THE PLATE OF CHANGE

WWF REPORT ON SUSTAINABLE DIETS FOR CENTRAL EUROPE

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About WWF:

WWF is an independent conservation organisation with over 30 million followers and a global network active in nearly 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature by conserving the World's biological diversity, ensuring that the use of renewable natural resources is sustainable and promoting the reduction of pollution and wasteful consumption. As a member of the WWF global network, WWF-CEE exists to promote WWF's mission across seven countries in Central and Eastern Europe. Member organisations include WWF-Bulgaria, WWF-Hungary, WWF-Romania, WWF-Slovakia, WWF-Ukraine and WWF in Czechia. Find out more at wwfcee.org.

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This report is based on research conducted by **Blonk Consultants** in 2023, commissioned by **WWF-CEE**. Please refer to the technical report for a full description of the methods, results and assumptions of this research.

This report is also based on the Eating for Net Zero Report entitled „How Diet Shift Can Enable a Nature-Positive Net-Zero Transition in the UK", prepared by Sarah Halevy and Joanna Trewern, WWF-UK and published in 2023.

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FOREWORD

„Sustainable diets have low environmental impacts. They contribute to food and nutrition security and to a healthy life for present and future generations."

Food and Agriculture Organization of the United Nations 2012

Humankind today faces the triple challenge of ensuring food and nutrition security for a growing population while keeping global warming to 1.5°C and reversing nature loss.

To do this, we urgently need to transform our food system so that it provides nutritious and affordable food for everyone, in line with globally agreed climate and nature targets.

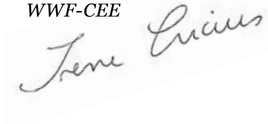
Modern development in agricultural technologies can relieve us from the drudgery of farming and provide most of our expanding human population with access to safe food. Our duty is to ensure that this expansion is accompanied by increased efforts to fully support the health and well-being of all humans and to protect the planet on which human health depends.

This report aims to demonstrate that it is possible to achieve healthy, sustainable diets for our population without deviating drastically from current consumption and without costing more. We also demonstrate how diet shift can play a significant role in achieving national climate and nature targets.

Although in this report we focus on personal dietary patterns and changing individual attitudes to food, we are aware that the shift we need will not happen through individual behaviour change alone. Diets are not just a question of personal preference. Food choices are deeply influenced by food environments: what is available, affordable and accessible and how it is marketed. These factors are determined by governments and businesses and are largely beyond the control of the individual.

We do not call for radical change from the current diets, but rather for all of us to gradually take small positive steps. Shifting to a healthier and more sustainable diet will improve our health and well-being and at the same time it will unlock opportunities to transform agriculture and enable our food system to become a key contributor to a net-zero, nature-positive future.

Irene Lucius,
Regional Conservation Director,
WWF-CEE



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KEY MESSAGES

- **The health of people and the planet are interconnected through our diet.** Aligning diet with Livewell recommendations would be a triple win for climate, nature and people. This creates synergy, linking the health of the planet with our own.

- **Achieving a healthy, sustainable diet for our population while maintaining current standards is possible without costing more.** Livewell is a flexible diet made up of a wide variety of foods. It is plant-rich, includes a moderate amount of meat, dairy products and eggs, and prioritises seafood and freshwater fish, which have a low environmental footprint. Livewell emphasises whole foods and includes only a minimal amount of products high in fat, salt and sugar.

- **Shifting to a healthier, more sustainable diet can unlock opportunities to reduce pressure on the environment and the climate.** Adopting Livewell recommendations could deliver a substantial reduction in emissions and reduced biodiversity loss compared to the current average diet, while also supporting a transition to nature-friendly farming practices.

- **Diets are not just a matter of personal preferences and individual choice.** Food choices are deeply influenced by what is available, affordable and accessible and how it is marketed. Policy changes have to target the food environment, ensuring everyone has access to and can afford healthy, sustainable food rather than relying solely on individual choice.

- To improve our health and the natural environment **we have to rethink our attitude to food:** how we enjoy it, how we compose our diet and plan our meals and what is limiting our commitment to change.

- **Every little change matters! There is no need for anyone to take drastic steps; what is needed is for large numbers of people to take a small step.** With mutual support we can pave the way with minor, positive steps towards sustainability while improving the individual health and well-being.

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ENVIRONMENTAL CONTEXT OF OUR DIET

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The food that we buy, cook and eat every day of the year comes from all corners of the world, but the current global food system threatens the future of the planet. Technological innovations, including the mechanisation of agriculture, artificial nitrogen-based fertilisers, herbicides and pesticides and selective breeding of crop and animal species, have increased yields and reduced the retail cost of food. We now produce more than enough food to feed the world.[1] But achieving this has come at a cost to the climate, the natural environment and people themselves. Now is the time to rethink our approach to food so that it delivers the nutrition people need without putting further pressure on climate and nature.

The way we produce and consume food is among the main causes of climate change and the most significant driver of nature loss, involving a loss of almost 70% of global biodiversity.[2] Food systems are responsible for around 30% of global greenhouse gas emissions[3] and are driving deforestation and habitat loss, soil degradation, freshwater pollution and the destruction of marine life. Today's farming systems are centred on monocultures and depend on artificial inputs, with negative impacts on the natural environment.

Paradoxically, in our efforts to feed ourselves we are destroying the very systems that food production depends on: a stable climate, rich soils, clean rivers and functioning terrestrial and marine ecosystems.

ALIGNING FOOD PRODUCTION AND NUTRITION TO DELIVER MORE DIVERSE DIETS WILL BRING BENEFITS FOR THE CLIMATE AND FOR THE NATURAL ENVIRONMENT.

The world's food is unevenly distributed. The double burden of malnutrition – characterised as the co-existence of under-nutrition alongside obesity – is growing. Almost 40% of the world's adult population is overweight or obese while almost 10% face hunger.[4]

Apart from starvation itself, in 2020 a third of the global population did not have access to adequate food.[5] Although there is no lack of food globally, the rise in hunger is partly due to the spread of plant diseases exacerbated by climate change, leading to crop losses which threaten food security for the most vulnerable.[6]


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On top of this, 36% of crops produced worldwide are used to feed livestock rather than people.[7] In the EU, nearly two thirds of cereal production goes into livestock feed.[8] Using arable land to feed livestock, rather than to feed people directly, means far fewer calories produced in a given area reach the human population.

In general, we use a very small range of foods. Three quarters of the world's food supply consists of just twelve crops and five animal species.[9]

This negatively affects our health and the health of the planet. A monotonous diet causes a decline in the diversity of plants and animals used directly for economic purposes or in connection with them, threatening the resilience of our food system and limiting the range of what we eat. Such a narrowly focused diet does not even ensure a sufficient supply of vitamins and minerals. Food security is threatened by monocultural agriculture, i.e. the repeated cultivation of only one type of crop, and by excessive consumption of animal foods.

Aligning food production and nutrition to deliver more diverse diets will bring benefits for the climate and for the natural environment. The provision of healthy, diverse diets will require greater agricultural biodiversity, facilitating a shift away from input-intensive monoculture systems and restoring soils and nature. By prioritising the production of nutritious food for direct human consumption, we can halt the expansion of new agricultural land and preserve natural habitats. This is vital for minimising biodiversity loss and reaching net zero greenhouse gas emissions.[10]

A shift in diet is essential for achieving this transformation. The latest report of the Intergovernmental Panel on Climate Change (IPCC) demonstrates how a shift to healthy, sustainable diets can deliver „gigatonne-scale" emissions reductions and free up several million square kilometres of land worldwide.[11] Diet shift can help mitigate the impacts of climate change, slow down the loss of biodiversity and prevent an estimated 19–24% of unnecessary deaths globally.[12] Enabling a global shift to healthy, sustainable diets is imperative for relieving the pressure on nature. It would create the opportunity for a transition to regenerative farming and would free up land for nature restoration and carbon sequestration.[13]

HEALTH CONTEXT OF OUR DIET

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DIETARY TRANSITION IN THE CONTEXT OF EUROPE

Although all global regions are dealing with malnutrition issues and an increasing transition towards a western style of diet, Europe has its own specific strengths, weaknesses – and responsibilities.

In contrast to the developing world, for the Central European region (and high-income countries in general) eating healthy and environmentally sustainably means reducing the consumption of animal-based products and increasing the proportion of plant-based food.

THE DIET ADOPTED BY THE MAJORITY OF EUROPEAN POPULATION IS CROSSING THE ESTIMATED PLANETARY BOUNDARIES, MAINLY DUE TO HIGH INTAKE OF MEAT AND OTHER ANIMAL BASED PRODUCTS AND WIDE AVAILABILITY OF ULTRA-PROCESSED FOOD RICH IN ADDED SUGARS, SALT AND SATURATED FATS, ACCOMPANIED BY LOW CONSUMPTION OF BENEFICIAL PLANT-BASED FOOD.

While in many global regions a shift towards a more sustainable diet means sustaining or even increasing the consumption of animal-based food to ensure an adequate intake for all age groups and life stages in the low income context, the opposite applies to high-income European countries. The diet adopted by the majority of the European population exceeds the estimated planetary boundaries. That is mainly due to a high intake of meat and other animal-based products and the wide availability of highly processed food rich in added sugars, salt and saturated fats, accompanied by low consumption of beneficial plant-based food.

The low intake of vegetable, fruit, wholegrain cereals or nuts and other sources of unsaturated fatty acids is a well-known long-term issue increasing the risk of a wide range of chronic diseases.

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As a result, 27% of all deaths in the Central European region are attributable to dietary habits, mostly due to a high intake of salt and a low intake of whole grains and of fruit and vegetables.[14] As dietary preferences in Central Europe significantly burden the health of the population as well as our planet, a clear priority should be to exert pressure for rapid adoption of current dietary recommendations. It should be highlighted that new attitudes in dietary recommendations focus not only on the lowering caloric intake and avoiding certain food groups and alcohol, but also on promoting groups of foods that contribute substantially to improving our overall health and are lacking in our current diets.

DIET AS A MAJOR RISK FACTOR FOR DISEASE

AROUND HALF OF ALL DEATHS IN THE REGION CAN BE ATTRIBUTED TO BEHAVIOURAL RISK FACTORS, WITH DIET BEING THE MOST PROMINENT.

Life expectancy, including healthy life expectancy, is below the EU average in all central European countries. Diseases related to lifestyle - mostly cardiovascular diseases and some types of diet- and lifestyle-related cancers - are among the top reasons for shorter life expectancy in the region.[15] Around half of all deaths in the region can be attributed to behavioural risk factors, with diet being the most prominent. This proportion is higher than the mean for other European countries. Despite the relative lack of detailed and precise data on dietary intake in some countries, it is clear that the diet is not in line with the available recommendation. The population eats more salt than the recommended safe maximum amount. This increases their risk of hypertension and related heart disease. A significant proportion of the population reports that they do not even consume one portion of fruit or vegetable a day. Moreover, the unhealthy habits of adults are also passed on to the next generations. According to an example from Czech HSBC study, while some improvement was recorded in terms of fruit and vegetable consumption among children and adolescents, only 37% of 15 year-olds consume one portion of fruit or vegetables per day, representing a 10% increase since 2014. One fifth of adolescents eat sweets every day and 9% eats crisps more than twice a week. A total of 18% go eat fast food two or more times per month, with the frequency increasing with age.[16]

HEALTH COST OF UNHEALTHY DIETARY HABITS


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Bad dietary habits take their toll on our health. In comparison to other European countries, preventable and treatable mortality is characteristic of the region. Obesity rates, which can be used as markers of a non-optimal nutrient intake among the population, are rising steadily in all age groups. For example, one in four Hungarian adults were obese in 2019 and a similar proportion occurs in Slovakia and the Czech Republic, with available estimates suggesting an increase to well over 30% by 2030 if current trends continue. The proportion of overweight people in the Czech Republic is among the highest in the entire WHO European region.

Higher body fat levels and an unbalanced intake of nutrients by itself are both closely associated with an increased risk of chronic diseases, from general cardiovascular issues and metabolic diseases to 13 types of malignant tumours, including colon, breast, liver, pancreas and ovarian cancer. The life expectancy of obese people is five years shorter than for people in the healthy weight range.

In line with the nutritional health of Central Europeans, ischaemic heart diseases have been the main cause of death for a long time, followed by strokes or diabetes. One of the most common cancer diagnosis in both women and men is colon cancer, the risk of which increases with a high consumption of processed and red meat. Overall, for 2017 46–53% of deaths due to cardiovascular disease, 26–42% of diabetes mellitus type 2 deaths and 7-10% of cancer deaths can be attributed to dietary habits in Central Europe.

The poor health of the population caused by nutrition-related non-communicable diseases also has economic costs. In addition to the direct cost of treatment, indirect costs arise from sick leave, early retirement pensions, social benefit payments and losses due to lower economic productivity. As an illustration, 48,400 cases of incapacity for work and more than 32,000 disability pensions were related to cardiovascular diseases in 2021 alone. According to a McKinsey analysis conducted in the Czech Republic in 2022, the potential for economic benefits in terms of increased gross domestic product is estimated to be in the hundreds of billions. With an improved health condition among the Czech population in the future, 65 year-old Czech people could feel and enjoy the same quality of life as today‘s 55 year-olds.

BAD DIETARY HABITS TAKE THEIR TOLL ON OUR HEALTH. IN COMPARISON TO OTHER EUROPEAN COUNTRIES, PREVENTABLE AND TREATABLE MORTALITY IS CHARACTERISTIC OF THE REGION. OBESITY RATES, WHICH CAN BE USED AS MARKERS OF A NON-OPTIMAL NUTRIENT INTAKE AMONG THE POPULATION, ARE RISING STEADILY IN ALL AGE GROUPS.

MISSED OPPORTUNITY?

The close connection between human health and the condition of our planet is obvious, as is a well-documented relationship between climate change and nutrition and non-communicable diseases. Changes in temperature or humidity are associated with deaths due to cardiovascular issues such as heart attacks or strokes, especially in vulnerable groups like small children or elderly people. Changes in climatic conditions are clearly influencing crop production, potentially threatening both global and local food security.

However, increasing awareness of climate change and its impact on our life can also be viewed as an opportunity for improvement. Existing research identifies several joint benefits of both climate change mitigation efforts and human health. Adherence to a sustainable diet as defined by the EAT Lancet commission in 2019[12] is associated with a lower risk of ischaemic heart disease and diabetes. A global shift towards a sustainable diet is likely to lead to a decline in premature deaths, with estimates suggesting the potential to save 7-11 millions of lives per year. The recommendation to increase the plant-based content of our meals, combined with lower consumption of processed and red meat or added sugars, is fully in line with the needs and preferences of our own bodies.

LIVEWELL

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Livewell is WWF approach originally developed by WWF United Kingdom to illustrate what an achievable healthy, sustainable diet can look like. Its objective is not to create an exact eating plan, but to change basic dietary patterns in accordance to specific individual preferences and personal situations.

The Livewell approach for Central Europe is based on a study conducted by Blonk Consultants, commissioned by WWF-CEE. Through this study, WWF-CEE investigated what a sustainable diet would look like in the context of Central Europe. The diet of adults in the Czech Republic, Hungary and Slovakia were optimised to reduce carbon footprint while meeting nutrient recommendations, not increasing in price and staying as close to the current diet as possible. Additionally, they were optimized to meet the climate target needed to limit global warming to 1.5°C above pre-industrial levels by 2030.

The current diets in all three European countries fall short of meeting national nutritional guidelines. At the same time, the carbon footprint of current Czech, Slovak and Hungarian diets is 5.29/4.51/4.23 kg of carbon dioxide equivalent (CO_2e) per person per day. This far exceeds the thresholds for limiting global warming to 1.5°C and achieving net zero emissions by 2050.

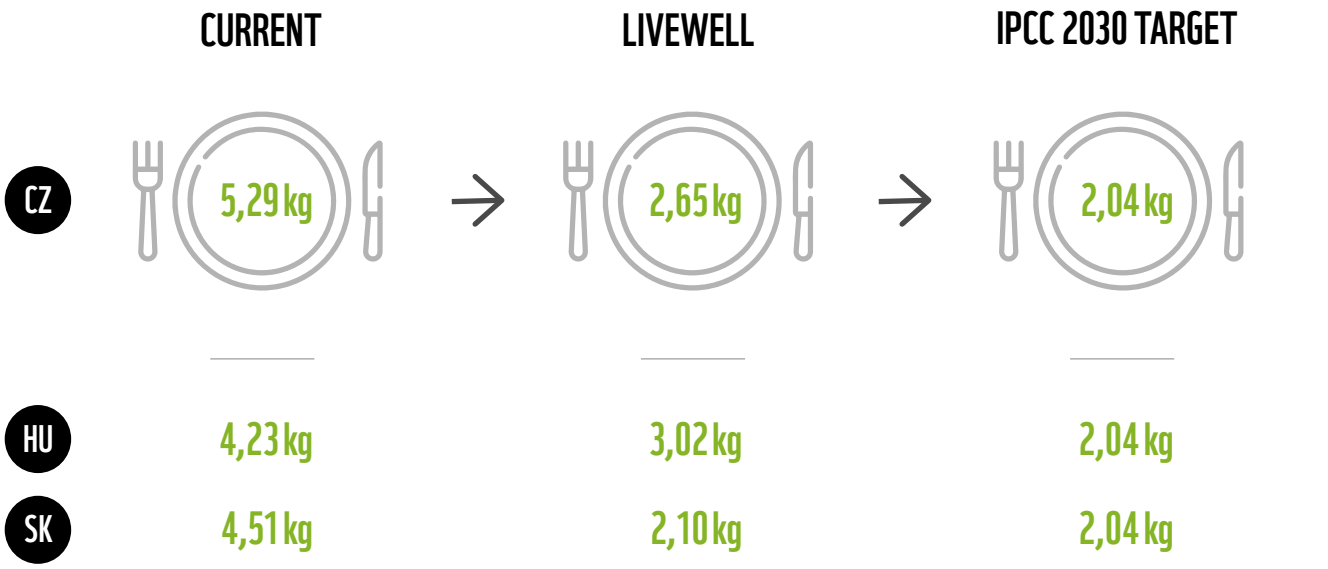
Livewell is a diet that demonstrates how a shift toward healthier, more sustainable diets can play a key role in improving planetary and human health.

THE LIVEWELL DIET IS AN APPROACH DEVELOPED TO ILLUSTRATE WHAT AN ACHIEVABLE HEALTHY, SUSTAINABLE DIET CAN LOOK LIKE. ITS OBJECTIVE IS NOT TO CREATE AN EXACT EATING PLAN, BUT TO CHANGE BASIC DIETARY PATTERNS IN ACCORDANCE TO SPECIFIC INDIVIDUAL PREFERENCES AND PERSONAL SITUATIONS.

This study demonstrates that it is possible to reduce diet carbon emissions to meet the 2030 climate target of 2.04 kg CO_2e per person per day in the three Central European countries mentioned above, while also bringing substantial benefits to the environment. The Livewell diet supports increased consumption of plant-based food. In general, in relation to the current diet, the Livewell diet contains an increased quantity of vegetables and fish to meet national food-based dietary guidelines and a considerable increase in the consumption of legumes and nuts to compensate for the reduction in protein, selenium, phosphorus, niacin, magnesium, iron, zinc, and vitamins B1, B2, B6 contained in animal-based food sources. Meat and meat products are decreased significantly due to their high carbon footprint. Meat can still be consumed, but in much lower quantities (on average 20% of the original diet). Milk and dairy products are also reduced but to a lesser degree - on average by 44% less than the current diet. The quantity of eggs increases as they deliver important nutrients for a relatively low environmental impact.

However, in this report we present a diet scenario that does primarily focus on the climate target, but identifies the lowest possible GHG emission reduction that best balances cultural acceptability, while meeting the nutritional, environmental and affordability constraints. This 'acceptability balance' scenario can be seen as a stepping stone towards a more ambitious diet meeting the 2030 climate target.

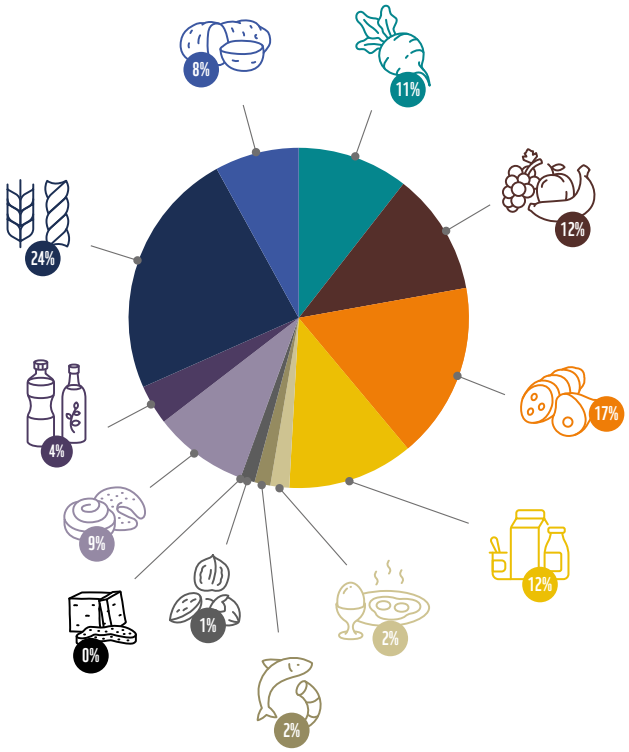
The changes attributable to the Livewell diet can be achieved while ensuring suitable nutrient intakes, as borne out by the fact that we included appropriate macro- and micro-nutrient constraints in our model. For more information, please see „Livewell Method" section.



Journey of changes from current consumption to a 1.5°C aligned consumption pattern. Measured as CO_2e per person per day, using per capita food carbon footprint targets from Broekema et al., 2020.

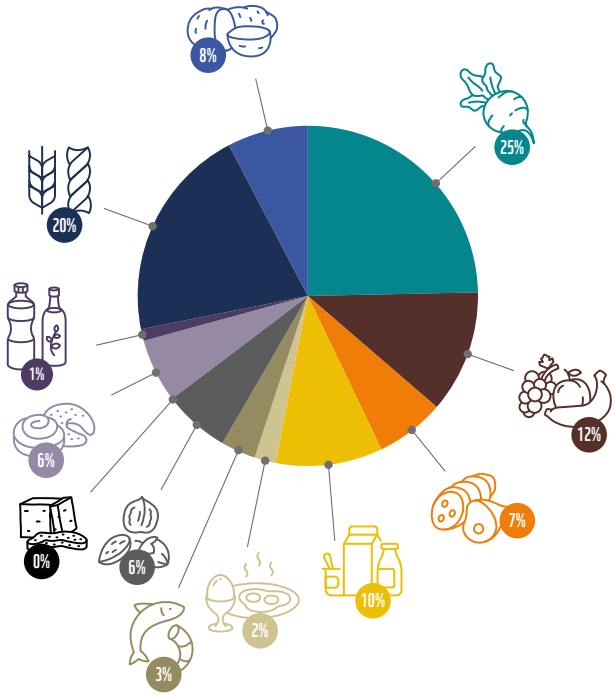
COMPOSITION OF REFERENCE AND OPTIMISED DIETS FOR THE CZECH REPUBLIC (CZ), EXCLUDING BEVERAGES *

Reference diet (CZ)



Optimized diet – Acceptability balance

(2.65 kg CO_2-eq/d)



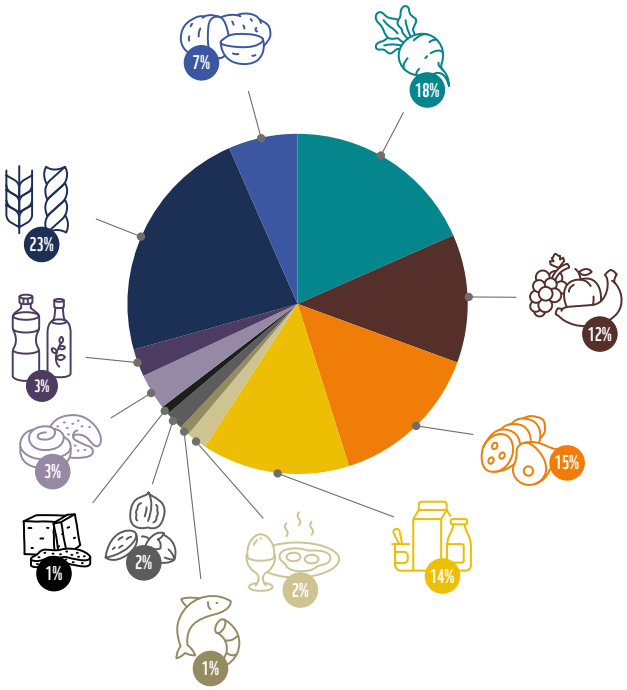
- Vegetables and vegetable products
- Fruit and fruit products
- Meat and meat products
- Milk and dairy products
- Eggs and egg products
- Fish and seafood
- Legumes, nuts, oilseeds and spices
- Meat and dairy alternatives
- Other
- Fats and oils
- Grains and grain-based products
- Potatoes

* The quantity of liquid milk products (in g/d) was reduced by half in the figure. The category 'Other' includes composite foods, sugar and confectionary, and seasonings, sauces and condiments.

The reference diet represents the current average diet based on the available food consumption surveys for each country. The goal of the optimization is to find a diet as similar as possible to the reference diet while satisfying the set of optimisation constraints.

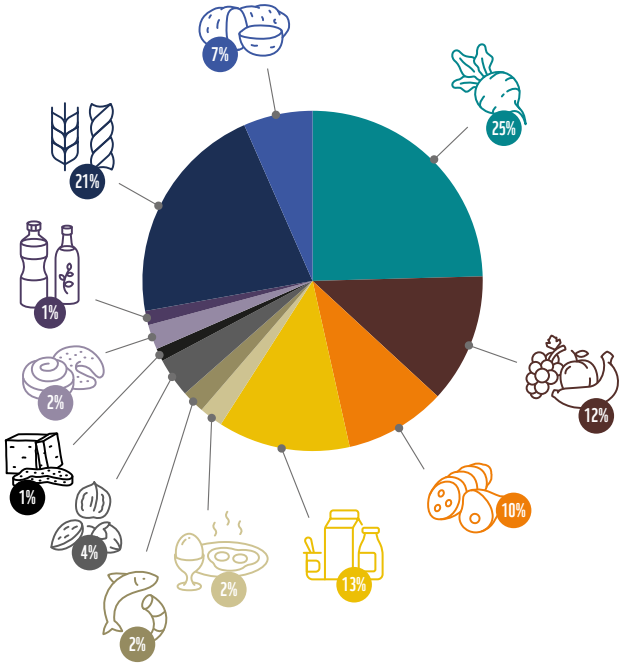
COMPOSITION OF REFERENCE AND OPTIMISED DIETS FOR THE HUNGARY (HU), EXCLUDING BEVERAGES *

Reference diet (HU)



Optimized diet – Acceptability balance

(3.02 kg CO_2-eq/d)



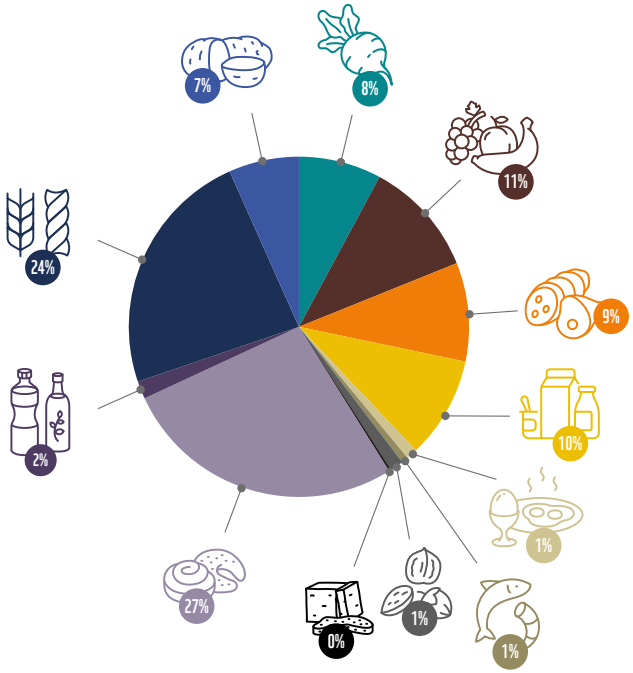
- Vegetables and vegetable products
- Fruit and fruit products
- Meat and meat products
- Milk and dairy products
- Eggs and egg products
- Fish and seafood
- Legumes, nuts, oilseeds and spices
- Meat and dairy alternatives
- Other
- Fats and oils
- Grains and grain-based products
- Potatoes

* The quantity of liquid milk products (in g/d) was reduced by half in the figure. The category 'Other' includes composite foods, sugar and confectionary, and seasonings, sauces and condiments.

The reference diet represents the current average diet based on the available food consumption surveys for each country. The goal of the optimization is to find a diet as similar as possible to the reference diet while satisfying the set of optimisation constraints.

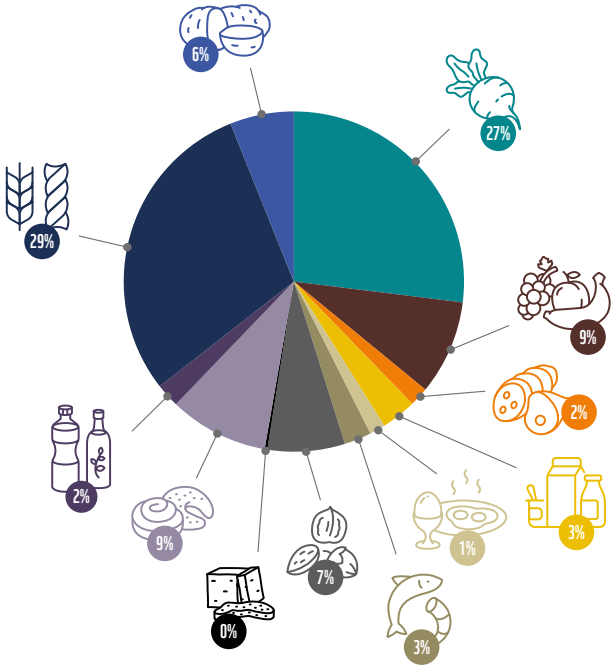
COMPOSITION OF REFERENCE AND OPTIMISED DIETS FOR THE SLOVAKIA (SK), EXCLUDING BEVERAGES *

Reference diet (SK)



Optimized diet – Acceptability balance

(2.10 kg CO_2-eq/d)



- Vegetables and vegetable products
- Fruit and fruit products
- Meat and meat products
- Milk and dairy products
- Eggs and egg products
- Fish and seafood
- Legumes, nuts, oilseeds and spices
- Meat and dairy alternatives
- Other
- Fats and oils
- Grains and grain-based products
- Potatoes

* The quantity of liquid milk products (in g/d) was reduced by half in the figure. The category 'Other' includes composite foods, sugar and confectionary, and seasonings, sauces and condiments.

The reference diet represents the current average diet based on the available food consumption surveys for each country. The goal of the optimization is to find a diet as similar as possible to the reference diet while satisfying the set of optimisation constraints.

DETAILS OF CHANGES

VEGETABLES AND FRUIT

Vegetables and fruit should constitute the basis of our diet. They are a good source of fibre, which is vital for good digestive health and offers a wide range of health benefits including lower blood pressure and a reduced risk of stroke, heart disease and cancer.[17] Plant-based food also brings substantial environmental benefits: lower diet-related emissions, reduced water use, less land cleared for agriculture and reduced fertiliser use.[18]

Vegetable and fruit consumption should increase substantially in our diets. Only a minority of Czechs, Slovaks and Hungarians eat the recommended five portions of vegetables and fruit a day.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LEGUMES AND PULSES

The current proportion of legumes in our diet is significantly smaller compared to the nutritional recommendations for the Central European region. Increasing legumes and pulses in a more plant-based diet can compensate for the reduction of protein, selenium, phosphorus, niacin, magnesium, iron, zinc, and vitamins B1, B2, B6 from animal-based food sources.[19] From an environmental point of view, producing legumes and pulses means less greenhouse gas emissions, while at the same time fixing nitrogen in the soil, improving soil health and storing carbon.[20]

The Livewell diet recommends a substantial increase in the consumption of legumes and pulses in comparison with the current diet.


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ANIMAL-BASED FOOD: MEAT, MILK AND OTHER DIARY PRODUCTS, EGGS

In the Central European region, we are accustomed to eating large amounts of meat, especially red and processed meat, leading to many health and environmental risks. High consumption of red and processed meat, for example, increases the risk of colorectal cancer.[21] Dairy foods including milk, yoghurt, butter and cheese are valuable sources of protein, calcium and other vitamins and minerals including iodine. However, we have to be aware of the environmental impact of these products. Approximately 60% of agricultural greenhouse gas emissions are due to livestock farming (of which 60% is attributable to cattle farming).[22] Globally, only 48% of the cereals grown in the world are eaten by humans, with 41% eaten by farmed animals and 11% used as biofuel.[23] Meat, dairy and egg production uses up more water and land and emits more greenhouse gases than plant production.[24]

The Livewell diet recommends substantial reduction of the consumed amount of meat and meat products. Complete removal of processed meat from the diet is also strongly recommended. On the other hand, it recommends an increase in egg consumption as they deliver important nutrients for a relatively lower environmental impact.

FISH AND SEAFOOD

Fish and seafood are an important part of our diet. Oily sea fish are high in long-chain omega-3 fatty acids and a good source of vitamin D. However, to avoid exacerbating impacts on fish stocks and marine habitats, it will be crucial to ensure that fish and seafood are sourced sustainably or at least with a lower footprint. The ecological footprint of fish varies significantly depending on the place and the fishing method. WWF has published guides for various EU countries and types of fish (available here).[25] With regard to the geographical location of the region, a good choice of freshwater fish species (e.g., trout, catfish, bighead carp) should also be made.

CEREALS AND CEREAL-BASED PRODUCTS

Cereals are an important part of our nutrition. They are an important source of energy and dietary fibre and also provide protein. Whole grains contain starch and protein, variable amounts of fibre, B vitamins and other micronutrients that are most concentrated in the germ and outer layers of the grain.[26]

As mentioned above, as a plant-based food they exert a lower environmental impact to produce[27], making them a healthy and sustainable option.

The grains and grain-based (wholegrain) products have an important place in the Livewell diet.

FOODS HIGH IN FAT, SALT AND SUGAR AND ULTRA-PROCESSED FOOD

Foods high in (especially saturated) fat, salt and sugar are not needed for a healthy diet. Livewell recommendations involve minimising their consumption. In the Central European region the population consumes too much sugar and saturated fat. Replacing products high in fat, salt and sugar with more nutritious foods including fruit, vegetables and whole grains would improve health outcomes and ensure that scarce natural resources are only used to produce nutritious foods.

Ultra-processed food, i.e. industrially produced products that are ready to eat or warm up[28], are characterised by poor nutritional quality[29], excessive calorie intake and an increased risk of obesity.[30] There is abundant evidence that eating more minimally processed plant foods and fewer products high in fat, salt and sugar is healthier and reduces non-communicable diseases including heart disease, diabetes and some cancers[31]. Ultra-processed foods also have a significant negative impact on the environment due to industrial, input-intensive production practices and their dependence on standardised monocultural commodity ingredients produced on a large scale.[32]

Livewell encourages a change to a healthy, sustainable diet which favours natural whole foods. More broadly, it seeks to drive a fair transition towards sustainable production methods and land use that work with nature rather than pursuing technologies such as limited crop species and intensive monocultures, which can have negative impacts on health and the environment.[33] This will not be achieved without placing farms and fisheries at the very core of these changes and ensuring they are properly supported through this transition.

HOW WILL WE GET THERE?

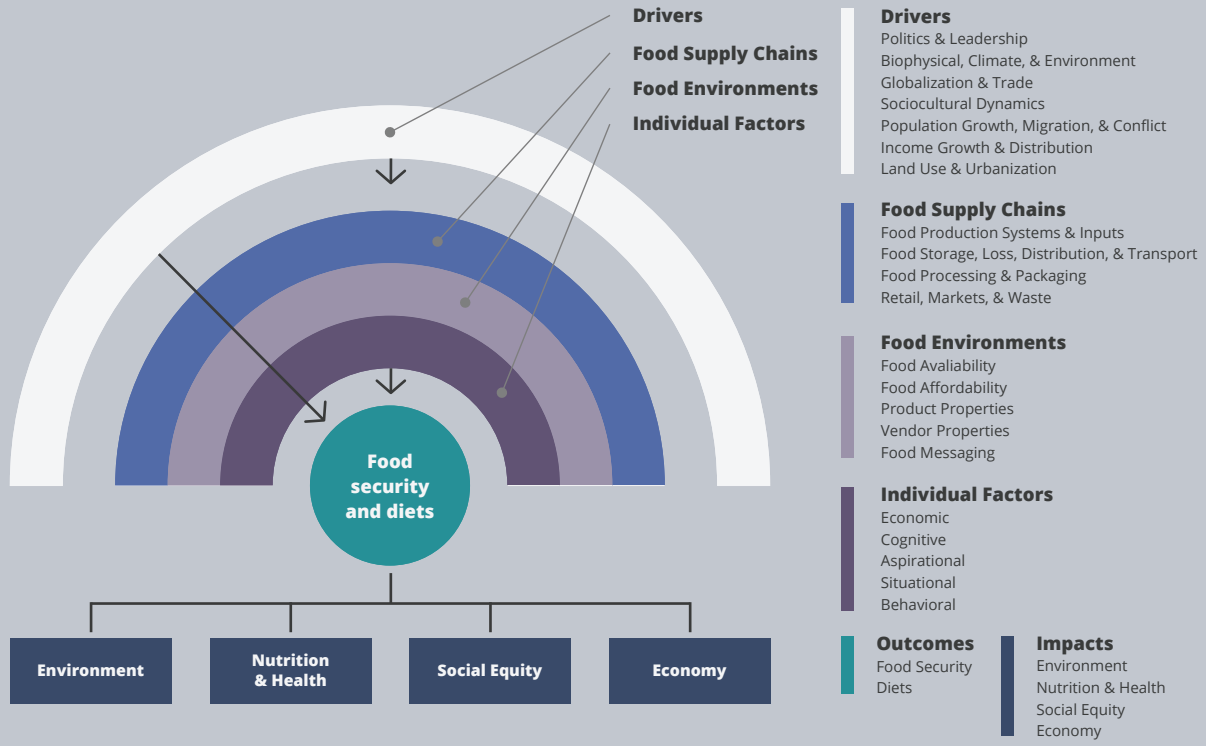
BUILDING BETTER FOOD ENVIRONMENTS

Diets are not just a question of personal preference: food choices are deeply influenced by what is available, affordable and accessible and how it is marketed.

We have long been reassured that in our circumstances our dietary choices are entirely a matter of individual decision and healthy eating merely requires our own will-power and consistency. At the core, this is true. However, our environment influences us with varying degrees of force depending on numerous factors, both barriers and enabling factors. **When we are aware of them, we can better control them**.

BOX 1: THE SCIENCE BEHIND FOOD ENVIRONMENTS AND SUPPORTING SUSTAINABLE AND HEALTHY DIETS (FOR ADVANCED INFORMATION SEEKERS)

Dietary habits and a shift towards a sustainable diet involve the interaction of an individual with the general food environment. Behavioural scientists are looking for answers to questions such as „How do we develop our eating habits, what kind of actions support our motivation and what are the barriers to long-term continual improvement?“ For example, the project named “PLAN’EAT - Food System Transformation towards Healthy and Sustainable Dietary Behaviour” is currently bringing together 9 European countries to address this issue systematically. Assessment data on the entire food system of each participating country that forms the diets of the population are collected under the „Food System Dashboard“[34] project.



Source: The Food Systems Dashboard.[35]

INDIVIDUAL GROWTH

We do not need a big step from anybody; we need a small step from everybody.

Pave the way with small positive steps and keep the direction towards sustainability while improving your own health and well-being

The quality of our diet, our physical activity and mental health are interconnected factors that drive our well-being in a self-reinforcing manner.

All three factors take us either up or down, with a strong synergic effect. Overeating and unhealthy food can sometimes bring us short-term pleasure and relief, but at a high cost: first to our health, then to our social relations and to the environment. On the other hand, healthy and sustainable food choices improve our physical health and energy levels.

The key is to know how to jump into the upward spiral and how to avoid the downward spiral.

We recommend following several basic principles that could help you:

1 **There is not one universal standard model for nutrition and sustainability.** These are only general recommendations based on the available findings. Everyone has to find what kind and what amount of food is right for them and their situation.

2 **Take into consideration your age, health status and level of activity.** Apart from education and socioeconomic status, these factors play an important role in food choices in terms of quantity and the ratio of macronutrients.

3 **Monitor Your Progress and Adjust.** Keep track of your progress and how you feel during the transition. If you find it challenging to moderate your meat intake, be patient with yourself and adjust your plan as needed. The key is to find a balance that works for you and your lifestyle.

4 Changes in lifestyle and food choices are **continuously changing**, often in connection with important life changes. Avoid radical steps; give priority to gradually rebuilding your eating habits and overall lifestyle.

5 **Occasional deviation** from a sustainable and healthy pathway is acceptable, but it is important to return to the road as soon as possible and without guilt.

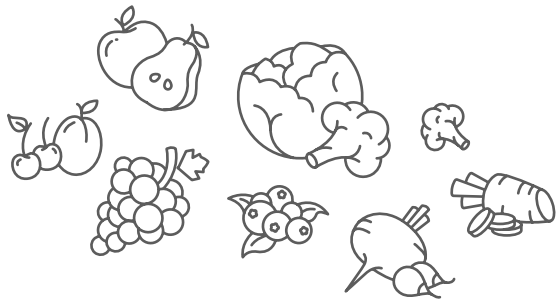
6 **Plan for emotionally difficult situations**. Try to limit access to unhealthy snacks and food at your home or call a supportive friend. The power of emotions is well-researched[36] and everyone should find their **own successful strategy** to overcome such situations.

7 **Always plan ahead, but especially at busy times and when travelling.** Even in these situations, it is possible to explore new approaches to healthy and sustainable diets.

8 **Educate Yourself.** Start by learning about the principles of a balanced, sustainable diet and the benefits of incorporating more plant-based meals into your weekly plan. Understanding the environmental, health, and ethical reasons behind this choice can motivate you throughout the transition.

9 **Enjoy your food! Make it a pleasure and be mindful. And ... be curious!** Fast food and a culture of snacks, together with ultra-processed time-saving food production through massive marketing campaigns entices us to fast and effortless enjoyment and easily accessible, but nutritionally inferior food. Do not let the real joy of food be taken away. There is no shortcut to well-being and health and life is full of amazing tastes!

All the steps mentioned above are **easier with the support of your family or community.** A motivated community and involved family members are always a benefit. At the same time, this support helps to develop understanding for others, who may not be as quick to change or not as lucky with a supportive environment.



BOX 2: MYTH BUSTING: THE IMPORTANCE OF LOCAL SPECIFICS[37]

Although the research behind sustainable diets has reached a consensus on many global issues, we should be aware of the local context. These are some common myths based on global observations but not adjusted to the local context.

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MYTH 1: LOCAL PRODUCTION IS ALWAYS MORE SUSTAINABLE!

Reality: Not always. It depends on the local context. The simple rule is to eat local fresh foods during its traditional season. Some of our local food supply chains, however, are highly industrialised and not all producers are environmentally responsible with regard to food storage and processing. Certification, preferably based on a life cycle assessment, can provide a basic overview of this complex issue. (see Box 3).

MYTH 2: WE SHOULD ALL STOP EATING MEAT!

Reality: We do not have to. Eating meat is not the main environmental and health problem. The real problem is the over-consumption of meat. In Europe, we produce more animal products than we consume, and we consume more than is good for us. To sustain the oversized livestock sector, we feed more than half the grain crops we grow to livestock, while our intensive agricultural practices damage biodiversity, soil health and the climate.[38]

MYTH 3: MEAT PRODUCTION IS BAD FOR OUR PLANET.

Reality: Not always and not everywhere. Central Europe has a long livestock farming tradition and many places can actually benefit environmentally from sustainable grazing by cattle. However, our current approach to meat production and consumption has devalued its traditional role in our landscape. It is not currently possible to produce such quantities from well-managed, naturally occurring ecosystems alone. This will become increasingly problematic with the growing global population.

MYTH 4: DO NOT EAT EXOTIC FRUITS AND VEGETABLES FROM DISTANT COUNTRIES.

Reality: It is not so simple. We often focus too much on the emissions caused by shipping of the exotic fruit and try to avoid eating it. However, emissions from food transport are on average less than 10% of total global emissions. This is not much when compared, for example, with how the crop is produced. Transport emissions are certainly important, but refraining from buying an avocado from a supermarket to which you drive instead of walking or biking does not improve the sustainability of your diet.

MYTH 5: IF I DO NOT TRAVEL BY AIR, I CAN EAT AS MUCH MEAT AS I NEED.

Reality: There is no trade-off between the impact of travel and meat consumption. No matter how large or small, every sector needs to reduce its current emissions and avoid any future increases if there is to be any chance of solving the climate and biodiversity crises. There is no fixed “environmental budget” for each of us. We are already in the red, our planetary thresholds have been exceeded and we have to change our consumption in many areas before we reach the lost balance between what we consume and what keeps our planet and our natural environment safe.

BOX 3: HOW TO RECOGNISE A SUSTAINABLE PRODUCT

Your choice of any product is just one link in the complex webs of supply and demand that affect every corner of the planet.

Be a conscious consumer!

- Know where your food comes from: ask grocers, butchers and fishmongers how they source their products;
- Support businesses which are transparent about their ingredients and where they come from;
- If a company refuses to use sustainable ingredients, think about buying a different brand;
- If you are eating fish or meat, try to understand what the animal was fed; you are what you eat;
- Buy food which is certified as sustainable;
- Support small and local farmers and make sure you are paying a fair price.

CERTIFICATION

Most of us do not personally know our food producers or suppliers and their practices for most of our food. Certification systems can help you to get your bearings more easily. National or regional certificates guarantee not only the quality of the product itself, but certain standards for the whole production process.[39] For example, we recommend Bio, Rainforest Alliance, MSC and ASC certification.

LIFE CYCLE ANALYSIS

Look for the Life cycle assessment (LCA) studies to get an idea of how sustainable various kinds of food production could be. This complex approach monitors the food production and supply chain throughout the whole food production and supply system. The results vary for every specific food type or even on a product level until it reaches your home and on other factors. Significant care should be exercised when comparing LCA results from different studies, or inappropriate conclusions may be reached.

A sustainable diet is flexible. You can customise it according to your preferences and needs. The goal is to gradually shift your focus towards more plant-based foods while still allowing yourself the occasional enjoyment of meat and other animal-based products. Over time, you will probably notice positive changes in your health, energy level and general environment as you embrace a more plant-centred eating pattern.

LIVEWELL METHOD

WWF-CEE commissioned Blonk Sustainability Tools to undertake the analysis underpinning this report to identify sustainable diets for adults from three Central European countries: the Czech Republic, Hungary and Slovakia. To create these diets, Blonk used diet optimization software Optimeal®, a tool that applies mathematical diet optimization techniques to simultaneously reduce the environmental impact of the diet and meet all nutritional and price requirements while staying as close to the current diet as possible.

The analysis introduces three optimized diet scenarios: 1. Nutrient Adequate, optimised for nutritional guidelines (both nutrient intake and food-based dietary guidelines); 2. Climate Target, optimised for nutritional guidelines and climate change target for 2030, while also limiting all the other environmental constraints, and the cost of the optimised diet to that of the reference diet; and 3. **Acceptability Balance, the scenario identifying the lowest possible GHG emission reduction that best balances cultural acceptability, while meeting the nutritional, environmental and affordability constraints.** This scenario is presented in this report.

Blonk Sustainability Tools conducted the research using the best available data. The basis for the current diets in this study comes from dietary survey data that was compiled by the European Food Safety Authority (EFSA) in the EFSA Comprehensive European Food Consumption Database[40]. Summary statistics of food consumption data reported in grams/day were retrieved for the adult population (aged 18-64 years) from the most recent survey available in Czech Republic, Slovakia, and Hungary. EFSA food classification system FoodEX2 hierarchy level 3 formed the basis for creating the reference diets and was adjusted using lower or higher hierarchy levels to better take account of both environmental and nutritional diet dimensions. When improved data becomes available, WWF-CEE will look to repeat this dietary analysis. Nutrient composition data was obtained from country-specific food composition databases .


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Nutrient and food group constraints were applied to ensure that the optimized diet was nutritionally adequate and aligned to country-specific food-based dietary guidelines. These constraints were derived from a combination of country-specific nutrition recommendations, EFSA dietary reference values and tolerable upper intake levels for vitamins and minerals. To ensure the dietary changes proposed in the Livewell scenario are realistic, the range of change within any food group was restricted – no less than 33% of current consumption levels, and no more than 150% of current levels, unless nutritional requirements demanded greater change. A maximum constraint was applied to food products equal to the 99th percentile of consumption. Price was also added as a constraint to ensure the cost of the modelled diets would not exceed the costs of current average consumption.

Environmental impacts of all food products in the reference diet are determined using the life cycle assessment (LCA)

methodology, according to ISO 14040/ 14044 standards[41,42] and calculated following the ReCiPe impact assessment method[43]. This means that the full life cycle is considered in the calculation of the environmental impact of the food products: cultivation, processing, transport, assembly, packaging, distribution, retail, consumption and waste treatment. The final life cycle stages, from distribution to end-of-life, were modelled according to defaults provided by the Product Environmental Footprint[44] methodology. As no dedicated LCA food database is available for the Central and Eastern European (CEE) region, the Optimeal EU database[45] was the main source of environmental data, which contains nearly 160 food products representable for the average European market. The dataset was adapted to make it more specific to the CEE region by creating a CEE 'market mix' and adapting other background processes (e.g., electricity, water, etc.).

The environmental impact was assessed against a number of indicators – carbon footprint, greenhouse gas emissions including land-use change, land occupation, water use, acidification, freshwater eutrophication, marine eutrophication, and biodiversity loss. This study primarily focuses on carbon footprint, as it is imperative to reduce GHG emissions associated with the diet to ensure global warming does not exceed 1.5°C. We explored several GHG emission reduction scenarios and applied constraint on six other environmental impacts so that they would not increase.

To keep warming below 1.5°C, overall global greenhouse gas emissions need to be reduced to net zero by mid-century. The analysis in this report is based on food systems emission targets for 2030 and 2050 derived from the IPCC global carbon budget allowance for ensuring alignment with 1.5°C. These targets, translated to per capita food carbon footprint allowances, are 2.04 kg and 1.10 kg CO2e per person per day by 2030 and 2050 respectively[46].

The optimized diet presented in this report identifies the lowest possible GHG emission reduction that best balances cultural acceptability, while meeting the nutritional, environmental and affordability constraints. We also looked into more ambitious dietary changes needed to meet the IPCC climate targets for 2030 and 2050 while meeting nutrient, acceptability, and price constraints, however these results are not presented here. More detailed methodology can be found in the technical report.

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