

Open Letter to Elon Musk from a Mother of One

by Lucia Tamburino

Dear Elon,

You puzzle me. I'm sure that you are very clever but I can't reconcile this with your claims about human population, which, no offense, do not make much sense.

A possible explanation of course is that your claims are correct, I just presume they are not because, in fact, I am the one who is wrong. But this explanation is not very convincing either. I have got a pretty solid background, with two degrees with honors in Mathematics and Natural Sciences and a PhD in Ecology, and even more relevant, I specifically studied the population-resource dynamics. On this particular topic, my expertise is likely greater than yours.

Moreover, most ecologists in the world agree that Earth is in ecological deficit and the 9 identified planetary boundaries for safe human resource use are all already transgressed or well on the way to being [1, 2, 3, 4]. Population is not unrelated to this: all humans need water, food, materials, food needs land to be produced, land on Earth is limited (and even more on Mars), so it's clear that the more people there are, the less land is available for each and the greater the pressure on the environment. This is not rocket science, just common sense.

Scientific consensus anyway is not lacking: in the 1992 **Warning to Humanity**, signed by more than 1,500 scientists, population growth is indicated as a main driver of the current environmental crisis [5]. Even if in the following years, population issues became increasingly sensitive and eventually ended up being almost a taboo [6, 7], the message of the first Warning was reiterated in the **Second Warning to Humanity** in 2017 (signed this time by more than 14,000 scientists) and then again in 2020, in **World Scientists' Warning of a Climate Emergency**, signed by more than 11,000 scientists [8, 4]. In 2022, the IPCC released the most recent report on Climate Change. Although in the summary for policy makers, political correctness prevailed and population conveniently disappeared, in the technical report population growth is identified as one of the major drivers for GHG emission increase [9].

All this suggests that overpopulation is the true problem, not imminent population collapse, as you seem to believe.

The strange dissonance between perceptions and projections

Someone could argue that among policy makers, media, economists and even some demographers, the big concern today is population collapse, while overpopulation is no longer seen as a problem. But consider a couple of things.

1. Neither journalists nor policy makers are ecologists. Too often, they forget that humans are living on a finite planet where resources are finite and, even when renewable, they can be-

come exhausted if consumed faster than their regeneration rate. Too often, they forget that, like any other population, humans depend on natural resources and healthy ecosystems. Like it or not, the deterioration of natural ecosystems has heavy consequences on humans. Pollution affects health and life quality, climate change makes extreme events more likely, water shortage threatens crop reliability, Tesla cars are great but clearly not enough to mitigate GHG emissions. And you, Elon Musk, too often forget that the colonization of *other planets* is not imminent enough to relieve the pressure on *this* planet.

2. There is a startling dissonance between perceptions and demographic projections. If instead of focusing on words, you look at numbers and graphs of the models that demographers themselves develop, you never find a collapse, not even in South Korea, which is the country with the lowest fertility in the world. What we find is that South Korea's population will slowly decline over the next decades reaching 38 millions by 2070 [10]. This is not a collapse, actually is more than the South Korea's population in 1970. And back then, nobody in South Korea was complaining about a shortage of human beings. On the contrary, they were worried about the opposite problem!

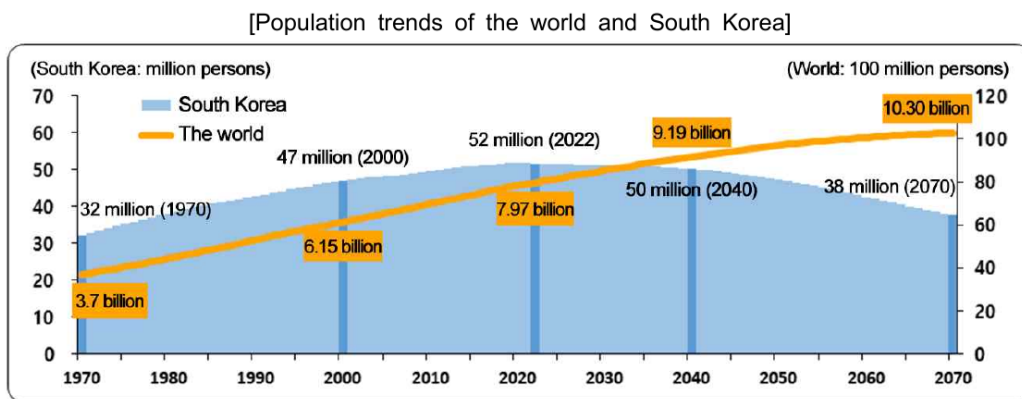


Figure 1: Source: Population Projections of Statistics Korea (for South Korea) and World Population Prospects of the UN for the World [10].

Also consider that the current 52 million of South Koreans are packed on a surface of about 100 thousand square kilometers, much of it steeply mountainous. By comparison, Sweden's surface is more than five times larger, with a population five times smaller. And I assure you that many of us here in Sweden already start feeling cramped. Actually many countries that are now facing a demographic decline are highly densely populated and suffer from chronic problems of traffic jams and air pollution. In many ways, a population decline would be a relief, not a problem!

Of tigers and men

When looking at the projections for the whole world, the fear for a collapse is even more ridiculous. Under the median scenario in the UN's 2024 population projections, the peak will be reached somewhere between 2080 and 2090, then population will start declining but very slowly [11]. Only **under the bizarre and unrealistic assumption** that fertility will immediately fall by half-a-child in every country, and remain half-a-child below projected levels, does the 2100 population decline to 7 billion, which is still a huge number. How can you call this a "collapse"?



Figure 2: *Panthera tigris altaica*, aka Siberian tiger. Fewer than 600 remain in the wild.

Sometimes, I wonder if people mistook *Homo sapiens* for Siberian tigers or another endangered species. If so, it would make sense to worry because Siberian tigers already are on the verge of extinction, any small drop in fertility could be fatal. But we are talking about *Homo sapiens*, the initial conditions are completely different: Siberian tigers = <600; Humans = 8.1 billions and counting. The difference is 7 orders of magnitude! And since you studied differential equations, you know very well that **initial conditions matter!**

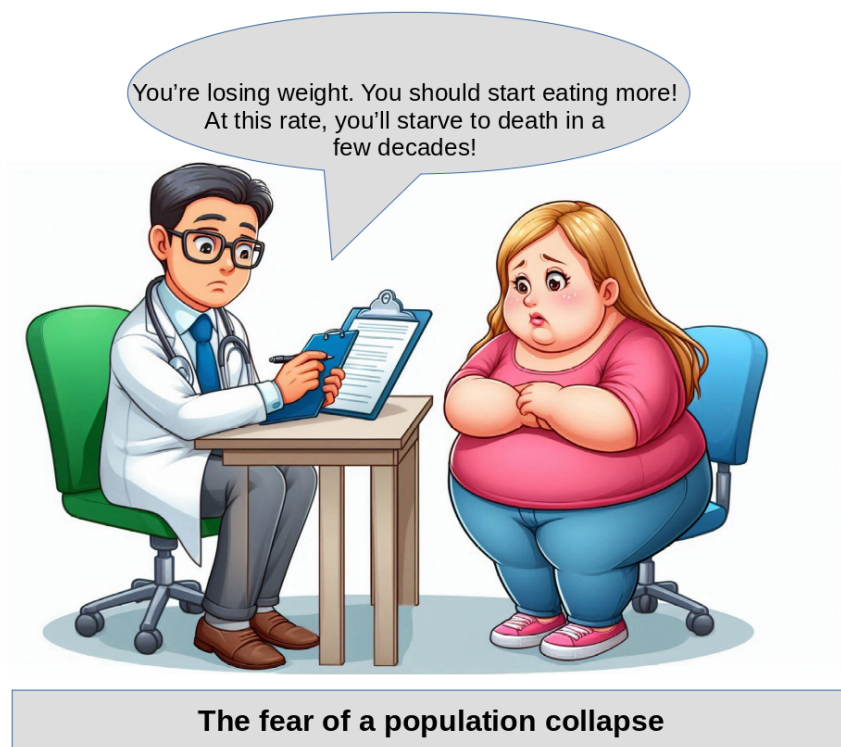


Figure 3: Illustration by Lucia Tamburino with the help of AI

If a very thin woman on the verge of anorexia is losing weight, of course we should worry. But imagine now an obese woman who finally starts losing weight. Instead of being happy with this result and encouraging her to go on, her doctor recommends she eat more because “*at this rate, in some decades you will waste away and die*”. What would you think about this doctor? A good doctor with great foresight?

The main difference between this example and our world is that the “*obese woman*” called Humanity has not started losing weight yet: the human population is still increasing at the rate of 70-80 million a year. And contrary to what many people think, it’s increasing practically everywhere, not only in the group of low-income countries but also in the groups of middle and high-income countries. In absolute numbers, the growth is larger in middle countries, which are also responsible for the majority of GHG emissions [12].

A better vision

I do not deny that fertility decline and consequent aging populations can raise social and economic challenges. But while the consequences of ecological overshoot are potentially catastrophic, the aging-related problems can be much more easily faced and solved [13].

You know better than me that cars can perfectly drive themselves nowadays, likewise robots can easily do other works. As an anonymous internet user observed: *half of the people today are terrified that declining population means we won’t have enough workers to do the work; the other half are terrified that AI and robots will take all the jobs and we will have a lot of people with no jobs.*

If only they could communicate with each other!

I suspect that, at least in some cases, the very people who at one moment fear a shortage of workers are the same who, at another moment, fear a surplus of unemployed. Maybe they are not good at seeing connections or maybe they just fear changes and want to keep the world as it is. Many live in the past, completely unable to imagine something different.

But you, Elon Musk, you are a visionary by definition! I’m sure you can imagine a world with a bit fewer *Homo sapiens* and some more Siberian tigers. A world with more robots and AI alongside more forests and wildlife. A world where humans can enjoy the beauty of nature, the services of healthy ecosystems and, at the same time, the benefits of advanced technology. Doesn’t it sound magnificent?

And don’t worry: you could still go to Mars, if you like! Actually, a world in balance with its natural resources would have more margin to invest in visionary projects like space exploration.

And Mozart?

Another statement — attributed to you and Jeff Bezos — puzzles me even more: “*If we had a trillion humans, we would have at any given time a thousand Mozarts and a thousand Einsteins*”. Do you really think that the probability of having Mozart and Einstein depends on the number of people? If that were true, we should expect that the more populous a country, the higher the number of notable artists and scientists. This is not what we observe in the real world.

In the real world, as the biologist [Richard Dawkins](#) observed once, a small group of people with the culture of commitment and hard work produces more scientists and Nobel prizes than about two billion people with the culture of war and submission. And we see that a small country like Sweden (10 million people) produces more music than the most populated country in the world, India (1.4 billion people).

I'm **not** arguing that Indians are not talented in music, just that **talent is not enough**. You also need education, culture, mindset, a vibrant environment that gives people the possibility of cultivating their talents and, even more important, you need equipment, tools, infrastructures! Mozart had the opportunity of playing clavier since he was three years old, but there are many children who do not have such an opportunity.

Look for instance at the children of [this man](#) from Chad. He chose to have 10 children even though he was poor and didn't send any of them to school. In the interview, he was not even able to recall the precise age of his own children, nevertheless he declared: *"If she [my wife] had given me only two children, I would have taken a second wife — if I'd had the money"*. And: *"It's a matter of pride to have a big family. Lots of children help you."* He probably sent his children to work in the fields, factory or mine when they were still very young, which is unfortunately very common in certain societies. Other societies are even worse: children are seen as potential [martyrs](#) or [fighters](#). Even if some of those children had the talent, how could they become a Mozart?

We don't need more people, Elon. We already have and will still have in the future all the people we need. What we need are better parents, responsible parents who don't choose to have more children than they can provide with a happy life. We need cultures where children are universally seen as creatures to be loved, not as tools to help the family, increase the male status or to be sacrificed in religious wars.

The spreading of such a culture of love and responsibility is a goal that is worth investing in! The goal of countering a non-existing population collapse is not worth wasting your time and resources, Elon. Don't you agree?

And while waiting for the new Mozart, we can always enjoy [David Bowie](#)!

Sincerely,

Lucia, Mother of One



Figure 4: An image from the movie *The Martian* with the soundtrack of *Starman* by David Bowie.

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