The European Environment Agency State and Outlook 2020 (SOER 2020) Report

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p. 18 The next 10 years Achieving the goals of the 2030 agenda for sustainable development and the Paris Agreement will require urgent action in each of these areas during the next 10 years. To be clear, Europe will not achieve its sustainability vision of 'living well, within the limits of our planet' simply by promoting economic growth and seeking to manage harmful side-effects with environmental and social policy tools. Instead, sustainability needs to become the guiding principle for ambitious and coherent policies and actions across society. Enabling transformative change will require that all areas and levels of government work together and harness the ambition, creativity and power of citizens, businesses and communities. In 2020, Europe has a unique window of opportunity to lead the global response to sustainability challenges. Now is the time to act.

p. 36 This exponential trajectory of human activity and economic growth has delivered enormous improvements in living standards and well-being for hundreds of millions of people, especially in Europe and other highly industrialised world regions. Other world regions have also benefited from this growth. For example, the percentage of the world's population living in extreme poverty (i.e. living on under USD 1.90 a day, based on the US dollar exchange rate of 2011) has dropped from 42 % in 1981 to about 10 % in 2013 (World Bank, 2018b). The prevalence of stunting among children under 5 years old due to malnutrition has dropped from almost 40 % in 1990 to 22 % in 2017 (World Bank, 2018c). However, at the same time the sheer size of the global population and the intensity of human activities has caused tremendous pressures on the Earth's life support systems through climate change, biodiversity loss and changes in the chemical composition of the atmosphere, oceans and soil, etc.

p. 91 Pressures on biodiversity and drivers of loss are mainly linked to a range of economic sectors and sectoral policies. Economic growth is generally not decoupled from environmental degradation and such decoupling would require a transformation in policies and tax reforms in the region (IPBES, 2018). Mainstreaming biodiversity concerns, in both the public and private sectors, and including them in sectoral policies is therefore crucial, especially for the post.2020 biodiversity agenda. These include trade, agriculture, forestry, fisheries, spatial planning, energy, transport, health, tourism and the financial sector, including insurance.

p. 163 Overall, the four main findings at EU level are: 1. Higher gross domestic product (GDP) would usually lead to higher GHG emissions, other factors being equal, because economic growth is still intrinsically linked to an energy system that remains heavily dependent on fossil fuels in most European countries (EEA, 2014b). Yet, the figure shows that emissions decreased and are expected to decrease further as GDP increases, confirming that attempts to mitigate climate change do not necessarily conflict with a growing economy. In addition, the GHG intensities of Member States have both decreased since 1990 and converged (EEA, 2017a). One reason for this convergence is the strong growth in the use of renewable energy sources in most Member States and a clear move towards less carbon.intensive fuels. Due to this strong convergence, GHG emissions per capita and per GDP are more similar now across Member States than they were in 1990. Projections by Member States suggest a continued decoupling of GHG emissions alongside higher economic growth for the period 2015-2030. However, higher levels of renewables in the energy mix will be required to achieve complete decoupling between GHG emissions, energy and economic growth.

p. 166 Finally, in spite of good progress in reducing GHG emissions and in decarbonising the EU economy, fossil fuels are still the largest source of energy and emissions in the EU. They contribute to roughly 65 % of the EU's final energy and to almost 80 % of all EU GHG emissions. There cannot be a complete decoupling of emissions from economic growth in a fossil fuel-based economy. This is because energy demand, which to date is mostly fossil fuel driven, remains connected to economic growth. This also implies that the higher the contribution from renewables, the easier it will be to break the link between economic growth, energy demand and GHG emissions. Most importantly, the more the EU reduces its total energy consumption through energy efficiency improvements, the less renewables need to be stepped up to replace fossil fuels.

p. 169 Overall, the EU has been reducing energy consumption and decoupling energy consumption from economic growth. However, this trend has reversed since 2014 and final energy consumption is increasing again, driven in part by economic growth (especially demand from the transport sector) and more energy use by households.

p. 181 Moreover, the EU's Large Combustion Plant Directive has encouraged efficiency improvements and fuel switching from solid fuels to cleaner fuels and thus helped reduce emissions, not only of air pollutants but also of greenhouse gases (EEA, 2011, 2019a). Indeed, the EU has been able to reduce GHG emissions and air pollution, improve energy efficiency and achieve higher shares of energy from renewable sources and, at the same time, increase economic growth. Nevertheless, much remains to be done, and considering the co-benefits and trade-offs between climate policies and other policies, including environmental policies, in the design of new legislation would achieve maximum benefits.

In relation to direct effects, and the effectiveness of climate and energy policies, EEA analysis (EEA, 2016a) has shown that there is statistical evidence of a long-term relationship between GHG emissions, economic growth and use of energy from fossil fuels, and that GHG emissions can be predicted in the short term based on these two variables, with some variations due to, for example, particularly cold or warm years.

p 182 Despite this recent progress, to meet the EU's 2030 and 2050 objectives there is a need to further improve energy efficiency and step up the use of renewables to reduce carbon intensity and completely decouple GHG emissions from energy use and economic growth.

p. 205 **Responses and prospects of meeting agreed targets and objectives** Europe is moving towards the air pollutant emissions and concentration objectives and targets framed in the EU legislation. Effects-based abatement measures under the 1979 CLRTAP and its protocols, mirrored in EU legislation, have led to a sharp decline in emissions, especially of SO2. Economic growth and trends in air pollution have been progressively decoupled.

p. 213 **Key Messages** Resource use in the economy of the 28 EU Member States declined over the last decade, while resource productivity improved. This was largely due to trends in overall economic growth

and certain structural changes in the economy, rather than a result of direct policy intervention. Resource efficiency is expected to further improve in Europe, albeit with increasing levels of material resource use.

p. 229 However, the overall economic policy goal of continued economic growth may conflict with the objective of waste prevention unless strong measures are taken, for example moving towards less waste-intensive business models and extending the lifetime of products. This illustrates that waste generation is unlikely to be strongly reduced through waste policies alone. It needs to be addressed in a systemic way along the value chain, by fundamentally changing patterns of production and consumption. For example, preventing food waste needs to address the drivers of food waste in the whole food system (ECA, 2016; Ciccarese and Vulcano, 2017) (Chapter 16).

p. 326 Climate change mitigation is a useful example to illustrate these co-benefits and trade-offs. First of all, recent decreases in greenhouse gas (GHG) emissions in times of economic growth in Europe show that climate change mitigation and economic progress are not mutually exclusive.

p. 327 The climate and energy targets for the short (2020), medium (2030) and long term (2050) are a fundamental pillar for achieving a resource-efficient and low.carbon economy. Past trends show that the EU has made substantial progress in decoupling carbon emissions from economic growth.

p. 328 In conclusion, Europe has been able to reduce GHG emissions and air pollution, improve resource efficiency and energy efficiency, and achieve higher shares of renewable energy while increasing economic growth. However, much remains to be done to improve the environmental sustainability of Europe's production and consumption patterns and to reach long-term policy targets and objectives. This would require consideration of the co-benefits and trade-offs between policy areas, including climate, resource efficiency and environmental policies, in the design of new legislation. In addition, the assessment of progress does not take into account the full environmental impacts of production and consumption in Europe exerted outside Europe.

p. 343 When applying the analysis at the EU scale (EEA and SEI, 2019), the SDG framework reveals many synergies. However, the relationship between SDGs 12-15, crucial for environmental protection and climate action, and other SDGs (such as SDGs 1 and 7-11) potentially involve trade-offs. The main reason is that increased income (SDG 1), better access to energy (SDG 7), more economic growth (SDG 8), and industrial and infrastructure investments (SDG 9) tend to increase overall consumption and natural resource extraction. They therefore make it harder to achieve targets on efficient use of natural resources (target 12.2), better management of chemicals and waste (target 12.4), climate mitigation (target 13.2) and protection of terrestrial ecosystems and biodiversity (targets 15.1 and 15.5). Acknowledging these tensions more explicitly reinforces the call for alternative pathways for sustainable development.

The example of steel can illustrate how important the choice of interventions will be when trying to achieve societal goals that are potentially conflicting. Steel is a central component of an industrial society and thus for progress on SDG 9. The global demand for steel is expected to increase with increasing economic

development, and steel production already accounts for about 7 % of global carbon dioxide emissions, which makes it the single largest sector in terms of industrial emissions (Perez.Fortes et al., 2014). Thus, there is a clear tension with climate change mitigation (SDG 13). To meet the SDGs, the Paris Agreement and EU targets for reducing emissions from steel production to near zero by 2050, while promoting a thriving steel industry within the EU, a systemic change all the way from production to recycling is needed (Ahman et al., 2018).

p. 349 **Summary** European consumption is tied to economic growth and living standards but also drives environmental impacts across the world. Europe's environmental footprint is much higher than the global average. The food, energy, and mobility systems account for much of Europe's pressures on the environment and health, and are linked to many dimensions of human well-being. These systems must be transformed to achieve Europe's sustainability objectives. • In production-consumption systems, the co-evolution of system elements — technologies, regulations, infrastructures, behaviours, etc. — creates lock-ins and other barriers to change Links between productionconsumption systems create additional challenges. Addressing problems in one system may shift the burden or produce other trade-offs or unexpected outcomes . partly because the systems rely on a shared natural capital base. . The resource nexus approach can help understand the combined pressures from production.consumption systems, manage system interactions within environmental limits and promote policy coherence. . Production-consumption systems vary greatly across Europe, implying that actions must be tailored to local realities. Technology-focused measures should be complemented with approaches addressing consumption levels and behaviours. Drivers of change at different scales present challenges and also opportunities for transitions. Production-consumption systems will undergo transformations in coming decades. Europe can either be carried along by these events or it can actively shape them.

p. 351 The decoupling of economic growth from resource use and environmental impacts remains a priority objective for EU policy. Overall, the economy of EEA member countries has grown faster than all environmental footprints since the 1990s (Stadler et al., 2018). Acidification and eutrophication have decoupled in absolute terms, meaning that, although GDP has increased, emissions of pollutants contributing to acidification and eutrophication have decreased. GHG emissions, energy, water and material consumption decoupled from gross domestic product (GDP) only in relative terms during the same time frame, meaning that they grew more slowly than GDP.

p. 355 In response to global developments, such as a growing global middle class and increased demand for land, food and bioenergy (Chapter 1), the European food system could develop in different ways — each involving synergies and trade-offs. If long-term trends continue regarding economic growth, technology, employment and trade in the agri-food sector, and without additional policy interventions, it is likely that the food system would be shaped by increased competitiveness and export orientation, rather than meeting health, environmental and economic goals together. Increased competitiveness in the agri-food sector would be likely to increase the trend towards fewer, larger and more capital-intensive farms (Chapter 13; IPES Food, 2019), lead to more nutrient pollution due to surpluses of livestock biowaste and increased use of fertilisers.

p. 371 Policy interventions that remove environmentally harmful subsidies or put in place taxes to address externalities will create winners and losers. For example, taxing food, energy and mobility can have regressive distributional impacts — hitting poor people hardest because they spend a greater proportion of their income on such necessities (EEA, 2011b). It is also likely to have varying effects on urban and rural populations, young people and the elderly. Electoral incentives can further discourage politicians from introducing measures that are likely to be unpopular in the short term but deliver long-term benefits for society. At the broadest scale, governments may be locked in to the economic growth paradigm that is known to be socially and environmentally harmful, partly because of the need to maintain employment levels and finance the welfare state (Kemp et al., 2018).

p. 382 **Implications for governance** The dynamics and interactions set out in the multi-level perspective point to the need for new governance approaches to support sustainability transitions. Historically, societies have relied on governments to manage the risks and harms associated with economic growth — primarily employing regulations and pricing instruments to correct market failures and using intergovernmental agreements to address transboundary issues and global collective action problems such as climate change. While these tools remain essential, they also face important constraints. For example, governments often face significant political barriers when seeking to introduce regulations and pricing instruments consistent with long-term sustainability goals. Equally, the deficiencies of global governance processes often mean that negotiated targets lack the necessary ambition and enforcement mechanisms.

p. 400 Collectively, these different public and private actors arguably have the resources to finance transitions, yet a variety of barriers and market failures deter such investments. For example, many sustainability innovations have unattractive risk/return profiles. Concerns about stranded assets may encourage investors to lobby against policies promoting systemic change. Public investments are constrained by weak economic growth and a continued focus on fiscal consolidation. Many end.users are prevented from investing in cost.saving efficiency improvements by often daunting upfront costs.

p.405 Like broader visions, missions are intended to be motivational and foster bottom-up activity, as well as creating a frame for target setting and monitoring. However, by shifting the focus from broad challenges to more specific and ambitious but achievable problems (e.g. achieving 100 carbon-neutral cities in Europe by 2030) they provide a more specific focus for research, investment and economic growth. In this way, they aim to promote collaboration between all actors in the innovation ecosystem, including corporations and disruptive start-ups, public institutions and users (RISE, 2018).

p. 417 The main findings of SOER 2020 As demonstrated in Part 2 of this report, nature underpins and sustains human health, well-being and livelihoods. However, this foundation is deteriorating fast. Europe's success in addressing the degradation of natural systems has been limited. The majority of EU 2020 targets related to protecting, maintaining and enhancing natural capital will not be achieved. The overall objective of the EU biodiversity strategy to halt the loss of biodiversity and ecosystem services by 2020 will not be met. The outlook for 2030 is not encouraging, and achieving the Sustainable Development Goals (SDGs) dedicated to protecting terrestrial and marine ecosystems (SDGs 14, 15) and other related targets (SDGs 2, 6) is very unlikely.

In contrast, Europe has made progress in reducing pressures. GHG emissions and air pollution have been reduced while economic growth has been sustained. However, the pace of progress has slowed in relation to GHG emissions, industrial emissions, energy efficiency and the share of energy from renewable sources. This indicates the need to go beyond incremental improvements and to ensure that technology-driven efficiency gains are not offset by increasing demand. The outlook to 2030 suggests that the current rate of progress will not be sufficient to meet 2030 and 2050 climate and energy targets. In addition, addressing environmental pressures from economic sectors through environmental integration has not been successful, as illustrated by agriculture's impacts on biodiversity and pollution of the air, water and soil.