

The
future
Responsible thoughts on biodiversity
is in our **hands**







Dear Reader,

In the following pages you will learn about the importance and vulnerability of our natural environment, the state-of-the-art technology of Duna-Dráva Cement Ltd., and the efforts our company has made in terms of social responsibility. This publication contains many interesting facts accompanied by spectacular nature shots that will give you food for thought.

Our venture is not without antecedents as professional work done to protect the biological diversity of our environment has always been an integral part of DDC's approach. When quarrying limestone we strive for economical solutions in the use of raw material, while spending millions of forints per year on restoring the natural habitat of species on lands no longer mined.

Our company's policy is sustainability which permeates all of our activities: we apply advanced, environmentally sound technical solutions, handle natural resources responsibly, and continuously develop our production technology. Besides environmentally conscious cement production and quarrying, DDC takes on development of the surrounding settlements of the cities of Vác and Beremend, as well as preservation of local natural resources.

The United Nations declared 2010 to be the International Year of Biodiversity. This makes our initiative even more topical, and is in accord with the principles of the owners of DDC (HeidelbergCement Group and SCHWENK Zement KG) as well.

Diverse nature is our common treasure, which can only be preserved with extensive cooperation. With this publication, we focus on reaching as many people as possible with information about our natural resources and threats to them. Within, we explain all of the challenges the Earth must face, discuss the opportunities individuals have to play a role in their resolution, as well as cover the issue of corporate responsibility. Duna-Dráva Cement Ltd. seeks to demonstrate by example that harmony between effectively running a corporation and the principle of sustainability is achievable. Enjoy your adventure in the multi-faceted world of nature!

Vác, November 2010

János Szarkándi
Chairman and General Manager

Biodiversity, i. e. variety is the spice of life

Biodiversity is the number and variety of organisms within a given ecosystem.



Life on Earth exists almost everywhere. It can reach even the most austere and cold places, the frigid poles, the highest mountain peaks and the deepest oceans. Life adapts to challenges in many ways, which results in a great number of plant and animal species and an almost infinite variety of organisms. This diversity of the ecosystem is called biodiversity, which is a shortened term for biological diversity.

Biological diversity refers to the number of plants and animals living in a specific region, the types of vegetation and their genetic diversity. Areas assessed in terms of biodiversity can be very small like the environs of a stone quarry, as large as whole continents, or even the entire Earth. Biodiversity is the measure of the diversity, viability and health of the inspected ecosystems. It is natural for biodiversity to vary among different regions; of course it is lower in deserts than in the Amazon rainforest. Thousands of species have adapted to the difficult living conditions even in an apparently dead desert. On the other hand, the same number of species can be found in just one tree in the rain forest.

It is also natural that the biodiversities of certain regions

are in flux. Some species become extinct or migrate and new species develop or immigrate to replace them. Certain species can overwhelm others, and we know of many cataclysmic events (meteorite collisions with Earth, ice ages etc.) during Earth's history that have caused sudden and considerable decreases in biodiversity.

Since the Industrial Revolution, man has become ever more capable of interfering in the order of nature and influencing the diversity of ecosystems with his endeavors. Technology is available to us, which if used carelessly, can cause the extinction of many species. Earth is a living planet, ever changing. These changes, as well as overpopulation and industrial activity have a strong impact on the biosphere. The ozone layer has thinned, the polar ice caps have begun to melt, the average temperature has risen due to greenhouse gas emissions, and the weather has become capricious and extreme in some of the parts of our planet.

Recognizing the problem, more and more large companies have committed themselves to the principle of sustainable development. They invest money in research



and development of technologies that will enable us to operate in harmony with nature, using our natural resources economically, and promoting the renewal of our environment. The subsidiary of the Germany-based HeidelbergCement Group and SCHWENK Zement KG, Duna-Dráva Cement Ltd. is among these companies.

Did you know that 99.9% of the species that have ever lived on Earth are already extinct?



The dodo: the Round Bird



The dodo is perhaps the first animal whose extinction was directly attributable to human activity. The flightless, stumpy bird living on the Island of Mauritius died out at the end of the 17th century not much later than the arrival of Dutch settlers. Before the first humans appeared in Mauritius, the dodo had lived in isolation, free of any natural predators and was thus entirely fearless of people. This proved its undoing because, although its taste wasn't particularly good and its meat was tough, it was easy prey for hunters.

Did you know that a statue of a dodo can be seen in the Budapest Zoo?

DDC for biodiversity

Duna-Dráva Cement Ltd. has set an aim to considerably mitigate the environmental load of ecosystems and to preserve biodiversity. When developing and implementing production technologies, our priorities are energy saving, reduction in usage of fossil energy sources, and using more recycled secondary raw materials and fuel.



Quarry recultivation

Duna-Dráva Cement Ltd. spends millions of forints each year on recultivation of lands withdrawn from quarrying. With this ecological recultivation plan, native plants are replanted in these areas. Experts choose plants for this project for the long term, and they plant appropriate vegetation in its natural habitat.

Did you know that

- the Beremend plant received the Industry for Environment award in 1995 for its distinguished environmental protection measures, and the company received recognition by the Association of Environmentally Aware Business Management (KÖVET) in 2006?
- with the use of alternative fuels in cement production, energy can be reclaimed from materials that are treated as waste in other industry sectors? With this method the global environmental load can be eased.
- in many European countries the cement industry utilizes a significant part of waste arising from other industry sectors? 70-80% of fuels used in cement plants in Switzerland and Finland are already alternative.





Duna-Dráva Cement Ltd.

Duna-Dráva Cement Ltd. is co-owned by HeidelbergCement Group, one of the world's largest construction manufacturing concerns and Schwenk Zement KG, another significant and well-established construction materials manufacturing company in Germany. With its nearly 700 employees, Duna-Dráva Cement Ltd. is Hungary's leading cement company. It has a production capacity of 2.5 million tons of cement per year, and its revenue reached 63 billion forints (cca. 220 million Euro) in 2009. With the high quality of its products and technical counseling service, state-of-the-art, environmentally sound and innovative production technologies, DDC represents the cutting edge of European cement production in the Hungarian market. Duna-Dráva Cement Ltd. produces cement at two plants in Hungary: in the city of Beremend in South-Transdanubia, and in the city of Vác in Pest county.

Endangered species of the world

One of HeidelbergCement's goals is to sustain biodiversity, setting an example for the world's other heavy industry companies. Many initiatives have been launched to save endangered species worldwide. They have thoroughly recultivated quarries to save the Sand Martin which is a strictly protected bird in Germany, and to save the Pasqueflower on the Swedish island of Gotland. Other protection and restoration efforts include the ecosystem of beech tree forests in Poland, the natural habitat of bats in England, as well as the nesting habitats of terns and Northern Lapwings.



Why is restoration of biodiversity important?



At first glance we might think that preserving the diversity of species is only an aesthetic and moral concern. However, sustaining biodiversity is in the best interest of mankind. Despite our technological advancement, we still remain part of nature, and our survival and future quality of life is greatly dependant on the species of animals and plants sharing our world. Since carbon dioxide which intensifies the greenhouse effect is extracted from air primarily by trees, large scale deforestation leads to climate change. Extinction of certain species can disrupt the food chain, or can contribute to intensified climate change. Moreover, according to the latest research, a decrease in biodiversity adversely affects the production volume of cultivated crops that are essential to meet daily food demand.



**Did you know that
50 species die out on
Earth every day?**





Everyone can make a difference

It is not only big companies and leaders of countries who are responsible for sustaining biodiversity. Even with just a little consideration, we as individuals can have an impact. Here are some easily feasible ideas:

- Collect household waste selectively, and use selective waste collection islands around your home.
- Always carry a shopping bag with you and don't ask the cashier for a plastic bag every time you shop.
- Buy beverages in returnable bottles, and create space savings by crushing non-returnable bottles under foot before disposal.
- Use public transport or a bicycle for travel to work.
- When in a forest or another natural environment, rather than litter, take the garbage with you after a picnic.
- Turn off lights in rooms you are not currently using, unplug your mobile phone charger after recharging its battery, and do not leave the TV on in stand-by mode but switch it off completely after watching.
- Change your light bulbs to an energy efficient type.
- Save water. Do not let the water run for long while doing the dishes or washing your hands or face, and limit showers to a maximum of 5 minutes.
- Educate your children so that they become environmentally conscious.

A full-page background image showing a view of Earth from space. The Earth's horizon is on the right, showing blue oceans, white clouds, and green landmasses. The rest of the image is a deep blue space filled with numerous small, bright white stars. A bright light source, likely the sun, is partially visible behind the Earth's horizon, creating a lens flare effect.

Bridges to the future

Duna-Dráva Cement Ltd. has been involved in many significant infrastructural development projects as a supplier recently. Thanks to the company's work, these projects could use materials manufactured with the help of environmentally sound technologies.



The Kőröshegy Viaduct

Lengthening of the M7 motorway had been planned since 1970. According to the original design the track would have run near the shore of Lake Balaton, but after taking into consideration the interests of the local residents, this idea was finally abandoned. From 47 plans created by experts at Budapest Technical University, the one with the viaduct was selected.



The Pentele Bridge in Dunaújváros

Concurrently with the construction of the Kőröshegy Viaduct, the construction of the Pentele Bridge which connects Transdanubia and The Great Hungarian Plain (Alföld) was underway involving DDC. The planning started in the 1990s when the Association of Dunaújváros and its Surroundings "HÍD" was established. This organization's aim was to develop the region, and more specifically to jointly construct the bridge.



The Megyeri Bridge

The northernmost bridge in Budapest was built in cooperation with DDC as well. The bridge has an important role: controlling the traffic of the capital city by diverting it, to moderate air pollution and other environmental damage resulting from vehicles. During the planning phase importance was placed on preservation of the ecosystem of Szentendrei Island which provides most of the capital city's water supply.

Did you know that

- the Kőröshegy Viaduct is Hungary's longest bridge?
- the lamps on the Pentele Bridge don't stand erect but follow the inclination angle of the bridge pillars?
- the wells on Szentendrei Island are not equipped with water purifiers and the water of the Danube is made potable with the help of natural filtration using pebble terraces?





Why can't we live

- Because they absorb carbon dioxide that intensifies the greenhouse effect.
- Because they produce oxygen during photosynthesis, which is vital for us.
- Because they protect arable lands, public roads and inhabited areas from the erosion caused by the wind.
- Because the foliage takes hold of pollutants and dust, filtering the air.



e without forests?

- Because they offer protection to species of animals living in them.
- Because they improve water balance: in wooded areas water more easily seeps through the soil, and thus loss of water is decreased.
- Because foliage deflects and scatters sound, attenuating noise.
- Because they offer unrivalled recreational opportunities to millions of people.

TioCem: cleaner city air

Air pollutants originating from exhaust gases, for example nitrogen oxide, are one of the biggest problems in cities and other man-made environments. These compounds are harmful to one's health, and they increase the risk of respiratory infections. TioCem, which is the latest product of HeidelbergCement Group, through a photocatalytic reaction, breaks down hazardous substances in the air, improving the quality of the air in cities.



Concrete made from TioCem containing nanocrystal titanium oxide is self-cleaning, and is capable of neutralizing as much as 90 percent of pollutants in the atmosphere on a sunny day, and 70 percent in bad weather.

TioCem can be used to make concrete curbs, roof tiles, paving stones, road surfaces, noise barriers, building facades, safety bars, and lining elements in tunnels.

Did you know that

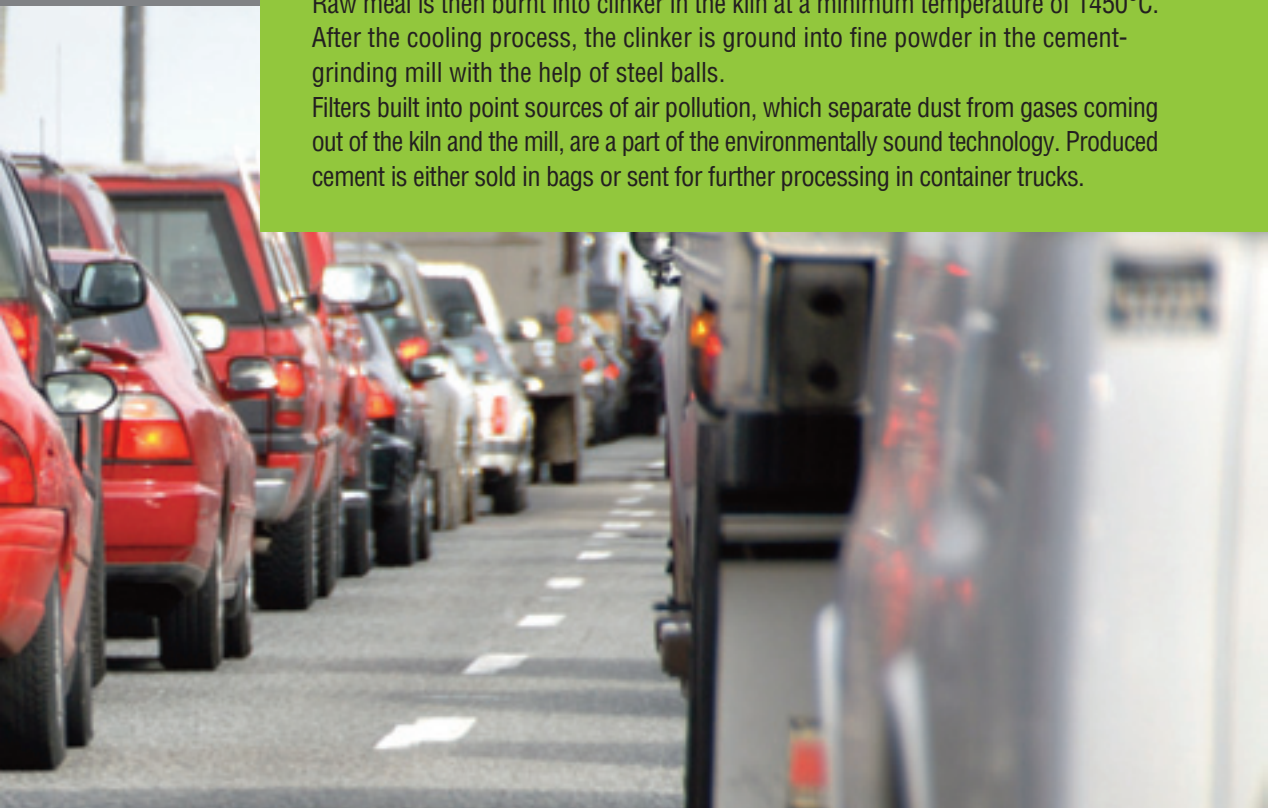
sunlight initiates the process during which TioCem converts the hazardous nitrogen oxide into nitrate?



How is cement produced from limestone?

Limestone and clay transported from quarries are first crushed, mixed and then homogenized on a mixing bed in a hall capable of storing large quantities. On the mixing bed, the mix is transported to the raw mill where it is ground into raw meal. Raw meal is then burnt into clinker in the kiln at a minimum temperature of 1450°C. After the cooling process, the clinker is ground into fine powder in the cement-grinding mill with the help of steel balls.

Filters built into point sources of air pollution, which separate dust from gases coming out of the kiln and the mill, are a part of the environmentally sound technology. Produced cement is either sold in bags or sent for further processing in container trucks.



Environmental protection projects implemented with the involvement of DDC

- Renovation works of the Postapark in the centre of Vác started in 2003, while the nature study trail in Gyada, which showcases the ecology of Naszály Mountain and the Gyadai Meadow was inaugurated in 2004. This study trail achieved international renown when it received the European Landscape Award from the Council of Europe.



- Thanks to the cooperation between DDC and the City Hall of Vác, the tourist map of Naszály Mountain was published in 2006, which was celebrated with a map-inaugurating excursion: participants of the hiking tour set off from Kosd, covered the Miner's Memorial (Bányász emlékmű) and the Gyadai Meadow, and finished the tour at the Giants' Rest Area (Óriások pihenője).

- DDC organized a tree planting event along the trail leading to the Gyadai study trail in 2007, and in 2008 the company planted an alley of 150 linden trees and bushes with the help of local schoolchildren at the rain barrel in Vác Deákvár.



- The pedestrian suspension bridge on Naszály Mountain was made possible with the contribution of the company, and was inaugurated by the Minister of Environmental Protection and Water, Imre Szabó in 2008. The construction of the suspension bridge is part of a comprehensive project that aims to preserve as well as familiarize nature-lovers with the natural treasures of Naszály Mountain and the Gyadai Meadow.

- The main theme of the DDC Sports Gala organized in 2009 was sustainable development. At the contest participating schoolchildren had to find answers to playful questions about environmental protection, and environmentally conscious living. The prize was financial support for their schools to buy sports equipment.



Feedback on DDC's efforts to protect our environment

"The investment of DDC with its accompanying environmental advantages and improved efficiency is exemplary, as programs like this can subserve the sustainable development of our country. The energy modernization of the Beremend plant supports environmentally sound operation because it facilitates a larger-scale use of alternative fuels."

(Minister of Environmental Protection and Water, Mr. Imre Szabó, 2009)

"The Vác cement plant is run using safe and environmentally sound technology because it is the company's goal to operate in a responsible and sustainable manner, being a significant stakeholder in the local community."

(Mayor of Sződliget, Member of Parliament, Fidesz-KDNP, Ms. Gabriella Bábiné Szottfried, 2010)

"Thanks to the modernization of the Beremend plant, workplaces and revenues of the local government are secured for the next 20-25 years."

(Mayor of Beremend, Mr. István Orsókics, 2009)

"The public tree-planting is about young people and their being educated to become environmentally conscious. With this event Duna-Dráva Cement Ltd. proved the importance of social responsibility again."

(Mayor of Vác, Dr. János Bóth, 2008)

"Our goal is to give kindergarteners quality education regarding environmental consciousness during the Adventure Tour for Kindergarteners. We need supporters for this, and Duna-Dráva Cement Ltd. proved to be a great partner as neither the national environmental protection network, nor the local governments can afford initiatives of such high standards."

(Secretary of the Vác City Foundation for Environmental Protection, Mr. György Bíró, 2007)

Our endangered natural treasures

The Old World Swallowtail

This butterfly was commonly seen in gardens, during mountain hikes or walks in meadows a few decades ago. Because their numbers are in decline, they have been declared protected species. They are mainly yellow with black markings. The hind wings have a pair of protruding tails that look like those of the swallow. Just below each tail is a red eye spot. The wingspan of the Old World Swallowtail can be as long as 10 centimetres. It's a very spectacular type of butterfly which flies very fast.



Preserving biodiversity is a compelling task because, among other problems, there are a number of endangered species living in our country, too. DDC pays particular attention to ensure the survival of these species around its stone and pebble quarries and its plants.



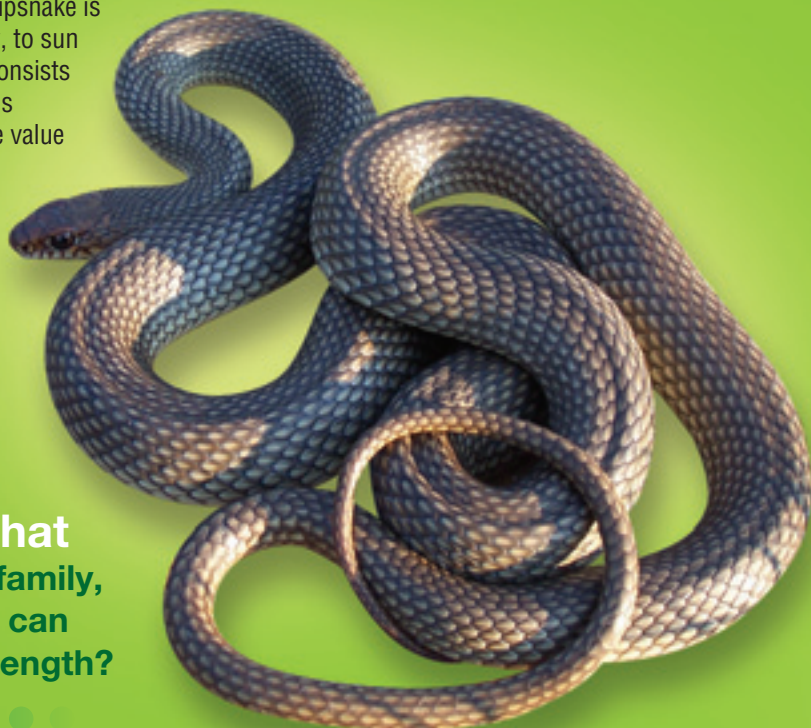
Did you know that
the caterpillar of the
Old World Swallowtail
particularly likes dill
and carrots?



Caspian whipsnake

This is a common species of whipsnake found in the Villány Mountains in Hungary, also sparsely inhabiting the Buda Mountains and the area surrounding the city of Paks. It received its name from its aggressive defensive style. Although it is not venomous, its sharp teeth make its bite quite painful. The winter sleep of the Caspian whipsnake is very long; it only wakes in May, to sun in the warm sunlight. Its diet consists of lizards, rodents, or birds. It is strictly protected and its nature value is 500,000 forints.

Did you know that the Caspian whipsnake can grow to a maximum length of approximately 200 centimetres?



Did you know that among the salmon family, the Danube salmon can reach the greatest length?



The huchen or Danube salmon

Although the Hungarian name of this fish (Dunai galóca) resembles that of a toxic mushroom, it is a species of freshwater fish in the salmon family. The Danube salmon can be as long as two metres; long ago it could weigh as much as 50 kilos, but nowadays does not get this large. The huchen likes flowing waters that are rich in oxygen, and it can mostly be found in the northern reaches of the Danube and the Tisza. Using the same predatory technique as another fish called the Asp, the Danube salmon attacks its prey suddenly.

Colchicum hungaricum Janka

This submediterranean flowering plant grows in calcareous soil in warm places. It can only be found on the mossy and rocky grasslands of Szársomlyó Mount. It was discovered by botanist Viktor Janka in 1867. It can reach a height of 10-15 centimetres, and its flowers (5-15 per plant) appear between February and March. They are generally white, rarely with a rose shade. Colchicum hungaricum was the first plant to be declared protected in our Hungary, and its current nature value, or fine incurred for picking is 100,000 forints. Entering its habitat is forbidden; it can only be visited during special, organized tours called Colchicum hungaricum tours.



**Did you know that
you can see Colchicum
hungaricum on the back of
the two-forint coins that have
recently been withdrawn
from circulation, as well as
on the labels of wines from
the Villány region?**



The Bee Orchid

Orchids grow not only in tropical regions but also in Hungary. One of them is the strictly protected Bee Orchid, which interestingly emits a very special kind of scent and attracts only male bees. It can produce as many as 15 flowers on one plant, with petals ranging from mauve to pink. In the middle of the flower there is a modified petal, the labellum which resembles a female bee to attract male bees that pollinate the flower.



Did you know that
no nectar is produced in the
flowers of the Bee Orchid?



Carabus hungaricus

There is an old but still memorable Hungarian puppet film titled Futrinka Street. The street was named after a beetle species, many of which are native to Hungary. One of them is the strictly protected Carabus hungaricus (Futrinka in Hungarian), with a nature value of 100,000 forints. Its color is deep blue or violet, and there are indented spots on its back. It is a nocturnal animal, and is seen mostly in the fall during its mating season.



Photo: Péter Paláitz

Red-footed Falcon

The Hungarian Ornithological and Nature Preserve Association selected the Red-footed Falcon as the Bird of the Year for 2009. It is a critically endangered species, and its nature value is 500,000 forints. Its height is approximately 30 centimetres, and it is a migratory bird spending the winter in Africa. Just like other types of falcons it can be easily recognized during its hunting while hovering at one specific spot. The Red-footed Falcon keeps itself in the air by rapid flapping of its wings while tracking insects and smaller rodents on the ground.



**Did you know that
Red-footed Falcons don't
build their own nests but
use those of crows?**



Ecological footprint, that is how many Earths would we need?

A community's ecological footprint is the amount of cultivable land needed to meet its food demands. A community needs to grow and produce food for sustaining the lives of its members, produce goods to match its usual levels of consumption, and dispose of the corresponding waste. The value of the ecological footprint is given in hectares per person. This figure depends on how much the members of the given community use their cars, how much they fly, what kinds of food they consume, the quantity of non-locally produced goods that they buy, what type of property they live on, how much energy they consume, how much waste they produce, and so on.

On the other hand, biocapacity refers to the capacity of a given biologically productive area available to the community. In the case that the ecological footprint is higher than the biocapacity, the society needs more energy sources than available. For example, the ecological footprint of Hungary is 3 hectares per person but its biocapacity is only 2.23 hectares. This means that we consume more than we can produce in the territory of our country. If everyone on Earth lived the way Hungarians do, one Earth wouldn't be sufficient to sustain everyone's life.

Ecological footprint - **biocapacity** = **extra land needed**

Did you know that



- the difference between the countries with the highest and the countries with the lowest ecological footprints is more than a hundredfold?
- you can find a lot of websites on the internet (e.g. footprint.wwf.org.uk) which can help you to calculate your own approximate ecological footprint?





Ranking	Country	Ecological Footprint	Biocapacity	Extra land needed
1.	United Arab Emirates	10.68	0.85	9.83
2.	Quatar	10.51	2.51	8.00
3.	Bahrein	10.04	0.94	9.10
4.	Denmark	8.26	4.85	3.41
5.	Belgium	8.00	1.34	6.66
56.	Hungary	2.99	2.23	0.76
151.	Bangladesh	0.62	0.38	0.24
152.	East-Timor	0.44	1.21	-0.77
153.	Puerto Rico	0.04	0.14	-0.1

hectar/person

Source: Ecological Footprint Atlas 2010

Quiz

The answers to some of the questions below can be found in this publication, the rest though require some research. You can also find the correct answers on DDC's website (www.duna-drava.hu).

1. When did the dodo become extinct? (approximately)

- ☐ a, in Antiquity
- ☐ b, in the 20th century
- ☐ c, at the end of the 17th century
- ☐ d, it isn't extinct



2. In which regions below DOESN'T the Caspian whipsnake live?

- ☐ a, the Villányi mountains
- ☐ b, the Mátra mountains
- ☐ c, the region of Paks
- ☐ d, the Buda mountains



3. When did the Cephalopoda die out?

- ☐ a, the Upper Devonian age
- ☐ b, the end of the Ordovician
- ☐ c, the middle of the Permian
- ☐ d, they still haven't died out



4. What name was given to the baby mammoth, the carcass of which was found by scientists in Siberia?

- ☐ a, Dima
- ☐ b, Grisha
- ☐ c, Leonid
- ☐ d, Robinson

5. When was the suspension bridge on Naszály mountain built?

- ☐ a, in 1974
- ☐ b, in 2008
- ☐ c, in 1888
- ☐ d, we do not know

6. Approximately how many species become extinct on Earth each day?

- ☐ a, 5
- ☐ b, 50
- ☐ c, 500
- ☐ d, none



7. What percentage of fuel used in Swiss and French cement plants is alternative?

- ☐ a, 10-15
- ☐ b, 30-40
- ☐ c, 70-80
- ☐ d, 100



8. What makes the Coelacanthimorpha special?

- ☐ a, they live in both freshwaters and seas
- ☐ b, their fins are like limbs similar to those of the superior vertebrates
- ☐ c, they live in dark caves therefore their eyes have regressed, and they are completely blind
- ☐ d, their tail fins end in round pompons

Did you know that
according to estimates there may be as
many as 100 million species living on
Earth, but we only know of 1.7 million?





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