoći.

Miris nekih biljaka i cveća, koji je rezultat raspodele sitnih kuglica koje sadrže esencijalna ulja, može pomoći u odstranjivanju insekata. Visoke temperature mogu uzrokovati da globule postanu isparljive, puštajući eterična ulja i pretvarajući ih u pare. Mnogobrojne kuglice na donjoj strani listova ruzmarina su jedan od najboljih primera za to.

Jedna studija o efikasnosti repelenata za biljke objašnjava: "Ovu repelentnost biljnog materijala čovek je hiljadama godina iskorišćavao, najjednostavnije kačenjem natučenih biljaka u kućama, što je praksa koja je još uvek u širokoj upotrebi u zemljama u razvoju".

Biljke su takođe dugo korišćene u „sirovim fumigantima" ili se primenjuju u uljnim formulacijama na kožu i odeću.

KOME TREBA BAŠTA BEZ BUBA

Imajte na umu da ovo verovatno nije dovoljno da vaša bašta bude potpuno bez insekata. Dr Bodi Penisi, profesor i specijalista za pejzaž na kampusu Grifin Univerziteta Džordžije, kaže da je nejasno koliko bi biljaka bilo potrebno za efikasno odbijanje insekata i koliko bi ih trebalo posaditi blizu. Ali ko bi uopšte želeo baštu bez buba, kada su bube hrana za toliko ptica i drugih korisnih stvorenja? Cilj treba da bude smanjenje, a ne eliminacija.

Jedna od najboljih stvari koje ljudi mogu da urade da zadrže populaciju komaraca, savetuje ona, jeste da eliminišu bilo kakvu stajaću vodu, gde se komarci razmnožavaju.

Savet: Pre nego što se rešite kupatila za ptice, razmislite o tome da dodate aerator ili mešalicu, što vam omogućava da ostavite važnu vodu za organizme kojima je potrebna, ali će poremetiti mir koji komarci treba da se razmnožavaju.

BOSILJAK

Bosiljak kao biljka posebno je efikasan protiv određene štetočine zvane buva (i kupusnog paučina, neinsekta). Takođe sadrži četiri isparljiva jedinjenja koja mogu da odvrate komarce: estragol, citronelal, limonen i nerolidol. Oštar je i efikasan čak i bez potrebe za gnječenjem.

LAVANDA

Ljude uglavnom privlači miris lavande, ali komarce, muve i drugi neželjeni insekte ne. Eterična ulja lavande imaju efekat odbijanja od 80,9% protiv vrste komaraca Anopheles stephensi. Postavite vezane bukete oko kuće kako biste sprečili muve. Posadite ga na sunčanim delovima bašte ili blizu ulaza u vaš dom kako biste ove oblasti zaštitili od štetočina. Ulje dobijeno iz cveća možete koristiti i kao prirodni repelent protiv komaraca. Kao bonus, ulje lavande hrani kožu i ima umirujući efekat.

BASIL

Basil as a plant is particularly effective against a certain pest called the flea beetle (and the cabbage webworm, a non-insect). It also contains four volatile compounds that can deter mosquitoes: estragole, citronellal, limonene and nerolidol. It is pungent and effective even without needing to be crushed.

LAVENDER

Humans are generally attracted to the smell of lavender, but mosquitoes, flies and other unwanted insects are not. Lavender essential oils have an 80.9% repellency against the mosquito species Anopheles stephensi. Place tied bouquets around the house to keep flies out. Plant it in sunny areas of the garden or near the entrance to your home to protect these areas from pests. You can also use the oil extracted from the flowers as a natural mosquito repellent. As a bonus, lavender oil nourishes the skin and has a soothing effect.

Plants That Repel Unwanted Insects

The smell of some herbs and flowers, which is the result of the distribution of tiny globules containing essential oils, can help to ward off insects

In this article, you will learn about 12 plants that could help you manage the insect population in your garden. As a bonus, you can use most of them to make your own natural bug repellent. Even just crushing leaves in your hands and rubbing oil onto your skin while gardening can deter some insects from flying around you and biting everything alive.

This may not be as effective as conventional repellent formulas, but it will help somewhat.

The smell of some herbs and flowers, which is the result of the distribution of tiny globules containing essential oils, can help to ward off insects. High temperatures can cause the globules to become volatile, evaporating the essential oils and turning them into vapors. The numerous globules on the underside of rosemary leaves are one of the best examples of this.

One study on the effectiveness of plant repellents explains: „This repellency of plant material has been exploited for thousands of years by man, most simply by hanging bruised plants in houses, a practice that is still in wide use throughout the developing countries."

Plants have also long been used in „crude fumigants" or applied in oil formulations to skin and clothing.

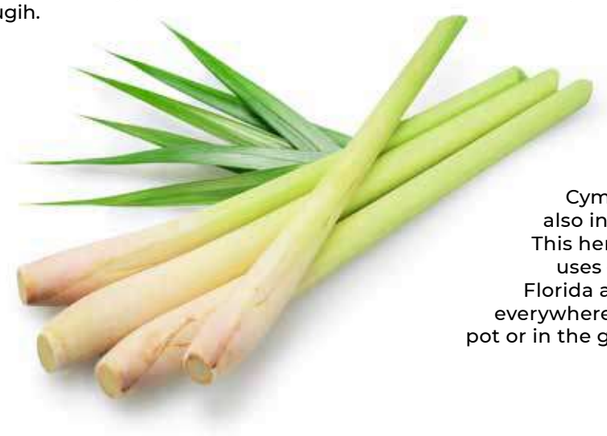
WHO NEEDS A BUG-FREE GARDE

Keep in mind that this is probably not enough to keep your garden completely insect-free. Dr. Bodie Pennisi, a professor and landscape specialist at the University of Georgia's Griffin campus, says it is unclear how many plants would be needed to effectively repel insects and how close together they should be planted. But who would want a bug-free garden anyway, when bugs are food for so many birds and other beneficial creatures? The goal should be reduction, not elimination. One of the best things people can do to hold down mosquito populations, she advises, is to eliminate any standing water where mosquitoes breed.

Tip: Before getting rid of the birdbath, consider adding an aerator or agitator, which allows you to leave important water for organisms that need it, but will disturb the stillness that mosquitoes need to breed.

LIMUNSKA TRAVA

Bez sumnje ste videli citronelu koja se koristi u konvencionalnim repelentima protiv komaraca, obično u svećama. Ovo prirodno ulje nalazi se u limunskoj travi, ukrasna biljka koja može narasti do četiri stope u visinu i tri stope u širinu u jednoj sezoni. Istraživanja su pokazala da ova biljka ima 100% repelentni efekat protiv Anopheles culicifacies, jedne vrste komaraca koja prenosi malariju, a veoma je efikasna i protiv drugih. Vredi napomenuti je da limunska trava nije samo ime jedne biljke; to je krovni naziv za biljke iz porodice Cimbopogon, koja takođe uključuje travu citronele. Ova trava - sa mnogo kulinarskih upotreba - otporna je samo na Južnoj Floridi i raste kao jednogodišnja biljka svuda drugde. Dobro uspeva u saksiji ili u zemlji na sunčanom, dobro dreniranom mestu.



LEMONGRASS

You have no doubt seen citronella used in conventional mosquito repellents, usually in candles. This natural oil is found in lemongrass, an ornamental plant that can grow up to four feet tall and three feet wide in one season. Studies have shown that this plant has a 100% repellency effect against Anopheles culicifacies, one type of mosquito that transmits malaria, and is very effective against others as well. It is worth noting that lemongrass is not just the name of a plant; it is the umbrella name for plants in the Cymbopogon family, which also includes citronella grass. This herb - with many culinary uses - is hardy only in South Florida and grows as an annual everywhere else. It grows well in a pot or in the ground in a sunny, well-drained spot.

LIMUN TIMIJAN

Pokazalo se da ova izdržljiva biljka odbija komarce, ali samo kada se zgnječi. Jedan profesor, dr Donald Luis sa Odeljenja za entomologiju Državnog univerziteta u Ajovi, rekao je da biljka ima 62% odbojnosti kad su insekti u pitanju. Da biste oslobodili svoj citronelal, morate prvo nagnječiti listove. Da biste to uradili, jednostavno odrežite nekoliko stabljika i protrljajte ih između ruku. Takođe možete zapaliti neke grančice na roštilju ili na logorskoj vatri da biste privremeno sprečili komarce. Biljka se može prilagoditi suvom ili kamenitom, plitkom tlu i uspevaće u vašoj biljnoj bašti.

Upozorenje

Ulje timijana može izazvati iritaciju kože kod onih koji su osetljivi na biljke iz porodice nane (kao što su žalfija, lavanda i origano). Pre nego što ga usvojite kao sredstvo za odbijanje insekata, odredite svoju toleranciju trljanjem zgnječenog lišća na malu površinu podlaktice nekoliko dana kako biste bili sigurni da ne dođe do neželjenih efekata. Ulje timijana takođe treba izbegavati tokom trudnoće.

NANA

Miris nane odbija komarce. Aromatična svojstva koja se nalaze u listovima prisutna su i u stabljikama i cvetovima. Uz malo truda, ulja biljke se mogu ekstrahovati i kombinovati sa jabukovim sirćetom i jeftinom votkom (ili hamamelisom) da bi se napravio repelent protiv komaraca. Kontejneri sa mentom strateški postavljeni u bašti ili na terasi mogu pomoći da obližnje biljke budu bez insekata. Mentu je najbolje uzgajati u saksijama, a ne u zemlji, jer se agresivno širi. Jednom postavljen u bašti, može biti teško ukloniti.

RUZMARIN

Ruzmarinova ulja su podjednako ukusna za domaće kuvare koliko i neprijatna za mnoge insekte. Sama biljka i njene reznice su efikasni repelenti. Možete napraviti jednostavan sprej tako što ćete jedan litar osušenog ruzmarina kuvati u litri vode 20 do 30 minuta, a zatim proceditи tečnost u posudu u kojoj se nalazi litar hladne vode. Čuvajte „uradi sam" repelent u frižideru i bacite ga kada više ne miriše na ruzmarin. Takođe možete baciti nekoliko grančica na roštilj da biste uplašili komarce iz neposredne blizine. Ruzmarin je dostupan u različitim oblicima. Biljke se mogu uzgajati u kontejnerima na terasi i oblikovati u ukrasne piramide, uzgajati u baštama začinskog bilja ili saditi u uređenim krevetima, gde neke sorte mogu da narastu prilično velike.

MAČJA TRAVA

Član porodice mente, mačja trava sadrži hemikaliju zvanu nepetalakton, koja privlači mačke i odbija insekte kao što su komarci, muve, jelenski krpelji i bubašvabe. Navodno izaziva hemijski receptor kod insekata koji stvara osećaj bola ili svraba. Biljke mačje trave se relativno lako uzgajaju. Možete saditi iz semena ili kao biljke na otvorenom u proleće ili jesen. Naraste do tri ili četiri stope i cveta male cvetove lavande. Međutim, budite oprezni, jer mačja trava može postati invazivna i preuzeti vašu baštu.

LEMON THYME

This hardy herb has been shown to repel mosquitoes, but only when crushed. One professor, Dr. Donald Lewis of Iowa State University's Department of Entomology, said the plant has a 62% repellency rate when it comes to insects.
To release its citronellal, you must first bruise the leaves. To do this, simply cut off a few stems and rub them between your hands. You can also burn some sprigs on a barbecue or campfire to repel mosquitoes temporarily. The plant can adapt to dry or rocky, shallow soil and will thrive in your herb garden.

Warning

Thyme oil can cause skin irritation for those who are sensitive to herbs in the mint family (such as sage, lavender, and oregano). Before adopting it as an insect repellent, determine your tolerance by rubbing crushed leaves on a small area of your forearm for a few days to ensure no side effects occur. Thyme oil should also be avoided during pregnancy.

MINT

The smell of mint repels mosquitoes. The aromatic properties found in the leaves are also present in the stems and flowers. With a little effort, the plant's oils can be extracted and combined with apple cider vinegar and cheap vodka (or witch hazel) to make a mosquito repellent. Containers of mint strategically placed in the garden or on the patio can help keep nearby plants insect-free. Mint is best grown in pots rather than the ground because it spreads aggressively. Once established in the garden, it can be difficult to remove.

ROSEMARY

Rosemary oils are as delicious to home cooks as they are unpleasant to many insects. The plant itself and its cuttings are effective repellents. You can make a simple spray by boiling one liter of dried rosemary in a liter of water for 20 to 30 minutes, then straining the liquid into a container containing a liter of cold water. Store your DIY repellant in the fridge and discard when it no longer smells like rosemary. You can also toss some sprigs on the grill to scare off mosquitoes from the immediate vicinity.
Rosemary is available in different forms. Plants can be grown in containers on the terrace and formed into decorative pyramids, grown in herb gardens or planted in landscaped beds, where some varieties can grow quite large.

CATNIP

A member of the mint family, catnip contains a chemical called nepetalactone, which attracts cats and repels insects such as mosquitoes, flies, deer ticks and cockroaches. It is said to trigger a chemical receptor in insects that creates a sensation of pain or itching. Catnip plants are relatively easy to grow. You can plant from seeds or as outdoor plants in spring or fall. It grows to three or four feet and blooms small lavender flowers. Be careful, however, as catnip can become invasive and take over your garden.

Ljubičasti alijumi cvetaju u dugoj zelenoj travi

Biljke iz porodice alijuma – kao što je dramatični Allium giganteum, čije stabljike rastu do šest stopa visine, smatrane su prirodnim insekticidom širokog spektra tokom istorije starosedelaca. Za njih se kaže da odbijaju insekte poput lisnih uši, puževa, kupusnih glista i šargarepinih muva koje muče povrtnjake.

Purple alliums bloom in long green grass

Plants in the allium family – such as the dramatic Allium giganteum, whose stems grow up to six feet tall – have been considered natural broad-spectrum insecticides throughout Indigenous history. They are said to repel insects such as aphids, slugs, cabbage worms and carrot flies that plague vegetable gardens.

HRIZANTEME

Hrizanteme su efikasne protiv žohara, mrava, japanskih buba, krpelja, srebrne ribice, vaški, buva, stenica, grinja, harlekinovih buba i nematoda korenskih čvorova. Sadrže buhač, koji može da ubije insekte koji lete i skakuću. U stvari, piretroidi, jedinjenja sintetizovana iz hrizantema, koriste se u mnogim konvencionalnim insekticidima za kuće i bašte i često se koriste u sprejevima za zatvorene prostore, šamponima za kućne ljubimce i aerosol bombama.

Međutim, poznato je da piretroidi imaju štetne efekte na vodene ekosisteme, ptice i neciljane insekte. Ako zasadite hrizanteme u svojoj bašti i cvetne ivice, i oslanjajući se na njihov prirodni piretrum, možete dobiti istu prednost u odbijanju insekata bez štetnih efekata.

CRVENI NASTURCIJUMI NA JAKOM SUNCU U BAŠTI

Jestivi nasturcijum navodno odbija bele mušice, tikvice, lisne uši, mnoge bube i kupusne petlje. Ovo cveće oslobađa hemikaliju u vazduhu koja odbija grabežljive insekte, štiteći ne samo nasturcijum već i druge biljke u grupi. Pošto mnogi insekti nasturcijumi odbijaju omiljeno povrće, paradajz, krastavac, kelj, kelerabu, krastavce itd, ova biljka je odlična za korišćenje uz ivice povrtnjaka. Na sreću, nasturcijumi ne odbijaju najvažnijeg oprašivača, bumbara.

CVEĆE KONAC

Sadrži kumarin, hemikaliju koja se koristi u nekim komercijalnim sprejevima protiv insekata.

Komarci ne vole miris ove hemikalije, koja se takođe nalazi u slatkoj travi. Ne samo da pomažu da drže bube na odstojanju: takođe su ukrasni, proizvodeći plave, ružičaste i bele cvetove u leto i jesen.

CHRYSANTHEMUMS

Chrysanthemums are effective against cockroaches, ants, Japanese beetles, ticks, silverfish, lice, fleas, bedbugs, spider mites, harlequin bugs and root - knot nematodes. They contain pyrethrum, which can kill flying and jumping insects. In fact, pyrethroids, compounds synthesized from chrysanthemums, are used in many conventional home and garden insecticides and are often used in indoor sprays, pet shampoos, and aerosol bombs.

However, pyrethroids are known to have harmful effects on aquatic ecosystems, birds and non-target insects. If you plant chrysanthemums in your garden and flower borders, and rely on their natural pyrethrum, you can get the same advantage in repelling insects without the harmful effects.

RED NASTURTIUMS IN BRIGHT SUNLIGHT IN THE GARDEN

Edible nasturtiums are said to repel whiteflies, squash bugs, aphids, many beetles, and cabbage loopers. These flowers release a chemical in the air that repels predatory insects, protecting not only the nasturtium but other plants in the group as well. Since many of the insects nasturtiums repel favor vegetables, tomatoes, cucumbers, kale, kohlrabi, cucumbers, etc., this plant is excellent for use along the edges of vegetable gardens. Fortunately, nasturtiums do not repel the most important pollinator, the bumblebee.

FLOSS FLOWERS

They contain coumarin, a chemical used in some commercial insect sprays.

Mosquitoes do not like the smell of this chemical, which is also found in sweet grass. Not only do they help keep bugs at bay: they are also ornamental, producing blue, pink and white flowers in summer and fall.

Šta nam toplotni talasi govore o klimatskim promenama

Ova opasna prirodna pojava može imati široko rasprostranjene društvene, ekološke i ekonomske posledice, kao i ozbiljno ugroziti ljudsko zdravlje i dobrobit, posebno među najugroženijim grupama društva, kao što su deca i stariji, žene i oni koji žive u neformalnim naseljima

Toplotni talasi predstavljaju značajan rizik kao jedna od najopasnijih prirodnih pojava. Njihov uticaj na ljudske živote i životnu sredinu često se potcenjuje, što zahteva veću pažnju i priznanje. Klimatske promene, izazvane gasovima staklene bašte zbog sagorevanja fosilnih goriva, verovatno će učiniti toplotne talase dužim, intenzivnijim i češćim.

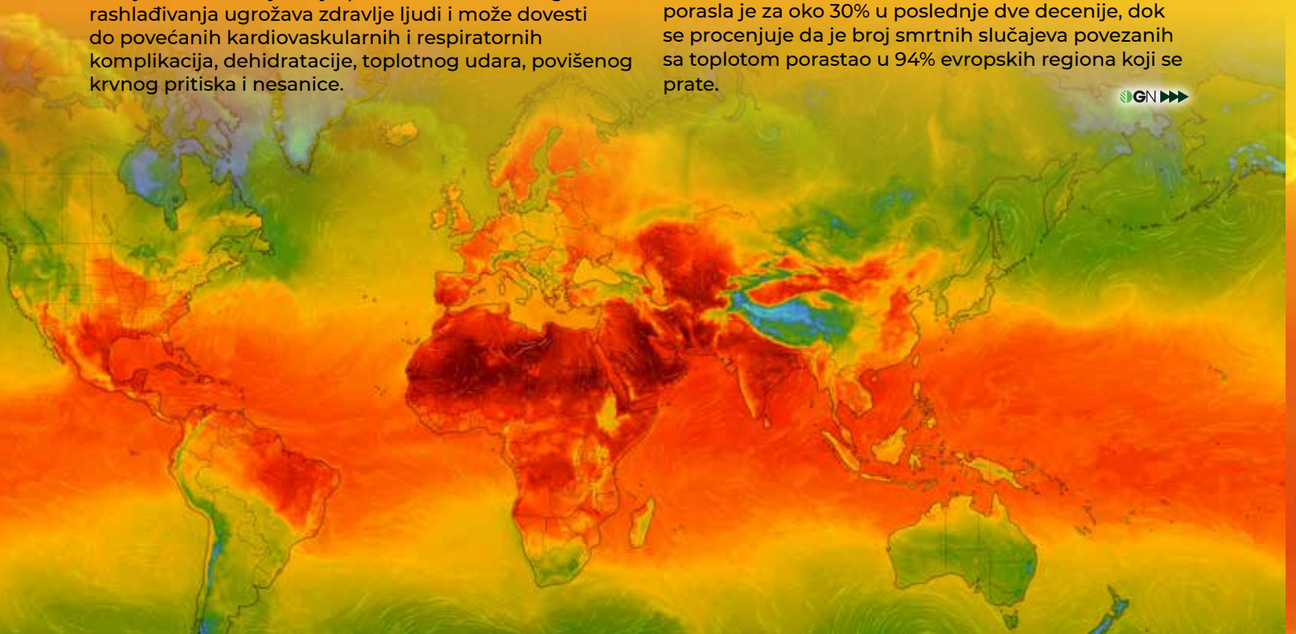
Toplotni talas je produžen period izuzetno vrućeg vremena, kako tokom dana, tako i noću. Iako ekstremna toplota možda ne izgleda vizuelno upadljivo kao uragani ili poplave, njeni efekti su ogromni. Ova opasna prirodna pojava može imati široko rasprostranjene društvene, ekološke i ekonomske posledice, kao i ozbiljno ugroziti ljudsko zdravlje i dobrobit, posebno među najugroženijim grupama društva, kao što su deca i stariji, žene i oni koji žive u neformalnim naseljima.

Stres izazvan toplotom ometa normalne dnevne aktivnosti i sposobnost tela da se pravilno rashladi. Područja sa većom vlažnošću takođe mogu ugroziti živote. Znojenje pomaže telu da se rashladi, ali vlažnost menja način na koji znoj isparava sa tela. Nemogućnost rashlađivanja ugrožava zdravlje ljudi i može dovesti do povećanih kardiovaskularnih i respiratornih komplikacija, dehidratacije, toplotnog udara, povišenog krvnog pritiska i nesanice.

Ekstremno vreli i vlažni uslovi mogu biti smrtonosni, jer utiču na termoregulaciju tela – proces koji održava stabilnu unutrašnju temperaturu tela – idealno između 36,5 do 37,5°C – uprkos promenama u spoljnim uslovima. Drugim rečima, kada se prekorači prag – teoretska gornja granica prilagodljivosti ljudskog tela na ekstremnu toplotu, koju naučnici postavljaju na 35°C – znojenje neće biti dovoljno da rashladi telo.

Studija objavljena 2021. godine pokazala je da je oko 489.000 smrtnih slučajeva povezanih sa toplotom globalno zabeleženo svake godine između 2000. i 2019. godine.

U Sjedinjenim Državama, toplotni talasi su daleko najsmrtonosniji vremenski događaj u poslednje tri decenije. U drugim delovima sveta, ekstremna toplota je takođe rezultirala brojnim smrtnim slučajevima. Nedavna studija pokazala je da je samo u Evropi preko 60.000 ljudi umrlo zbog stresa izazvanog toplotom tokom leta 2022. godine. Na kontinentu – koji se najbrže zagreva na svetu – smrtnost povezana sa toplotom porasla je za oko 30% u poslednje dve decenije, dok se procenjuje da je broj smrtnih slučajeva povezanih sa toplotom porastao u 94% evropskih regiona koji se prate.



What Do Heatwaves Tell Us About Climate Change?

Heatwaves represent significant risks as one of the most dangerous natural phenomena. Their impact on human lives and the environment is often underestimated, which calls for greater attention and recognition. Climate change, caused by greenhouse gases from burning fossil fuels, is likely to make heatwaves longer, more intense and more frequent.

A heatwave is a prolonged period of extremely hot weather, both during the day and at night. Although extreme heat may not appear as visually striking as hurricanes or floods, its effects are enormous. This dangerous natural phenomenon can have widespread social, environmental, and economic consequences, as well as seriously endanger human health and well-being, especially among the most vulnerable groups of society, such as children and the elderly, women and those living in informal settlements.

Heat-related stress interferes with normal daily activities and the body's ability to cool itself properly. Areas of higher humidity can also be life-threatening. Sweat helps our bodies cool off, but humidity changes the way sweat evaporates from the body.

The inability to cool down endangers human health and can lead to increased cardiovascular and respiratory complications, dehydration, heat stroke, higher blood pressure, and sleep deprivation.

Extremely hot and humid conditions can be deadly because they affect humans' thermoregulation - the process that maintains a steady internal body temperature - ideally between 36.5 to 37.5°C - despite changes in external conditions. In other words, when the threshold is exceeded - the theoretical upper limit of the human body's adaptability to extreme heat, which scientists set at 35°C - sweating will not be enough to cool off the body.

A study published in 2021 found that approximately 489,000 heat-related deaths were recorded globally each year between 2000 and 2019.

In the US, heatwaves have been by far the deadliest weather event over the past three decades. In other parts of the world, extreme heat has also resulted in numerous deaths. A recent study showed that in Europe alone, over 60,000 people died from heat-related stress during the 2022 summer. In the continent - which is the fastest-warming in the world - heat-related deaths have increased by around 30% over the past two decades, while heat-related deaths are estimated to have increased in 94% of European regions monitored.

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Toplota ubija

Nedavno, toplota je ubila desetine ljudi u zemljama jugoistočne Azije, uključujući Tajland i delove SAD-a, dok je u Meki, Saudijska Arabija, više od 1.300 hodočasnika izgubilo živote zbog ekstremne toplote tokom godišnjeg Hadža.

Pored uticaja na ljudsko zdravlje i dobrobit, toplotni talasi takođe značajno utiču na javnu bezbednost, infrastrukturu i prirodno okruženje. Vrući ekstremi postaju intenzivniji u urbanim sredinama, pogoršavajući zagađenje vazduha. Naime, povišene temperature dovode do povećane upotrebe klima uređaja u zgradama i automobilima, što zauzvrat rezultira višim emisijama i zagađenjem vazduha. Pored toga, toplotni talasi mogu negativno uticati na performanse ključne infrastrukture, utičući na materijale koji se koriste u njihovoj izgradnji. Na primer, kada su u kombinaciji sa povećanom količinom padavina, ekstremne temperature mogu ubrzati koroziju metala i propadanje materijala od cigle i kamena, što zauzvrat može oslabiti čelične strukture ugrađene u betonski eksterijer zgrade.

The Heat Kills

Recently, the heat has killed dozens of people in Southeast Asian countries, including Thailand and parts of the US, while in Mecca, Saudi Arabia, more than 1,300 pilgrims have lost their lives due to extreme heat during the annual Hajj.

In addition to affecting human health and well-being, heatwaves also significantly affect public safety, infrastructure, and the natural environment. Hot extremes have become more intense in urban areas, exacerbating air pollution. Namely, higher temperatures lead to increased use of air conditioners in buildings and cars, which in turn results in higher emissions and air pollution. In addition, heatwaves can adversely affect the performance of key infrastructure, affecting the materials used in their construction. For example, when combined with increased rainfall, extreme temperatures can accelerate metal corrosion and deterioration of brick and stone materials, which in turn can weaken steel structures embedded within a building's concrete exterior.

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A study published in 2021 found that approximately 489,000 heat-related deaths were recorded globally each year between 2000 and 2019

ŠTA UZROKUJE TOPLOTNE TALASE

Toplotni talasi obično nastaju prisustvom sistema visokog pritiska, poznatog i kao anticiklon. Ova atmosferska pojava uzrokuje da se vazduh iznad određenog područja nakuplja i komprimuje, što dovodi do povećanja temperature i smanjenja sadržaja vlage. Spuštajući vazduh deluje kao toplotna kupola, zarobljavajući apsorbovanu toplotu unutar pejzaža. Istovremeno, sistem visokog pritiska potiskuje hladniji vazduh i raspršuje oblake, omogućavajući neprekidno sunčevo svetlo da dopre do tla. Kao rezultat, vazduh blizu tla se nastavlja zagrevati sve dok ne pređe prosečnu temperaturu.

Toplotni talasi su posebno uobičajeni u sušnim područjima poput pustinjskog jugozapada i na većim nadmorskim visinama, gde je formiranje sistema visokog pritiska sklonije pojavi.

Prisustvo vlage u tlu može ublažiti uticaj toplote, slično kao što znojenje rashlađuje telo isparavanjem. Međutim, kada zemljište, vodotokovi i vegetacija zadržavaju malo vode, njihova sposobnost da apsorbuju toplotu je značajno smanjena, ostavljajući vazduh kao glavni medijum za zadržavanje toplote.

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WHAT CAUSES HEAT WAVES?

Heatwaves are usually caused by the presence of a high pressure system, also known as an anticyclone. This atmospheric phenomenon causes the air above a certain area to accumulate and compress, resulting in increased temperature and reduced moisture content. The sinking air acts as a heat dome, trapping the absorbed heat within the landscape. At the same time, the high pressure system pushes cooler air and disperses clouds, allowing uninterrupted sunlight to reach the ground. As a result, the air near the ground continues to heat up until it exceeds the average temperature.

Heatwaves are especially common in dry regions like the desert southwest and at higher altitudes, where high pressure systems are more likely to form.

The presence of moisture in the ground can moderate the effects of the heat, similar to how sweating cools the body through evaporation. However, when ground, waterways and vegetation retain little water, their capacity to absorb the heat is greatly reduced, leaving the air as the main medium for heat retention.

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KAKO KLIMATSKE PROMENE POJAČAVAJU TOPLOTNE TALASE

Svet je upravo prešao prag globalnog zagrevanja od 1,5°C u 12 uzastopnih meseci, pri čemu je jun postao najtopliji jun u dokumentovanoj istoriji – 13. mesec zaredom sa rekordno visokim temperaturama. Ovaj porast ekstremne toplote direktan je rezultat klimatskih promena izazvanih ljudskim faktorima. Kako emisije gasova staklene bašte zadržavaju više toplote u atmosferi, toplotni talasi – najsmrtonosnija vrsta ekstremnih vremenskih nepogoda – postaju duži i topliji.

Studija atribucije Svetske meteorološke organizacije (WWA) pokazala je da je toplotni talas koji je pogodio Indiju i Pakistan u martu 2022. godine bio visoko pod uticajem klimatskih promena izazvanih ljudskim faktorima, što je učinilo da je najmanje 30 puta verovatniji. WWA je takođe otkrila da je verovatnoća da se toplotni talas koji je pogodio Sibir 2020. godine poveća za 600 puta zbog klimatskih promena u odnosu na njegovu prirodnu pojavu.

Kako objašnjava Vikki Thompson, klimatolog sa Cabot instituta na Univerzitetu u Bristolu: „Klimatske promene čine toplotne talase toplijim i dužim širom sveta. Naučnici su pokazali da su mnogi specifični toplotni talasi intenzivniji zbog klimatskih promena izazvanih ljudskim faktorima. Signal klimatskih promena je čak detektovan u broju smrtnih slučajeva pripisanih toplotnim talasima.“

Ovo objašnjenje se poklapa sa Šestim izveštajem o proceni Međuvladinog panela za klimatske promene (IPCC), koji sugeriše da su klimatske promene izazvane ljudskim faktorima povećale učestalost i intenzitet toplotnih talasa od 1950-ih i da će to nastaviti da čine kako se planeta bude dalje zagrevala.

HOW DOES CLIMATE CHANGE INTENSIFY HEATWAVES?

The world has just breached the 1.5°C global warming threshold for 12 consecutive months, with June becoming the hottest June on record - the 13th month in a row with record high temperatures. This increase in extreme heat is a direct result of human-induced climate change. As greenhouse gas emissions trap more heat in the atmosphere, heatwaves – the deadliest type of extreme weather – get longer and hotter.

An attribution study by the World Weather Attribution (WWA) found that the heatwave affecting India and Pakistan in March 2022 was highly influenced by human-induced climate change, making it at least 30 times more likely to occur. WWA also found that the likelihood of a heat wave affecting Siberia in 2020 was 600 times higher due to climate change compared to it occuring naturally.

As Vikki Thompson, a climatologist at the University of Bristol's Cabot Institute, explains: "Climate change is making heatwaves hotter and longer around the world. Scientists have shown that many specific heatwaves are more intense because of human-induced climate change. The climate change signal is even detectable in the number of deaths attributed to heatwaves."

This explanation is consistent with the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), which suggests that human-induced climate change has increased the frequency and intensity of heatwaves since the 1950s and will continue to do so as the planet keeps warming.

Svet je prešao prag globalnog zagrevanja od 1,5°C u 12 uzastopnih meseci, pri čemu je jun postao najtopliji jun u dokumentovanoj istoriji – 13. mesec zaredom sa rekordno visokim temperaturama

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