

**Can a suicidal civilization be saved?**

**Do our children and grandchildren have a right to a future?**

**Below I demonstrate, using Poland as an example, that it is possible to simultaneously take care of the climate, protect biodiversity, enjoy healthy food and not die of starvation.**

The fight to save humanity from climate catastrophe focuses primarily on reducing greenhouse gas emissions. In sectors such as electricity and heat generation as well as energy-intensive industrial installations, the decreases in emissions are clear, sometimes reaching tens of percent. The electric vehicle manufacturing industry is also expanding and renewable energy production is growing quite rapidly. China, on the other hand, because of its growing energy deficit, wants to put 250 GW of coal-fired power plants into operation within a few years. To put this into perspective, this is how much energy Germany consumes.

Many scientists are sounding the alarm that the progressing **devastation of the environment caused by industrial food production is particularly dangerous for our tomorrow**. It is estimated that if one takes into account the entire area related to food production i.e. the production of the necessary energy, fertilizers, agricultural production, farming, processing, and transportation, food production generates about 35% of the total human-induced greenhouse gas emissions. This translates into annual greenhouse gas emissions of 18 billion tons of CO<sub>2</sub> equivalent. It should be noted that the main emitter of greenhouse gases is industrial animal breeders. To make matters worse, it is projected that if we maintain the current consumption pattern, the demand for meat could increase by as much as 80% by 2030 (mainly in China). Within a few years, food production will provide more than 50% of greenhouse gases. Since in many sectors of the economy emissions are falling and renewable energy is growing, it might even reach two-thirds! In this context, it is important to note that the process of animal husbandry emits mainly methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Methane produces 26 times the greenhouse effect of carbon dioxide and nitrous oxide as much as 265 times more.

Currently, the world consumes 320 million tons of meat annually, including 61 million tons of beef. It should be added here that 850 million tons of milk are also produced. The number of livestock reaches 60 billion animals, and since we waste 20% of meat, this means that 12 billion animals are thrown away annually. In 2030, we will breed about 108 billion animals.

It is estimated that 70-75% of the world's agricultural land is used for animal production and growing crops for fodder. It is worth mentioning here that meat provides us with only 20% of our nutritional needs. Also, It should be noted that the production of beef and milk are particularly troublesome. It turns out that the production of 1 kg of beef emits 36.4 kg eq. of CO<sub>2</sub> into the atmosphere and uses 40 tons of water.

Animal farming also contaminates land and groundwater. Fodder production requires huge doses of chemical fertilizers and pesticides. We're depleting our land and degrading the environment. According to FAO, 20% of pastures are degraded lands. FAO has also identified the livestock sector as the largest source of ocean pollution.

In addition, factory farming requires always-increasing use of antibiotics.. Nightmarish rearing conditions give rise to the number of diseases, and antibiotics are also accelerating meat weight gain. A dangerous side effect is growing drug resistance in humans consuming meat. In Poland for example, this affects 300,000-500,000 people a year. What's more, drug-resistant bacterial and viral strains proliferate and spread in meat industry waste.

So, if we do not reduce meat consumption, we have a disaster on the horizon, especially since certain negative factors add up or rather reinforce each other. E.g. cutting down tropical forests for fodder, oils, etc. strongly reduces the absorption of CO<sub>2</sub> by trees. Industrial food production kills biodiversity. According to experts, the loss of biodiversity is a measurable loss for the global economy. By 2030, the economy could lose as much as \$2.7 trillion a year if we continue to destroy biodiversity. Perhaps nature will cope and find a new state of equilibrium, but there may no longer be room for humans there.

But let's move on to constructive proposals. The urgent matter is to reduce the consumption of animal protein in favor of plant protein. Yes, the digestibility of plant protein is somewhat lower and it does not contain certain components important for human organisms. However, I am talking about reducing meat consumption, not elimination. After all, for the production of meat we consume 75% of the agricultural area, and in return we have 20% of the needed nutrients. It is important that in the production of plant protein, we use 10 times less water and emit far less greenhouse gases. Moreover, plants absorb CO<sub>2</sub> to varying degrees. Finally, to obtain 1 kg of animal protein, the animal must consume 6 kg of plant protein. Let's practice the proposed solution on the example of Poland.

### **What is the state of affairs?**

Poland produces about 5.3 million tons of meat and imports about 0.7 million tons. Current consumption per person per year is 79 kg, which means that we more or less consume and export 3 million tons each. We produce almost 15 million tons of milk, of which we export about 2 million tons. In turn, greenhouse gas emissions in CO<sub>2</sub> eq. amount to more than 400 million tons/year. The share of greenhouse gases from the entire food production cycle is 35%, or 140 million tons in Poland. In fact, it is much more, as our country's meat production is 7 times larger in relation to the area of farmland than the world average, and milk production is 6 times larger.

### **What is my idea?**

If the WHO recommends that we reduce meat consumption to 25 kg /person /year, and that meat and milk production devastate the environment, then their production should be limited to our needs. For ethical reasons, it is necessary to zero out imports as well. The above means reducing meat production from 5.3 million tons to 0.95 million tons and milk production by about 15%.

### **Gains and Losses**

What will be the balance of changing the economic process on such a large scale?

## 1. Losses:

- A positive foreign trade balance for meat and dairy in excess of €5 billion per year.
- Loss of jobs in gradually liquidated industrial food production companies. However, since we have a labour shortage, this should not be a problem.
- Loss of income for many industrial food companies. After all, however, there will be EU funds available to restructure companies and change the production profile to a less controversial one (e.g. Green Deal).

## 2 Gains:

- The greenhouse gas emissions will fall by at least 100 million tons/eq. of CO<sub>2</sub> and therefore we will earn 8.5 billion euros (€85 /ton/eq. of CO<sub>2</sub>) on emission rights.
- Assuming 75% of the agricultural area is used for livestock production, we will recover no less than 60% of the farmland, or more than 8 million hectares (14.26 million hectares x 0.6), which equates to one-fourth of the whole country's area! We can allocate such a huge area to the production of plant protein and many other seeds that are beneficial to humans and less harmful for the environment. It can be estimated that in Poland it takes about 2 hectares of agricultural crops to produce 1 ton of meat, while the efficiency of plant protein production is at least 10 times higher.
- The above means that we can exploit farm fields less intensively and use less fertilizers and pesticides. This, in turn, will allow small and medium-sized farms to regain profitability. It is worth mentioning here that the production of organically raised beef (grass instead of concentrated fodder seed, freedom instead of a cage) results in a 40% decrease in greenhouse gas emissions and 85% less energy consumption. It also means an opportunity to decisively improve the quality of meat, not just beef.
- Production of 1 kg of beef requires between 15 - 60 tons of water, and for other livestock we use between 5 - 20 tons. Thanks to lower meat production levels, we will also save from 50 up to 100 billion tons of water annually. If we cover the entire country with such levels of saved water, the thickness of the H<sub>2</sub>O layer will be 15 - 30 cm. That's a lot if you consider that our freshwater resources are 3 times lower per capita than the EU average. Let's add that in the production of plant protein, water consumption is at least 10 times lower.
- Poland ranks 2nd in the EU in terms of the use of strong antibiotics in animal husbandry, which leads among other things to drug resistance. The presented proposal will make it possible to radically reduce this unsafe practice and therefore reduce drug resistance of our citizens.
- The "production" of waste from animal husbandry will also be significantly reduced (by no less than 6 times). Waste is a breeding ground for new bacterial and viral strains which degrade the environment.
- Undoubtedly, the quality of air, land, and water will increase and nature will revive. Of course, our health will also be better off.

I also made **an estimate of the effects** of the proposed solution, if it were to be introduced across the European Union. With the consumption of meat of 25 kg per person, per year, production of meat should decrease 4 times, from 44 to 11 million tons per year. As a result, greenhouse gas emissions will decrease by at least 720 million tons of equiv. CO<sub>2</sub>, ie 18% of total EU emissions, and we will save more than 400 billion tons of water annually. We will also recover over 90 million hectares of agriculture land (above 50%), which can be

used for the production of vegetable protein and many other food products, beneficial for humans and less harmful to the environment.

**Petrification of the status quo is a guarantee of an increasingly poorer quality of life, and when the end will come, we don't know.**

The EU's Green Deal strategic programme is being launched. It will promote the development of plant protein production at the expense of animal protein. It also assumes reducing the use of chemicals by 50%, fertilizers by 20% and antibiotics in animal husbandry by 50% by 2030. There will also be funds there to implement what I am proposing. This is an opportunity for small and medium-sized farms, as well as villages and small towns. We have an opportunity to radically change what annoyed scientists are rallying around - that a catastrophe is coming from the fields and industrial barns.

### **False alternative**

In this context, the letter of former Polish agriculture ministers to the President of the European Commission Ursula von der Leyen, that the world is in danger of famine and the war in Ukraine increases this risk, and therefore the European Green Deal should be frozen for a while, is astonishing. After all, if it takes 6 kg of plant protein to produce 1 kg of animal protein, then the Green Deal, which strongly encourages the reduction of animal protein production in favour of plant protein, should be accelerated. **And the ratio of 1 to 6 shows the way to protect against hunger and, in the process, save the climate and the environment.**

Maybe an economic calculation will help to persuade people to follow this idea. A sound economic calculation of industrial food production is necessary. Let's count not only direct costs, but also the indirect costs of environmental devastation, loss of our health, or bad eating habits. This is undoubtedly difficult. **I decided to take the first step and treated a cow like a coal-fired power plant.** In both cases, there are large-scale greenhouse gas emissions. Buying out the right to emit CO<sub>2</sub> eq. for the production of 1 kg of beef will cost 14 PLN (36.4 kg of CO<sub>2</sub> eq. x 0.085 euros = 3.1 euros/kg of beef), which means that on this account alone its price should double. Introducing the proposed solution for beef production alone, we raise 1.75 billion euros a year from CO<sub>2</sub> emission rights (RP produces 565,000 tons of beef). This is a sizable source of funding for the necessary changes. The other costs that need to be taken into account are much larger. **This forces politicians and consumers to think seriously.**

I realize that such far-reaching changes in the food production process and consumption patterns require a reconstruction of the economic system and a large-scale educational campaign. Scientists are sounding an increasingly loud alarm that we have very little time to act. So let's do it as quickly as possible, because after all, everyone wins, both consumers and producers of healthy food, as well as animate nature. Industrial food producers will lose, of course, but they too have consciences.

I based my research on sources that are difficult to reach, and my calculations might include some minor inconsistencies, however, I believe that possible inaccuracies or even

divergent data do not cast doubt on the key conclusions. In addition, I omitted fish and seafood from my analysis. We know that here, too, cases of industrial farming devastating the environment are multiplying. The way this text was constructed, the choice of arguments were intended to encourage thinking, to seek constructive solutions, or at least to irritate the reader. It is dangerous to be blissfully calm or to believe that nothing can be done.

I emphasize that the following alternative is untrue: either the climate, a healthy environment and healthy food or a satiated people. We face a different choice: either we are attached to our consumption model and lifestyle and are involuntarily heading for disaster, or in a disciplined and consistent manner, at least reduce our consumption of animal protein in favour of plant-based protein. We should be motivated by the knowledge that in this way we are saving the good tomorrow of our children and grandchildren.

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