

# The Mind-boggle

Mind-boggling reading // Special issue

## Climate change

What are the consequences? And how should we treat it?  
read more on pages 6 and 26

### Could sulphur be the treatment?

Lujza's chemistry column on how (not) to curb climate change **page 16**

### Meeting the energy demands

How to manufacture electricity cleaner? **page 21**

### Why we are running short of sand

And why does it matter **page 22**





# Topic: Climate change affects the environment

It's undeniable - climate change is happening and whatever the reason, consequences are real and affecting us even at present

pages 6 and 26

## Saving turtles in the Maldives

Meet Dr Petros, lead veterinary surgeon

page 8



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What should we eat?

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featuring Ms. Pravdová

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Greta Thunberg curbs the lack of climate change action

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## Imprint

The Mind-boggle / special issue / published MARCH 2019 (not published regularly)

**Publisher** Mind-Boggling Publishing Ltd., Novohradská 3, Bratislava, room 413

**Closure date** Monday, 4th of March. Assigned to print on Tuesday, 5th of March.

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**Photography** Pixabay, The Guardian, The Independent, Medium, WWF, WHO, Lenka Bednáriková, Archive of Dr Claire Petros, Gerald Scarf/The New Yorker, Stefan Källstigen/Mitti.se, LA Times, Twitter, NASA, Irish Times, Wikipedia

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# He did it!

**Who** then? “He, he did it!” “No, no, no – I rather think she did it.” “You both indeed talk plenty of non-sense...”

Have you got a feeling of being in kindergarten, solving a sudden quarrel? You're not far away, but the scene is only a caricature of climate change summit. So, who was it then? Is it really a group guilt, involving everyone, or are the big companies and 'decision-makers' the ones who ought to carry the most responsibility for what's happening to our environment?

The truth is likely to lie somewhere in the middle. And whilst realizing who's the responsible one and, more importantly, where the actual problem lies, it's even more important to find remedy for it. The sooner, the better.

Truth is that it's not about deciding between a good future and a bad one; it rather is about having hard one or even worse.

But why do people talk about it so much? They simply should solve it, and talk about something more interesting, don't you think? Nice would it be, if so. Yet I have to disappoint you – climate change rather is a complex issue and treating it would mean compromising everyone's life.

“Wait – have you said something about compromising? Will it mean I have to stop using plastic bags and bike to work?”

Exactly, and eventually end up doing even more. There's nothing bad about using a plastic bag. At least it wouldn't be if there wasn't a whole industry behind it and thousand others doing the same thing.

I personally describe life as repetition, amongst love. The things we do every day, even when we don't realise it, have significant footprint. “It's just one bottle; no-one will notice it...” Maybe they won't straight away, though the ones to come will. And we do already, as no-one is alone here, yet not everyone seems to realise it.

I once reckoned why pollution is such a problem, with plastic for instance, when all the resources for making it are extracted from nature. And our old Mother Nature can deal with all the stuff. The only catch is that it's placed somewhere, where even the nature world is helpless.

And that's where people get concerned. If we humans have a duty down here, then it is to tidy up the mess



**Carrots at grandpa's: I was living close to nature from the youth up**

we've created. Everyone knows it isn't going to be a simple commitment, to knock away the millstone we ourselves set to our planet. But we at first have to get informed and educated, public awareness has to be raised. Just then we can slowly, step by step, curb the quandary.

I am indeed anxious about it all. From all the sides we hear what everything either is concerning or will be in close future, with insect, for example. On the other hand, I cease to get any sight of prevention against it. Maybe that is the reason students march in the streets and demand climate action.

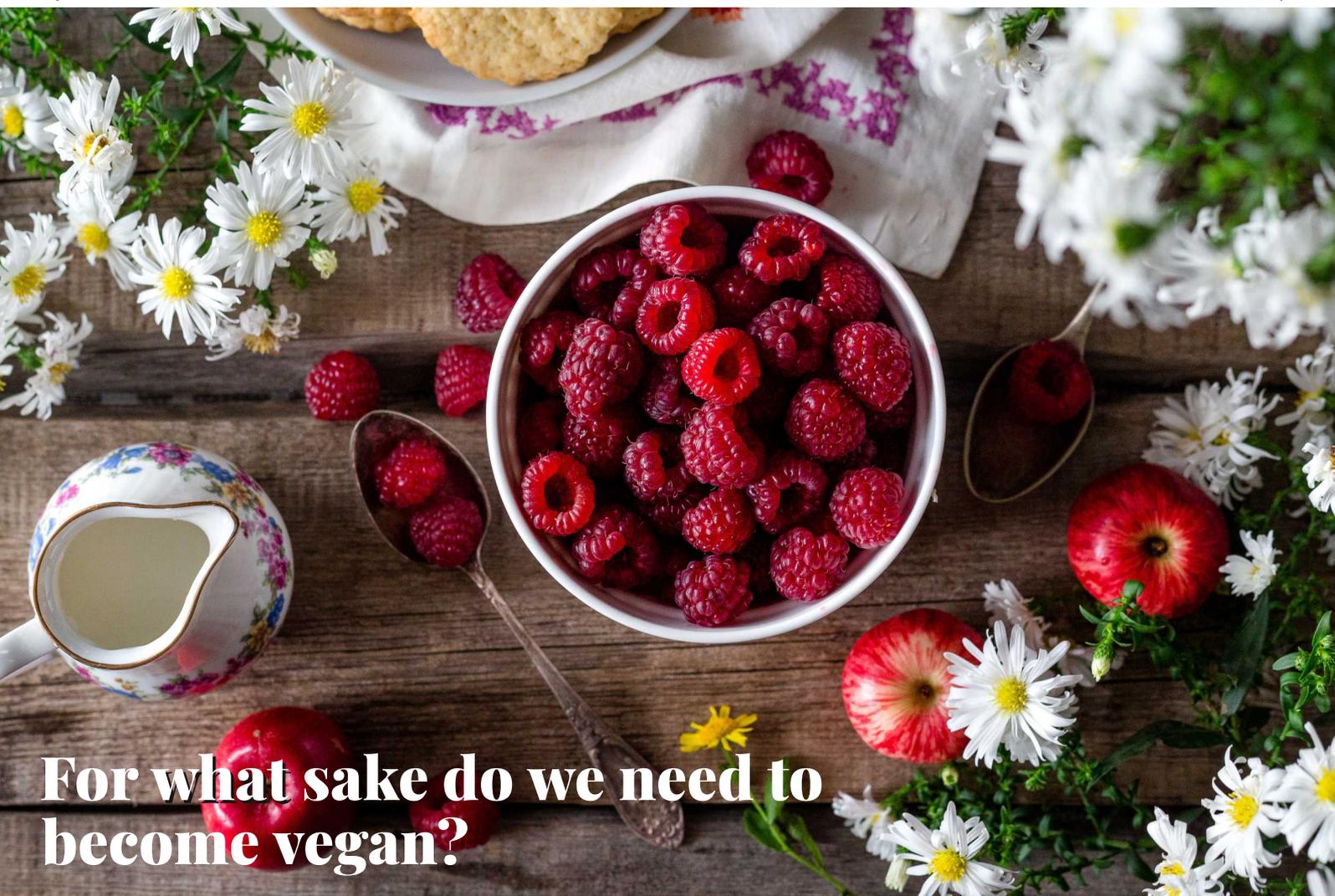
Is it all really about the human's nature of being too indolent? About actually having created so much, only to find out it harms us?

After all, I think I found a remedy. What's your favourite animal? Mine is fox. Do imagine that even the loveliest creatures on the planet suffer and are endangered, because of what we do. Didn't help? Climate change is likely to be of no hope to improve then. I retire...

“Everybody talks about the same, don't they?” Alright, I know, you've heard about it plenty of times already. Nevertheless, it deserves attention. I'm honoured to acknowledge that our editors have done the best of their jobs to give you a broader notion of what's happening and what to do about it. And maybe even boggle your mind.

**Martin Bednárík**  
editor-in-chief

*With kindest dedication to Mrs Kabátová.*



## For what sake do we need to become vegan?

From recycling our household rubbish to cycling to work, we are all aware of ways to live a greener life.

**H**owever, one of the most effective things a person can do to lower their carbon footprint is to stop eating or using any animal products. But today we are here to discuss other reasons why you need to go vegan.

### For the animals

Avoiding animal products is one of the most obvious ways you can take to stand against animal cruelty and exploitation. Preventing the exploitation of animals is not only the reason for becoming vegan, but for many it remains the key factor in their decision to remain vegan and stay so.

### For your health

Well-planned vegan diets follow healthy eating guidelines, and contain all the nutrients that our body needs. Both the British Dietetic Association

and the American Academy of Nutrition and Dietetics recognise that they are suitable for every age and stage of life. Some research has linked vegan diets with lower blood pressure and cholesterol, and lower rates of heart diseases, and some types of cancer. Going vegan is a great opportunity to learn more about nutrition and cooking, and improve your diet. Getting your nutrients from plant foods allows more room in your diet for health-promoting options like whole grains, fruit, nuts, seeds and vegetables, which are packed full of beneficial fibre, vitamins and minerals.

### For people

Just like veganism is sustainable option when it comes to looking after our planet, plant-based living is also a more sustainable way of feeding the human family. A plant-based diet requires only one third of the land needed to support a meat and dairy diet. With rising global food and water insecurity due to plenty of en-

viromental and socio-economic problems, there has never been a better time to adopt a more sustainable way of living.

Avoiding animal products is not just one of the simplest ways an individual can reduce the strain on food as well as other resources, it is the simplest way to take a stand against the disproportionality that affects especially the poorest people all over the world.

### Why is vegetarianism not enough

The suffering caused by the dairy and egg industry is possibly less well publicised than the plight of factory farmed animals. The production of dairy products necessitates the death of countless males that are of no use to the dairy farmer, as well as premature death of cows slaughtered when their milk production decreases. Similarly, in the egg industry, even ethical or free range eggs involve the killing of the unnecessary male chicks when they are too old.

**Breakfast:** Full of optimism but short of meat

# Veganism? No, thank you!

BY MARTIN BEDNÁRIK

Cowardly, environmental crisis treatment comes down to adapting various isms. And, indeed, there's one I'm getting familiar with. But I'm not talking about veganism.

**E**veryone's talking about veganism, don't they? Don't eat this, don't drink that, this harms the animals, that is not good for the planet...

Figures show that numerous young people (millennials) adopt this way of living, whatever the reason. However, not whole population is truly excited with the idea. I fear if we wouldn't all have to end up being breatharians or will we introduce measures to control world's population?

Everything seems that I'm being sceptical, what is partially true. On the other hand, I clearly understand the serious crisis we're victims of. Overconsumption of meat and animal products (that logically lead to overproduction of them) leads to working out fundamental resources and polluting our planet all over.

Modern diets, excluding carbohydrates and replacing them with animal source of protein, just because the food industry can meet the demand, however monstrous it is, don't help it.

**Don't worry:** No vegan stuff inside



The Mind-boggle



A happy sheep: Though pricier, ethically produced animal products are the way to go, as they don't harm the environment so much

Could veganism change it? I fear not. Whilst having quarter, maybe third, of population avoiding animal products, we still have the rest eating all of them. Surplus production will essentially lead to lower prices, encouraging the meat-eaters to eat even more. And so, we end up right where've left of, and probably even worse.

I don't think we ought to exclude meat from our daily lives. It's been part of our culture for tremendous amount of years and most children are led to it at home or in school canteens. Excluding is not the right way, people won't hook on it. Yet something has to be done.

It comes to me that moderation is the most efficient way of curbing climate change. Taking shorter showers, driving less, wasting less, buying less... and eating less meat. In a nutshell, using up less resources, and not at all when we don't necessarily have to. No-one could object then (though they're bound to).

There's one more hook to it. Capitalism, being too revenue-oriented, won't be excited either.

Economists simply can't decide on the important things significantly impacting our lives and future without hearing to expert and science voices. By being blind to everything but revenue

they won't do anything but serious harm. And what for?

Now I don't want to generalise and make every economist look foolish. They still are an important part of our system. I just want to point out that economics alone simply is of no right everything around, just because of momentary success.

To lower its impact in order to help people and environment? The decision-makers are utterly deaf to it.

You see, it's much broader than just deciding on whether to eat or not eat meat or eggs. I'm of no opinion that people shouldn't go vegan, if they want to. But I don't predict it will mark a renaissance in contemporary nutrition and living.

What's my remedy for the crisis, talking about eating? Consuming less of it, decreasing amount eaten with time.

I've even found a fancy ism for it, what means it has a proper quality of being climate change prevention measure: flexitarianism. But what nudge should we invent to make it successful?

Notwithstanding the fact that farmers and animal industry are obliged to treat the animals ethically and far better than some nowadays do. I admit to Filip in that.

All in all, it still won't be enough.

A polar bear is shown in profile, walking across a fragmented ice floe. The bear's fur is white and appears slightly matted. The ice is broken into several pieces, with dark water visible between them. The background shows a vast, open sea under a pale sky.

**Is it really a distant future or  
is it to occur even sooner?**

# **Polar ice melting at critical point**

**STORY BY DANIEL KRAJCOVIC**

We know about global warming. Climate change might once turn our everyday lives into a disaster. But what exactly is happening to our planet? Is public familiar enough with this issue to prevent it and are people prepared for the negative outcomes of global warming? Is it really a distant future or is it to occur even sooner?

**M**ajor global warming issue: Antarctic ice melting

Scientists warn against the threat of the melting Antarctic glaciers. As a result of climate meltdown, sea levels rise. Experts, using images from the satellites of the European Space Agency (ESA), watch the thickness and extent of glaciers and predict an unflattering future.

Antarctica is surrounded by huge ice shelves that prevent glaciers from moving to the sea. Scientists, based on data from ESA satellites, warn that warming of these areas can greatly speed up the movement of glaciers and cause sea level rise.

The area of shelf glaciers is often enormous. The largest is the Ross Ice Shelf and reaches the span of Spain, rising up to hundreds of meters above sea level. These are natural bodies that cover the banks of the Polar Regions with a continuous layer of ice.

As the European Space Agency informs on its site, Antarctic shelves have sharpened or disappeared

altogether over the last twenty years.

In 1995, the

iceberg shelf Larsen A collapsed, which was as large as the area of the German city of Berlin. His second part, which was much larger, fell seven years later. After this override, the ice climbs accelerated up to eight times.

Antarctica and Arctic are also important sources of drinking water. Losing these glaciers of ice might once conclude in a worldwide lack of drinking water. Its consequences are threatening us even in the present. There has been an incident.

**“Climate change might once turn our everyday lives into a disaster.”**

**Russian islands declared emergency after mass invasion of polar bears.**

Polar bears are wandering in human habitation in large numbers. With rising temperature of seas and melting of ice the primary habitat of polar bears is shrinking. They are being driven off their normal migration routes and hunting trails by changing climate.

In a small town on archipelago

Novaya

Zemlya,

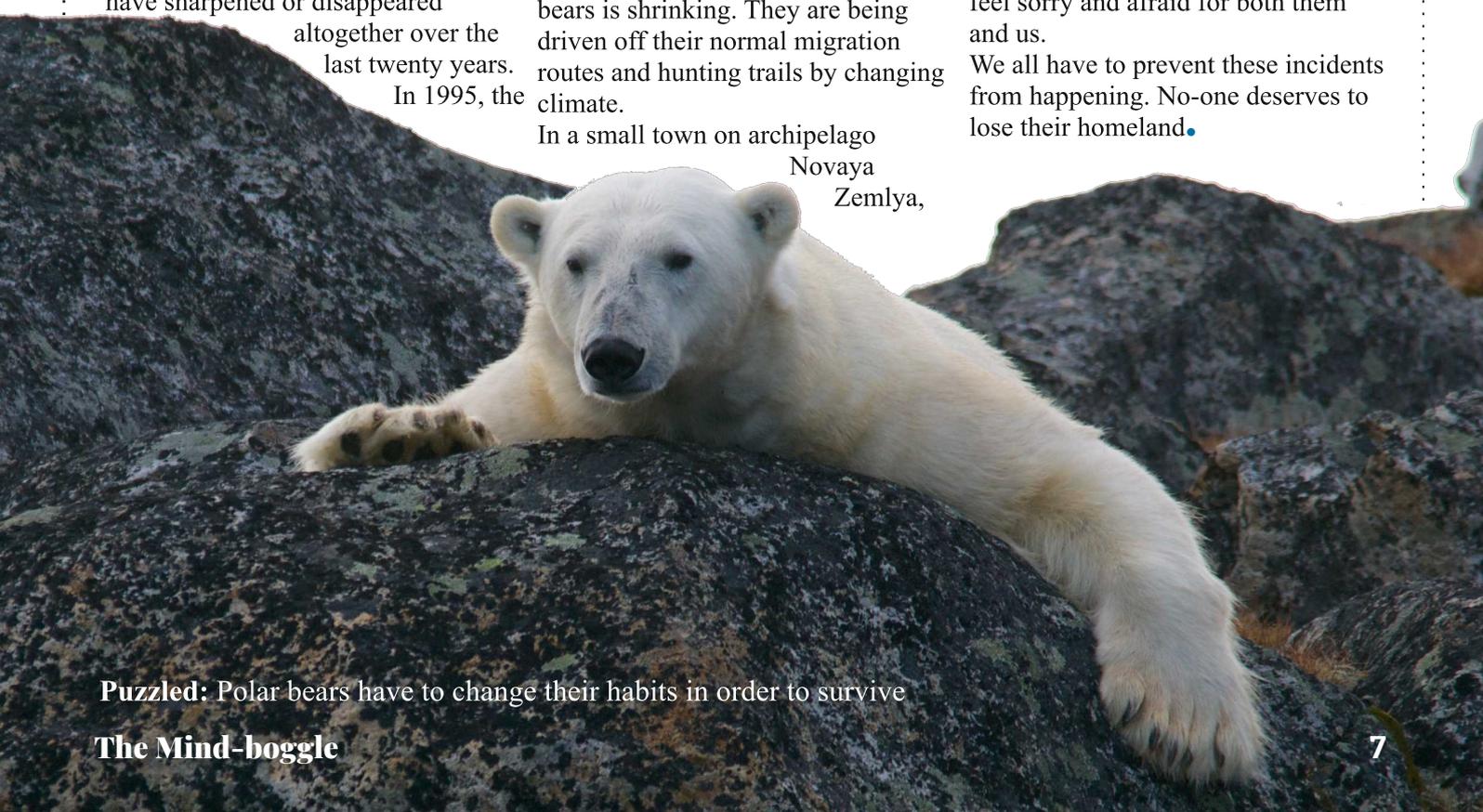
authorities have declared a state of emergency after spotting 52 polar bears. Fences have been erected around school playgrounds and locals have tried to drive them away with warning shots and explosions. But all to no avail. Many residents are afraid to leave their homes. Workers are reportedly being bused to their offices in military vehicles. The climate crisis suddenly feels as if it was upon us rather than being a future threat.

The team of experts had been sent to the area to prevent attacks, but the Russian Environmental Authority refused to issue licenses to exterminate bears, being endangered species. The melting Arctic ice is causing these animals to migrate further south to look for food on land. "I have been on the Novaya Zemlya since 1983, but there have never been so many ice bears in the area," said local government chief Jiganša Musina.

The animals are losing the natural conditions and habitats they depend on. Ultimately, so are we. We should feel sorry and afraid for both them and us.

We all have to prevent these incidents from happening. No-one deserves to lose their homeland.

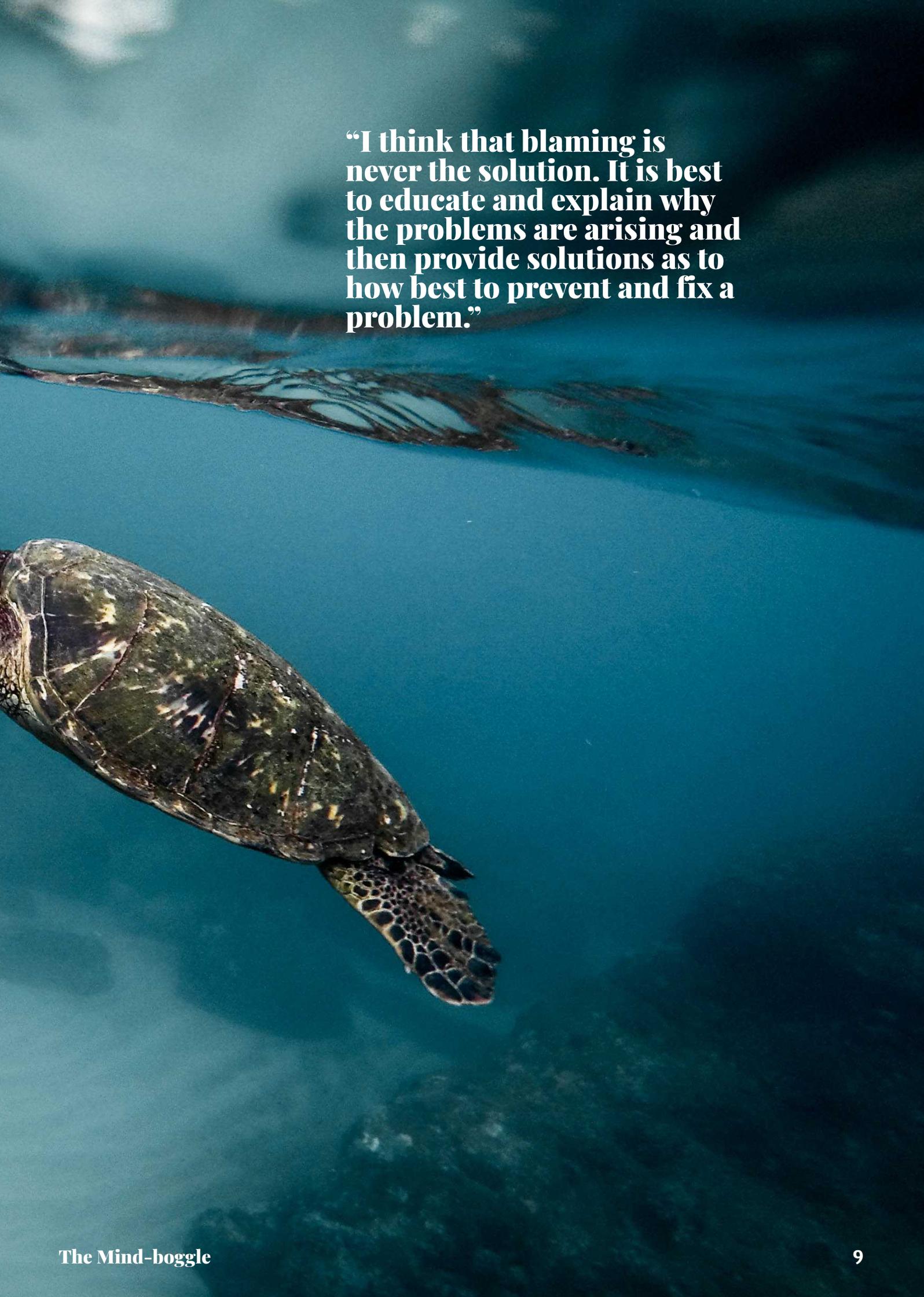
**Puzzled:** Polar bears have to change their habits in order to survive



# Save the turtles!

Marine is her passion and she is not to blame anyone for environmental harm, rather educate and provide with solutions. The talk is about a young veterinarian, based between the Maldives and London. The Mind-boggle magazine was happy to interview Dr Petros in the act of recently finishing a 100 km paddle-board trip round the Indian ocean islands.

**INTERVIEW BY MARTIN BEDNÁRIK**

A sea turtle is swimming in clear blue water. The turtle is positioned in the lower-left quadrant of the frame, moving towards the right. Its shell is dark with some lighter spots, and its flippers are visible. The water is a deep, clear blue, and the surface of the water is visible at the top of the image, showing some ripples and reflections. The overall scene is serene and natural.

**“I think that blaming is never the solution. It is best to educate and explain why the problems are arising and then provide solutions as to how best to prevent and fix a problem.”**

**Dear** Dr Petros, you are a veterinary surgeon in the Maldives. It is definitely nothing common, I mean, how did you happen to appear in the Maldives, being a lead veterinary surgeon, saving wounded turtles?

I had always wanted to work with wildlife and live near the sea (preferably somewhere warm!) and during my final years at veterinary school I tried to specialise wherever possible in exotic medicine. I knew that I didn't want to be a 'cat and dog vet'. This took me to America, for my final year elective where I spent time in North Carolina State University with a Turtle Rescue Team. After my final exams I volunteered in Grenada in the Caribbean with Leatherback sea turtles. Whilst I was out there a job opportunity came up on Facebook, 'Sea Turtle Veterinarian in the Maldives'. It was too perfect an opportunity to miss!

**What does a veterinary surgeon in the Maldives do? What does your day look like?**

I moved out to the Maldives in November 2016 and lived on the island of Coco Palm Dhuni Kolhu for almost a year. My role was to set up the veterinary clinic and finish the tanks that would be used for the rehabilitation of the turtles. When the clinic was up and running I had to feed the turtles daily, treat their wounds and perform surgery on the turtles that required it. The centre is

on a resort so guests are able to visit throughout the day, this means that one of the tasks was informing the public on why the centre was there and how we are treating turtles that have been found entangled in ghost nets.

**The Olive Ridley Project started just recently, in 2013. Rescuing turtles is bound to be a very demanding work, concerning both effort and financial sources. How do you manage to make everything work properly?**

We rely on guest and public donations, we have also won a few grants over the last few years that has enabled us to financially secure the centre and provide all the necessary equipment for the efficient running of the centre.

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**“I knew that I didn't want to be a 'cat and dog vet'.”**

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**Daily mail mentioned you say that only ten women were on the island, out of staff. How long took it to adapt to local conditions? How big is your team?**

At the [beginning] there were very few women, the spa girls, a few front desk staff and some hostesses. It was quite different to vet school as it's the other way around! In my year there were 100 girls and 17 men! It was not

too hard to adapt to the conditions as there were plenty of guests around that made up for the few women staff on the island!

**You said every turtle had a story and a personality. Do they feel you're helping them?**

I hope we're able to give them a chance that they wouldn't have had, had they not been found or being treated. Each turtle that we rescue and release is so important as all seven species of turtles are endangered. How many turtles have

you saved already?

Since officially opening in February 2017 we have rescued nearly 80 turtles at the centre itself, we had advised other rehabilitation centres to treat turtles that did not need veterinary care, so in total nearer 120. **You were raised in the UK. Isn't it cowardly, to live in the Maldives, a relatively small island remote from other world? Don't you feel homesick sometimes?**

I have always wanted to live in another country, to travel, but know that London will always be my home. I now live in London and visit the Maldives 3-4 times a year as I now manage the rescue centre. This for me is the best of both worlds. Although I do miss the warm climate when I'm back home, especially the proximity to the sea.

**How's your relationship with the locals? What have you learned from them?**

Many of my close friends in the Maldives are Maldivians. They are passionate about the water as 99% of their country is the sea, with only 1% being land mass. People care about what they love and the majority of my friends here are connected to the sea, whether they are marine biologists or not, there is a wealth of knowledge about the Maldivian waters and I'm constantly learning more about them too.

**In our magazine issue we dissect environmental issues and problems our planet has to face, and we, people, ultimately as well. A man in the street knows just few about real impacts of human activity, unless he reads about it in news. But you are a specialist, an eye-witness of what's happening, at least to turtles near Maldives. Please do describe what you're seeing there, how it looks like.**

I've recently finished an awareness expedition in the Maldives, Stand Up for Our Seas. The reason behind it was to create awareness about the global threats that plastic is having in our oceans. When traveling around the country it's impossible to not see plastic floating or in the water column. Sadly, a lot of this plastic originates from other countries and is impacting this island nation. We are



**Fjords:** Dr Petros in an unusual, cold environment

**At work:** A certain passion of Dr Petros



all connected by our seas, so it is never just an individual country's problem, it affects all of us. Plastic bags, water bottles and ghost nets are the most obvious plastics that are found here, and they are negatively affect marine life.

**You have visited many corners of the world, Indonesia, Thailand, Grenada; you travel and present your work at schools across the globe, and have an ability to see what others cannot. What have you learned through your experience as a specialist? What's your opinion on climate change and environmental problems?**

The most rewarding aspect of being able to travel and present to communities around the world is seeing the reactions of the audience, whether it is school children, guests at resorts or professionals at conferences. By hearing about and seeing first hand footage of entangled marine life, people are much more able to be affected by the issue that they may not even realise is happening around the world. It can be easy to remain safe in a bubble of your own world, but by showcasing what is happening not on your doorstep it can inspire people to make small changes in their everyday lives for the better. Simply recycling is not the answer, we all need to use less, reduce the demand for single-use plastics, in order to make a difference to our environment.

**Who do you blame for it? (Are we all responsible for it?)**

I think that blaming is never the solution. It is best to educate and explain why the problems are arising and then provide solutions as to how

best to prevent and fix a problem. Fishermen are not to be blamed for lost nets if they do not have anywhere to put them when damaged, or if they are unable to retrieve them for example. Consumers cannot be blamed if they do not have an affordable alternative option, but they can be the individuals that can demand change and options.

**What do you think a solution is, if at all?**

As individuals we are all capable of making small changes, and as grassroots projects it is possible to lobby governments and larger coo.

**Do you lead an eco-friendly life?**

**What are your suggestions on how to live a better, greener life?**

I always try my best to. If there are better alternatives I will strive to find them. Small changes like using a refillable water bottle, not using plastic bags and carrying a tote bag with me, trying not to buy fruit and vegetables at the supermarket that are packaged in plastics, are just some easy alternatives that can make a big difference.

**Don't you think people live too far from nature nowadays and not**

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**“It can be easy to remain safe in a bubble of your own world, but by showcasing what is happening not on your doorstep it can inspire people to make small changes in their everyday lives.”**

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**realise, how important it is, rushing for 'important' things and living in cages?**

One of the most important messages to get across is how much we should all get out more and enjoy the incredible nature surrounding us. Whether you're lucky to live by the sea, or near mountains or woods, I think we can all do with spending more time outside and less time in front of a screen! I would rather be in the water any day!

**Do tell us about the hobbies of yours, what you like to do, other than saving animals (because that surely is your hobby as well)?**

Of course that is my hobby too, I love being a veterinarian and saving animals is the best job for me! I love to keep very active, and swimming and paddle-boarding are my passions. I've recently completed a 100km paddleboard tour of Baa atoll with some incredible friends of mine! I also just enjoy hanging out with my friends at good restaurants and bars in London!

**One of your colleagues, Dr Lomas, has in one interview mentioned an “empty tank syndrome.” Are you as well familiar with that feeling, when turtle rescue is either done or isn't successful?**

Generally, there is a sense of achievement when we release turtles that required veterinary care. Of course you get attached to their individual personalities and so miss them when they're gone, but the sea is where they're meant to be! If sadly the treatment isn't successful, then of course you feel every loss. This is a wildlife rescue centre after all and the reason they're admitted is usually because they are very badly injured, so we do sadly lose some to their injuries.

**What are your plans for future?**

With the help from OceanCare I will hopefully be starting my PhD this Autumn, researching turtle welfare in rescue centres around the world. I would like to develop veterinary best practices and protocols in rescue centres in areas where there is limited access to veterinary equipment, but often the most need to treat injured turtles. I will remain with the Olive Ridley Project managing the rescue centre and rehabilitation facilities.

**Britain, your homeland, is famous with literature. What's your favourite book?**

That is an impossible question! I loved reading the Phillip Pullman books when I was younger and the Wind on Fire trilogy by William Nicholson, and I can't deny that I absolutely love Harry Potter of course!! I should probably put the classics but I was always more of a science geek than a book worm! Not that you can't be both!

# Students across the world to demand climate action



Marching: Ms. Thunberg, holding placard, is determined to demand change

BY MARTIN BEDNÁRIK

Swedish student Greta Thunberg started with staying outside Swedish parliament with a placard. Now she travels around the world and supports regional climate strikes.

**It's** eight o'clock in the morning and we're conveniently seated in a classroom, waiting for the teacher. As Mrs Kabátová enters the room, pupils greet her cheerfully. The lesson is English and the topic Environment. From all the viewpoints possible. Nothing important is short of discussion and students understand what the consequences are.

However, it's not everywhere so. "School curriculum fails to reflect the urgency of the climate crisis," writes east-London based teacher Edmund Stubbs in an opinion published by The Guardian.

"The newly updated KS4 science curriculum shows promise. What's missing, however, is a way of bringing it all together, to show how the situation is likely to affect young people's lives within a few years," adds she later.

Curbing climate change is definitely no child's play. Paradoxically, children are taking stands against what's happening. 'Such is the upside-down, topsy-turvy state of our world, that the children are now the adults and the adults are the children,' comments Jonathan Freedlan, The

Guardian columnist.

The name mentioned the most is Greta Thunberg, a 16-year-old Swedish student, who inspired thousands of students in more than dozen countries to skip classes on Fridays and take a stand against what's happening, including Sweden, Britain, Australia, Germany, Belgium, US, Japan, et al.

Yet two views seem to flourish: Some adults support the determined children in their initiative, the other find it rather wrong and think this should not happen, sending students back to school. Critics include UK's PM Theresa May and Australian PM Scott Morrison. "What we want is more learning in schools and less activism in schools," were his words to the parliament, BBC cited.

"If older people don't want us to strike, they need to act,' writes Tom Eames, A-level student and strike participant on the Guardian website. "If you still say that we are wasting valuable lesson time, then let me remind you that our political leaders have wasted decades through denial and inaction," responded Thunberg to her critics.

Thunberg's popularity has recently increased, as she delivered a TEDxStockholm speech, and made several other public appearances, including at the summits in Katovice and Davos, despite her age and Asperger syndrome diagnosis. She even took part in some

of the regional protests, traveling by train to avoid pollution by aviation.

"Those students taking part in the protests were engaged, but very few of my pupils knew it was even happening or understood why the protesters were so upset," Stubbs wrote. "Are schools failing to fulfil a potential duty to inform their students about the situation?"

According to The Guardian, teachers were to join the protest on Friday 22nd February to back their students and demand curriculum reformation to reflect contemporary needs.

In an open letter on The Guardian, undersigned by numerous academics, these words appeared: 'We cannot nurture our children without Nature. [...] We are inspired that our children, spurred on by the noble actions of Greta Thunberg and many other striking students all around the world, are making their voices heard.'

"We should stand in solidarity with them," supported Stubbs the protesters. And so did many others.



In Melbourne: Witty placard critique of the government

# Lujza's Chemistry Column: How to stop climate change

BY LUJZA CAJKOVICOVA. The Mind-boggle's CHEMISTRY COLUMNIST

**G**lobal warming cannot be stopped, it can be only slowed down. So how can humanity prolong their existence on this planet?

You might have noticed, that when volcano erupts, the weather gets colder by 0.25°C. It is because sulphur can scatter sunlight in the atmosphere and form or thicken clouds that reflect it.

However, sulphur dioxide can be dangerous for people with breathing problems and Asthma, it can also irritate healthy person's respiratory system, since it reacts with the moisture in our lungs and creates acid. It has been found that Ship industry has cooling effect on our planet, because ships are belching out a lot of sulphur Dioxide.

Now this doesn't mean we should be emitting sulphur into the Atmosphere, but we know that ships also belch out tons of Carbon dioxide which pollutes

the planet.

Planes are one of the means of transportation that pollute the Earth the most, but if the amount of sulphur they produce would be the same or even a little higher, they wouldn't be as harmful to the environment as they are now. Another solution to reduce the harmful effects of planes is to

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**“Planes are one of the means of transportation that pollute the Earth the most.”**

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make them fly at lower attitudes. When planes fly high they are more likely to form clouds that trap the heat underneath them. However, flying at lower attitudes would mean that the plane would have to use up more fuel to reach its destination, but the advocates (:D - author's note) argue that the reduction of the clouds is

more beneficial than the used up fuel and that this change would make Aircraft Engineers focus more on creating more Fuel efficient Engines.

Downside of emitting sulphur is that if it reacts with the wrong Elements it can be very harmful to the health and the environment. Laboratory tests with test animals have indicated that sulphur can cause serious vascular damage in veins of the brains, the heart and the kidneys. These tests have also indicated that certain forms of the element can cause foetal damage and congenital effects. Mothers can even carry sulphur poisoning over to their children through mother milk.

There are no significant rules against emitting sulphur, since it has been deemed as smaller threat than Carbon dioxide. As for now, governments have yet to discuss the negative and positive effects of such emissions.

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**We deserve a better future**

# Ten simple steps to li

BY ALEXANDRA BENKEOVÁ (1-5) & TEREZA ORAVCOVÁ (6-10)

Humans have destroyed and endangered more species on our planet than any other species or group, with our continuous pollution and lack of respect for our own environment. As far as animals go, we humans are wasteful. For instance, even though we all know that pollution is

an issue only few of us have changed a lot of our simple habits to be more environmentally friendly. The most of us are careless.

This likely comes from a mix of things, like wanting to avoid added costs and inconvenience, as well as a desire to help but a lack of information on how to do so in easily attainable ways.

Reducing your own waste doesn't mean that you must rid yourself of the conveniences of the 21st century. Here are some simple steps to make less waste by switching your daily habits.



## Step 1

### Ride a bike, walk or skateboard

If you are travelling short distance don't use a car. You should walk, bike or use public transport. Driving, unless you're in an electric vehicle, isn't very eco-friendly and can really add to your carbon footprint.



## Step 2

### Stop using straws

Disposable straws are usually made from plastic and plastic never breaks down. As time goes by plastic will separate into smaller and smaller pieces, but never completely biodegrades. Plastic straws made the 'top ten' items picked up on beach clean ups. Instead of using one-time disposable plastic straw use acrylic or steel, or don't use straws at all.

## Step 3

### Switch plastic clean wrap

Switch using plastic clean wrap in your kitchen to preserve your food and left overs for sustainable reusable food wrap. You can wrap cheese, half a lemon, a crusty loaf of bread, and fruits and vegetables, cover a bowl, or pack a snack.

## Step 4

### Plant trees

Trees are necessary for us to survive. They give oxygen, fruits, clean the air, provide shelter to animals. There are many local, national and international organizations that plant trees, and because planting trees costs relatively little, donating to these organizations can make a big difference. Or you can plant a tree yourself!

## Step 5

### Recycle toothbrushes

Bring your used plastic toothbrushes to recycle center and then start to use sustainable bamboo toothbrush. It is biodegradable and compostable.



# ive more eco-friendly

## Step 6 Eat less meat.

Seventy per cent of the Amazon rainforest has been destroyed to raise cows, and meat production results in more carbon emissions than any other protein. I'm not telling you to completely stop eating meat, but learning to cook a few vegetarian meals will save money, add variety to your palate, and give the planet a helping hand.



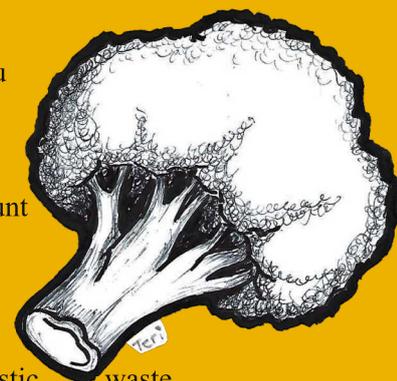
## Step 7 Recycle your clothes.

Yes - recycling. You've heard it million times. But that's because it's very important. Let's be honest, you have at least 3 items of clothing in your closet that you never wear. Now imagine that we could reuse most of these clothes and help our earth a little bit. And we can! Just by reusing clothes we can reduce greenhouse gases as a matter of fact that a lot of clothing is made of organic material, meaning that it is derived from natural sources and is biodegradable. You can resell your clothes on many different websites, or you can attend "clothes swapping festivals" in Stará Tržnica (Bratislava Old Market), where you can swap clothes with other people. Upcycling is another way, where you turn old T-shirt into a cleaning cloth. Or you can simply donate your clothes, either to charity or H&M, for example, where they give you 15% discount on their store for being an eco-friendly person.



## Step 8 Buy local produce.

An easy way to reduce your carbon footprint is to buy locally grown products. When you shop locally instead of buying products that were shipped from far away, you are supporting local dairies and farms. Apart from this, you can grow food on your own backyard. Don't forget to use leftovers from kitchen as compost! Composting converts leftovers into rich nutrient food for your plants that helps them grow. It reduces the amount of garbage that goes to the landfills which pollutes the air.



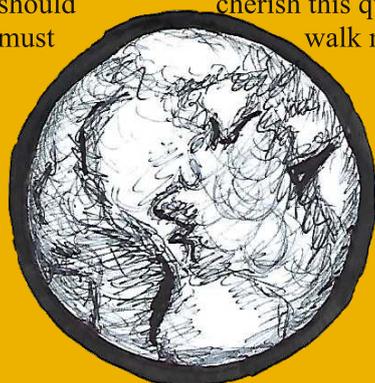
## Step 9 Stop using disposable items.

Stop buying sugary drinks in plastic bottles. They are unhealthy and they create lot of plastic waste. Instead of these get one reusable, nowadays you can find them anywhere. They come in many shapes and sizes. (I have even seen one with cheetah print all over.) This may seem like an unnoticeable step, but if more people do it, we can decrease plastic waste. More than 60 million plastic bottles end up in landfills and incinerators every day – a total of about 22 billion last year. This step does not apply only on bottles; you can also swap your plastic bag for one that is made from fabric or paper.

## Step 10 Reduce water waste.

Slovakia is very wealthy in terms of mineral waters, thermal springs and all drinkable water sources. Everyone should cherish this quality, because it isn't matter of course. There are many countries, in which people must walk miles just to have a sip of water, but in Slovakia some people even flush their toilets

with drinkable water. With growing population rates and such a small percentage of all the water on Earth fit for consumption, it only makes sense that we must preserve and conserve this precious resource. You can live an eco-friendlier lifestyle by taking shorter showers in or installing a low-flow showerhead. The investment in a low-flow showerhead will be worth it when you receive your next water bill as it will be significantly lower than the last one.



# Why don't we throw our trash into the sun?

BY LEONTINA BRODNIANSKA, The Mind-boggle's SPACE COLUMNIST

I hate having to throw the trash out. I mean I have to get up, get the garbage, throw it into the Sun and then I need to go back inside my house. Oh, that is not how you guys do it? Right, I forgot it's different in your world than in mine...

**T**rash is a huge problem on Earth. Growing populations all over the planet are throwing away more garbage every year. Right now, humans throw 3.5 million tons of trash a day. Researchers estimate that by the end of the century, humans will be throwing 11 million tons of trash a day. Human rockets today are more efficient than ever. People have even sent a mannequin in a car to space, just for fun, because they had so much money.

So why are not you humans using rockets to send your trash into the Sun?

Well, it is probably because the trash problem is even bigger than you think. One of the world's most cost-effective rockets takes 19,000,000 dollars to launch and can carry up to 70 tons of material into space. So, if we were to launch all of our trash into space using this type of rocket, we would be spending ... a lot of money. In fact, for one years' worth of trash, this could cost more than six times the world's current dept. Also, you need 18.3 million rockets

to do it. And modelling after Kennedy Space Centre's 160-acre launchpad, for 18.3 million rockets you would need a launching area bigger than China.

If we send the rocket itself into the Sun, we also lose that too. Looks definitely not ideal.

It's probably a better idea to just send the garbage out in the low Earth orbit, but here is the kicker:

Garbage in the space is already a problem – decades of defunct satellites, rocket boosters and pieces of space crafts are creating a cosmic landfill.

A collision to one satellite may affect others, because some satellites only function in networks, like GPS. If one GPS satellite is tuck, it affects basic navigation, airplane

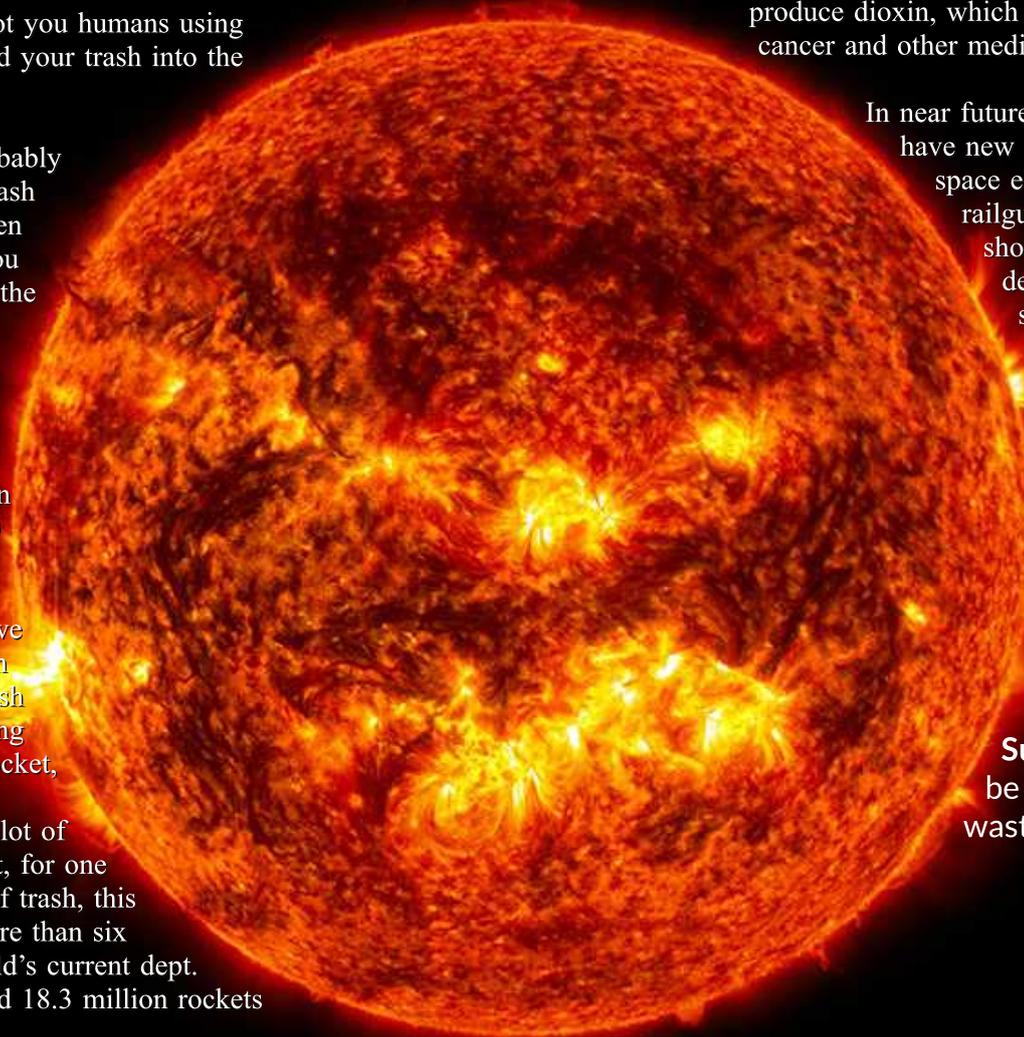
routing and time synchronization for banking and finances. It can also affect guided missiles, drones and intelligence operations.

Also orbital debris has a significant risk to the International Space Stations (ISS) hardware and more importantly, its human life. Losing the ISS would mean losing research on improved vaccines, cancer detection and treatment systems, natural disaster monitoring and robotic arms that makes irremovable tumours removable.

What goes up must come down: after some time, the garbage we send out will begin falling back to the planet mostly burning up in the sky. According to the EPA (Environmental Protection Agency), the practice of burning trash is not good for your health nor the environment. This process can produce dioxin, which may cause cancer and other medical issues.

In near future we may have new tech, like space elevators and railgun launchers shooting trash deeper into space and being cheaper than ever, but until that day, people, we may just have to recycle.

Sun: Will it be the future waste dump?



# The Fishy Dangers

BY MIA ŠPACEKOVÁ

**W**hen was the last time you've eaten a fish? A nice, juicy, tasty fish? Was it today, the day before, or weeks ago?

Well, whether you eat them from obligation or from your free will, you should think twice the next time you stop by the fresh fish counter in your store.

It's no secret that we've quite remarkably made our mark on this little planet of ours, but, sadly not really in the good way. We have polluted our environment, which means we polluted our soil, air and water, which are essential for our survival.

One of the chemicals we have polluted mainly our waters with are called polychlorinated biphenyls (or PCB's for short), which were industrial chemicals used primarily as coolant and heat transfer fluids in the industrial branches.

They were manufactured from 1929 until 1972, when they were banned in Japan and a bit later on in other important countries. The latest ban was established in the UK in year 2000.

So, you may be thinking 'They surely must be quite dangerous when they were banned, even when they were so useful!' And yes, you are right. Just as there are two sides of a coin, there are two sides of the PCB's as well.

They are known to cause severe liver damage, skin rashes and chloracne, increase the risk of cancer and also have very negative effects on the nervous, immune and endocrine systems. It sounds pretty dangerous now, doesn't it?

And how do we even come in contact with such danger? As mentioned earlier, we have poisoned our waters the most with it - so, the answer should be clear

by now. Fish. As the PCB's settle into water and sediment, they are accumulated overtime in fish's fat and organs, mostly liver. And then, they accumulate in organs and fat of creatures that prey on fish, so naturally, us humans, as we sit on the top of the food chain, are exposed to them the most.

The highest amounts of PCB's have been found in farmed, Pacific and Atlantic salmon, which is bad news for any scarce-fish-eater, who only eats salmon and tuna.

"Is there a way to get rid of the PCB's though?" you may be asking right now. Well, they are quite the tricksters. You see, they can only be destroyed by incineration at 1000 Degrees Celsius, or in very few other chemical or microbial ways. Which means we have little to no means of their effective destruction.

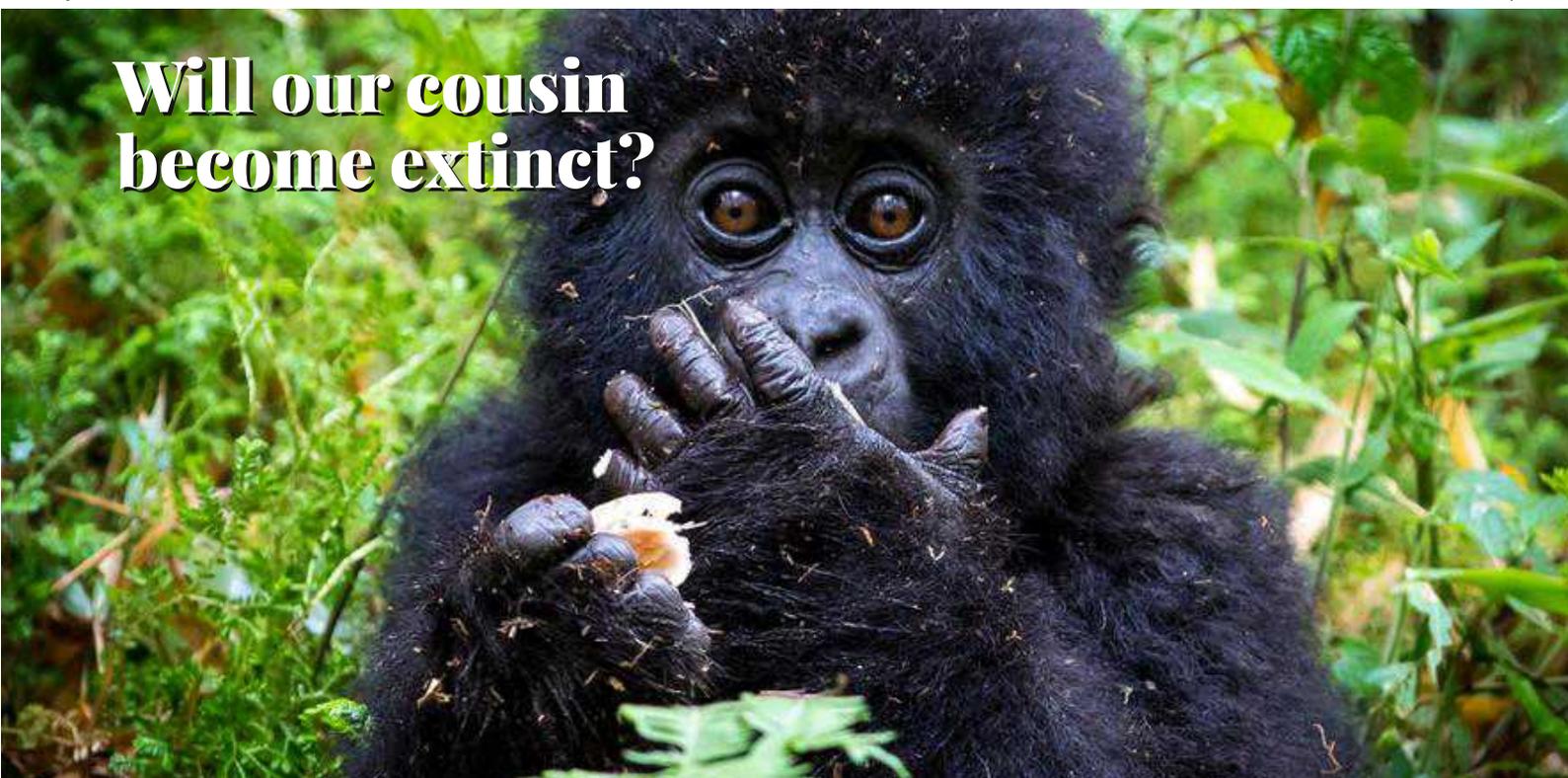
So, how do we avoid poisoning ourselves, even when we're pressured into eating fish due to their richness with omega fatty acids and phosphorus? The Association of Reproductive Health Professionals suggest the following: Eat a variety of fish twice a week, keep the portions below 113 grams each, don't fry nor deep-fry them, trim away the fatty areas, remove the skin, and always allow the fat to drain off.

All in all, we are also notorious for our adaptability, which helped us to climb to the level on which we are now. So, who knows? Maybe one day we'll discover that we're resistant to such poisoning, or even something more. Perhaps they could turn us into super-humans with incredible alien powers?

I wouldn't recommend trying it anytime soon, but maybe one day . . .



# Will our cousin become extinct?



It is generally known that the gorilla, the herbivorous ape, is related with human kind. We share about 98.3% of the DNA with them, what makes them the closest species to humans after chimpanzee and bonobos. That makes the fact that they are threatened even sadder.

**Fussy eaters:**  
Mountain gorillas feed mainly on leaves, shoots and stems

BY PAVLÍNA VOZÁROVÁ

**T**hese intelligent animals inhabit the forests of central Sub-Saharan Africa. The genus *Gorilla* is divided into two species: the eastern gorillas and the western gorillas (both critically endangered), and either four or five subspecies. This article will be dedicated to the mountain gorilla – one of the subspecies of the eastern gorilla - and its threats.

## Thick furred freezing weather survivors

The mountain gorilla is the subspecies living in the forests high in the mountains (as the name has said). They can be seen in the Virunga Mountains, a range of extinct volcanoes that border the Democratic Republic of Congo, Rwanda and Uganda, and in the Bwindi Impenetrable National Park in Uganda. Compared to the other species, their fur is thicker to help them survive the freezing weather. The adult males are called silverbacks thanks to their grey fur on the back. They are highly gathered into groups of one male and several females with

infants. Female gives birth only to one baby every four to six years, but only three or four times over her entire lifetime.

## What are their threats?

Even in the heart of the mountains they are not saved from human impact. In early 1990s, the war in Rwanda sent thousands of refugees into the forests of Virunga Mountains, which had a destructive effect on the forest habitat. By these days they are still hunted for bushmeat or end up being victims of illegal trade. Because of agriculture and livestock is their home still shrinking – for example, in 2004 illegal settlers cleared 3,700 acres of gorilla forest in Virunga National Park. They are not even saved from diseases, most commonly spread by a human influence, such as Ebola or cold. For their low rate of reproduction and a small area of living, their time on Earth seems to have come to an end.

## World Wildlife Fund helps

Fortunately, several organisations have assigned to help increase conservation of mountain gorillas in

Virunga Mountains. World Wildlife Fund (WWF) works with TRAFFIC, the world's largest wildlife trade monitoring network, and the World Conservation Union to monitor gorillas and other great apes to prevent the poaching and illegal trade. WWF is also the author of the ecotourism, a programme to accustom gorilla groups to people, while for people to get to know these mystical creatures. The WWF is also monitoring the area of gorillas' home and their populations there. Thanks to their existence, the population of mountain gorilla is slowly increasing. If you are interested in helping, you can adopt a gorilla to support the WWF to help them to save this big cousin.



**At magazine closure date, the Mountain Gorilla is marked Endangered by IUCN Red List of threatened species, with 600 mature individuals and population trend rising.**

# Meeting demands: The hunt for clean energy

BY TOMÁŠ VOLF

We use it everywhere and the only time most of us actually think about it is when we experience a power outage.

**W**hy are we so reliant on electricity and how does it end up in our homes, schools, cars or even in our own pockets?

It begins its journey in a power plant and goes through a complex system of wires and pylons to our homes. However there are a lot of ways how electricity is created. You have most likely heard terms like solar energy, atomic power, etc. Each of them has its own advantages and disadvantages. Some of them have a negative impact on the environment and contribute to global warming. That's why we currently hear a lot of talk about renewable energy, which promises to save our planet and solve our never ending hunger for electricity.

**So why haven't we switched to renewable energy yet?**



Big countries like United States, Germany, Japan, and Australia still rely on non-renewable energy sources like coal. These countries employ a lot of people in those types of power plants and other industrial sectors that produce the fuel. The employees do not

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**“It seems to be impossible to have truly clean energy right now.”**

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want to lose their jobs. Opponents of popular renewable energy solutions like solar panels or wind turbines point at the cost, stability of energy production and big amounts of space

they take up. Also, renewable doesn't mean it's clean - some geothermal energy processes can be harmful to the environment (but there are also other forms of geothermal energy which are clean).

**What about other energy sources such as nuclear power?**

Nuclear power has a lot of proponents that claim it's a safe and renewable source of energy. Opponents contend that it possesses a lot of risks. The biggest one is nuclear waste which can endanger life on Earth for millions of years. There also exists nuclear fusion power that claims to be safer than fission but such reactors are still under development. The biggest fusion reactor, called ITER, is currently being built in France.

**Are electric cars better for the environment?**

Electric cars would greatly reduce air pollution in highly populated areas. However, they are still more expensive and less popular than fossil fuel cars. And we still need to think how to power them. If we all switched to electric cars, would the energy production keep up with the consumption?

It seems to be impossible to have truly clean energy right now, but there are still a lot of ways to improve what we have now.

**Power station:** What will the future of the industry be?



# The world is running out of sand!

BY PEPE

“What? But we have tons of it on beaches, deserts and under the ocean. How can we run out of sand?”

“It’s

like an infinite resource!” that’s what you might think, right? However, sand in the right places is anything but infinite. We’re using it up faster than the planet can remake it.

## The importance of sand

After water, sand is our most-used natural resource. We use it to make food, wine, toothpaste, glass, computer chips, breast implants, paper, paint and plastics. Nevertheless, the major player for sand usage is concrete. It contains 75% of it. Our insatiable appetite for new buildings, roads, electronics etc. threatens the places we love the most since our ancestors lived.

The world consumes around 35 billion tons of building aggregate (a category that also includes gravel, crushed stone and various recycled materials – author’s note) a year, and half of this is sand. We need even more every year due to our rising number of population. This change is most noticeable in China. It now has 102 cities with a population of over a million each. Europe has 38 of them. (While Europe having just 38 cities with population over million, China has 102.) It’s no surprise that sand value has skyrocketed, increasing

almost sixfold over last 25 years. Unfortunately, we can’t use the sand from the deserts. Wind erosions makes the grain too round and we need angular sand that interlocks like pieces to a puzzle. Like the sand generated from mountain rocks, pelted by rain, wind and rivers for over 25 thousand years.

poorer regions where sand is mined. Extensive sand extraction physically alters rivers and coastal ecosystems, increases suspended sediments and causes erosion. Research shows that sand mining operations are affecting numerous animal species, including fish, dolphins and crocodiles. Sand mining also has serious impact on people’s livelihoods. Up to 90% of

the world’s beaches have shrunk by an average of 40 meters since 2008.

It’s hard to notice because popular shores replenish their dying beaches with even more sand from elsewhere. It has already destroyed dozens of islands, especially in Indonesia. If we keep it up, almost 70% of Southern California’s beaches could be eroded as well by 2100.

## How can we solve this problem?

Media coverage of this issue is growing, thanks to work by organizations such as the United Nations Environment Programme, but the scale of the problem is not widely recognized. Despite huge demand, sand sustainability is rarely addressed in scientific research and policy forums. As long as national regulations are

poorly enforced, harmful effects will continue to occur. It is believed that the international community needs to develop a global strategy for sand governance, along with global and regional sand budgets.

It is time to treat sand like a resource, on a par with clean air and other natural endowments that nations seek to manage for the future.



Governments worldwide have begun to regulate and restrict sand mining and concrete production. However, this led to spread of Sand Mafia, India’s strongest criminal organization, in black market.

## What are the consequences of sand mining?

The negative consequences of overexploiting sand are already felt in

# Health hazards in developing countries

BY JURAJ POVINEC

Most of us take health for granted but that can't be said for huge percentage of people living in developing countries.

**T**ens of millions of people suffer from parasitic diseases and malnutrition but, worse, annually around 10 million people die in developing countries of easily preventable diseases. These diseases cause unnecessary suffering to both the ill and the people around them. What causes the deaths? Some of the biggest key areas of risk are: Poor hygiene, poor sanitation, poor water quality all cause the majority of deaths in developing countries counting at around 1.7 million deaths. Immense water pollution and low access to clean, safe water cause diarrhoeal diseases and later lead to death caused by malnutrition or

**Threatened:** Diseases like Malaria, air pollution or road injuries - it isn't the safest place for children

dehydration. This can be prevented by building better water supplies, water treatment, sanitation facilities, and by educating people how to keep their hygiene. Diarrhoeal diseases can be prevented and treated by maintaining their hygiene, feeding nutrient rich food, rehydrating, taking zinc supplements and vaccinating against Rotavirus. Malaria has accumulated over 219 million cases in 2017, but only 435 thousand resulted in death. Malaria is transmitted through a special type of mosquitos called Anopheles carrying the Plasmodium parasite. It causes number of deadly complications such as kidney or liver failure. It can be controlled by spraying indoors with insecticides. The disease is treated by an antimalarial drug. Elimination of Malaria is on a great way, with

countries being certified Malaria-free and reports of countries getting into low thousands of cases a year. Indoor smoke inhalation with annual death toll off 1.6 million coming from the use of solid fuels in indoors environments for heating or cooking is responsible for respiratory issues and lung cancer leading up to death. Developing countries need to be independent on coal and biomass. Air pollution in urban areas is hazardous mostly to pregnant women and young children. It leads to adverse pregnancy outcomes and is responsible for around 800 thousand deaths a year. Way to solve this are of risk is to follow the global trends like reducing gas emissions and concentration of key pollutants. Road injuries are accountable for over 1 million annual deaths. Most

of those deaths come from developing countries. It's said that poor state and maintenance of public roads and pavements is the main reason why so many citizens get injured and then die in result of poor treatment. The most efficient way to stop road accidents is enforcing legislation, speed control and maintaining roads. The health hazards in developing countries are solvable; just require scaling up the approach that has proven to work.

## How can you help?

**Donate to proven non-profit organizations or charities such as UNICEF or Save the Children.**

**Pick up a job in one of the proven non-profit organizations or charities.**

**Study and become a biomedical researcher and help find better ways to help the needy.**

**Become a fundraiser and fund health projects.**



Literature has a common habit of reflecting problems of the time it's been written at.

Once were it social problems, now it's climate change.

We're privileged to publish a poem by our Art and Culture editor, Ms. Viktória Pravidová. It's a beautiful wish expressed through a promenade of... or, do you know what? You'd better read it yourself.

## Revolution!

Amount of pollution is rising steeply,  
fish in the ocean hurting deeply.  
People continuously harming Marine life,  
at home then carefreely dancing jive.

Beams of sunlight striking on the world whole,  
for them quite easily due to the Ozone hole.  
Greenhouse gases sending warning,  
but they don't see the Global warming!

Instead of drinking plankton,  
eating garbage from Southampton,  
from all the factories just sewage,  
we'll need more than help from a witch.

Be aware of ghost net,  
condolence to those fat.  
They won't escape the holes,  
nowhere between the poles.

Everywhere you look - only plastic,  
now it's time for us to be drastic.  
So, what do we do with the Pollution?  
I think, I came up with solution:

Let's speed up our evolution,  
to commit on Earth revolution!  
Join Up, young and older,  
to create a new world order!

And how would it look?  
Like a fairy tale in a book!

Look at that policeman Shark,  
he will defend me in the dark.  
And those Whales?  
They will as Justice hold the scales.



Civil servant the Sea Horse,  
providing a wedding or divorce.  
At church, clergyman the Turtle,  
all the time inhaling myrtle.

Crabs would be the full-time scissors,  
and for those blind, Viperfish would be the visors.  
And the examining Doctor Dolphin  
would be requesting sample coughing.



He may send you to the Surgeon -  
the most accomplished surgeon.  
During operation, Octopus the assistant  
would serve to Surgeon's equipment.

In the news, anchor persons Jellyfish,  
if only they weren't that selfish...  
In the weather forecasts Sea Worms,  
predicting long anticipated storms.

While crocodiles just listening to heavy metal,  
their gastric juice is melting metals.  
Near, in a music shop, seller krill,  
listening to good old Kryl.  
And in cake shops little Stars,  
would be selling chocolate bars.

What a wonderful world, full of love,  
but with a huge help from above.  
Thank you, people, for melting glaciers,  
especially from those in the blazers.

You helped us raise the hydrosphere,  
what for your kind was quite severe.  
You helped us raise the sea level,  
What wouldn't do anyone clever.  
However, you made us cheer -  
It's our duty now to rule it here!



# The world of tomorrow

## How will global warming change the Earth?

STORY BY NORIKA LUSTIGOVÁ



Global warming is already having significant and harmful effects on our communities, health, and climate. Unless we take immediate action to reduce global warming emissions, these impacts will continue to intensify and increasingly affect the entire planet.

Floods: Work of hurricane Harvey

**C**hanging weather For most places, global warming will result in more frequent hot days and fewer cool days. More intense heat waves will become more common. Storms, floods, and droughts will be more severe as precipitation patterns change. Hurricanes may increase in intensity due to warmer ocean surface temperatures. "Climate change has exacerbated rainfall and is set to enhance the wind speed," said Christina Patricola, a Research Scientist at Lawrence Berkeley National Laboratory. Recent research indicates that their destructive power, or intensity, has been growing since the 1970s, particularly in the North Atlantic region.



**Rising sea levels**

The weather isn't the only thing global warming will impact: rising sea levels will erode coasts and cause more frequent coastal flooding. As the planet gets warmer, sea level rises for two reasons. First, warmer temperatures cause ice on land like glaciers and ice sheets to melt, and the meltwater flows into the ocean to increase sea level. Second, warm water expands and takes up more

space than colder water, increasing the volume of water in the sea. The problem is serious because up to 10 per cent of the world's population lives in vulnerable areas less than 10 meters (about 30 feet) above sea level.

**"Warmer temperatures cause ice on land like glaciers and ice sheets to melt."**

**Impacting ecosystems**

Global warming is already putting pressure on ecosystems, the plants and animals that co-exist in a particular climate zone, both on land and in the ocean. The range of some warm-weather species will expand,

while those that depend on cooler environments will face shrinking habitats and potential extinction. Higher concentrations of CO2 in the atmosphere, due to the burning of fossil fuels,

is making oceans both warmer and more acidic. These two effects threaten the survival of marine life. Corals, shellfish, and phytoplankton, which are the base of the food chain, are particularly at risk.

The growing season in parts of the Northern Hemisphere became two weeks longer in the second half of the 20th century. Spring is coming earlier in both hemispheres.

**Impacting people**

The changes to weather and ecosystems will also affect people more directly. Hardest hit will be those living in low-lying coastal areas, and residents of poorer countries who do not have the resources to adapt to changes in temperature extremes and water resources.

As tropical temperature zones expand, the reach of some infectious diseases, such as malaria, will change. More intense rains and hurricanes and rising sea levels will lead to more severe flooding and potential loss of property and life. Rising temperatures will likely lead to increased air pollution and to a longer and more intense allergy season.

All these changes are emerging as humans continue to add heat-trapping greenhouse gases to the atmosphere. However, we could slow down global warming, but only if we act in time.

**Melting glaciers: Rising sea level and threat to animals**



# How could we prevent the food crisis?



BY ROBERT VALAŠKA

Many people take food as a natural part of their lives. On the other hand, many people don't have access to enough food.

There are more than 7.6 billion people in the world right now. Yet roughly 815 million people, who account for 10.7% of the world population, are facing hunger issues. And the population is set to rise to 9.8 billion by 2050. What can be done to prevent the food crisis from spiralling out of control?

## How has this developed?

Our food crops are very homogeneous. Currently, only 12 crops account for 75% of human calories. If a particular pathogen arises, or a particular vulnerability to changing climates, the entire crop becomes vulnerable due to lack of genetic variability. This has happened before, as the global banana supply was based on single variety, which was wiped out by the Panama virus.

Meat-rich diets are very demanding on the environment. A kilogram of beef is about thirty times more demanding on the environment and seven times less calorific than grain. Widespread droughts also cause huge disruptions to food production. In 2008, 110 countries experienced significant droughts. This caused even the most well-irrigated, fertile areas to become arid deserts, making it impossible to grow crops. When the price of oil goes up, the energy cost for planting and transporting food goes through the roof. When food production costs rise, consumer prices are much higher, too. These rising costs then make it difficult for local population to purchase crops as well as for farmers to export theirs.

**Vegetable:** It fills up much more stomachs than meat



**A certainty?:** Many people still don't have access to basic groceries.

## How can it be improved?

Meatless diets are massively less demanding on the environment and in the end can feed more people. Genetically modified crops can be produced which require less herbicide, or pesticide, or water. However, there are some sceptics that protest about possible health risks. Biofuel production requires mind-boggling amount of grain to be produced. In fact, it has been estimated that to produce about 13 gallons of biofuel, 511 pounds of grain are needed - equating enough food to feed a child for a year. To prevent natural disasters from completely wrecking our food production, there needs to be a greater diversity of food sources. We can't be dependent on very few sources of food, because if something happens to them, we would have severe problems.

There have been several big issues with food production in the past. We can't let the history repeat itself again. The sooner we start to care about the food crisis, the better.

# Palm oil industry to dramatically affect the environment

BY MARTIN BEDNÁRIK

Palm oil is broadly used – not just in the food industry – for its low price and versatile use. Notwithstanding, it also means a threat for the environment. And a serious one.

**You** can't avoid it, as it's almost everywhere. Processed food contains mostly palm oil, for its advantages, but mainly economic reasons. Even if you wouldn't eat it, at least you would wash with it. For its foaming qualities it's used in many shampoos and soaps as agent.

And while global economy and producing lands view it as the right economic boost for developing countries, experts warn of its environmental threats. Most produce comes from Malaysia and Indonesia (nearly 90 per cent). "The short-term benefits to plantation owners and labourers, producer-nations'

**Produce harvest:** Palm oil is broadly used in processed food, as biofuel or in cosmetics



governments and financiers have come with enormous long-term costs to the global climate."

"Forests destroyed for oil palm plantations are among the most carbon-rich in the world," informed The Guardian. "When they're burned, that carbon is released." However, International Union for Conservation of Nature (IUCN) understand that 'saying 'no' to palm oil would likely displace, not halt biodiversity loss'.

"When you consider the disastrous impacts of palm oil on biodiversity from a global perspective, there are no simple solutions," said IUCN Director General Inger Andersen in a report. "Half of the world's population uses palm oil in food, and if we ban or boycott it, other, more land-hungry oils will likely take its place. Palm oil is here to stay, and we urgently need concerted action to make palm oil production more sustainable, ensuring that all parties – governments, producers and the supply chain – honour their sustainability commitments."

It utterly looks as another fragment of the environmental crisis, with

uncertain solution. Global average palm oil consumption marks eight kilograms a person annually, Guardian informed.

**But how got we stuck to it?** "No single innovation caused palm oil consumption to soar. Instead, it was the perfect commodity at the right moment for industry after industry, each of which adopted it to replace ingredients and never turned back," writes The Guardian in its Spotlight. It was the industry that, once more, caused the trouble. I admit, maybe there's demand for it, still can't the economy judge on its own, as it can't properly predict the consequences.

As European Union accounts for less than 14 per cent and more than half of the global demand is Asia's, it's doubtful if we could undergo an improvement. Reuters informed of small price rise in 2019, according to a poll they conducted, due to massive demand and weaker output-growth. "Nevertheless, half of certified-sustainable palm oil isn't sold as sustainable: until a sufficient number of consumers are willing to pay the higher price for certified palm oil, little will change," admits the British paper.

Palm oil is no more just foodstuff, it's a commodity. A fact that doesn't help the matter.

When you're in the shop the next time, look what does the product you buy content. You'll be quite alarmed. Don't feel insulted, though. I wouldn't necessarily halt it for a fault of yours. Yet we consider a duty of ours, consumers, to control the system that's 'feeding' us.

# The struggle of designing a green city

BY MARTIN BEDNÁRIK

More and more people are living in cities. Inger Andersen, IUCN Director General believes that over two thirds of the world's population will live in cities by 2050. Another nasty problem, then.

**H**umans simply can't gain independence from nature, as they're part of it, and therefore can't survive without it. Moving to urban areas, however, many people now live too far from nature. It partially is the fault of urban architects that designed the towns, and partially the system that sets our lives. Health effects have been proven when living close to greenery, yet many urban areas still lack it. But it wasn't always so.

## Nature is moving to town

Looking on a historical photography of towns, you're bound to see plenty of trees, gardens and flowers. People simply lived with nature. They understood its vital importance to them.

As the new social class evolved and towns provided living for more and more people, those who moved there brought their culture with them: natural world was part of them. That's why you'll see much more gardens and parks in the historical centres than

**Transit:** Individual commute challenges and harms every municipality

in many suburbs. Urban area,

by the time of industrial revolution, was a green one. But as industrial age took off with the invention of steam engine by James Watt in Scotland, plenty of factories were built in town outskirts. Steam engine opened a whole new era of industry and production, but it still wasn't possible without human. Factories needed the workers, and workers needed to sleep somewhere. And that's where it all started. A huge factory needed unimaginable number of workers, and all of them needed a place to sleep. Centralization

**“Understanding of citizens is a key requirement to create a good city.”**

Tina Saaby  
head architect, Copenhagen

of the industry meant centralization of living, too. And because the whole renaissance was rather quick in its momentum, there was sudden short of housing.

Such a problem had to be solved as soon as possible, and there wasn't much time for thinking about details. Although the architects of that age coped with the task pretty well, it certainly looked differently than original townscape.

Other housing crises appeared over time and more efficient technology was available. For instance, during Socialism in Slovakia, many citizens

moved to the today's capital Bratislava. In that years, most estates were raised, under time pressure, what's left an inerasable mark on them. Standardization became the main construction principle of the day.

And whilst having placed several parks and gardens, it wasn't the most systematic of the matter. So, we've stuck with that until recently.

The only difference is that contemporary developers rush for revenue and aren't facing a challenge of housing masses.

Concrete is broadly used for a decent period now, and it's just now that we realise how harmful it indeed is. The British news portal The Guardian dedicated a whole week column to its harmful impacts on the planet.

But science has much knowledge of it ever since and residents and experts understand the importance of nature presence at their doorsteps.

## City life is key for architecture in Copenhagen

“It is city life that's most important for us in Copenhagen and we base on that when planning all municipal public buildings. Building designing as such succeeds just after it. We do it so on account that it's the urban life what creates the city. No town exists without its citizens that would use it, who would live and work in it and move in its buildings and streets.

“Understanding of citizens is a key requirement to create a good city. Architecture is made by people and for them. It provides a physical environment for our lives, for us as a society and as well for us as individuals.” said Tina Saaby, head architect of Copenhagen on the occasion of DAAD – Bratislava architecture and design days 2018. There's a law in Copenhagen saying every resident has to have access to park or beach within 15 minutes away his residence. The Danish capital is being named ‘the most liveable city’, occupies top ranks in green city comparison and it really puts its citizens first.

But it isn't everywhere so. Many



municipalities are still to discover what they are missing.

### Recycle, reuse... redevelop!

The cure for our wounded living space is redevelopment of the urban area. But in what way? That's more of a question for an architect to answer. Greenery should reign wherever you look. Notwithstanding, it's much harder than just planting some trees and placing benches, as private land owners often have another, less green, plans. And not every municipality is in financial condition to enable the change.

### Not that green as believed

Although ranked the third greenest city in the world by Dutch portal TravelBird, Bratislava lacks green spaces. "We have few greenery, we have to spread these areas," said Ingrid Konrad, head architect of the Slovak capital to Slovak press agency. She thinks that every resident should have a green space with children playground, if not a park, within 3 to 5 hundred metres.

She also point out that there are no no-build zones in the urban plan, what causes fraction of the land, hindering bigger parks development.

Carpathian forest park belongs to the municipality, what makes percentage, yet the state in some estates is worrying.

Mrs. Konrad also mentioned that a measure ordering permeability of newly built park lots had been introduced. We tried to get in touch with her, but she didn't reply until the closure date.

Much depends on the residents



Packed: A densely built city with no greenery has no living quality

themselves, as their habits radically affects urban environment. Last summer, municipal authority of Bratislava launched Green Bratislava campaign, encouraging residents to treat natural resources responsibly. "If everyone picks a plastic bottle or other litter during a walk in forest, they will be cleaner and nicer," said the then mayor Ivo Nesrovnal. City forest park is an important part of the city. However, they've been illegally mined for wood. Activists were trying to stop it. Recently, current mayor Matúš Vallo demanded ministers of Agriculture and Environment to declare various places in Bratislava as protected areas.

### Vegetable gardens in the city core?

Fortunately, people have an instinct, forcing them to cultivate their living space, at least some of them. Urban gardening is therefore spreading across the towns. Local councils, like the one of Austrian capital Vienna, also supports active residents and encourages the others. "The city of

Vienna supports neighbourhood and community gardens under the motto "gardening together" and thus creates a framework that facilitates access to nature for residents of the city," runs Smart City Wien, governmental website of the city.

There are even some projects that go beyond that, like the one in Perth. Toby Whittington, Chief Executive of Green World Revolution, mentioned their project supplies 35 restaurants in the city, four days a week, using bike delivery, The Guardian reported. "With our model, we can address two issues, poverty and unemployment, and the environmental issues with food production," says the Chief Executive.

Many children are unaware of how the food they're eating is produced. Several initiatives emerged to cope with food education.

One of the UK's initiatives is Food Growing Schools London partnership, led by Garden Organic and supported by the mayor of London. "The partnership aims to encourage young people's hunger for knowledge, and to develop supportive and healthy local communities through food," reads the statement. "It is fantastic that a staggering 80% of England's schools are now involved in some level of school food growing but it is vital that we get the cooking and the growing working together in schools. If we can do that then we have a real catalyst for change and I am really keen to work with businesses and other charities to make that change happen so please people get in touch," mentioned Jamie Oliver, celebrity chef and healthy diet proponent, on his



website.

Food growing at schools was usual part of curriculum in Slovakia long ago, my very own mother reported once.

### No land for plants? Go up in the sky!

Another solution of increasing greenery in densely built urban areas is to set up a vertical garden, or take advantage of roofs, where you can plant anything you'd like to. Anyhow, setting such vegetation about is a very expensive joy. On the other hand, it doubles as building thermoregulation and noise reduction.

A practical example can be seen in Mexico City, where Via Verde project managed to plant vertical photogenic plants on columns along the highway ringing the central city.

"Via Verde could simultaneously change the look of the city and help us meet today's biggest commitment: the fight against climate change," Miguel Ángel Mancera Espinosa, former head of city's government said, as informed The Guardian. "The idea of turning a grey city green feels good to its inhabitants. But in reality it's just

aesthetics. At the end of the day, it's not going to change the city," pointed out Sergio Andrade-Ochoa, NGO Liga Peatonal public health coordinator.

### Individual transport differently

Driving car to commute in a city is never a good idea. Public transport offers a much quicker travel, if working properly. Active commuting also benefit to public health and well-being. Bike lanes enable safe cycling, not just to school or work, and contribute to resident-friendly urban design.

### A helping hand from IUCN

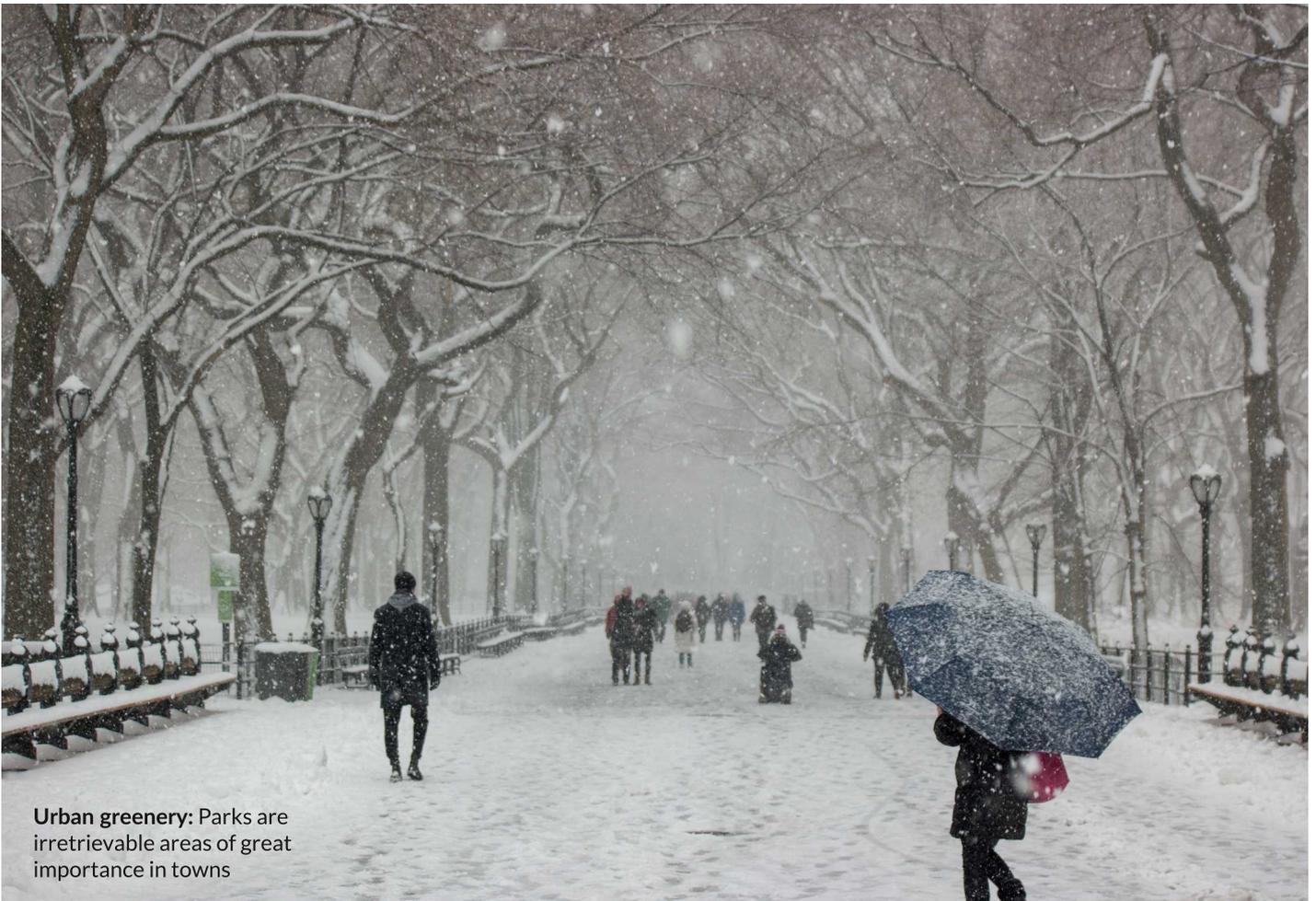
IUCN recently established a new alliance, in partnership with Scottish Wildlife Trust and Arcadia Fund. "Urban Nature Alliance will raise awareness of the value of ecosystems in urban areas, and of how these ecosystems can help address urban challenges including air pollution, flooding and health problems caused by lack of access to quality green spaces," informed the union in its press release. They also plan to develop a standardised way to gauge

"the quality of their underlying stock of natural resources", City Nature Index. One of the five cities the project is to be piloted in is Edinburgh.

"We are now an urban animal for the first time in human history but we are still failing to design our cities in a way which incorporates nature," said Jonny Hughes, Chair of the new Alliance and Chief Executive of the Scottish Wildlife Trust. "Cities need nature more than ever as we face up to a rapidly changing climate and nothing short of a green design revolution is likely to make this happen."

"Green spaces cool down cities, encourage physical activity and can provide stress relief, increase social interaction and improve mental well-being," Reuters cited the World Health Organisation.

It certainly doesn't look carefree and we didn't even mention all of it. However, change is happening, and that's a soothing message to hear. Yet we shouldn't feel too relaxed about it, rather try to change the world by the very tiny actions.



Urban greenery: Parks are irreplaceable areas of great importance in towns

A close-up photograph of a field of daisies and wheat stalks. The daisies have bright yellow centers and white petals. The wheat stalks are green and have small, developing grains. The background is a soft, out-of-focus sky with some light clouds. The overall scene is bright and natural.

“Just living is not  
enough... one must  
have sunshine,  
freedom, and a little  
flower.”

**Hans Christian  
Andersen**

# Climate change takes off!

**Help us stop it.**

Together we can make a change.



**The Mind-boggle**