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# REDUCING NORWAY'S FOOTPRINT

EXECUTIVE SUMMARY





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#### **The authors want to acknowledge the contributions of:**

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### **GRAPHIC DESIGN**

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**Figure – Reversing nature loss requires significant efforts to address unsustainable production:**  
 Artwork illustrating historical biodiversity loss curve before 2010 (black) and different loss curves with different actions to address the loss. The green curve shows that efforts to improve the sustainability of production and consumption achieve a faster and steeper increase in biodiversity than conservation efforts alone (orange curve) and significantly more than business as usual. The artwork illustrates the main findings of a Nature article by Leclere et al 2020, but does not intend to accurately represent its results. Credit: Adam Islaam, International Institute for Applied Systems Analysis (IIASA)

Production and consumption are the main drivers of nature loss.

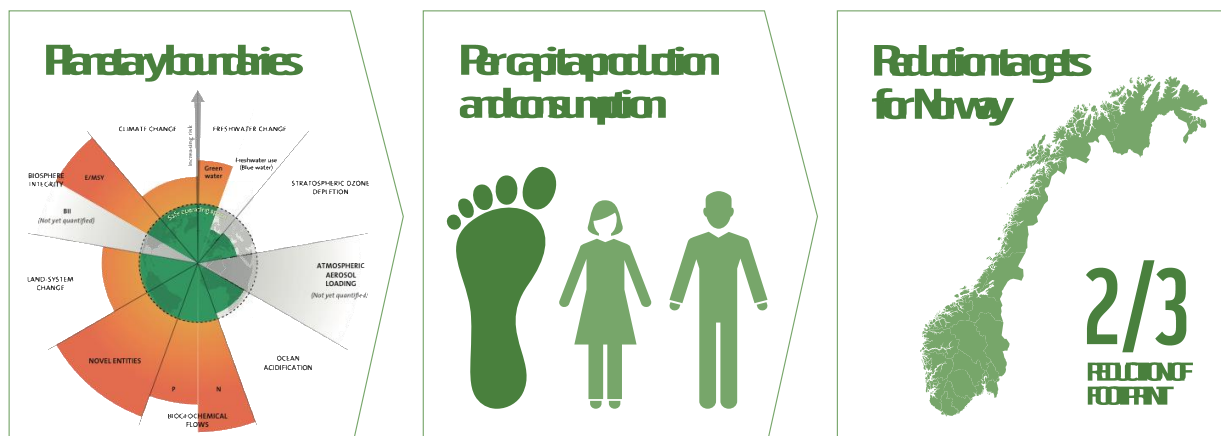
**Our demand for natural resources is causing over 90% of global biodiversity loss and 50% of greenhouse gas emissions.**

We are now at a point where we have breached the limits of 6 out of 9 important natural systems, the so-called planetary boundaries.

These, coupled with other indicators, define the limits for our global footprint and, ultimately, how much we can sustainably produce and consume

without risking disastrous ecological and societal collapse. We need to halve our global footprint of production and consumption in order to reduce pressure on nature and reach a safe operating space for our economy within planetary boundaries. Coupled with increased conservation and restoration efforts, this will contribute to stop and reverse the loss of our natural world.

To implement this global goal, WWF and Metabolic created a framework that builds on important flows, states and planetary boundaries that together represent the footprint of production and consumption on nature. The planetary boundaries and related science are then used to measure the safe level of activity for six of the most important footprints - ecological, material, biomass, phosphate, nitrogen and climate. The report also includes a description of other drivers and consequences that contribute to the overall nature loss and pressure on planetary boundaries; chemical pollution, water pollution, air pollution, water availability and flows, and land-use change and degradation.



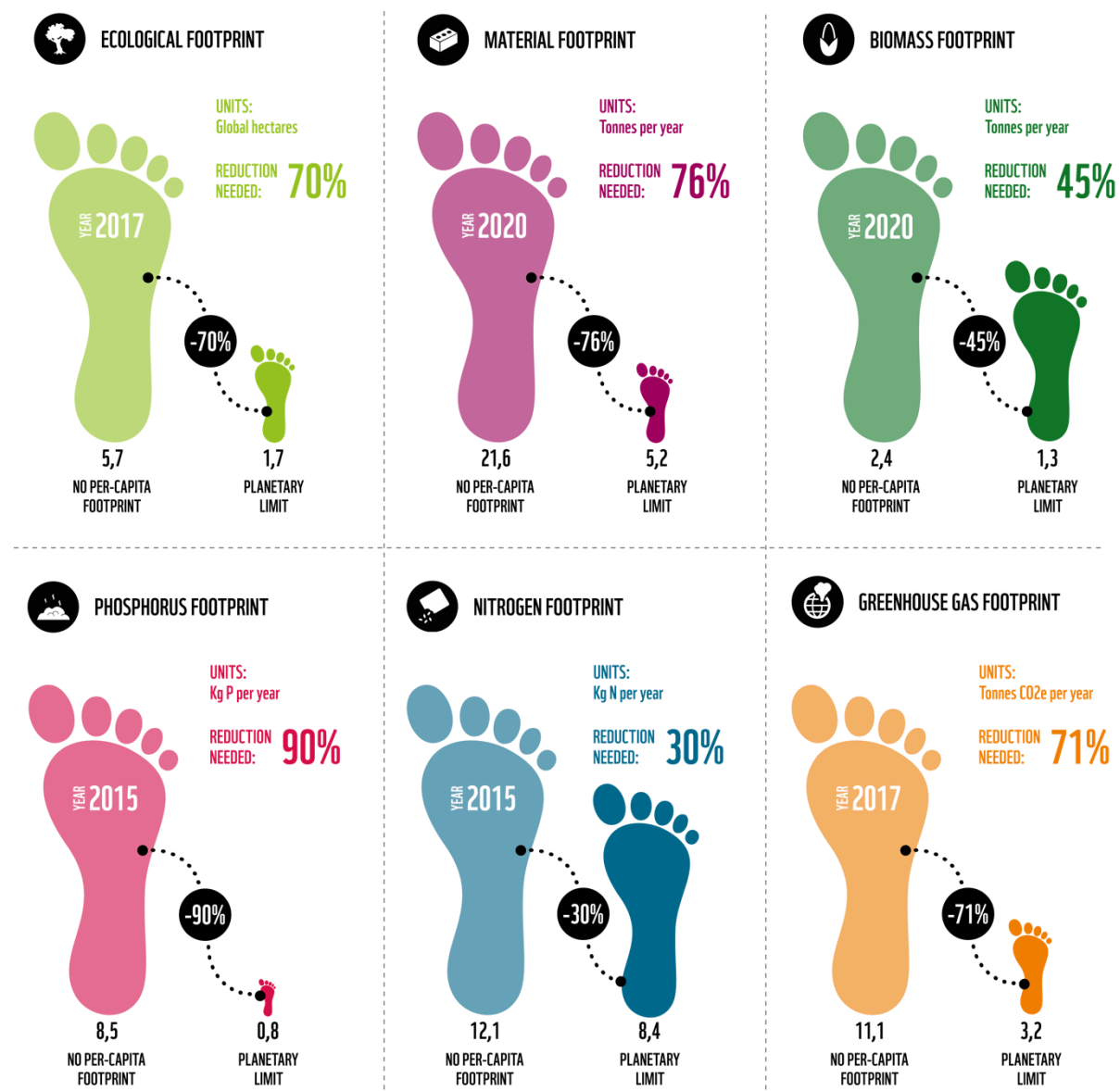
## OUR HIGH CONSUMPTION MEANS MORE EFFORT IS NEEDED

Norway has among the world's highest consumption levels across all footprints, measured in terms of how much goods, resources, food and services are produced domestically and imported from abroad, excluding exports. Our analysis shows that in order for the Norwegian economy to be in line with planetary boundaries, and contribute its proportional share to the global objective, a reduction of 2/3 across the six footprint indicators is needed. This is because Norway is significantly exceeding the per capita planetary limit for all six footprints included in this analysis.

## WALKING THE WALK – A PARADIGM SHIFT IS NEEDED

Reducing our overall footprint of consumption and production by two thirds is no small undertaking and requires profound changes in the way politics and our economy operates. But it is feasible, and necessary. In order to reach our targets, we need to take resolute and immediate action and adopt a national target to **reduce our footprint by 2/3 to build an economy that is well within planetary boundaries.**

Reaching this target does not imply that we should simply cut consumption, nor does it mean that we should sacrifice welfare. While individual efforts are important and necessary, people and families should not be forced to bear the burden alone. To succeed, we need a systemic change that addresses the underlying drivers of nature loss. We need to think new about economic growth, put nature at the core of governance and business planning, and push for a circular revolution that reduces the extraction of new natural resources. WWF has identified **three key transformations** and highlighted what policymakers, businesses and the finance sector must do to contribute to setting the right direction and achieve significant reductions across all the six footprint indicators.





## WE NEED TO PUT NATURE AT THE HEART OF GOVERNANCE

Adjust and complement current economic indicators such as GDP by systemically integrating the goal of measuring and reducing footprints into national planning and governance instruments, so that they are effectively and across sectors can be implemented as targets and indicators based on a footprint approach to the economy.

**The footprint targets and indicator framework are implemented in national governance.** Using the footprint indicators and targets will provide the Norwegian government with a science-based approach, while steering our economy within planetary boundaries.

### **Our planet must set limits for the national budget.**

The footprint targets should be followed up with concrete actions and debated regularly. This can be assured by adding them to the “green book” of the national budget, which is the new primary environmental policy planning tool of the government.

**We need a cross-departmental strategy for reducing footprints,** to guide national strategies, actions and sector plans across all ministries. This includes the new action plan to implement the upcoming CBD, the instruction for all official studies (utredningsinstruksen), as well as securing that taxes and fees help us reach the targets.

**We need better data and statistics.** Statistics Norway should be tasked with compiling and reporting the full footprint indicators and the underlying data. There should be close coordination between the political objectives on nature and climate and the reporting of Statistics Norway and for data to be used actively in decision making.

## WE NEED A CIRCULAR REVOLUTION

A key barrier to reducing our footprint is that most of our current production and consumption is based on a linear “take-make-dispose” model. Moving to a circular economy, and making sure progress is clearly measured, can help us lower overall material consumption and reduce demand for new harmful extraction.

Establish clear targets, indicators and milestones for a 50% reduction in primary resources. The circular economy is not an end in itself, but a tool to help us reduce the pressure on natural systems. Norway should adopt a target of reducing consumption of primary resources (minerals, metals and fossil fuels) by 50% by 2030, to provide a clear long-term direction to all societal actors, in particular the business sector, and mobilize action.

Create targeted policies that contribute to reducing our footprint. We need the full toolbox of the government to develop and scale up circular solutions, including economic incentives; a circular mandate for ENOVA anchored in the footprint target, extended producer responsibility and directed tax incentives, can all help make circular profitable.

Prioritize for critical and high-impact sectors. Action should be directed towards the material flows that has the most potential benefit for nature, and the sectors affected should have circular economy as an integrated part of relevant governmental plans.





## WE NEED BUSINESS AND FINANCE FOR NATURE

**Businesses must start measuring their footprint(s) and their circularity performance** and set targets to improve. These indicators must be an integral part of how companies are valued and measure success.

**Integrate circularity as an instrumental tool to manage and reduce nature-related risks.**

Companies which are more circular have lower dependency on nature, and the finance sector should include this as a key part of risk management and their work to reduce portfolio's nature risks. Companies' material footprint can be used as a measurable indicator and a proxy for biodiversity impacts.

**Develop innovative financial products linked to circularity** to support companies' plans to transition, e.g. circularity-linked loans and bonds offered by banks, and circular-premiums by insurance sector.

**Integrate circularity-elements from current and upcoming regulations** - such as EU-Taxonomy, Corporate Sustainability Reporting Directive (CSRD), and Sustainable Finance Disclosure Regulation (SFDR) – and ask data providers to include footprints and circularity in their assessments.



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## WE NEED FOOD SYSTEM TRANSFORMATION

How we produce and consume food is by far the single biggest driver of biodiversity loss. A more sustainable food system can meet our needs while restoring our degraded soils, leaving more space to biodiversity, reducing the need for chemical inputs, improving diets and significantly decreasing our footprint across all indicators.

**Shift to sustainable agricultural practices based on agroecology**, and in particular four main principles: (i) Minimize soil disturbance, (ii) Permanent soil cover, (iii) Increase plant and species diversity, (iv) nutrient cycling and circularity.

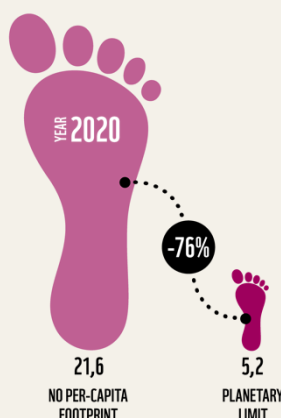
**Shift to planet-based diets** can deliver significant reductions on all our footprints. WWF urges Norway to update national guidelines to be in line with planetary boundaries and recommend a “livestock on leftovers” approach to optimize the use of national resources and reduce dependency.

**Elimination of food waste**, with the goal of reducing it by 30% by 2025 and 59% by 2030. Current insufficient efforts must be complemented by new economic incentives and government's regulations.



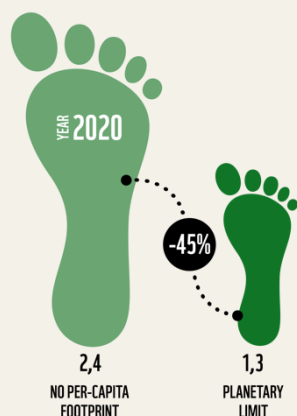
## Reduce our ecological footprint by 70%

The ecological footprint is important, as it accounts for our combined consumption across several important natural systems such as marine fishing stocks, agricultural and material production, land use and climate emissions. This represents an overall level of our pressure on nature that can be expressed on a planetary scale: if every country had the same consumption levels as Norway, we would require not one, but 3,6 planets in order to provide enough resources. As it encompasses a wide range of different impacts, we can reduce the ecological footprint through sound nature and climate governance directed particularly towards the five other footprints in the framework.



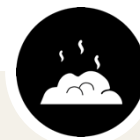
## Reduce our material footprint by 76%

Norway's material footprint is very high: twice the size of the EU average. Normally, this accounts for four categories of natural resources – biomass, fossil fuels, metals and non-metallic minerals - used in the economy. In our analysis, biomass is singled out as a separate footprint. This leaves fossil fuels, which is by far the biggest contributor (72%), followed by non-metallic minerals, stone and building materials (25%), metals and ore (2%). The safe limit deal primarily with negative consequence of extraction and waste from material consumption. CO2 emissions from fossil fuels is covered by the climate footprint. Through circular solutions that reduce demand for virgin resource, and more sustainable extraction of natural resources we can succeed in reducing our material footprint.

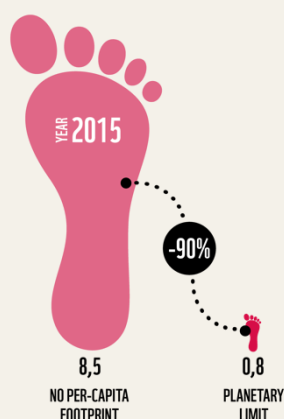


## Reduce our biomass footprint by 45%

The biomass footprint is usually included in the material footprint, but we decided to treat it separately to give a better view of how our demand affects natural systems. Norway's high consumption of particularly meat and dairy, including associated animal feed such as imported soy, contributes to define a reduction target of 45%. To reach this, we need to optimize our extraction and production in a way that minimizes the pressure on nature, and which can be sustainable in the long run. This means reducing food waste, adapting our diets, adopt new agricultural practices, and improve sustainability and circularity in fisheries and aquaculture.



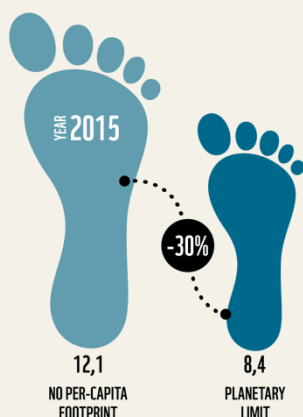
## Reduce our phosphorus footprint by 90%



The phosphorus footprint measures how much phosphorus fertilizer is applied to cropland, which is a key contribution to food security worldwide. But its systematic use and overuse is problematic at all stages of its lifecycle: from mining to fertilizer production and application on agricultural fields. This can degrade soil and cause ocean acidification to the point of toxicity, harming biodiversity. Norway's high phosphorus footprint is caused by the high use of fertilizer in agriculture, at levels well above other European countries. To reduce our phosphorus footprint, we need to lower the primary need for fertilizers, as well as finding ways to recycle and use phosphorus more efficiently.



## Reduce our nitrogen footprint by 30%



The production and use of synthetic mineral fertilizers is the primary component of the nitrogen footprint. Around 20% of all nitrogen fertilizers applied end up in soils and biomass, whereas 35% enter the oceans. This figure is consistent with findings in Norway. This has negative consequences for Norwegian nature, polluting degrading habitats and biodiversity on land, and in the oceans. In order to reduce our use of nitrogen, we need to find new and innovative ways in which we can reduce fertilizer use, as well as prevent nitrogen leakage into natural systems.



## Reduce our climate footprint by 71%



Our greenhouse gas is most often reported as national emissions accounts, which excludes emissions linked to what we import. Our analysis relies instead on a consumption-based footprint, which excludes emissions related to goods and resources that are exported. This means much of the emission from petroleum or other export industries are not included. Still the overall emission level exceeds our conventional national emissions, mainly due to the emissions embedded primarily in transport, energy and building materials. Succeeding in reaching national emission objectives will contribute to reducing our footprint. However, this can be made easier with a consumption-based approach; increased circular economy, reduced overall consumption, energy efficiency in households and appliances, and collective transport solutions.



# A FUTURE IN WHICH HUMANS LIVE IN HARMONY WITH NATURE



Working to sustain the natural world for the benefit of people and wildlife.

together possible.

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