Members of our species,

Yes you.., you are all *Homo sapiens*: one of the most innovative but also invasive species this planet has ever known. It's time for some serious self-reflection, and then action! We live in an era of rapid change: ecologically, economically, politically. I hope to convince everybody, including you, in a positive way that our best course of action is to actively participate in these changes. Transitions are both scary and exciting at the same time. Change frightens many people, but it also offers unexpected opportunities. Let's make the most of those.

Whoever studies the enormous diversity of life on this planet will realise that everything is connected. Biodiversity is far more than the variation in species: it is the diversity in shape and function, and from gene to landscape. Ecologists study how this diversity arises, how organisms interact and evolve, what their function is within the ecosystem, how they adapt to a constantly changing environment, and how the entire system changes in space and time. Ecology is not a simple discipline. Nothing is more complicated than a constantly changing complex system of living organisms interacting with their environment. An ecosystem that we humans are a part of, and therefore dependent on as well. However, by now we increasingly seem to be doing the opposite, with ourselves supremely dominant and destructive in the driver’s seat... The facts cannot be denied. The loss of biodiversity is shocking, as evidenced by the damning figures in the recent IPBES report. This report also contains alarming facts about extensive land degradation. And the recent IPCC report sternly conveys just how important sustainable land use that maintains living, biodiverse soils is for food production and climate mitigation. At the same time, we are witnessing the impact of intentional forest fires in the Amazon. How could things have got so out of hand?

Even though the family business Nature plc with its 3.8 billion years of R&D ran quite happily without us, *Homo sapiens* as an arrogant newcomer established its own company. And so humans have begun to navigate an economic course that is at considerable odds with the family's standards and values. *Homo sapiens* Ltd disregarded the old traditions of Nature plc, such as closing cycles, using solar energy, ensuring enough diversity, collaboration, following long-term strategies, using scarce resources responsibly, et cetera. In its linear economy, it no longer returns used raw materials to the family capital but instead destroys these because in accounting terms that is viewed as "profitable". Whatever is needed for the business processes comes from the family "free of charge", and *Homo sapiens* simply leaves the family to pay for the costs of rubbish and damage as well. True pricing? No way. Private profits, public costs. Company profits are booming, the sky's the limit, and there's only short-term vision with huge executive bonuses as a reward. *Homo sapiens* Ltd greedily consumes the family business’s capital instead of limiting itself to the interest. In other words, a Ponzi scheme: *How to turn Old Capital into No Capital*. Bernie Madoff received a life sentence for it.
Surely Nature plc must have picked up the warning signs? Yes, it certainly did. Although, initially, the family was quite tolerant, at a certain point, it began to hurt badly and various parts of the family business suffered damage. Nature plc took measures and unleashed its real primordial forces for the first time. The power of negative feedback! From that moment onwards, life was made very difficult for Homo sapiens Ltd. Now it had to tidy up its own mess and repair things that were broken. Wow, that proved to be really expensive! And there was a lot that Homo Sapiens Ltd could not solve at all because it lacked the necessary expertise. That expertise could only be found among family members, but, you've guessed it, they refused to help. And so things became a real mess. Production costs rose, raw materials became increasingly inaccessible, and the turnover dropped. Furthermore, there was a huge gap between the top earners in Homo sapiens Ltd, who continued to enrich themselves, and the rest of the workforce, the masses. Protests became increasingly louder: social unrest. In some places, war broke out with large refugee flows as a result. Revered institutions collapsed... The crisis was everywhere.

A parable... but on 29 July 2019, it was Earth Overshoot Day, the day on which worldwide we had already consumed the earth’s supply of raw materials for one year. In the Netherlands that day fell even earlier, namely on 4 May. Whatever you think of the calculations, the signal remains abundantly clear. Our economy is a destructive glutton.

And every day we hear and see the consequences of this deviant economy. And because everything is interconnected, just like in a natural system, the consequences are not just ecological, but social and political too. Besides growing disquiet about the loss of biodiversity – "landscape pain", "where have all the insects gone?", "who can still say he has heard a black-tailed godwit recently’?" "why are we chopping down those forests?"– we also see social disquiet about many other aspects of our guzzling economy: the increasing income inequality, the political influence of big money, the large companies and their tax avoidance, the excessive influence of globalisation and market forces. Society seems to have lost its trust in the neoliberal economic system of the past 30 years. Governments are struggling with their own directive role and politics is being reduced to single-issue parties. Everyone is fighting for his or her own interest and judges are being called upon to protect the environment. Juridification, distrust and fake news are flourishing. Is anybody still enjoying this?

Up to a certain point... I am! After all, these are exciting times begging for a transition, and as a born optimist and long-term thinker, I'm all for that. Two young Chinese researchers once wrote the word crisis for me in their own language: with two characters. One of the characters represents danger and the other opportunity. Because a crisis always creates opportunities: room becomes available for reform and innovation. After all, if we are to live on this planet with nine, perhaps even ten, billion people, then we will have to flawlessly integrate our Homo sapiens economy into that of Nature plc. Then we will need to work with nature instead of against it. So we must gather knowledge about that natural economy.

To be honest, everybody needs such knowledge. It's becoming increasingly clear that many important social problems and human-induced problems are correlated, and we now know
how: environmental pollution, the energy crisis, climate change, water shortages, scarcity of raw materials, overpopulation, and loss of biodiversity and healthy ecosystems. So solutions will also require an integral approach because in an interconnected system, turning one dial will unavoidably result in an effect elsewhere.

An integral approach is a huge task that many are hesitant to take on. But what we really need goes a step further still... That is a genuine system change. Then we are no longer talking about turning dials but about a completely new design, rewriting the blueprint. Oh! How on earth can we do that? And are enough people convinced that this is urgent enough? Or do we simply wait until the whole issue boomerangs? I don't think the latter is an attractive strategy, but perhaps it is the only way. In other words, we wait until the current economic system with all of its negative effects causes its own downfall. And now that doesn't seem to be such strange prediction after all!

Ecologists such as C.S. Holling and Marten Scheffer have shown interesting parallels between the dynamics of ecological, social and economic systems. All systems have repeated cycles that consist of a slow, quite predictable growth phase and an unpredictable and rapid decline phase. Although innovations can become established in the growth phase, at that stage they are still suppressed by the dominant established order. After the crisis, they can realise their full potential and the cycle of building up and breaking down begins again.

You can probably fill in the parallels, if I give you an ecological example. Pioneer species establish themselves somewhere in a vacant new area and via a slow process called succession—a change in the species composition—this leads to an established living community with a limited number of highly efficient dominant species. However, due to that dominance, the system becomes rigid and loses its flexibility. The system has become vulnerable. A major disruption, such as a severe drought, leads to mortality. Gaps appear in the community and that creates opportunities for new species.

Such a cycle of building up and breaking down can also be seen in the paradigm shifts within science, the dynamics of companies in developing markets and social crises in society. In his book *The Invisible Hand?*, economic historian Bas van Bavel also applies ecological models. In a review of world history, he describes the fatal cycles of the rise, prosperity and decline of market economies. And how the dominance of an economic elite, which owns the vast majority of the capital, initiates the decline from within: according to Van Bavel we are once again in the middle of such a decline...

The model of C.S. Holling that I just referred to, Holling died in August at a ripe old age, predicts that reform is always associated with trial and error, a period of chaos and wild innovation. This is because the problem can be so complex that no solution is immediately available. In such turbulent times, individuals have the greatest opportunity to exert influence and to shape the future. A fine example is Gandhi—but, unfortunately, less splendid examples abound.

Help, what's the next step? Of course, we can simply wait for the emergence of an enlightened dictator, but that's hardly the Dutch way of doing things. Instead, we prefer to seek consensus.
But will our efforts to stem the tide actually achieve anything? Back in the late Middle Ages, the Dutch successfully strengthened the dykes by working together. In the battle against the water, people organised themselves from the bottom-up and that is how the water boards came into being in the 13th century, the oldest democratically elected administrative bodies in the Netherlands. The famous Dutch consensus model was born. It came with the necessary dose of administrative chaos, but it kept everybody’s feet dry and not just those of the privileged few.

Broad collaboration therefore seems to be a typical Dutch invention... Perhaps we should continue to cherish this in the absence of anything better. However, I propose we do things differently from now on. Namely, with a clear point on the horizon. I believe that point is now visible and scientifically supported too: the only future-proof goal is a sustainable economy that stops sucking Nature plc dry and instead collaborates on conserving and restoring it. But how do we set about doing that? Let me give you three concrete tips:

**First: Gain inspiration from nature.**

Be inspired by the wise lessons from Nature plc and make use of the rich R&D databank with 3.8 billion years of experience. Embrace innovations based on the same blueprint. Such as closing cycles to eliminate waste and conserving valuable raw materials. After all, nature has no waste as, ultimately, something is always food for something else.

Circularity is a tried and tested ecological concept that the current ambition of a circular economy is based on. It is applicable in all sectors that make use of raw materials, from consumer goods to urban development and agriculture. But worldwide, we still have a long way to go. Because only 9% of our world economy is circular! Just 9% of the 92.8 billion tons of materials, fossil fuels, metals and biomass that enter our economy are reused each year. Those figures come from the second *Circularity Gap Report* that the Dutch organisation Circle Economy presented in January at the World Economic Forum in Davos.

We can also look to Nature plc for our necessary energy transition. There the sun is the most important source of energy. In one hour, the earth receives more solar energy than we use worldwide in a year. Use the light, the heat everywhere; make solar fuels. There are more than enough opportunities to innovate because here the sky really is the limit. We could have made efforts in this area far earlier instead of wasting billions of euros in public funding on perverse subsidies for combusting valuable biomass – which releases an awful lot of CO$_2$. We simply need to close the biomass stations and use that subsidy money for all innovations based on solar energy. Or as Ad van Wijk and his fellow authors so aptly put it in their book: ‘Solar Power to the People’.

The most critical lesson from nature is probably the importance of diversity. Diversity is the absolute basis for life. Why? It makes it possible to adapt to new situations and to spread risks. If the environment changes, then diversity ensures that a winner always emerges. Monocultures are an open invitation for pests and diseases. Biodiversity – and with that, the numerous associated small mutual interactions – makes systems resilient so that they can take a knock. Things are very different though in our economy, which is based on a short-term vision and a far-reaching uniformity for the purpose of efficiency. The key to the future is diverse – and
therefore flexible—systems that can adapt. Economic, but also social, diversity is, parallel to the ecological diversity, a condition for the evolution of usable innovations, structural changes and the transition to a sustainable society.

**Secondly: Work together.**

Build creative coalitions. Create support for working with nature instead of against it so that the natural capital can once again grow. Embrace the often unpredictable bottom-up initiatives of pioneers who seek change and want to do things differently. That is vital for each transition.

For example, we are currently working in a broad societal coalition for the recovery of biodiversity in the Netherlands: on farmland, in public spaces and in nature reserves. The Delta Plan for Biodiversity Recovery. This was initiated by ecologists who were fed up of merely standing on the sidelines and shouting that all is not well with the world. They therefore invited farmers, nature and environmental organisations, banks and companies to jointly find a way of realising an attractive biodiverse Netherlands. A land in which we can successfully combine sustainable food production, flourishing nature reserves and the use of public space with the recovery of biodiversity. The Delta Plan initiators are now busily conveying this positive vision to a broad mix of other societal stakeholders, government bodies and the general public. This is because the Delta Plan for Biodiversity Recovery is a vision for everybody. It is the vase in which a thousand flowers can blossom. It forms the backbone, and embraces the many fantastic local initiatives already present in urban and rural areas. I see it as consensus model 2.0 or possibly even 3.0, in which we jointly continue to seek synergy. Towards $1 + 1 = 3$, rather than the old way of thinking, which prescribes that everybody has to give up something. It is a new social contract with the key question: what will you do to give land users the possibility to recover biodiversity? Have you already joined us?

Realising new revenue models is one of the success factors from this Delta Plan. The achievements of land users, such as farmers, to recover biodiversity should be rewarded both socially and financially. That can be done through the creative accumulation of rewards: for example, by paying a slightly higher price for products, reducing the interest on loans, a lower land lease price, reducing water board levies, a biodiversity fund for switching to a different type of business operation, a transition from products to services and other societal solutions. Just think how many parties could contribute to that! Including you! Together we will create the new normal.

**Thirdly: Think in terms of systems!**

In other words, adopt an integral and coherent approach. For example, the recovery of biodiversity is not an isolated activity but is connected with societal challenges, such as climate change, providing prospects for the future for farmers, and creating an attractive rural area. But it also includes fitting the energy transition into the landscape and satisfying international obligations in the area of nature and the environment: such as the important quality of the soil, water and air.

The evolution of the water boards has already shown the way: an area-specific approach is vital. Nobody can realise biodiversity recovery alone. After all, the various types of land use in
agriculture, nature and public space influence each other. Indeed, we could also put that to good use by searching for synergy, for mutual positive influence. I foresee the exchange of land between land management parties who are united in regional corporations. A sort of land parcelling, but now with the aim of realising an optimal design of an area for all of its purposes. Then variation in the water level will be possible: at one location agrarian products with a variation in crops, with further up a wetland area for nature, et cetera.

Such an integral approach for complex issues requires connection, looking over the fence, working with people who have different ideas, and understanding partners with other interests. And don't forget: the social aspects. Is everybody still on board? Or is it simply an elite game?

An integral approach to sustainability is also needed in our future-oriented education system because every profession can make a contribution to sustainability. This is patently obvious in agricultural education, for example: we need to get rid of the one-sided focus on monocultures and the maximisation of production. Instead, we need to move towards integral knowledge about the functioning of ecosystems, the value of biodiversity and how we can optimally collaborate with nature. A good start is connecting all levels of tertiary education, as described in the Green Deal Nature-Inclusive Agriculture.

So regardless of their role, the message for everybody is:

1. Gain inspiration from nature
2. Work together
3. Think in systems

An example. The movement around the positive recovery of biodiversity has now reached the financial sector and enlightened it too. Of course that is vital, because we all know the influence of this power block. Many companies depend on biodiversity and healthy ecosystems, and investors therefore run risks if companies fail to devote attention to this. This subject is receiving growing national and international attention. The Sustainable Finance Platform has now established a Workgroup Biodiversity, whose members are drawn from banks, insurance companies, asset management companies and pension funds. Here the level of ambition is high too. Because this workgroup will not just focus on counteracting the negative impact of companies on biodiversity. Also—or rather—it wants to focus on contributing to a positive impact. Transparency with reliable, comparable data is, of course, vital for this. How exactly do you measure the positive impact of companies on biodiversity? There’s still plenty of work to be done!

And the financial world can do far more still. For example, it is high time to link the various cash flows. Recovering biodiversity is a long-term process. Investments are needed if we are to see any results. That requires venture capital. Because innovations always entail risk. Pension funds are not prepared to take that risk yet. I propose that the government partly cover those risks with funds from a new Ministry of Quality of the Living Environment, which would also make concerted international efforts to realise legislation in the area of true pricing. This would require an honest accounting system that includes the actual cost to society. That means
considerable upheaval for the current economy, but then at least we would get a system with strong foundations instead of one built on quicksand...

For each transition, the following applies: reward the front-runners, persuade the peloton to shift forwards and let underperforming free riders be taken out by the support vehicle. That requires an incentivising and coherent legislation based on knowledge and a broadly supported long-term vision. As we speak, we are in the middle of a discussion about the failed nitrogen policy. This also demands an integral approach together with other societal challenges, such as climate change adaptation and transition, by searching for synergy. This Sustainable Speech from the Throne offers the government the point on the horizon: make use of it!

And if we look at the government's role... that is clearly changing too. The desperately needed integral approaches form a considerable challenge for governments. Furthermore, bottom-up movements with broad societal support, such as the Delta Plan for Biodiversity Recovery, view the government merely as a partner, without the directive role and final responsibility. The government is, however, called upon to provide the frameworks and new legislation, and to make financial investments. So does it have a sort of collaborating foreman role? Governance experts refer to it as an incredibly interesting governance innovation. But it takes some getting used to, especially for our politicians in The Hague!

Whatever role the government plays, coherent policy is vital. It would be fundamentally wrong for us to adopt high sustainability standards for ourselves in the Netherlands but to turn a blind eye as a trading nation. Our welfare and well-being largely depend on the use of land in other parts of the world. There where the variety of life on earth still really flourishes. The government should therefore take responsibility for the entire chain: from origin to market. And that includes the enormous quantity of goods that we merely transfer. Then we won't have to spend any development cooperation funding on mitigating the negative side effects of our own trade missions.

Moreover, the Netherlands has a superb chance to clean up its act on the world stage. And that should be done via the Sustainable Development Goals. We currently score particularly badly for biodiversity – and, but that's another subject, gender. Could the Netherlands really play a leading role again? In the twentieth century, we still used to be a trailblazer in the area of the environment. One such example is our worldwide success with innovations in horticulture, such as the transition from the chemical to the biological control of insects in the 1970s. A feat we can still be very proud of. Now we are dangling at the bottom of the European lists. For example, we are no longer the smartest kid in the class when it comes to sustainable energy, air quality and pesticide use, but the dirtiest.

Pessimistic?

No, I remain positive. I expect that, from now on, sustainable innovations will no longer be suppressed but embraced by society, industry and the government. A system change is taking place from maximising production to optimising all of the functions together, which is both socially just and economically lucrative. Just think about it: if we can produce food sustainably
in a densely populated country like the Netherlands while at the same time allowing biodiversity to flourish, then we will have the number one product to export to all metropolises in the world. And we will be genuinely working on a future that will not easily exceed its sell-by date.

Nature is a political and economic mentor, as Thomas Friedman once so beautifully said in his fascinating book "Thank you for Being Late". A book in which he also used all of Mother Nature's characteristics as an example for achieving an adaptive society. After all, it’s the only way.

*The family rubbed its hands with glee because they observed a process they were thoroughly familiar with: evolution by natural selection! Within Homo sapiens Ltd, a new variant had emerged that could flourish under the miserable circumstances in which the company found itself. One which had rediscovered the standards and values of Nature plc. At first secretly, and later publicly, this variant sought contact with the large family and voraciously learned from old aunts and uncles. And it started a spin off...*

So eventually *Homo sapiens* evolved into *Homo sapiens circular*.

Dear members of our species, in my view, the glass is now half full. Let's fill it up sustainably to the brim!

Thank you for listening.

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