extinction rebellion

NEDERLAND

DEMANDS THAT THE DUTCH GOVERNMENT

ACTS NOW

TO HALT BIODIVERSITY LOSS

AND REDUCE GREENHOUSE GAS EMISSIONS

TO NET ZERO BY 2025

IN A JUST AND FAIR MANNER

SUMMARY

Extinction Rebellion NL demands of Ductch National Government DOE WAT NODIG IS om biodiversiteitsverlies te stoppen en verminder de uitstoot van broeikasgassen naar netto nul in 2025. Doe dit op een rechtvaardige manier.

WHY IS MORE RAPID ACTION NECESSARY?

- In the Paris Agreement on Climate Change, the United Nations is pursuing efforts to limit global warming to 1.5°C by 2100. The risks to water/food supplies as well as human health and livelihoods are already present at 1.5°C global heating and greatly exacerbated at 2°C.[1,2]
- We are already seeing the detrimental consequences of 1.1°C heating, and a further 0.6°C degrees heating is estimated to be still in the pipeline due to climate lag.[3]
- We should focus on avoiding global heating as much as possible, not just in 2100. Overshooting temporarily increases the risk of setting off tipping points such as dieback of the Amazon rainforest. Some of these tipping points prelude self-reinforcing climate change.[4]
- Considering these facts and the reality that we are currently tracking close to the worst predictions of the IPCC (RPC8.5), we are unlikely to remain under 2°C global heating.[5]
- The specific measures of the climate agreement are insufficient – also when considering the goals of the Paris Agreement - because even the conservative target (i.e. 48,7 megaton) is unlikely to be met.[6,7]

NET ZERO: OFFSETTING VS. DECREASING EMISSIONS

- The government should aim to reduce emissions as much as possible. Leftover emissions may have to be compensated for by negative emissions through carbon offsetting techniques.
- Carbon offsetting techniques have significant technical and ethical drawbacks. A number of major uncertainties need to be resolved, including the physical constraints on natural carbon sinks, including sustainability of large-scale deployment relative to other land and biomass needs, such as food security and biodiversity conservation[8], and the presence of safe, long-term storage capacity for carbon[9].
- Carbon offsetting techniques can delocalize emissions cuts towards the poorest countries because emission compensation is cheaper in there.[10]
- The focus should be on cutting emissions instead of offsetting.[7]

ECONOMIC INTERESTS VS. PROTECTING THE PLANET

- There is no empirical support for the notion that 'green growth', where economic growth is decoupled from rising emissions, is possible. This means the goal of economic growth is incompatible with the goal of cutting emissions.[11]
- A degrowth perspective of maximizing well-being and reducing consumption and production is more conducive to the goal of carbon neutrality in 2025.

HOW WILL WE GET TO NET ZERO BY 2025?

- The Netherlands should join a growing number of cities and countries, such as Finland and Norway, that lead the way with ambitious targets.
- Implementation of measures to reach targets should be determined by the Citizens' Assembly.

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WHY IS MORE RAPID ACTION NECESSARY?

We are facing an unprecedented global emergency. Life on Earth is in crisis: scientists agree we have entered a period of abrupt climate breakdown, and we are in the midst of a mass extinction[1] of our own making.(12–16) Current extinction rates are estimated to be up to 100 or even 1000 times higher than would be expected from the fossil record.(12,15,17). Even worse, these numbers are likely to be serious underestimates, because most species have not yet been formally described.(18,19). Such observations suggest that humans are now causing the sixth mass extinction (15,16,18,20–24), through killing species directly (25–28) or by plastic pollution (29–32), pesticide use (33–36), fragmenting habitats (37–40), introducing non-native species (41–43), spreading pathogens (20,44,45), and changing the global climate (12,13,15,18,20–24).

Human-made climate change has major consequences for life on earth, such as rising sea levels (13,46–48), acidification and oxygen-depletion of our oceans (13,49,50), and an increase in the frequency and magnitude of extreme meteorological events such as heat waves, heavy precipitations and storms (13,51–53). All of these factors, combined other environmental risks such as deforestation (54,55) and soil erosion (56,57), are increasing the risk of food scarcity/famine(58–62) and lack of drinking water (63–66). This means that the current climate and ecological crises put us at risk for mass migration (58,67–69), increased armed conflicts (58,68,70–72), and eventually the end of human civilization (73–75).

Nations parties to the Paris Agreement on Climate Change pledged to pursue efforts to limit global warming to 1.5°C.(76) But today, global heating is no longer a theoretical possibility, but a very urgent reality. Global average temperatures have risen about 1.1°C to 1.2°C since preindustrial times.(77,78) The 20 warmest years on record have been in the past 22 years, with the top four in the past four years.(79) This global heating has already had observable effects on the environment. Glaciers have shrunk(80), plant and animal ranges have shifted (81,82), and plants are flowering earlier whilst insects are lagging behind (83). In the Netherlands, the heatwaves and droughts are causing increased crop failure.[2](84) Globally, climate change is already causing injuries, illnesses, and deaths, with the risks projected to increase substantially with

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1 *About 99% of all species that have evolved during last 3.5 billion years are gone, meaning extinction is not uncommon - but normally it is balanced by the arrival of new species. Mass extinctions are times when the Earth loses more than three-quarters of its species in a geologically short interval. This has happened only five times in the past 540 million years.*

2 *The Dutch potato harvest of 2018 is estimated to have been reduced by approximately as much as 50% on fields that were not irrigated, and some onion fields have been lost altogether.*

additional climate change, threatening the health of many millions of people if there are not rapid increases in investments in adaptation and mitigation.(85,86)

According to predictions by the Intergovernmental Panel on Climate Change (IPCC), there is a sizeable chance we will end up with more than 1.5°C global heating.(2) The IPCC has formulated four different scenarios representing total radiative forcing [3] of 2.6, 4.5, 6 and 8.5 W/m2 called Representative Concentration Pathways (RCP). These RPCs represent scientific estimates of how technology, energy and land use, and the concentration of greenhouse gases in the atmosphere could change over the centuries ahead. RCP2.6 includes stringent mitigation and CO2 removal so that atmospheric CO2 concentration peaks and then falls to about 420 parts per million (ppm) by 2100, leading to a 1.3-1.9°C temperature rise.(87,88) In RCP4.5 atmospheric CO2 concentration levels off around 2050, trough policies like low-carbon energy technologies and carbon capture, leading to about a concentration 540 ppm by 2100 and a 2-3°C temperature rise.(88,89) In RCP6 emissions peak around 2060 and then decline, with only "very modest" efforts towards mitigation between 2010 and 2060, but improvements in energy intensity and a global market for emissions permits that help limit atmospheric CO2 to 670 ppm by 2100, and a 2.6-3.7°C temperature rise.(90) RCP8.5 reflects rapid population growth, high energy demand, fossil fuel dominance and an absence of climate change policies. This "business as usual" scenario sees atmospheric CO2 rises to around 935 ppm by 2100, leading to a 4.0-6.1°C temperature rise.(91) Currently, we are tracking closest to the RCP8.5, whilst we should aim for staying closer to the RPC2.6.(5) Figure 1 shows that according to the IPCC, at the current rate, we will reach 1.5°C degrees sometime between 2030 and 2052.[4] If we managed to reach net zero CO2 emissions by the middle of the century, there would still be sizable chance of overshooting 1.5°C. Even if net zero was reached by 2040 (the blue scenario), the projected chances of overshooting 1.5°C before the end of the century would still be about 1 in 3.[5]

The IPCC lead authors are experts in their field, instructed to fairly represent the full range of the up-to-date, peer-reviewed literature. Consequently, the IPCC reports tend to be cautious in their conclusions. Comparisons to the most recent data consistently finds that climate change is occurring more rapidly and intensely than indicated by IPCC predictions. Notably, the IPCC first made statements attributing global warming to humans in 1995, though there has been over a 90% consensus in the peer-reviewed scientific literature that humans are causing global warming since at least 1991.(92) Furthermore, the area of sea-ice melt during 2007-2009 was about 40% greater than the average prediction from IPCC AR4 climate models, and sea-levels rise is accelerating faster than expected.(93,94) The conservative nature of the IPCC reports

[3] *i.e. the difference between sunlight absorbed by the Earth and energy radiated back to space in W/m2*

[4] *Note that this is not referring to the first time that global average temperatures in a single year hit 1.5°C above pre-industrial levels, which could be caused by natural influences in the global climate – such as variability in the oceans.*

[5] *It is important to note here that the IPCC estimates are generally conservative, because it requires teams of authors to agree upon a report's text. Furthermore, it takes a few years for research to be incorporated into IPCC reports, so the IPCC is essentially always lagging behind the current state of climate science.*

means that they do not take into accounts processes that are not well understood yet but could lead to catastrophic consequences, such as climate tipping points[6] .

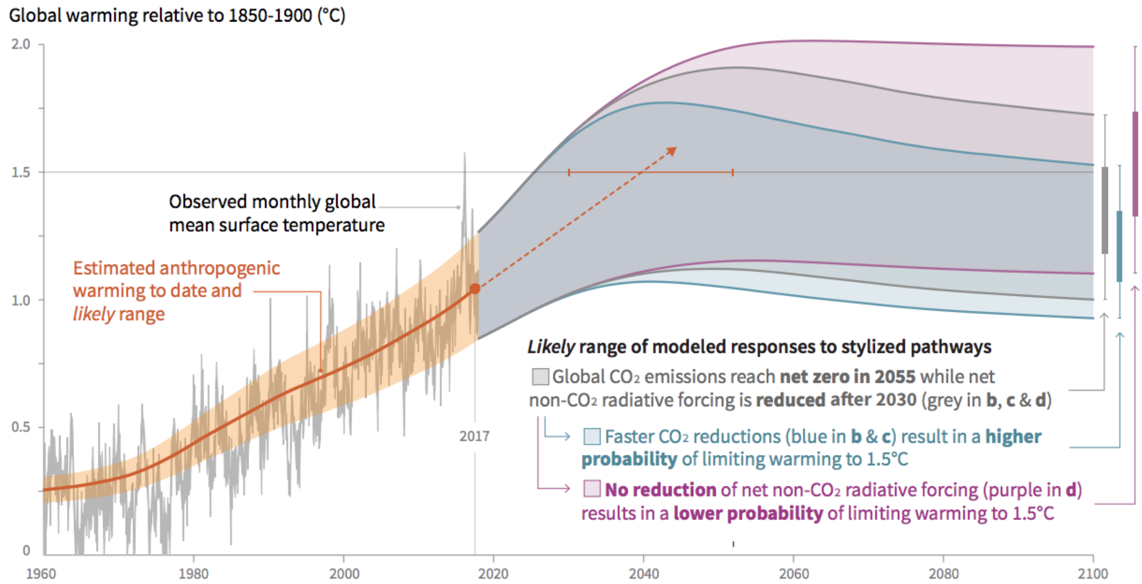

Figure 1. Observed monthly temperatures (black line), estimated human-caused warming (red), and idealised potential pathways to meeting 1.5C limit in 2100 (grey, blue and purple). All relative to 1850-1900. Credit: IPCC (95).

Even if the temperature only temporarily increases, there's a risk of setting off tipping points such as the potential major changes to ocean currents (96), dieback of the Amazon rainforest (54,97), and decay of the Greenland ice sheet (98–101). Figure 2 shows that destabilization of the ice sheets in the West Antarctic and Greenland, as well as the Arctic summer sea ice and the Alpine glaciers and sea ice could be reached within the range of warming set by the Paris agreement (1,100,102,103). Up to 70% of the volume of the summer sea ice is already gone.(104) It also shows that for coral reefs, the range is even narrower - preserving >10% of coral reefs worldwide would require limiting warming to below 1.5°C.(105) Currently, 75% of coral reefs are already under threat.(106) Some of these tipping points prelude self-reinforcing climate change. For example, when the Amazonian forests are replaced by brush and savanna, the Amazon region could become a net source of CO2, rather than a sink, which would further reinforce the climate change that caused the dieback in the first place.(107) The melting of permafrost, but also of the Greenland ice-sheet, releases large amounts of methane into the air, which might further exacerbate global heating.(108,109). It is likely that the disturbance of these tipping points will cause a domino effect, and push other systems towards their tipping points.(110–112)

6 *Defined here as subsystems of the Earth system that are at least subcontinental in scale and can be switched—under certain circumstances—into a qualitatively different state by small perturbations (per Lenton et al., 2008).*(4)

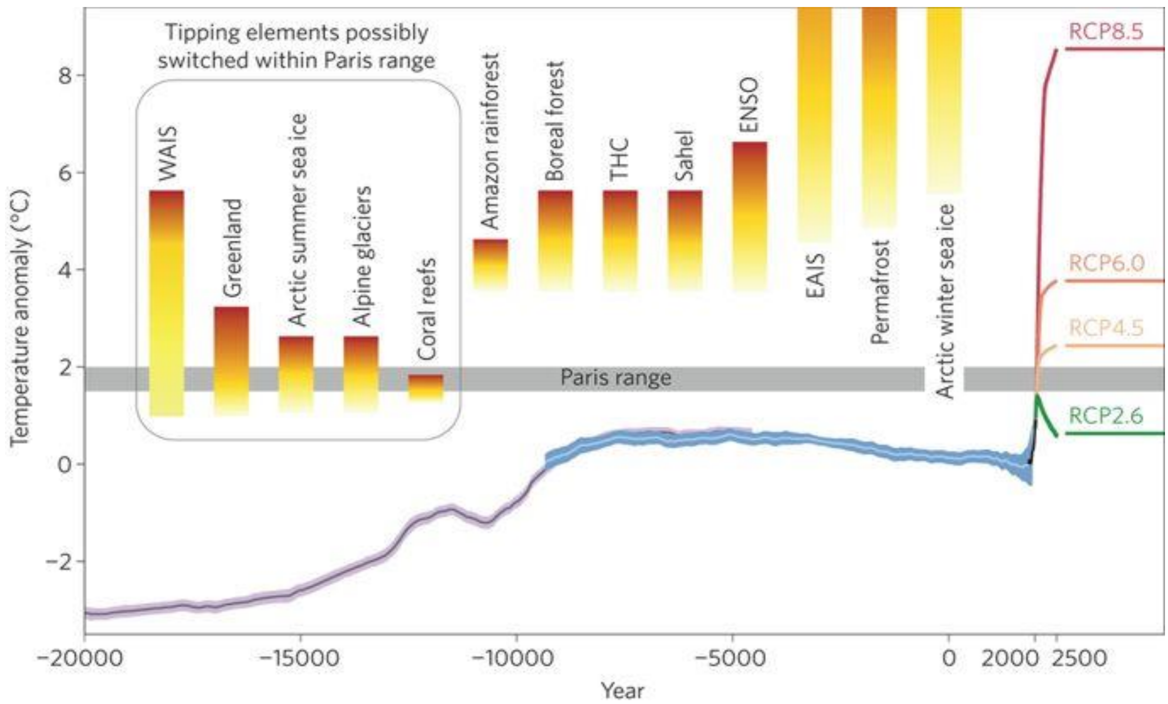

Figure 2. Global-mean surface temperature evolution from the Last Glacial Maximum through the Holocene, based on palaeoclimatic proxy data (113,114) *(grey and light blue lines, with the purple and blue shading showing one standard deviation), instrumental measurements since 1750 AD (HadCRUT data, black line) and different Representative Concentration Pathways. Also shown are threshold ranges for crossing various tipping points where major subsystems of the climate system are destabilized.*(4,99,101,105,115) *The range for the West Antarctic Ice Sheet (WAIS) has been adapted to account for the observation that part of it has probably tipped already.*(116,117) *THC, thermohaline circulation; ENSO, El Niño–Southern Oscillation; EAIS, East Antarctic Ice Sheet. Credit:Schellnhuber, Rahmstorf & Winkelmann (2016).*

In summary, global heating is happening right now. We are already seeing the detrimental consequences of 1.1°C heating, and even if we reached carbon neutrality today, temperatures would continue increasing until the planetary system reaches equilibrium. When considering that we are currently tracking close to RPC8.5, and taking into account climate lag and the effects of self-reinforcing climate change due to the disturbance of tipping points in the Earth system, we must face the reality that we are unlikely to stay under 2°C. Because every 0.1°C counts, it is incredibly important to invest as fast as possible in the required transformational adaptation to make our society both sustainable and fair.

TRANSFORMATIONAL ADAPTATION

ECONOMIC INTERESTS VS. PROTECTING THE PLANET

The solutions currently proposed to solve the climate and ecological crises are firmly rooted in the reality of market-based economies (e.g. a carbon tax to discourage polluting behavior). The Dutch Climate Agreement has been negotiated with all influential stakeholders, including industries, and is presented as a combination of measures that will be beneficial to both the climate situation and economic growth.(6,121) Such solutions and agreements assume a continuation of current economic institutions into a net zero future, based on the underlying assumption that economic growth as measured by Gross Domestic Product (GDP) is necessary for society to function as it does. Market-based economies are dependent on a compound growth rate of 3% to function, with crises occurring when the growth rates drop below that figure.(122) Within current political discourse, this essential need for market-based economies to grow is generally not a point of discussion.

If addressed at all, it is posited that economic growth can be compatible with sustainable development, also known as the notion of 'green growth'. Proponents of green growth, such as the movement of ecomodernism (123), argue that economic growth can be decoupled from its usual ecological impacts. The belief in the of green growth leads policy-makers to adopt a strategy of incremental adaptation, which is intended to maintain the basic characteristics of the system and avoid disruptions.(124) However, current empirical evidence does not indicate that decoupling is occurring or will start occurring in the future, emphasizing the fact that economic growth goes hand in hand with growth in increased energy use and pollution.(11,125–128)

Rather than focusing on maintaining indefinite economic growth in a world with finite resources, the government should focus on providing a framework for the transformative adaptation[7] that is required (129,130), for example by finding an economic arrangement that is compatible with ecological sustainability.(131,132) Degrowth is a framework that strives to maximize well-being for everyone through a reconfiguration of economic institutions using a holistic conception of social welfare (133,134). This alternative to the goal of economic growth entails a reduction in consumption and production, which means it tackles underlying causes of the ecological crisis.(135) Although both the green growth and degrowth

[7] *In incremental adaptation, there is change, but the basic characteristics of the system are maintained. Transformation means crossing a threshold: you were A and you become B. This means a reconstruction of our society and environment that are fundamentally different from what we have now.*(129)

frameworks share the ideal of environmental preservation, in practice the former emphasizes the ideal of economic growth whereas the latter emphasizes the ideal of ecological sustainability.(136)

Concluding, it is impossible to sustain the current economic system, because Earth has biophysical limits that cannot facilitate indefinite economic growth.(137–140) The decoupling of economic growth and ecological impacts seems solidly out of reach, meaning incremental adaptation is not enough. In order to enact transformative adaptation, we need to significantly reduce both consumption and production. Regardless of which alternative to the current economic framework is chosen, the burden should be distributed in a fair and just manner. This means that in order for transformational adaptation to be successful, attention to social welfare and issues of equity should be among the fundamental principles on which it is based.(129,141–144)

NET ZERO: OFFSETTING VS. DECREASING EMISSIONS

In order to re-shape our society in a more sustainable way (i.e. transformational adaptation) we consider it imperative that the government to increase its efforts to limit CO2 emissions and aim for net zero emissions by 2025. Net zero refers to achieving net zero CO2 emissions by balancing carbon emissions with carbon removal. The government needs to aim for reducing emissions as much as possible, but to offset any leftover emissions, an equivalent amount of CO2 will need to be taken out of the atmosphere by negative emissions.

All parties to the Kyoto Protocol are obliged to compile an annual inventory of their greenhouse gas emissions and to submit a report on their actions/efforts to control greenhouse gas emissions.(145) Inventories of anthropogenic greenhouse gas emissions are common tool through which parties to the United Nations Framework Convention on Climate Change (UNFCCC) can estimate the level of their emissions, in respect to individual gases and their sources.(146) The UNFCCC inventories include four main sectors: energy (fuel combustion); industrial processes, solvent and other product use; agriculture; and waste.(146) Each of these sectors (for example, fuel combustion) may be comprised of individual categories (fuel combustion in transport) and sub-categories (fuel combustion in road transportation). The national emissions inventories calculated by the UNFCCC only consider territorial emissions (i.e. production based accounting), meaning that emissions associated with trade are associated with the exporting country.(147) This creates a false impression of cleaner economies in countries that import a lot of goods, such as Switzerland and the UK, and penalizes high exporters such as China.(148) We believe all emissions a country is responsible for, including imported emissions, or extra territorial emissions associated with shipping or flying should be considered (i.e. consumption-based accounting).(147) This highlights the higher responsibility of high importers, which leads to a more equitable division of mitigation responsibilities.(149) To calculate the Dutch carbon footprint, the Dutch Statistics Office (Centraal Bureau voor de Statistiek) already uses the consumption-based definition, which for the Netherlands is similar to the production-based amount.(148,150) Calculations for checking policy agreements however are still making use of the Kyoto agreement definitions.(151) Regardless of the exact definition used, the government should work together with international trade partners to reduce emissions on both products that are imported and those that are exported.

In order to arrive net emissions, any greenhouse gasses that are still emitted should be removed from the air in some way. Geoengineering techniques such as carbon capture (e.g., storing CO_2 underground in depleted oil fields or deeper layers of the ocean) might be promising (152), but they are in early stages of development and involve both ethical and practical difficulties (e.g., the possibility of increased conflict potentials over liability and compensation, the limits of adequate geological data and required chemical and biological resources, the time scales involved, and economic costs) (153). Natural negative emissions such as land use change and forestry activities are currently excluded from the total emissions as used in relation to Kyoto targets (146), even though they are currently the most well-developed strategy reduce net emissions (154–156). Unfortunately, the 2018 EU Renewable Energy Directive (RED), against the advice of 800 scientists, states that the cutting down of trees for the sole purpose of burning them for energy counts as low-carbon, renewable energy.(157,158) This bioenergy policy means that the higher the price of carbon rises, the more valuable cutting down trees will become. Indeed, the RED goals are poised to lead to ~50% of Europe's present annual wood harvest being burned in for fuel, which is alien to the goal of increasing forest coverage.(154–158) Even though increasing natural negative emissions or at least *not decreasing them* could play a role in mitigating the climate crisis, it is important to remember that the capacity of natural carbon sinks is limited. In order to cut the atmospheric carbon pool by about 25% we would need to plant 500 billion trees.(159) This would require both a globally coordinated effort and time for the trees to grow. Natural negative emissions alone are not enough.(8)

In order for negative emissions technologies to contribute significantly to climate change mitigation, a number of major uncertainties need to be resolved, including the physical constraints on natural carbon sinks, including sustainability of large-scale deployment relative to other land and biomass needs, such as food security and biodiversity conservation(8,155), and the presence of safe, long-term storage capacity for carbon.(9) Currently, the Dutch Climate Agreement (NL: Klimaatakkoord) includes plans for carbon capture, but although the government has stated they although they realize that it is not a universal remedy, they were not planning to investigate the feasibility of those plans.(160)

In summary, we believe that measuring CO_2 emissions should consider both consumption-based emissions and carbon reduction techniques. However, although carbon reduction techniques have the potential to compensate for *some* leftover emissions, each carbon reduction technique has its own significant drawbacks(8,9,153,161). We want to emphasize that it is important that if carbon offsetting is required, it must be done in a just and fair manner. Because compensating for emissions is cheaper in developing countries, a lot of offsetting schemes tend to delocalize cuts in CO_2 emissions towards poorest countries, which means they increase pressure on the people least responsible for the crisis.(10) Finally, carbon offsetting in general has been criticized as it allows consumers to buy their way to environmental consciousness without changing their habits or make necessary structural changes, meaning the linkage between environmental crisis and economic growth can be or ignored, or even interpreted as a net positive.(162) Concluding, putting our faith in carbon offsetting is unrealistic. Instead of continuing business as usual, we must focus on cutting emissions as much as possible.(7)

HOW WILL WE GET TO NET ZERO BY 2025?

Reaching carbon neutrality by 2025 is an ambitious target, but we think the government should focus on what is necessary rather than on what is politically acceptable. A number of cities and countries such as Finland (2035) and Norway (2030) have already set targets for reaching net zero emissions on ambitious timescales. Finland even included a provision stating that this would not include buying CO2 offsets in other countries. The tiny Himalayan Kingdom of Bhutan and the most forested country on earth, Suriname, are already carbon-negative – they absorb more CO2 than they emit. It is time for us to join this line-up. The Netherlands is well developed country with an already developing low carbon mobility infrastructure (trains + bikes), and with experience in designing and installing renewable energy platforms and of dealing with crisis situations (floods and deltaplan), meaning the Netherlands is extremely well placed to lead by example.

As specified above, specific measures will be up to the Citizen's Assembly. They will hear information by experts (such as the people from Wageningen University or Utrecht University) and other organizations (like the Australian think tank Beyond Zero Emissions, the Rapid Transition Alliance, the Trade Union group Campaign against Climate Change, and Dutch groups such as Urgenda, Klimaatverbond Nederland and Werkgroep Voetafdruk) who have done a lot of work[8] coming up with effective measures in order to drastically decrease CO2 emissions and improve conditions related to the ecological crisis.

[8] *Specific schemes to phase out from fossil fuel in the near future have already been explored and applied to the Dutch case, with targets as ambitious as fully renewable energy system by 2030.*

CONCLUSION

Currently, we are in the midst of the sixth mass extinction wave. We are already seeing the detrimental consequences of 1.1°C heating, and a further 0.6°C degrees heating is estimated to be still in the pipeline, even if we reach carbon neutrality today. When considering the fact that we are currently tracking close to RPC8.5, and taking into account climate lag and the effects of self-reinforcing climate change due to the disturbance of tipping points in the Earth system, we must face the reality that we are unlikely to stay under 2°C. Because every 0.1°C counts, we urge the government to invest in transformational adaptation to make our society sustainable and fair.

At the moment, the situation is dire. The Netherlands always ranks in the top 10 in the EU for CO2 emissions per capita and increases the world average by a large portion.(148) The specific measures of the climate agreement mean that even the conservative target (i.e. 48,7 megaton) is unlikely to be met.(6) Next to that, the total pesticide use has not diminished, and water quality is still sub-par in many regions, meaning sustainable agriculture targets established in 2013 have not been met either.(163) However, instead of increasing their efforts to curb CO2 emissions and protect biodiversity, the government is appealing for the second time against the Urgenda ruling which would require it to reduce its emissions by 25% in 2020.(164) We urge the government to take the climate and ecological crises seriously, and to aim for both transformational rather than incremental adaptation. The government needs to act now in order to limit biodiversity loss as much as possible, and to reduce greenhouse gas emissions to net zero by 2025 in a just and fair manner.

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