



WWF

REPORT

EU

2015



From crisis to opportunity:

Five steps to sustainable European economies

Author

Sébastien Godinot, WWF European Policy Office
Tel: +32 (0)2 740 0920
Email: sgodinot@wwf.eu

Contributions

WWF Danube-Carpathian Programme Office: Irene Lucius

WWF European Policy Office : Jason Anderson, Alberto Arroyo, Andreas Baumüller, Stefania Campogianni, Erik Gerritsen, Eszter Hidas, Andrea Kohl, Tony Long, Imke Lübekke, Martina Mlinaric, Sally Nicholson, Anke Schulmeister, Darek Urbaniak, Sam Van Den Plas, Tycho Vandermaesen, Arianna Vitali, Adam White

WWF-Finland : Jussi Nikula

WWF International: Kookie Habtegaber, Richard McLellan

WWF-France: Jochen Krimphoff

WWF-Greece: Ioli Christopoulou, Theodota Nantsou

WWF-Italy: Gianfranco Bologna

WWF-Germany: Anna Holl, Matthias Kopp, Günter Mitlacher, Julia Steinert, Peter Torkler, Alois Vedder

WWF-Sweden: Pauli Merriman, Anne Söderström

WWF-Switzerland: Jennifer Zimmerman

WWF-UK: Karen Ellis, Sue Charman

Reviewer

Oliver Greenfield, Green Economy Coalition

Language editing

Barney Jeffries

Graphic design

Mazout.nu

Cover photo @ shutterstock / Rido

Published in February 2015 by WWF-World Wide Fund for Nature (formerly World Wildlife Fund), Brussels, Belgium. Any reproduction in full or in part must mention the title and credit the above-mentioned publisher as the copyright owner.
Text 2015 WWF. All rights reserved.

CONTENTS

| | |
|-----------------|---|
| FOREWORD | 4 |
| PREFACE | 5 |

| | |
|--------------------------|---|
| EXECUTIVE SUMMARY | 6 |
|--------------------------|---|

| | |
|---------------------|----|
| INTRODUCTION | 13 |
|---------------------|----|

| | |
|---|----|
| 1. THE CHALLENGE: BUSINESS AS USUAL IS NOT AN OPTION ANYMORE | 16 |
| 1.1. The disastrous results of our business-as-usual economy | 16 |
| 1.2. What are the systemic failures behind the crisis? | 26 |

| | |
|--|----|
| 2. THE WAY FORWARD: A STEP CHANGE TO BUILD SUSTAINABLE EUROPEAN ECONOMIES | 37 |
| 2.1. Greening our economies: a new path for more well-being | 37 |
| 2.2. The enormous benefits for Europe | 50 |
| 2.3. Why Europe should rapidly shift to sustainable economies | 57 |

| | |
|---|----|
| 3. THE RECOMMENDATIONS: A POLICY ROADMAP FOR EUROPE | 61 |
| 3.1. A new strategic vision for Europe from now to 2050 | 61 |
| 3.2. An ambitious enabling framework for climate and energy by 2030 | 70 |
| 3.3. A complete enabling framework for resource efficiency and management | 76 |
| 3.4. A supportive fiscal and financial framework | 86 |
| 3.5. A renewed international leadership | 92 |

| | |
|---|----|
| WWF COMMITMENTS AND PRIORITIES FOR THE NEXT FIVE YEARS | 96 |
|---|----|

| | |
|-------------------|----|
| REFERENCES | 99 |
|-------------------|----|

FOREWORD

By Janez Potočnik



Janez Potočnik

“The underlying belief that there’s a fundamental conflict between the economy and the environment is a false dichotomy.”

The words “economy” and “ecology” share the same root in the Greek word *oikos*, which means “home”. As the names suggest, the two fields are intimately related; yet for too long, economists and conservationists have failed to recognize their essential interdependencies or find a common language to address them. The green economy agenda aims to bridge this gap. It addresses the central political and economic challenge – and opportunity – of our times: to eradicate poverty and improve well-being for all, while living within our ecological limits.

The current crisis is a unique opportunity to shift toward a new sustainable economic paradigm. However, economic stagnation and instability in many parts of the world, including in the EU, has sometimes strengthened resistance to environmental policies which some perceive to be holding back recovery. A business-as-usual recovery will only foster the next crisis – an environmental one. The underlying belief that there’s a fundamental conflict between the economy and the environment is a false dichotomy. There is an alternative approach which recognizes that both sustained human well-being and economic prosperity for all depend fundamentally on the health of the natural world.

The transition to future-oriented, sustainable economies is essential to maintain the conditions required for humanity to thrive – even, in some regions, to survive. The science tells us that we need nothing less than a major transformation of our economies, policies, technologies, and modes of production and consumption.

The European Union is ideally placed to lead this transformation, and will benefit enormously from doing so. This timely report points the way forward.

Janez Potočnik,
UNEP Co-Chair of the International Resource Panel,
former European Commissioner for Environment,
former European Commissioner for Science and Research

PREFACE

By Marco Lambertini



Marco Lambertini

“In times of economic crisis, some see nature protection as a luxury. But it is the exact opposite.”

In September 2014, the latest edition of the WWF Living Planet Report pointed that the Living Planet Index, which measures more than 10,000 representative populations of animals, has declined by 52% since 1970. To put it simply we have lost over half of the world’s wildlife in just 40 years. This is the barometer of what we are doing to our planet: taking more than ecosystems can replenish, depleting our natural capital and impacting nature’s crucial services.

But this is not just about wildlife: this is as much about our future. Our well-being, our economy and social stability depend on a healthy environment, a vibrant biological diversity, productive ecosystems. We have to decouple human development and environmental degradation. We need to close this destructive chapter in our history, and build a future where people can live and prosper in harmony with nature.

In times of economic and financial crisis where inequalities are rising, some see nature protection as a luxury. But it is the exact opposite: thriving ecosystems are the main wealth of the poorest, whether providing water to drink, fish to eat, rain that grows crops; ecosystems are the foundation for livelihoods and jobs for hundreds of millions. More developed economies are no less dependent on a healthy environment: in Europe as well, the numbers of jobs provided directly and indirectly by biodiversity and ecosystem services is huge, at 14.6 million according to studies. Surely something to treasure – particularly in Europe’s current unemployment crisis.

Europe, alongside all developed economies, has an unsustainably high ecological footprint – consuming annually the resources of 2.6 planets, almost twice the world average. This is both unsustainable and unjust. Making the European economy – the world’s biggest – more sustainable will massively reduce the economic pressure on threatened ecosystems locally and globally, as far as the Amazon, the Congo basin, all the world’s oceans.

Things look very worrying, but it is possible to feel positive about the future. The European people have supported the development of some of the world’s most innovative and effective environmental legislation; public awareness and commitment towards the environment have exponentially grown since the establishment of the European Union. Europe has a unique mix of awareness, knowledge, capacity and huge potential for change. It has the power to adopt and mainstream solutions that will safeguard our planet and our future, and lead the global economic revolution towards truly sustainable development. Now is high time for bold European action: this new WWF report provides a concrete and detailed roadmap for this generation of European policy-makers, not the next one, to embrace it with passion and determination. WWF will encourage this much-needed shift and stand firm to make it happen.

Marco Lambertini,
Director General, WWF International

EXECUTIVE SUMMARY

This report presents WWF's analysis and recommendations on why and how Europe¹ should shift to sustainable economies, boldly and rapidly. It is mainly addressed to the EU institutions, notably the Parliament and the Commission² as well as the European Council. WWF puts forward this publication with an ambitious double aim: to show why a new economic path towards sustainability is both a necessity and a huge opportunity for Europe, and to present a concrete and ambitious policy roadmap to EU decision-makers.

THE CHALLENGE: BUSINESS-AS-USUAL IS NOT AN OPTION ANYMORE

“Contrary to the conventional wisdom, it is business as usual that is the utopian fantasy: forging a new vision is the pragmatic necessity.”

Paul Raskin,
Environmentalist,
Founding Director
of the Tellus Institute.

1. The disastrous results of our business-as-usual economy

Evidence suggests that the exceptional economic and financial crisis Europe faces is a systemic failure of our development model. It includes the rapid depletion of our natural capital, continuing excessive footprint due to overconsumption, growing resource dependency, and dire socio-economic and financial turbulence aggravating huge inequalities. Our European economy is still fuelling future crises that will be more damaging, until we risk living in a state of permanent crisis.

Environmental destruction is resulting in skyrocketing costs for our economy. In fact, **strong evidence warns that we cannot afford the cost of inaction.** For Lord Stern, “Delaying action on climate change is a false economy.”³ While significant investment is required to shift to sustainable economies, the cost of inaction is much higher.

The EU political drift: Despite evidence, EU “post-crisis” policies are still following the wrong path

The European path in the last five years showed no significant change. Some decision-makers show strong reluctance to move toward sustainable economies despite the huge potential benefits. **Voices arguing that environmental concerns should be delayed until after the recovery are wrong for three major reasons:**

- Delays in shifting toward a sustainable economy will entail higher costs and greater risks, due to higher environmental damages, infrastructure lock-in and delayed innovation.

- The “grow dirty and clean up later” argument misses the fact that there are large political opportunity costs involved in delaying the transition. The crises are giving the urgency and political feasibility to difficult but necessary reforms for long-term European well-being.
- Reforms for a transition towards a sustainable economy, such as environmental fiscal reform, ending harmful subsidies, investment policies and innovation, can complement and support current efforts to rebuild European economic stability.

2. What are the systemic failures behind the crisis?

Schematically, it is possible to structure the flaws of our market-based economic system around three main issues:

- **The failure to properly measure and value what counts** – by using a short-sighted lead indicator and failing to value ecosystems services, worth almost twice global GDP according to some studies.
- **The failure to ensure prices reflect full costs** – partly based on the former failure. Environmental and social “externalities” – costs not reflected in market prices – are huge, evaluated at 13% of the 2009 world GDP. The flawed, artificially low prices of products and services with negative externalities are massively distorting competition with and impeding the development of innovative, cleaner alternatives. Environmentally harmful subsidies are another major area of concern.
- **The failure to consider limitations and boundaries to the market** and to reflect them properly through regulation – by ignoring the limits of our planet (resource scarcity) and failing to end “casino finance”.⁴

THE WAY FORWARD: A STEP CHANGE TO BUILD SUSTAINABLE EUROPEAN ECONOMIES

1. Greening our economies: a new path for better well-being

A “green economy” is a realistic alternative. Momentum is growing, with the Organisation for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP), World Bank, other institutions and 65 countries (according to the Green Economy Coalition) at least partly engaged. Europe needs a project with a new vision that can help to reconnect European policy-makers and citizens behind a common goal. Creating sustainable economies in Europe that improve citizens’ well-being has the potential to become that project.

WWF defines European sustainable economies as resilient economies that provide a better quality of life for all within the ecological limits of the planet. Sustainable economies are the means to achieve equitable and sustainable development.

Most effective policies to shift toward sustainable economies

Measure what counts

- Measure what counts with “beyond GDP” indicators
- Assess and account for natural capital

Set up prices that reflect full costs

- Make pollution and resource-depleting activities an expensive business
- Remove environmentally harmful subsidies⁵

Regulate when the market is ineffective or insufficient

- Devise proactive and effective regulations and standards
- Mainstream eco-conditionalities into public spending and infrastructure development

Set up complementary support measures

- Foster eco-innovation
- Increase private investment in green economic sectors
- Improve information disclosure to empower consumers

Maximize policy synergies and multiple benefits

2. The enormous benefits for Europe

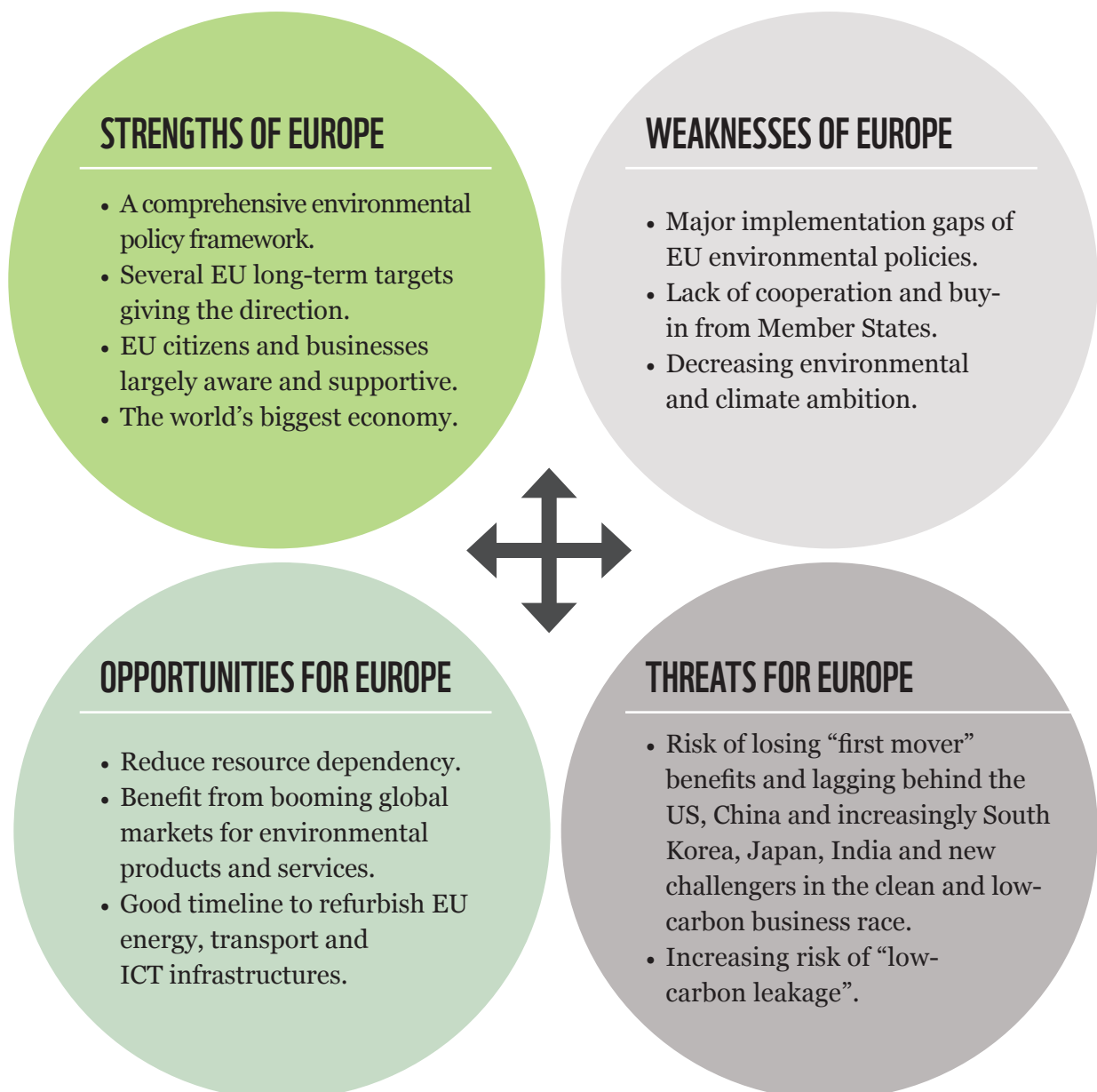
Ample evidence shows that a rapid transition to sustainable European economies has the potential to deliver huge and multiple benefits:

- **Environmental benefits:** enormous reductions of pollution, such as greenhouse-gas emissions, and much better conservation (and restoration) of ecosystems can be expected.
- **Jobs benefits:** According to the European Commission “*up to 20 million jobs could be created between now and 2020 in the green economy*”, which is one of the three most promising sectors identified by the Commission for job creation. Across Europe, low-carbon sector jobs have grown significantly, even in those countries experiencing severe recession like Spain.
- **Economic benefits:** Four types of economic benefits can be identified: cutting the cost of inputs; improving competitiveness of EU industry; supporting fiscal consolidation; and increasing security, independency and resilience. For the OECD, “*acting now is not only environmentally rational, it is also economically rational*”. Studies find that resource efficiency could save EU industry up to €630 billion per year. Evidence shows that environmental innovation drives competitiveness, environmental regulation can boost exports by developing new markets, and environmental fiscal reform has little or no negative impact.

- **Social and health benefits:** For UNEP, “*The greening of economies is (...) a net generator of decent jobs, and it is also a vital strategy for the elimination of persistent poverty.*” Reducing pollution (notably air pollution) will bring significant health benefits.
- **Global benefits:** On a finite planet, reducing the EU’s excessive ecological footprint will reduce the economic pressure on global resources and threatened ecosystems and show leadership.

3. Why Europe should rapidly shift to sustainable economies

In addition to its moral and legal obligation, the EU – more than any other major region in the world –has an intrinsic interest to rapidly go green.



THE RECOMMENDATIONS: FIVE POLICY ACTIONS FOR SUSTAINABLE ECONOMIES IN EUROPE

These recommendations are mainly focused toward EU institutions in the next five years – the European Parliament and Commission as well as the European Council. WWF identifies five high-level priorities:

Priority 1. Set a new strategic vision for Europe from now to 2050

A renewed strategic vision for Europe and a step change in political will are essential. To ensure clarity, such a strategic vision must be translated into several complementary elements:

- **An overarching 2050 goal** embedded in an umbrella economic strategy (the Europe 2020 strategy – currently being reviewed – and the future Europe 2030 strategy);
- **A set of four key enabling frameworks** to foster the economic transition towards sustainable economies;
- **Five cross-cutting priority policies** that complement the four enabling frameworks, and aim to incentivize and accelerate the transition towards sustainable economies.

Priority 2. Design an ambitious enabling framework for climate and energy by 2030

The EU has already built a climate and energy framework for 2020. It is now moving to a 2030 framework, which most importantly must put the EU on a stable and secure path toward the 2050 targets:

- Achieve the 20% energy-saving target by 2020;
- Maximize the flexibility left by the Council to get closer to the following targets for 2030: 40% energy savings, 45% renewable energy, 55% CO₂ reduction;
- Implement complementary demands for 2030: fix the carbon market failures permanently, build a pan-European electricity grid and set up binding sustainability criteria for renewables.

Priority 3. Complete an enabling framework for resource efficiency and management

The EU still lacks a fully integrated framework for resource use that would link the different parts coherently under an umbrella approach with a few flagship targets:

- Set a binding and ambitious resource efficiency headline target by 2030, use a set of relevant indicators for measuring European resource use and finalize the framework for ecosystem valuation and accounting;
- Protect our natural capital: halt the loss of nature and secure clean and healthy waters;
- Produce sustainably: recover fish stocks, ensure a sustainable European agriculture and transform the EU economy into a circular economy;
- Consume natural resources sustainably: foster more sustainable and healthy consumption, stop illegal timber trade and reduce EU impact on deforestation and end illegal fishing.

Priority 4. Build a supportive fiscal and financial framework

Despite the post-financial-crisis regulatory effort, the EU has not yet built a comprehensive and integrated fiscal and financial framework enabling the achievement of policy targets through adequate financial support. An integrated framework is needed to progressively mobilize financial support for sustainable economic activities and disincentivize the support of harmful activities:

- Eliminate environmentally harmful subsidies;
- Environmental tax reform: tax the bads not the goods;
- Ensure better spending of the EU budget;
- Refocus public finance on sustainable economies;
- Make private finance support a real and sustainable economy.

Priority 5. Achieve a renewed international leadership

EU domestic action to rapidly shift to sustainable economies should lead to a renewed international leadership from Europe articulated around four areas:

- Support a new global vision with post-2015 Sustainable Development Goals;
- Scale up public financing for sustainable development and global public goods;
- Improve Policy Coherence for Development;
- Ensure corporate reporting and accountability.

Building sustainable economies in Europe in 5 steps

| EU economic policy overarching framework | | |
|--|---|--|
| EU long-term goal | Maximize the sustainable well-being of Europe's citizens | |
| 2050 result | Europe is the first global leader to have fully achieved its transition to sustainable economies | |
| Overarching economic strategy | | |
| 2020 and 2030 targets | Should notably include the framework's targets below | |
| 2050 roadmap | To be developed | |
| Instruments | EU Semester | |
| Cross-cutting policies | | |
| What? | Aim | Instrument |
| Eco-innovation policy | Fostering eco-innovation | Horizon 2020 research fund |
| Green job policy | Re-skilling, up-skilling people | EU budget notably European Social Fund |
| Green public procurement policy | 2020 target: 100% GPP achieved | Common sectoral criteria |
| Beyond GDP measurement policy | Rebalance environmental, social, economic indicators | Beyond GDP initiative |
| Empowering consumers policy | Provide information helping to shift consumer behaviour | Eco-labelling, smart metering |
| Climate change and energy framework | | |
| 2020 targets | 20-20-20 | |
| 2030 targets | 55% CO2 cut 40% energy efficiency 45% renewable energy | |
| 2050 targets | 95% CO2 cut 100% renewable energy | |
| 2050 roadmap | Low carbon/ energy/ transport roadmaps | |
| Instruments | Energy efficiency and renewables directives Emission trading system Emission performance standard, etc. | |
| Resource efficiency and management framework | | |
| 2020 targets | End EU biodiversity loss Accounting of ecosystem services | |
| 2030 targets | Significant cut of EU resource consumption Restoration of a significant amount of ecosystems | |
| 2050 targets | 95% CO2 cut 100% renewable energy | |
| 2050 roadmap | Resource efficiency roadmap | |
| Instruments | Key environmental directives, circular economy package, etc. | |
| | Supports | |
| Fiscal and financial framework | | |
| 2020 targets | End of environmentally harmful subsidies | |
| 2030 targets | Public and private funding for sustainable economies (measurable targets to be defined) | |
| 2050 roadmap | To be realized/ some financial elements in low carbon, energy, transport, resource-efficiency roadmaps | |
| Instruments | To be defined | |
| | | Policy Coherence for Development (ensuring consistency) |
| | Drives | |
| International leadership | | |
| Post-2015 targets | Sustainable Development Goals | |
| 2050 roadmap | To be done in partnership with relevant international organizations and other stakeholders | |
| Instruments | Policy Coherence for Development/ etc. | |

INTRODUCTION

“Contrary to the conventional wisdom, it is business as usual that is the utopian fantasy: forging a new vision is the pragmatic necessity,” wrote Paul Raskin.⁶ This report presents WWF’s analysis and recommendations on why and how Europe⁷ should shift to sustainable economies, boldly and rapidly. It is mainly addressed to the EU institutions, notably the Parliament and the Commission⁸ as well as the European Council. WWF defines European sustainable economies as resilient economies that provide a better quality of life for all within the ecological limits of the planet.⁹

Why this new publication? There is already a large body of literature available at the global and European level on the negative impacts of the business-as-usual “brown economy” and the alternatives of a sustainable, low-carbon economy. WWF largely builds on this literature, and puts forward recommended reading. But the studies at the global level are not specific enough to reflect European features. At the European level, meanwhile, most publications focus on one specific area of the sustainable economy agenda – the low-carbon economy primarily, or other areas like green jobs or innovation. Very few reports put forward an integrated approach, and many recommendations remain relatively general.

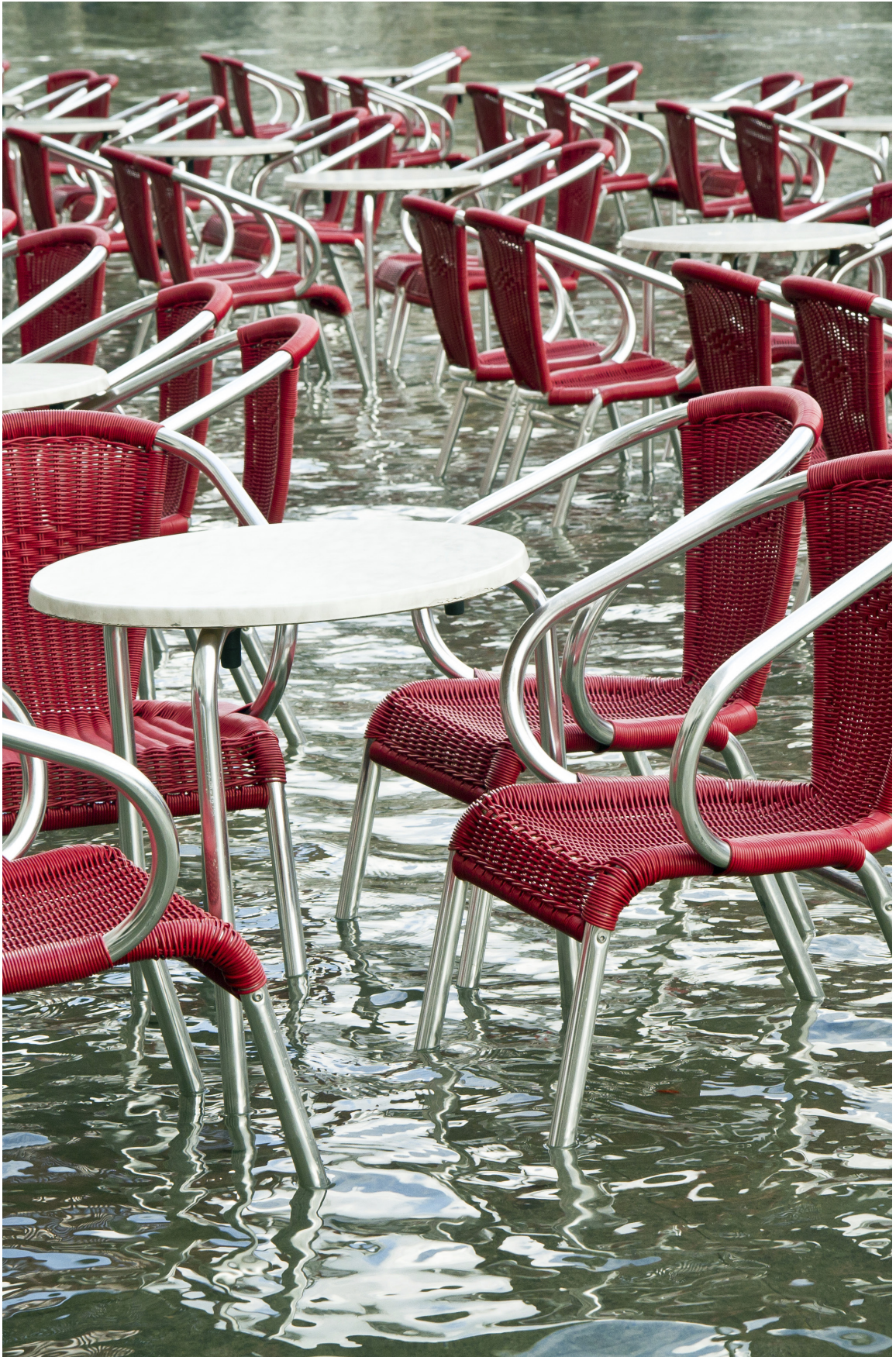
**FOR WWF, EUROPEAN
SUSTAINABLE
ECONOMIES ARE
RESILIENT ECONOMIES
THAT PROVIDE A
BETTER QUALITY OF
LIFE FOR ALL WITHIN
THE ECOLOGICAL
LIMITS OF THE PLANET**

As a result, WWF puts forward this publication with an ambitious double aim: to show why a new economic path towards sustainability is both a necessity and a huge opportunity for Europe, and to present a concrete and ambitious policy roadmap to EU decision-makers. Exploiting opportunities by ensuring a rapid transition to sustainable economies will not be an easy ride: it is a challenge that requires bold leadership and wholehearted commitment to action. But improving – or even maintaining – our well-being in Europe with a business-as-usual economic path riddled with commodity price spikes, resource depletion costs, growing climate damages and financial and economic instability is more and more unrealistic.

The report is structured as follows:

- **The first part presents the multiple challenges Europe faces.** Evidence suggests that the current crisis – environmental, economic, financial and social – is systemic and forces us to shift to a new model. Skyrocketing costs resulting from environmental destruction (like climate change) make the business-as-usual economy stone dead. The main failures of our economic system are assessed.
- **Building on this challenging state of play, the second part presents a path toward European sustainable economies:** the approach and the key policies are proposed, and the enormous multiple benefits that Europe could obtain from such a transition are assessed. A SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis shows why Europe has an intrinsic interest to ensure a rapid and bold transition. This new path has the potential to be the visionary project Europe is currently lacking to improve citizens' ownership and deepen European integration in a positive way.
- **The third part presents a concrete policy roadmap to operationalize the transition toward European sustainable economies.** Its focus is on achievable policy-making in the next five years as a key step for the longer-term transition. Based on the former parts it shows that five key areas should be integrated to ensure maximum results: a new strategic vision for Europe; a bold climate and energy framework; a complete resource efficiency and management framework; a supportive fiscal and financial framework; and a renewed international leadership. In each area WWF addresses clear and specific policy recommendations.

WWF hopes that this publication will inspire European decision-makers to create an ambitious policy framework that will allow our communities and businesses to innovate and prosper in a sustainable way.



1. THE CHALLENGE: BUSINESS-AS-USUAL IS NOT AN OPTION ANYMORE

1.1. The disastrous results of our business-as-usual economy

Europe is in the midst of an exceptionally serious crisis. But what we see is just the tip of the iceberg. At its base is the unsustainable use of all our resources – natural, financial and human. The ecological, economic, social and political crises are intertwined and reinforce one another.

1.1.1. The “ecological recession”: we are devouring our planet¹¹

“Economies are teetering. Inequality is growing. And global temperatures continue to rise. We are testing the capacity of the planet to sustain us. [...] The signposts are clear: we need to change dramatically.”

UN Secretary General's
High Level Panel on Global
Sustainability¹⁰

Rapid exhaustion of our natural capital

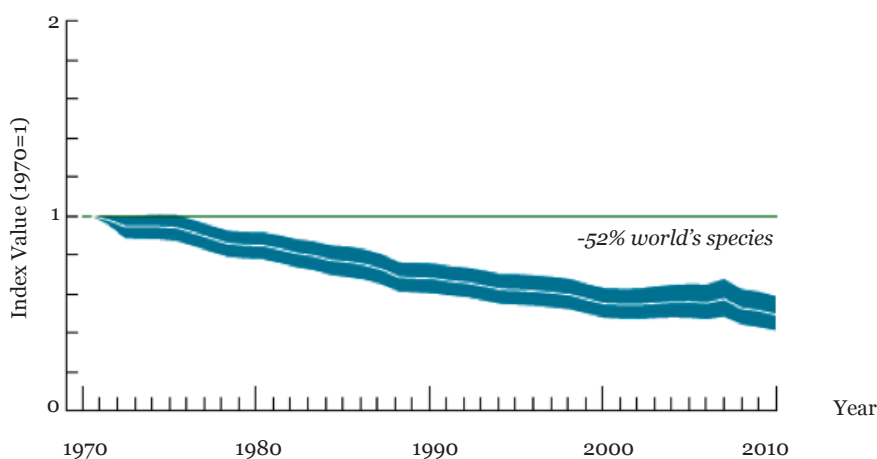
Some negative impacts of our economy have been successfully addressed, such as halting damage to the ozone layer or reducing acid rain.¹² But despite these efforts, we still fall short of living within our natural means:

- Since 1900, the world has lost almost half its wetlands.
- 90% of commercial fish stocks are fully exploited, overexploited or depleted. If current trend continues, no commercially viable fish stocks will exist by 2050.¹³
- Around 85% of the world's agricultural land has been degraded due to unsustainable agricultural practices and 12 million hectares of land are lost to desertification annually.

The alarming loss of biodiversity is captured in a key indicator: **the Living Planet Index**.¹⁴ **This has declined by 52% globally since 1970** due to deforestation, habitat loss, pollution, over-exploitation and climate change.

Figure 1.
Living Planet Index
1970-2010

Source: WWF/Zoological Society
of London (2014), Living Planet
Report 2014





**HUMANITY WILL
CONSUME RESOURCES TO
THE EQUIVALENT OF TWO
PLANETS BY 2030 AND
NEARLY THREE PLANETS
BY 2050**

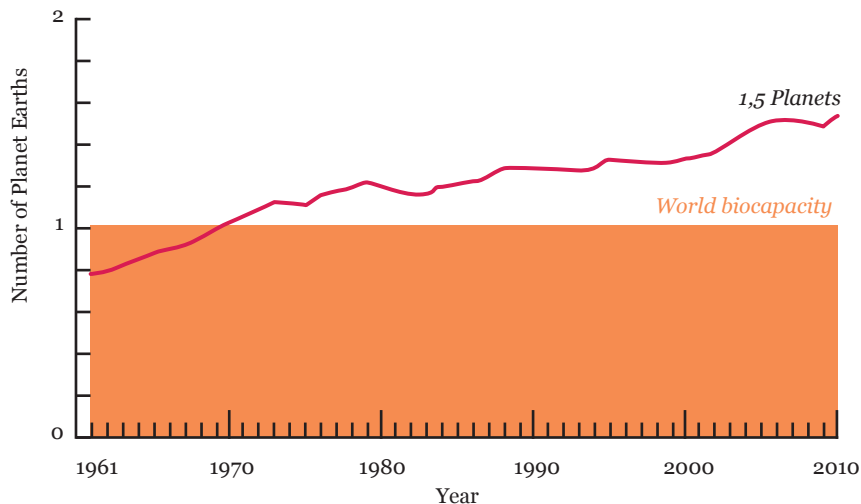
Excessive footprint from over-consumption

Another key indicator, the Ecological Footprint¹⁵, shows that, **globally, humanity consumes 50% more natural resources than the planet has capacity to regenerate**. In 2014 the global “overshoot day” (the date when we have totally consumed what the planet can produce sustainably in a full year) happened on 19 August – earlier than ever.¹⁶ We compensate for living beyond our ecological means by eating into our natural capital, at significant risk to our future prosperity. In a business-as-usual scenario, humanity will consume resources to the equivalent of two planets by 2030 and nearly three planets by 2050.

In such a scenario ecosystems may collapse: the capacity of vulnerable ecosystems to provide goods and services for human societies and to respond to possible shocks such as climate change is decreasing at an alarming rate.¹⁷ For the OECD “there is compelling scientific evidence that natural systems have ‘**tipping points**’, or biophysical boundaries, beyond which rapid and damaging change becomes irreversible”: this “could endanger two centuries of rising living standards”.¹⁸ The risk of tipping points is also underlined for climate change.¹⁹

**Figure 2.
Ecological Footprint**

Source: WWF/Global Footprint Network (2014), Living Planet Report 2014



1.1.2. The skyrocketing costs of environmental destruction for our economy

“I got it wrong on climate change – it’s far, far worse.”

Lord Stern, 2013²⁰

Scientific and economic evidence makes clear that the emerging ecological crisis is very likely to dwarf the current economic crisis:

- According to the Stern review²¹ the global costs of climate change could be between 5% and 20% of GDP per year if we fail to act, dwarfing the costs of effective international mitigation action, estimated at around 2% of GDP in 2050.²²
- According to the International Energy Agency (IEA), each year of delayed climate mitigation action adds US\$500 billion to the global low-carbon energy investment bill between 2010 and 2030 to meet the 2°C climate goal.²³
- The Economics of Ecosystems and Biodiversity (TEEB) study estimated that globally we lose biodiversity each year that would have produced ecosystem services worth above €50 billion per year, in every subsequent year. It accumulates: the total loss is an astounding €545 billion for the decade 2000-2010 – 1% of world GDP in 2010. By 2050, cumulative loss of ecosystem services will reach €14 trillion a year - around 7% of projected global GDP.²⁴
- The International Monetary Fund (IMF) reported that damage from natural disasters of all kinds increased from US\$20 billion per year in 1990 to over US\$100 billion per year in 2010.
- According to McKinsey, global resource prices in real terms have reached record levels, unseen since 1900.²⁵


In short, strong evidence warns that we cannot afford the cost of inaction. While significant investment is required to shift to sustainable economies, the cost of inaction is much higher. Economically, it is highly counter-productive to avoid taking early and ambitious action to prevent environmental destruction and mitigate climate change. For the IEA, a major shift away from high-carbon energy systems by 2017 is essential.²⁶

In addition environmental, economic, social and geopolitical problems are interlinked. Environmental destruction and growing scarcity of resources have significant and growing economic and social costs²⁷ that can have major repercussions:

- Increased frequency of droughts and floods is contributing to rising food prices and social unrest in developing countries. According to several studies, drought in eastern China in winter 2011 led to a doubling of global wheat prices, which contributed to the Arab Spring.²⁸


- The dramatic rise in commodity prices, particularly oil, played a role in fuelling the financial and economic crisis. In the US, an explosion in global “petrodollars” contributed to the glut of cheap credit that fuelled the subprime boom, becoming the largest global source of capital outflows in 2006.

1.1.3. A dire socio-economic and financial crisis aggravating huge inequalities



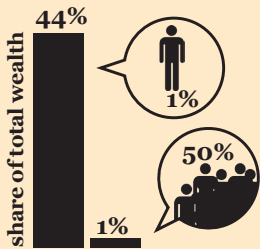
In Europe 20 million people lack access to quality water

Globally, a billion people still live on less than a dollar a day, and their needs for basic education and health services, clean water and sanitation, and clean energy are not met. Even in the EU, 20 million people lack access to quality water and safe sanitation.²⁹



30-50% of food is wasted globally

There are still more than a billion people worldwide suffering hunger – although our global agriculture produces enough calories for all.³⁰ Meanwhile a staggering 30-50% of all food produced around the world – between 1.2 and 2 billion tonnes per year – is lost or wasted.³¹



share of total wealth

| | |
|-----|-----|
| 1% | 44% |
| 50% | 1% |

Income inequality both within and between countries has increased over the last two decades.³² By 2011 the top 1% of the global population owned 44% of global assets, while the bottom 50% owned barely 1%.³³

At the global level, alarmingly many socio-economic indicators are still in the red or even going backwards. The international community is not on track to meet all the Millennium Development Goals.³⁴ Rising inequality has not only been the focus of interventions by Pope Francis,³⁵ the IMF’s Christine Lagarde³⁶ and President Obama:³⁷ in 2014, even the World Economic Forum sees “structurally high unemployment” as the second-highest global risk and “severe income disparity” as the fourth highest³⁸.

80% OF THE WORLD’S POPULATION RECORDED A RISE IN INEQUALITY OVER THE PREVIOUS TWO DECADES³⁹

Rising levels of inequality are related in complex ways to environmental sustainability. Poorer people suffer most from environmental damage, because they tend to live in more vulnerable places such as drylands; their livelihoods and well-being depend more directly on the conditions of local ecosystems; and they have less access to financial resources and social protection.⁴⁰ At the same time, particularly with regard to climate change, poorer people (in both rich and poor countries) are the least responsible for environmental destruction but the most affected. The result is growing inequalities.

ONLY 18 COUNTRIES OUT
OF 117 ANALYSED HAVE
HAD A “SUCCESSFUL”
GROWTH EXPERIENCE
TO REDUCE POVERTY
AND INEQUALITY:
85% FAILED

It has been long assumed that economic growth automatically brings poverty reduction and less social inequality. But ample evidence shows that this has not been the case in most parts of the world in the last two decades, including in Europe:⁴¹ World Bank research showed that in the 1990s, only 18 countries out of 117 analysed could be defined as having had a “successful” growth experience to reduce poverty and inequality – an 85% failure rate.⁴² Many more socio-political and legal factors are required to reduce poverty and inequalities.⁴³

Financial system: the “age of irresponsibility”⁴⁴

The financial crisis was triggered by a combination of several factors. There is now broad agreement that complex and risky financial innovation, weak regulatory oversight, global imbalances and expansionary monetary policy played an important role.⁴⁵ Continued expansion of credit and massive debt creation were deliberately courted as essential mechanisms to stimulate consumption growth. The whole was exacerbated by financial institutions’ ability to exploit loopholes in capital regulation and the growing importance of the unregulated “shadow banking system”,⁴⁶ highly dependent on short-term funding. More generally many financial institutions demonstrated structurally irresponsible behaviour including myopic short-termism, mainstreamed excessive risk-taking, institutional greed and disproportionate individual bonuses.

FINANCE BY FINANCE
FOR FINANCE

In short, there is powerful evidence to suggest that **the modern financial industry largely serves its own interests at the expense of the rest of the economy (“finance by finance for finance”)**, rather than creating wealth more broadly. This led in 2008 to “the greatest crisis in the history of finance capitalism” according to the British Financial Services Authority.⁴⁷

This model was unsustainable ecologically. It has now proven itself unstable financially. The impact on the real economy is disastrous – notably on small and medium-sized enterprises that form the backbone of the economy and struggle to access finance.

1.1.4. Europe bogged down in a multiple crisis

The crisis is not only happening at the global level: Europe is stuck in a crisis of environmental destruction, pollution costs, unemployment and financial instability.

- In the EU, 65% of habitats and 52% of species are under serious threat;⁴⁸ the EU failed to reach its target of stopping biodiversity loss by 2010.
- The Ecological Footprint of the EU is 2.6 planets – 1.7 times bigger than the world average.⁴⁹ This means that Europe consumes the share of others.
- Climate change is already here: EU damage from flooding over the period 2002-2013 cost at least €150 billion.⁵⁰
- Air pollution costs the EU around €537 billion every year,⁵¹ causing some 500,000 premature deaths annually.⁵²
- EU unemployment grew from 9.1% in 2003 to 10.8% in 2013 (24.8 million people), with levels of 21.8% in Greece and 23.6% in Spain.⁵³
- Over the past decade, environmental taxation has been falling as a percentage of GDP in the Eurozone (2.3-2.6% of GDP in 2009, down from 2.6-2.7% of GDP in 2000).

The socio-economic crisis poses tremendous challenges to the EU. Public finances in most EU Member States are in an unsustainable condition. Unemployment is high – especially for the young.⁵⁴ Austerity measures in many countries are having a disproportionate impact on lower-income groups, poverty is rising⁵⁵ and public health gets degraded in countries like Greece.⁵⁶

THE FINANCIAL SYSTEM IS SUPPORTING THE PRE-CRISIS ECONOMY, PAVING THE WAY FOR FUTURE ENVIRONMENTAL, ECONOMIC AND SOCIAL CRISES

To fix the failures of the financial system, the EU institutions have reviewed several macro-financial regulations (for example the Capital Requirements Directives), and new European regulatory bodies have been created. **But the financial sector seems to be largely back to business as usual.** What is still missing from the reform is “systemic thinking”, as in the limited efforts in the area of banking regulation and prudential supervision,⁵⁷ and EU reluctance to undertake initiatives such as the real separation of banking activities between (more secure) saving banks and (more risky) investment banks.⁵⁸

In addition, these reviews have focused entirely on fixing the “traditional” failures of the financial system: they didn’t question the missing financial shift towards a sustainable economy. The longer-running sustainable finance reform agenda has barely made an impression despite the significant amount of initiatives created.⁵⁹ **As a result the financial system is still massively supporting the business-as-usual economy – paving the way for future environmental, social and economic crises.**



**EU'S FOSSIL FUEL
DEPENDENCE: BY 2030
84% OF GAS AND 95% OF
OIL WILL BE IMPORTED**

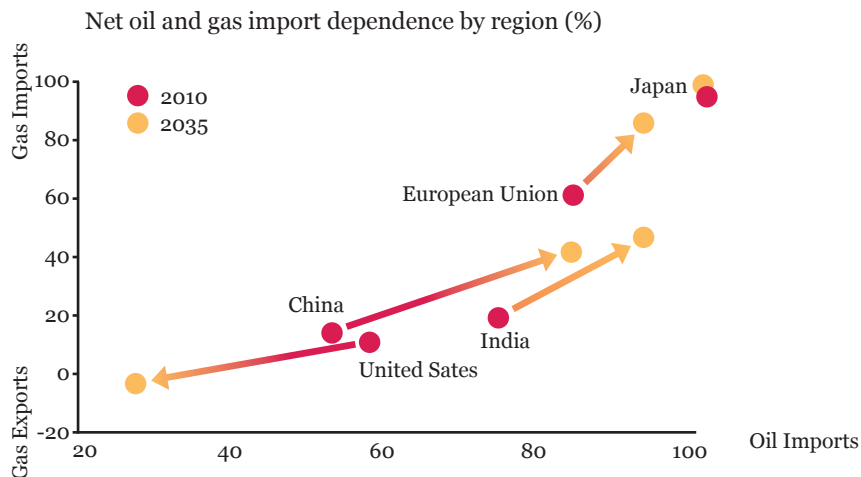
1.1.5. EU resource dependency at its highest and still growing

- The EU economy is increasingly vulnerable to resource scarcity and external shocks: raw materials imports (including energy) accounted for an astronomic €528 billion in 2010, roughly 30% of total EU imports.⁶⁰
- Europe's reliance on gas imports is expected to increase from 58% today to 84% by 2030, and oil import dependency will rise from 82% to 95%.⁶¹ By 2035 the EU fossil fuel import bill will rise to over US\$615 billion per year according to the IEA.⁶² Half the Member States (14 out of 28) already rely entirely on imported gas supplies⁶³ and the EU is no longer self-sufficient in coal.
- Europe's inability to use energy efficiently will result in €100 billion wasted annually by 2020 according to the Commission.⁶⁴

Despite skyrocketing fossil-fuel import costs impeding its economy, the EU is still not on track to achieve its 2020 energy-efficiency target. The Ukraine/Russia crisis made the EU fossil-fuel dependency and vulnerability even more obvious. Unless we change course, the EU will become even more dependent on fossil-fuel imports over the next 25 years, further increasing our exposure to rising and increasingly volatile fossil-fuel prices. **Risks to EU energy security will grow as long as our dependency on fossil-fuel imports grows.**⁶⁵

**Figure 3.
IEA forecasts for
oil and gas import
dependency**

Source:
Green Growth Group, 2013



But the issue is the same with all resources, not only fossil fuels. The UK, for example, imports over one third of the total biomass (food, fibre, timber, biofuels, etc.) it uses.⁶⁶ However, the EU still doesn't have a proper policy framework to deal with its growing resource dependency.

1.1.6. The European political drift: EU “post-crisis” policies are still following the same wrong pre-crisis path

If European decision-makers are seriously concerned about Europe living beyond its means, they should become seriously concerned about Europe exhausting its natural capital. Despite the recent resource-efficiency agenda, the European path over the last five years hasn't shown a significant change.

“Insanity is doing the same thing over and over again and expecting different results”

Attributed to Albert Einstein

On the contrary, a focus on macro-economic issues like the euro, banks, public debt and budget cuts found their way to the top of the agenda. It is likely that this “dry” macroeconomic agenda – seen as far from citizens' daily concerns – and the austerity policies pushing millions into a precarious situation have aggravated European citizens' disillusionment and increased the loss of confidence in conventional politics. Increasing numbers of EU citizens no longer support or value the EU agenda, partly explaining the rise of euro-scepticism. Alarming, this is isolating the EU from its citizens and threatening the EU project as a whole. The crisis is also jeopardizing solidarity and political trust between Member States.

Worse, while EU institutions and Member States are largely aware of and recognize environmental challenges, the crisis is being used by some decision-makers to abandon environmental ambition, or to consider environmental objectives as an unaffordable barrier to economic recovery.

George Osborne, Chancellor of the Exchequer in the UK, has famously labelled climate-change protestors the “environmental Taliban”.⁶⁷ Two main arguments are being used:

- *The “grow dirty and clean up later” argument:* we will care about the environment once economic growth is back, we can't afford it in between.
- *The “red tape” argument:* EU environmental regulation is imposing a costly burden on EU business that weakens its competitiveness and is not affordable anymore.

SIGN UP TO WWF CRISIS WATCH WEBSITE ON ENVIRONMENTAL ROLLBACK AT EU AND NATIONAL LEVEL (WWF.GR/CRISIS-WATCH)

Many recent policies illustrate these backward trends and risk setting the foundations for deeper ecological crises – that will unavoidably cost more to our societies and deepen socio-economic turbulence. WWF has developed a CrisisWatch website (wwf.gr/crisis-watch) and newsletter to report any weakening of the EU environmental acquis or implementation failures at EU and Member State levels.

Recent cases of environmental rollback in Europe

- A WWF-Greece report documents a systematic process of dismantling Greece's already poor environmental laws – required to a large extent by the Troika (European Central Bank, Commission, International Monetary Fund-IMF) and due to an equally large extent to specific governmental initiatives.⁶⁸ This includes a destructive coastal bill announced in April 2014, and a new spatial-planning law facilitating constructions in Natura 2000 areas protected by the EU's Habitats Directive.⁶⁹
- At the end of 2012 the European Commission puts forward the ambiguous REFIT (Regulatory Fitness and Performance Programme) “to make EU law lighter”.⁷⁰ While reducing administrative burdens is certainly welcome, it is unclear – notably with the EU environmental acquis – whether the aim of the initiative is to administratively simplify the EU legislation or rather to weaken its policy ambition. Some conservative voices are already using this agenda to loudly call for some EU environmental regulations to be weakened, despite strong justification of these regulations based on a large body of evidence and experience.

Voices arguing that environmental concerns should be delayed until after the recovery are wrong for three major reasons:

**CLEANING UP LATER
COULD BECOME
PROHIBITIVELY
EXPENSIVE OR SIMPLY
IMPOSSIBLE**

1. Delays in shifting toward a sustainable economy will entail higher costs and greater risks, due to higher environmental damages, infrastructure lock-in and delayed innovation.⁷¹ According to the World Bank, cleaning up later can become prohibitively expensive or simply impossible in the case of irreversible impacts like climate change and biodiversity loss.⁷² An energy- and resource-intensive growth can't be sustained for long as high resource prices and environmental damage costs will constrain it.⁷³
2. The “grow dirty and clean up later” argument misses the fact that there are large political opportunity costs to delaying the transition. The crises give urgency and political feasibility to implement difficult but necessary reforms that could lay sustainable foundations for long-term European well-being.
3. Reforms for a transition toward a sustainable economy, such as environmental fiscal reform, ending harmful subsidies, investment policies and innovation can potentially complement and support the current crises response for rebuilding European economic stability.

“Delaying action on climate change is a false economy”

Lord Stern⁷⁴

Political uncertainty is wasting opportunities

The contradictory or backward-looking signals from governments in the areas of low-carbon development, energy and resource efficiency, or even on the EU environmental acquis, have led to significant political uncertainty – now considered as a major risk for investors. Jeopardizing trust of investors and business leads to reduced or stalled investments – resulting in delayed or lost opportunities for jobs, innovation, business and exports, hampering a sustainable exit from the crisis:

- For Eurelectric, “until the current conflicting and contradictory signals are resolved, investors will avoid the European electricity market... the delay while we wait for a policy signal poses a serious threat to security of supply and to the feasibility of meeting climate targets. Crucially it puts at risk the goal of affordable energy.”⁷⁵
- The energy-efficiency company Knauf is shutting down a plant in Italy because its CEO doesn’t see energy-efficiency investments happening in Europe today. At the same time it is opening new plants in the US, Asia and Turkey⁷⁶ – a clear example of low-carbon leakage.

Conclusion: A systemic crisis requires a systemic change

Put together, evidence suggests an exceptional crisis: a systemic crisis of our development model. With continuing excessive footprint, rapid depletion of its environment and growing resource dependency, our EU economy is still fuelling future crises that will be more damaging, until we risk living in a state of permanent crisis. An exceptional crisis requires an exceptional reaction, but Europe is still primarily supporting a business-as-usual economy, instead of shifting to a sustainable economic path. We have to create something far better or risk collapse into something far worse.

**AN EXCEPTIONAL
CRISIS REQUIRES AN
EXCEPTIONAL REACTION
TO AVOID FAR WORSE
FUTURE CRISES**

1.2. What are the systemic failures behind the crisis?

Did anything suddenly go wrong in our economic system? Does the financial crisis explain it all? The answer is no: in fact, there is nothing really new in the current crisis. Rather, many failures and flaws have accumulated and interacted so much in the last decades that they now form major systemic risks to the world economy.⁷⁷

Our economic system was designed in a world that was relatively empty of humans. Now world population exceeds 7 billion people, including 1.8 billion middle-class consumers. In addition, life expectancy has been increasing, along with the proportion of the world's population living in urban areas. Under current conditions these demographic trends are putting huge pressure on the global environment and resources. World population could reach 9.6 billion by 2050,⁷⁸ but just as significant is the projected rise in middle-class consumers – to 3.2 billion by 2020 and 4.9 billion by 2030.⁷⁹

In addition to this demographic challenge, **we can analyse the flaws of our market-based economic system around three main issues:**

- **Its failure to properly measure and value what counts;**
- **Its failure to set prices that reflect full costs – partly based itself on the former failure;**
- **Its inability to think limits and boundaries and to reflect them properly through regulation. Regulation is also required when market prices are not sufficient.**

1.2.1. The failure to measure what counts

Using a short-sighted lead indicator

Since the 1950s the Gross Domestic Product (GDP) has imposed itself at the lead indicator for virtually all governments worldwide – measuring the annual economic growth of a given economy. At the same time, a large body of evidence now shows the limitations of the GDP indicator.⁸⁰

The main limitations of the GDP indicator

1. Failure to account for positive externalities because they have no market price (household labour, volunteering, ecosystem services).
2. Accounting negative externalities as positive when they force spending to repair and restore (pollution, scarcity of water, accidents, ill-health).⁸¹
3. Failure to account properly for depletion of capital, as it concentrates on annual flows not on stocks.⁸² Society should seek to minimize the flows to sustain these stocks because they affect our future consumption possibilities, but GDP counts stock depletion as positive (clear-cutting a forest to sell timber is a plus). As the economic crisis showed in Greece, it cannot be assumed that future growth will compensate for the depletion of assets.⁸³ Climate change threats to future growth reinforce this point (Stern review, TEEB study).
4. Failure to account for inequality (e.g. income and wealth distribution⁸⁴), although it is well known that an additional dollar of income produces more well-being for a poor than for a rich household.⁸⁵
5. Ignoring boundaries beyond which increasing GDP may no longer contribute to quality of life – when the benefits of pursuing short-term economic gain are outweighed by costs to society as a whole, future generations or the planet⁸⁶ (e.g. income inequality, loss of leisure time⁸⁷). Several studies show that quality of life is correlated with GDP growth only up to a certain point. For example while GDP per capita has almost doubled in the US since 1975, the Genuine Progress Indicator⁸⁸ has remained flat and even decreased since then – a finding confirmed through surveys of people’s life satisfaction. Another study showed that beyond US\$12,000 per capita, there is no correlation between GDP per capita and secondary education level.⁸⁹ In other words, higher GDP doesn’t lead to more people benefitting from secondary education; in this case the driver lies elsewhere in public policies.

“The welfare of a nation can scarcely be inferred from a measure of national income”

Simon Kuznets,
originator of GDP

For Karabell, “GDP is extremely good at measuring how much stuff we make, and how much stuff we consume, full stop.”⁹⁰ It is suited to measure economic output – which was appropriate in the post-war 1950s – but does not suit the economies of the 2010s. GDP is totally neutral about the constructive or destructive effects of output; it treats all output as a plus, and therefore it rewards a political system that boosts output and

consumption irrespective of their long-term viability. This is a serious concern given the high degree to which governments today derive legitimacy based on GDP growth. Nobel Prize-winning economist Simon Kuznets, one of the main originators of GDP, was clear about its limitations back in 1934: “the welfare of a nation can scarcely be inferred from a measure of national income.”⁹¹

“We need to move beyond gross domestic product as our main measure of progress, and fashion a sustainable development index that puts people first.”

Ban Ki-moon,
UN Secretary-General⁹⁵

In today’s uncertain context, it is not useful to focus on GDP as a relevant precondition for enabling social progress and environmental sustainability. What matters more than the growth rate is the content of production and the type of consumption.⁹² **Even the job content of economic growth is now very uneven and unstable:** IMF studies show that in Austria, Italy and Portugal, for example, job creation is very poorly correlated to economic growth.⁹³ More broadly the European Policy Centre says that: “[GDP] ignores the other factors necessary for people’s well-being: access to capabilities, useful activities, environmental and physical security, social protection, democratic rights, social integration and sense of belonging to a larger community.”⁹⁴

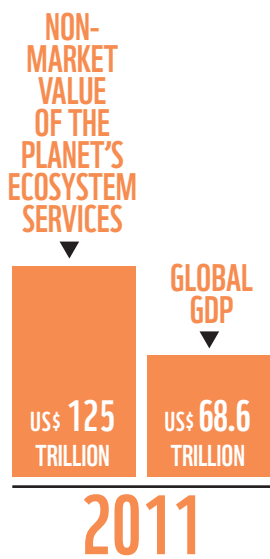
As a reaction, more than 50 alternative indicators have been developed since the 1960s to replace (or at least complement) the GDP indicator, including social, environmental and cross-cutting ones.⁹⁶ This led to high-level statements and commitments from the European Commission, the OECD, the Stiglitz Commission and many more⁹⁷. At the EU level, in 2007 the European Commission, European Parliament, Club of Rome, OECD and WWF hosted the high-level conference “Beyond GDP”⁹⁸ that launched the “Beyond GDP” Initiative. But the economic crisis prompted the immediate and mistaken comeback of GDP as the principal indicator to measure the potential exit from the crisis – limiting once again the European political debate to a single dimension of the crisis, which in reality is far broader.

The “invisible” value of ecosystems services

Example: Valuing the loss of pollinating insects in Europe

Pollination is an ecosystem service. Studies have shown that the rapid loss of pollinating insects in Europe may have disastrous impacts on agricultural production and revenues, as they are essential for the growth of many cultivated plants. The estimated value of insect pollination for European agriculture is €22 billion per year.⁹⁹

A key reason why biodiversity loss and ecosystem destruction is escalating is that the value of their services is largely invisible to decision-makers in government and business. In a market-driven approach, “what is not counted does not count” and is not managed.



This is not a marginal issue: in an updated study published in *Global Environment Change*,¹⁰⁰ **the annual non-market value of the planet's ecosystem services was estimated at US\$125 trillion in 2011 – almost twice the 2011 global GDP of US\$68.6 trillion.**¹⁰¹ This is despite loss of ecosystem services from 1997 to 2011 evaluated at US\$4.3–20.2 trillion. These results have been strengthened by other studies, notably the UN Millennium Ecosystem Assessment and the TEEB study.¹⁰²

People and economies depend on nature – for food, clean air and water, energy, raw materials and a stable climate. Maintaining the flow of these benefits – ecosystem services – is essential for prosperity and as a major contribution towards eradicating poverty.¹⁰³ These benefits depend on biodiversity: the web of life that underpins natural systems.¹⁰⁴ But current policy-making has been predominantly guided and/or supported by an international system of national accounts that provides guidelines for measuring economic activity but no information on the state of the environment, ecosystems or biodiversity. **There is now a global consensus that nature's value is not adequately measured and accounted in government, business and consumer decision-making.** But the issue has improved very slowly, with the first international standard for environmental-economic accounting being published only in 2012¹⁰⁵ (see Part II Chapter 1.2. *Key policies to implement the new path*).

1.2.2. The failure to ensure that prices reflect full costs

Many existing policies and economic incentives mean environmental degradation is often economically profitable, and sustainable choices are harder to make. Several major flaws can be identified:

- Persistent environmental and social externalities;
- Environmentally harmful subsidies;
- Public procurement primarily based on lowest initial cost.

GLOBAL ENVIRONMENTAL EXTERNALITIES AMOUNTED TO US\$6.6 TRILLION IN 2008: 11 % OF WORLD GDP

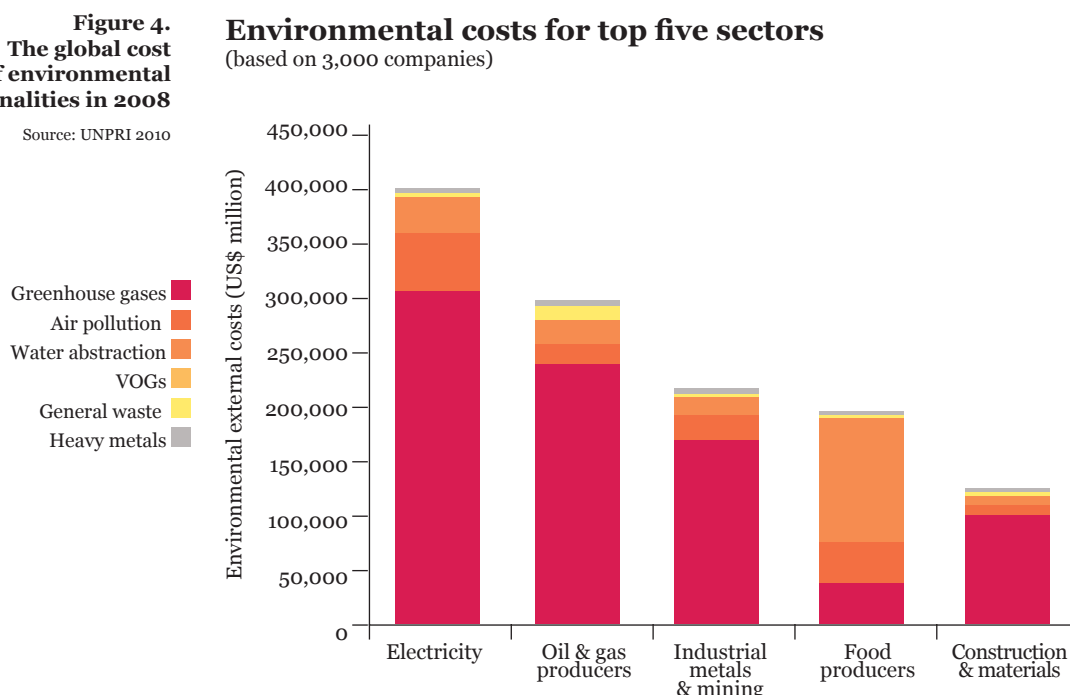
An enormous market failure: huge environmental and social “externalities”

Externalities are costs not covered by market prices: they are not paid by producers (e.g. through the “polluter pays principle”) or consumers, but by default by governments, local communities or the planet. According to the United Nations' Principles for Responsible Investment,¹⁰⁶ global environmental externalities amounted to US\$6.6 trillion in 2008– 11% of world GDP.

This figure is not only astounding: it is also rising at an alarming speed. According to a new study it increased globally to US\$7.3 trillion in 2009 – 13% of world GDP.¹⁰⁷ The majority of unpriced natural capital costs are from greenhouse-gas emissions (38%) followed by water use (25%), land use (24%), air pollution (7%), land and water pollution (5%) and waste (1%). **The study finds that “no high impact sectors generate sufficient profit to cover their environmental impacts”.**

Figure 4.
The global cost
of environmental
externalities in 2008

Source: UNPRI 2010



The reasons of these externalities are manifold:

- Businesses’ key performance indicators do not reflect true value generation, but rather cost minimization under a given regulatory framework (knowledge, materials, production equipment, etc.).
- This has resulted in the externalization of environmental and other full costs and a shortening of reporting cycles (as there is no requirement to integrate long-term impacts of resource depletion or pollution).
- Corporate reward cultures drive this short-termism.
- There is a presiding but flawed market assumption that such a short-term optimization leads to longer-term growth.

Once a given market exists, **entrenched interests** also oppose the internalization of externalities because it increases their costs and favours alternatives of challengers. For example, in a recent event on energy subsidies and externalities the Euracoal lobby made clear that they “clearly do not want to pick up the bill (of coal-related climate change costs) because it would destroy their sector overnight”.¹⁰⁸ Another example is the agricultural lobby in Spain that has long opposed the full cost recovery of the water it uses, despite a legal obligation to do so in the Water Framework Directive. Problematically, many vested interests are very well connected to top policy-makers and can have a disproportionate influence, particularly when the decision-making process is insufficiently accountable and transparent.

There are several mechanisms to address negative externalities (see Part II Chapter 1.2. Key policies to implement the new path), that mainly comprise price-based measures (taxes, subsidies) and quantity-based measures (trading systems) to set boundaries. But despite awareness and tools at their disposal, governments are not acting effectively, as is obvious with the EU carbon market where the depressed carbon price makes low-carbon investments unattractive.

The flawed, artificially low prices of products and services with negative externalities are massively distorting competition with and impeding the development of new, more innovative, cleaner alternatives. For example:

- Europe does not have well-functioning markets for recycling or using secondary raw materials – leading to waste of valuable materials and the continuation of costly imports.¹⁰⁹
- Renewable energy is considered to be more expensive than fossil fuels – but properly integrating environmental externalities leads to opposite conclusions, according to the Commission’s recent landmark study on energy subsidies and external costs.¹¹⁰

“Misallocation of capital is at the centre of the world’s dilemmas and there are immediate actions that can be taken starting today – such as phasing out environmentally harmful subsidies”

Pavan Sukhdev¹¹³
Economist, author of the
Economics of Ecosystems and
Biodiversity (TEEB) report.

Massive environmentally harmful subsidies

Environmentally harmful subsidies (EHS) pose a further challenge: they reflect an ongoing lack of policy coherence. By reducing the price of resources, they further reduce the artificially low prices of products and services with negative externalities and directly hamper the development of greener solutions, eco-innovation and new greener markets. In Europe EHS are found mostly in the sectors of agriculture (notably through the Common Agricultural Policy), transport, fossil fuels, waste, water and fisheries (notably through the European Fisheries Fund).¹¹¹ They include different types of support such as tax reduction for fossil-fuel transport; subsidies affecting sectors such as road transport, farming and fishing; irrigation subsidies; vessel scrapping; biofuel subsidies, and others.

The identification of EHS is not always easy, as they are both on-budget and off-budget. Their quantification is no easier as their effect often needs to be calculated against a norm or baseline, which can be considered a subjective decision. Still, data is increasingly available, especially for fossil fuels: the OECD-IEA Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels,¹¹² complemented by the Commission for EU non-OECD countries, shows that there were €26 billion subsidies for fossil fuels in the EU in 2012, which is very significant. There are attempts to phase out EHS (see Part II Chapter 1.2. *Key policies to implement the new path*).

Public procurement

Public authorities in Europe are major consumers: they spend €2.4 trillion a year – some 19% of the EU GDP.¹¹⁴ By focusing public procurement primarily on lowest initial price, public authorities largely disregard future costs and benefits related to using the given goods and services and neglect negative externalities. They are missing a major opportunity to support more innovative and cleaner alternatives to replace dirty products and develop new markets. Attempts to green public procurement are now taking place in the EU (see Part III Chapter 1.5. *Green public procurement policy*).

1.2.3. The failure to think limitations and boundaries to the market

Ignoring the limits of our planet: the age of resource scarcity

It's the great taboo of our market-based economic system: its inability to recognize and internalize our planet's absolute limits. But after decades of denial, we are now painfully forced to do so.

Investment banker Jeremy Grantham made the following calculation:¹¹⁵ Imagine that in 3030BC the total possessions of the people of Egypt filled one cubic metre. Assume these possessions grew by 4.5% a year. How big would that stash have been by the Battle of Actium in 31BC? Ten times the size of the pyramids? The volume of the planet? The answer is 2.5 billion of billion solar systems. According to the journalist George Monbiot, “it does not take you long, pondering this outcome, to reach the paradoxical position that salvation lies in collapse. Ignore if you must climate change, biodiversity collapse, the depletion of water, soil, minerals, oil; even if all these issues miraculously vanished, the mathematics of compound growth make continuity impossible.”¹¹⁶

**REAL RESOURCE PRICES
HAVE REACHED
RECORD LEVELS UNSEEN
SINCE 1900 ACCORDING TO
MCKINSEY**

During the 20th century, technological progress enabled commodity prices on average to be halved despite a huge increase in demand for resources.¹¹⁷ This trend is now history – forever. In the last decade, a dramatic rise in commodity prices has more than entirely wiped out this decline¹¹⁸ and real resource prices have reached record levels unseen since 1900 according to McKinsey. Despite short-term fluctuations, the medium-term trend continues upwards; it is due to a complex mix of factors including growing demand from emerging markets (especially China, India and Brazil) that industrialize and urbanize;¹¹⁹ geopolitical and resource constraints on supply; and speculation in commodity markets. This is a major challenge, notably for EU countries in economic crisis or stagnation. Historically a drop in demand has led to lower commodity prices, which then aids economic recovery; this is no longer likely.

The rise of commodity prices has a gigantic impact on our economy:

- The latest research has re-evaluated the resource price-macroeconomic relation.¹²⁰ It suggests that in practice a resource price shock can have macroeconomic impacts greater than previously thought. For example the IDDRI shows that exposure of EU countries to fossil-fuel prices has a negative impact on growth and price stability, and hence on Eurozone monetary policy and current-account balance.¹²¹
- According to McKinsey¹²² the marginal costs of resource extraction are increasing, in monetary, resource and environmental terms, as highly productive resources have been tapped already. In other words, resource extraction is itself growing more resource intensive.
- The price and volatility of different resources are increasingly correlated. This is due to increasingly connected global markets, including global financial markets.

As a result of market linkage, substitutability and growing resource intensity of production, resource prices are now more correlated and volatile than at any other time in the last century. Via these mechanisms, economic, geopolitical or environmental perturbations can spread throughout the global economic system, implying a high degree of systemic risk to economic and geopolitical stability.¹²³

IN 2007 DERIVATIVE
CONTRACTS AMOUNTED
TO 596 TRILLION USD, 10
TIMES THE WORLD GDP

The failure to end “casino finance”¹²⁴

The banking crisis of 2008 pushed the world to the brink of financial disaster and shook the dominant economic model to its foundations. **The current turmoil is not the result of isolated malpractice by rogue individuals or simple failures of vigilance by incompetent regulators. It was created by the development model itself, which motivated the excessive freedoms granted to the financial sector.** Derivatives markets are a major example of these excesses. In the past, derivatives were generally used as an instrument to hedge risk (for example for an export business to protect itself against the risk of fluctuating currencies). But some derivatives are now largely used for speculative purposes: the derivatives markets had an explosive growth in the 1990s and 2000s, not correlated with GDP growth. At the end of 2007, the value of over-the-counter derivative contracts was US\$596 trillion globally – more than ten times the world GDP of US\$56.7 trillion.¹²⁵ This represented a larger and more diverse set of market-based speculating opportunities than ever before.

In the meantime, structural deregulations progressively allowed the emergence of “systemic” financial institutions – forcing public intervention in case of collapse to avoid a domino effect. In several cases this resulted in expensive taxpayer bailouts of banks.

Since the financial crisis, strong calls for re-regulation have been issued by EU political leaders¹²⁶ or regulators like Alan Greenspan, the former Chairman of the US Federal Reserve.¹²⁷ Follow-up work took place: on transparency requirements, listing requirements, risk management adjustments, Basel III rules, prudential standards, and so on. **But the derivatives markets – a symbol of the financial excess that caused the crisis – remains poorly regulated and barely any derivative product has been banned by European regulators.** This shows a worrying inability to put proper boundaries to a sector where excessive behaviour and inefficient regulation have been recognized by all.

The inefficiencies and limitations of the market

Beyond the financial sector, there are many more economic sectors where regulators have not been able to set proper boundaries to ensure progress toward full responsibility and sustainability of market-based interventions and stakeholders.

Structurally, our economic system has led to market practice favouring short-term profit maximization – making it harder, in turn, to ensure that market players will care about long-term sustainability. In addition business models are optimized towards maximizing financial return

**OUR ECONOMIC SYSTEM
HAS LED TO MARKET
PRACTICE FAVOURING
SHORT-TERM PROFIT
MAXIMIZATION,
MAKING IT HARDER TO
ENSURE LONG-TERM
SUSTAINABILITY**

on investments. This makes it harder to balance our financial capital with the other capitals we need to manage – natural, human, social and cultural, and built.¹²⁸ There is an assumption that all forms of capital are substitutable, and that maximizing our financial capital creates more wealth for our societies. This is flawed on two counts:

First, a big destruction of natural capital can result in a small increase in financial capital, leading to a total net loss of wealth for our societies. In such a case, a proper cost-benefit analysis should stop the project.

Second, our capitals are substitutable only to a limited extent. At the European level, we have already passed this limit for natural capital, as seen by European biodiversity loss – financial capital will not replace lost biodiversity. Natural capital should be better maintained for its intrinsic value (although this can be different on a case by case basis).

As shown before, valuing properly what counts (notably our natural capital) and internalizing externalities remain challenging. More generally, the situations where market and price instruments may not be effective or sufficient have been analysed by the World Bank:¹²⁹

1. Getting prices right may be difficult because of political or social acceptability issues.
2. Getting prices right may not be sufficient because other market imperfections can prevent prices from being effective. These imperfections include low price elasticity, missing markets, lack of credibility and predictability of price signals and coordination failures.
3. Inertia and biases in behaviour mean many cost-effective efficiency measures are not implemented.¹³⁰ The typical example is energy efficiency, where evidence from the IEA shows barriers such as split incentives, lack of awareness or project fragmentation.¹³¹
4. Financing tools to tackle upfront investments are often inadequate.

Where market and price instruments are unable or ineffective to incentivize sustainable projects (or disincentivize unsustainable ones), regulations, norms and standards should better organize markets and establish the necessary boundaries.



2. THE WAY FORWARD: A STEP CHANGE TO BUILD SUSTAINABLE EUROPEAN ECONOMIES

2.1. Greening our economies: a new path for more well-being

The previous part showed the challenging state of play we are facing. In its Global Risks 2014 report, the World Economic Forum identified 10 major risks for the global economy:¹³²

Figure 5.
Ten global risks of
highest concern
in 2014

Source: World Economic Forum,
*Global Risks 2014 – Ninth
Edition*

| No. | Global Risk |
|-----|---|
| 1 | Fiscal crisis in key economies |
| 2 | Structurally high unemployment/underemployment |
| 3 | Water crisis |
| 4 | Severe income disparity |
| 5 | Failure of climate change mitigation and adaptation |
| 6 | Greater incidence of extreme weather events (e.g. floods, storms, fires) |
| 7 | Global governance failure |
| 8 | Food crises |
| 9 | Failure of a major financial mechanism/ institution |
| 10 | Profound political and social instability |

Most of these economic risks are environmental and social challenges; these, as much as fiscal and financial issues, should top the agenda. A new economic path is needed for Europe, refocusing on what people care about: sustainable well-being and quality of life, jobs, prosperity for all. The development model that prevailed in Europe in the last 60 years – where short-term economic growth was overwhelmingly the key driver – has come to an end.

2.1.1. The WWF definition of European sustainable economies

The current crisis is a unique opportunity to rethink our system and address financial, economic, social and ecological sustainability together, as they are intimately related. Our traditional economic models and concepts were developed in a world where relatively few humans enjoyed apparently boundless natural resources. But we now live in the “Anthropocene” era,¹³³ a world full of humans that are dramatically altering the Earth’s ecological life-support systems.¹³⁴ A new paradigm is urgently needed. **A “green economy” is a realistic alternative and momentum is growing, as shown by the interest from the OECD, UNEP, World Bank and a growing number of countries and institutions.**¹³⁵ Such an approach has great potential to create more jobs without the risks, shocks, scarcities and crises that are increasingly inherent in our existing resource-depleting and high-carbon, brown economy. A sustainable economy is not about stifling well-being: it is about redefining it and reconnecting with real wealth, rather than simply mining natural capital, and about favouring the many over the few.

Europe needs a project with a new vision that can help to reconnect European policy-makers and citizens behind a common goal. WWF strongly believes that creating sustainable economies in Europe that improve citizens’ well-being has the potential to become that project.

Different definitions of sustainable economies¹³⁶

- The most authoritative and widely used green economy definition comes from UNEP: a green economy delivers “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”.¹³⁷
- The OECD is the most prominent voice on the different concept of green growth: “fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies.”¹³⁸
- The European Commission uses both green economy and green growth, but does not clearly distinguish between the two terms.¹³⁹
- **The vision of the Green Economy Coalition, of which WWF is a founder member, is “a resilient economy that provides a better quality of life for all within the ecological limits of the planet.”¹⁴⁰ The economy’s new goal is to achieve truly sustainable well-being – no matter how EU GDP develops. WWF subscribes to this definition but prefers to speak about sustainable economies – in the plural – to underline the different greening paths that different economies can take¹⁴¹.**

Two features are critical for WWF:

- Sustainable economies do not refer only to sectors traditionally associated with environmental goods and services, such as renewable energy. The aim is to green the whole economy.
- The concept of sustainable economies is not a replacement for equitable and sustainable development:¹⁴² sustainable economies are a means to achieve equitable and sustainable development.

To implement this approach, it is necessary to:

- Redefine well-being;
- Ensure the satisfaction of basic human needs and social equity;
- Reconnect with real wealth – rebalance the management of all types of capital to protect our natural capital, our life support system;
- Stay within sustainable levels of resource throughput (material sufficiency) and emissions;
- Ensure economic stability as the basis both for protecting people’s jobs and enhancing their capabilities for flourishing.

Redefining well-being

Well-being goes far beyond material consumption.¹⁴³ Household income supports well-being only up to a certain point, as shown by the OECD¹⁴⁴. Well-being resides in the quality of our lives and in the health and happiness of our families. It is present in the strength of our relationships and our belonging and trust in the community, our satisfaction at work and our sense of shared meaning and purpose. It hangs on our potential to participate meaningfully in the life of society. Prosperity consists of our ability to flourish as human beings – within the ecological limits of a finite planet.¹⁴⁵ This view of well-being has much in common with Amartya Sen’s vision of development as “capabilities for flourishing”.¹⁴⁶ In turn, these capabilities depend on several characteristics of the welfare state: public services, social safety nets, the availability and affordability of care.¹⁴⁷

Ensuring social equity

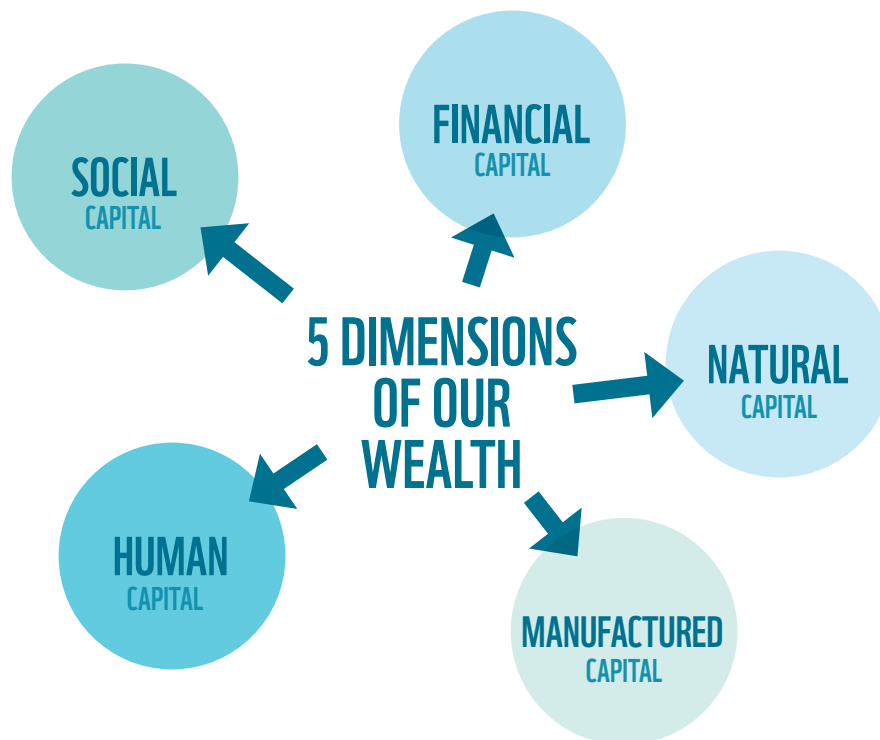
For WWF, **European sustainable economies are fairer economies:** the eradication of poverty and fair distribution of resources are central to discussions. Equity is not merely an abstract moral debate: it is fundamental to our hopes for political collaboration and collective action in the transition to sustainable economies. Consequently any short-term

WELL-BEING RESIDES
IN THE QUALITY OF
OUR LIVES AND IN THE
HEALTH AND HAPPINESS
OF OUR FAMILIES

economic costs of the transition to sustainable economies should not be borne by those currently living in poverty, but by those who can best afford it, having benefited most from unsustainable economic activity to date.

Reconnecting with real wealth: balancing our five different forms of capital

A complete redesign of the economy is required to rebalance and invest in all the five dimensions of our wealth: our natural, social, human, manufactured and financial capital.¹⁴⁸ These assets interact in complex ways to produce all human benefits. Ultimately, human, social and produced assets depend on natural assets – natural capital is the irreplaceable basis of our prosperity. Sustainability requires that we live off the interest generated by natural capital – using the goods and services nature provides at sustainable levels – without depleting the natural capital itself.



2.1.2. Key policies to implement the new path

How to structure this new approach? Shifting toward fully sustainable economies will require many policies to be amended or developed.

However, **research from the OECD,¹⁴⁹ UNEP,¹⁵⁰ World Bank,¹⁵¹ UK government,¹⁵² economists like Pavan Sukhdev¹⁵³ and others agrees that relatively few policies are needed to deliver significant progress.** These are the policies that EU institutions and countries should fully devise and implement most urgently:

Most effective policies to shift toward sustainable economies

Measure what counts

- Measure what counts with “beyond GDP” indicators
- Assess and account for natural capital

Set up prices that reflect full costs

- Make pollution and resource-depleting activities an expensive business
- Remove environmentally harmful subsidies

Regulate when the market is ineffective or insufficient

- Devise proactive and effective regulations and standards
- Mainstream eco-conditionalities into public spending and infrastructure development

Set up complementary support measures

- Foster eco-innovation
- Increase private investment in green economic sectors
- Improve information disclosure to empower consumers

Maximize policy synergies and multiple benefits

While ambitious EU policies are required in these areas, their implementation will be largely context-dependent.

**NATIONAL ACCOUNTS
SHOULD FOCUS ON
WELL-BEING AS IT IS
WHAT MATTERS MOST
TO PEOPLE**

Measure what counts with indicators beyond GDP

With many other institutions and economists, WWF is calling for the EU institutions and countries to adopt broader measures of progress to orient policy and markets toward delivering human well-being.¹⁵⁴ According to UNEP,¹⁵⁵ these indicators can be and should be used at all stages of policy intervention: to identify the key environmental and social issues; assess the potential cost and performance of various policy options; identify the policy that delivers the greatest benefits toward well-being and equity; and track the real impact of adopted policies.

National accounts should focus on well-being as defined above, as it is what matters most to people: according to the OECD, income is only the tenth priority for people, after health, environment, education, work/life balance, job, housing, etc.¹⁵⁶ Applying a well-being screen to every policy proposal will allow a shift away from a narrow income-driven cost/benefit analysis to a wider range of potential impacts.¹⁵⁷ This will provide policy-makers better opportunities to design policies to both prevent crises and react more appropriately to crises.¹⁵⁸

UNEP provides countries with a set of indicators to measure multidimensional progress toward sustainable well-being and equity.¹⁵⁹ The OECD’s well-established work on measurement provides a framework with five groups of indicators aiming to “monitor progress towards green growth”.¹⁶⁰ Many EU Member States, although largely unconnected to each other, are part of this ongoing work and the EU is following the issue with its “Beyond GDP” initiative.¹⁶¹

The development of these sets of new indicators has been very slow, but many initiatives have recently presented proposals that represent concrete opportunities for governments. **Several indicators are already available in the new UN System of Environmental and Economic Accounting (SEEA)**, which sets statistical standards for collecting and integrating economic and environmental data. Composite indicators have also been developed: these include the UN’s Human Development Index (HDI), the Index of Sustainable Economic Well-Being (ISEW) and the Genuine Progress Indicator to correct GDP flaws, the Gini coefficient measuring inequality of income distribution, and the Ecological Footprint (see Part I chapter 1.1).

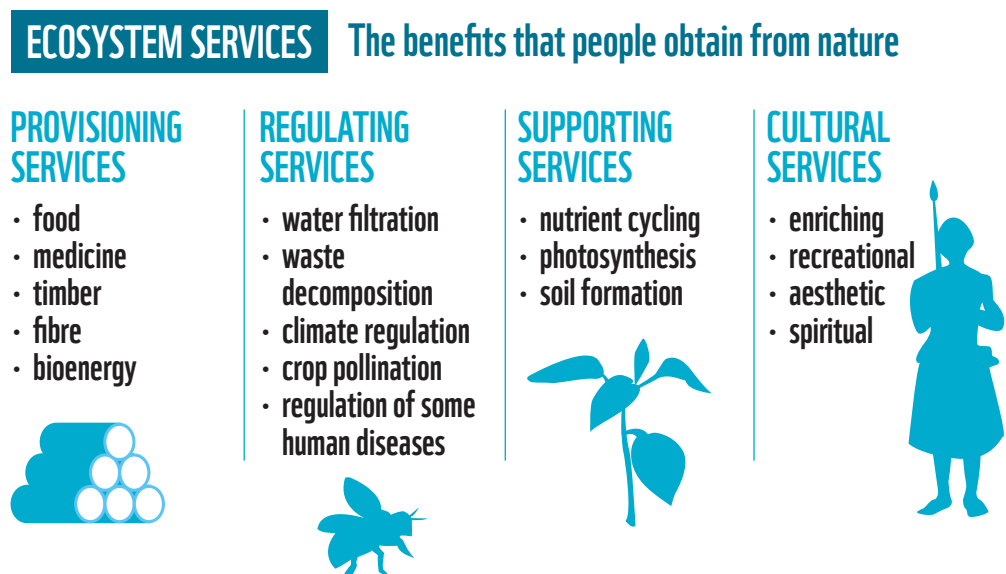
Assess and account for natural capital

The critical importance of addressing the interdependency of the economy and the environment has been officially acknowledged for more than 20 years.¹⁶² Progress has been slow. However, systems such as the UN SEEA (see paragraph above) now exist in order to measure and account for our natural capital.

Natural capital is the “stock” of natural assets that yields a “flow” of valuable services that provide benefits to humans, now and into the future. Ecosystems – including our oceans, forests, rivers and wetlands – are a form of natural capital.

Figure 6.
The benefits that people obtain from ecosystems

Living Planet Report,
WWF (2012)

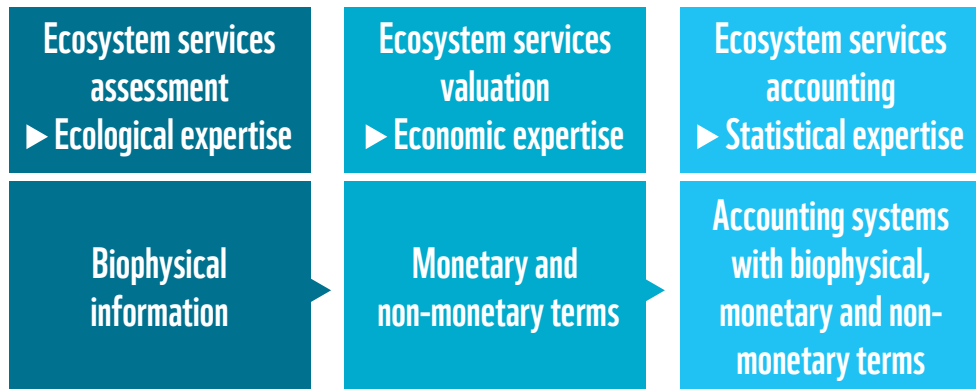


The landmark Millennium Ecosystem Assessment defined “ecosystem services” as “the flow of benefits that people obtain from ecosystems” and grouped them in four categories as shown in figure 6.¹⁶³

There are three steps to ecosystems services accounting, which may be based on bio-physical data, monetary data or both:

Figure 7.
Ecosystems
assessment,
valuation and
accounting

Todorova-Bankova, M.
& Mitlacher, G., WWF



This issue has been receiving growing attention in political debates since the release of The Economics of Ecosystems and Biodiversity (TEEB) landmark study in 2010.¹⁶⁴ There are now matured methodologies and tools available to estimate the value of the services that ecosystems provide to people, and the costs and benefits of different policy options.¹⁶⁵ For example, **the value of a forest goes beyond the market price of timber:** it includes the vital role the forest plays in supporting a range of services such as storing carbon to regulate the climate, regulating and purifying flows of fresh water for drinking, irrigation and hydropower, preventing erosion and landslides, as well as cultural and spiritual benefits.

PRODUCERS AND CONSUMERS ENJOY THE BENEFITS OF ECONOMIC ACTIVITIES THAT DAMAGE THE ENVIRONMENT, WHILE THE COSTS ARE BORNE BY SOCIETY AS A WHOLE

Currently, most of these “hidden” values (and their loss) are not reflected in government decision-making or in market prices. This means producers and consumers enjoy the benefits of economic activities that damage the environment, while the costs are borne by society as a whole and, in particular, by poorer people and future generations. **Policies and prices should take full account of the hidden value of nature, to ensure fairer and more sustainable use of these resources.** For example, according to the OECD pricing is an effective way of allocating water, particularly where it is scarce, and moderating consumption;¹⁶⁶ the EU integrated a “full cost recovery” principle in the Water Framework Directive¹⁶⁷ for this purpose. However, its proper implementation is strongly opposed by many vested interests, notably conservative farm lobbies and some EU countries.

Critics have raised concerns over the concept of natural capital. For some, nature should be protected for its own sake.¹⁶⁸ There are concerns that creating financial incentives to sustain ecosystem services could lead to privatization of common resources and the “commodification of nature” –

the extension of markets into new areas in ways that could be exploited by elites, leading to inequitable appropriation of new streams of revenue from nature.¹⁶⁹ In addition, some critics highlight the methodological challenges and the lack of reliable data in many areas.¹⁷⁰

To reduce these risks, governments should move beyond cost-benefit analysis based solely on monetary metrics in considering impacts and policy options. This should be supported by inclusive and participatory processes that empower stakeholders.¹⁷¹

WWF is a strong defender of the intrinsic value of nature. For WWF, valuation and accounting techniques complement other conservation tools to protect EU (and global) biodiversity. WWF supports ecosystem valuation and accounting as they represent important channels to mainstream nature's value in policy-making¹⁷² and private sector decisions and help to highlight how nature supports well-being and our economy.

WWF is careful that valuation research and indicators should not lead to commodification of biodiversity.¹⁷³

Make pollution and resource-depleting activities an expensive business¹⁷⁴

Activities that damage the environment should be more costly than greener alternatives. Market-based instruments are needed to put a price on externalities such as pollution and depletion of resources, implementing the “polluter pays” principle. There are two classes of tools in the government’s arsenal for dealing with externalities:

- Price-based measures: corrective taxes and statutory levies or subsidies equal to marginal damage per unit;
- Quantity-based measures: cap-and-trade schemes where the government forces firms to gradually reduce the negative externality through tradable permits.

Which of these methods will lead to the most efficient “**full damage cost allocation**” depends on several factors such as how similar the firms being regulated are, the flexibility of quantity-based regulation, uncertainties over the costs of dealing with externalities, and the simplicity and cost of policy implementation.¹⁷⁵ To be effective, cap-and-trade schemes require as much political ambition as taxation: the EU carbon market failed to foster low-carbon investments because of the huge excess of carbon credits (leading to very low carbon prices) and the strong political reluctance to react adequately. One single tool cannot fix the problems: a well-stocked toolbox of measures is required (including proper emissions trading, benchmarking, incentive schemes, etc.).

€35 BILLION
SHIFTING TAXES FROM
LABOUR TO POLLUTION AND
RESOURCE AND ENERGY USE
WOULD BRING IN REVENUES
OF €35 BILLION IN REAL
TERMS IN 2016, RISING TO
€101 BILLION IN 2025

Environmental fiscal reform (EFR) offers many potential benefits:

- It internalizes external costs, thus sending vital signals about the true cost of pollution and the value of natural assets.
- Through recycling revenues, it can reduce the tax burden on socially desirable activities such as investment or labour (helping job creation in turn), or increase government revenues and ease fiscal consolidation. A recent study on the potential for greener taxes in Europe finds that shifting taxes from labour to pollution and resource and energy use would bring in revenues of €35 billion in real terms in 2016, rising to €101 billion in 2025.¹⁷⁶
- It provides incentives to innovate to achieve environmental goals, for example through more resource- and energy-efficient behaviour and cleaner technologies.
- Consumption taxes, including resource- or energy-related taxes, distort economic activity less than income taxes.¹⁷⁷ The IMF¹⁷⁸ and the OECD¹⁷⁹ point to the economic benefits of environmental fiscal reform if properly applied.

In addition, different tax rates between countries, fuels and sectors lead to distortions in the internal market, inefficiencies in environmental policy and lost revenues. A progressive move toward reducing gaps between very uneven taxes would contribute to EU integration and increase the benefits of the single market.

A criticism is that pollution, resource or energy taxes tend to be socially regressive. However, the impact of EFR on income distribution is dwarfed by that of other indirect taxes such as VAT, and could be improved by combining EFR with broader tax reform.¹⁸⁰ According to the Institute for Sustainable Development and International Relations (IDDRI), **there is no mechanical connection between EFR and distribution outcomes. Distribution outcomes depend on how the tax revenue is spent, and politically acceptable compromises can be found, such as integration of EFR within broader tax reforms.**

**IN A TIME OF
AUSTERITY ALL OVER
EUROPE, ELIMINATING
ENVIRONMENTALLY
HARMFUL SUBSIDIES
MAKES MORE SENSE
THAN EVER**

Remove environmentally harmful subsidies¹⁸¹

Many environmentally harmful activities are subsidized by taxpayers. For example, according to the OECD, subsidized water for economic activities and poorly designed agricultural and fisheries subsidies increase stress on land, water and ecosystems.¹⁸² Fossil fuel and agriculture subsidies are among the main environmentally harmful subsidies (EHS).

In a time of austerity all over Europe, eliminating EHS makes more sense than ever. Doing so will benefit the environment and help preserve our natural capital, but also makes economic sense and brings multiple co-benefits. It reduces market distortions that benefit vested interests, and thus indirectly supports the creation of new green products and services and eco-innovation; it improves proper pricing that accounts for the true cost of energy and natural resources; it eases pressure on public purses; and it reduces the cost for society to achieve EU environmental targets. Financial austerity should drive a move toward better spending and a number of existing EHS do not stand this test – particularly in the fields of energy, transport, agriculture, water and fisheries.¹⁸³

Devise proactive and effective regulations and standards

Regulatory approaches are a cornerstone of public policy and can be used in combination with economic instruments, in particular when markets cannot deliver meaningful price signals. **Smart regulations yield the double benefit of overcoming market failures and providing policy certainty for continuing investment in green innovation and infrastructure.** For example, energy-efficiency opportunities are only partly tapped through carbon pricing: many cost-effective measures do not happen, at least in part because they are not covered by any energy-saving obligation. The non-financial barriers to energy-efficiency uptake are now well understood, as is the need for regulatory measures to overcome them.¹⁸⁴

Regulation also has a role where strict control is needed to safeguard human health or environmental integrity. Examples include standards (e.g. for ambient air quality, effluent discharges, vehicle emissions, building codes for energy efficiency); outright bans (e.g. on illegal logging, trading of endangered species, development in natural protected areas, certain toxic pesticides) and the use of planning tools (such as land-use planning and environmental impact assessments).¹⁸⁵

Mainstream eco-conditionalities into public spending and infrastructure development

All European authorities (EU, governments, regions, municipalities, etc.) should lead by example and act as credible and ambitious first movers, by mainstreaming sustainability principles and cross-cutting “eco-conditionalities”. This can notably apply in the following areas:

- **In public spending**, for example the EU budget 2014-2020 and other public investments, where “climate proofing” and “biodiversity proofing” requirements can be integrated from a project’s conception;
- **In public procurement**, when public authorities act as consumers, by implementing green public procurement approaches based on a full life-cycle analysis of the products and services they use, away from a simplistic lowest-cost approach;
- **In infrastructure projects** (energy, transport, etc.), where public authorities usually are the contracting party deciding the features of the project. Large infrastructure often has far-reaching negative impacts on the environment, which should be avoided and mitigated as much as feasible.

Set up complementary support measures

There are limits to what the above policies can achieve alone, and their implementation brings significant challenges. In addition, there is very little time to properly react to ecological challenges and several existing processes are too slow, for example measuring and valuing ecosystem services. As a result, **complementary policies (consistent with the precautionary principle) are needed to incentivize and accelerate the development of new business models and consumer behaviours and greener products and services.** Of particular importance is the issue of innovation.

Foster eco-innovation

Research shows that the externalization of environmental and other full costs and a shortening of business reporting cycles led to a shift from long-term “disruptive innovation” (which had been good in the 1970s and 1980s) to risk-averse short-term incremental innovation. This tends to be biased towards incumbent (dirty) technologies, slowing the development of new (clean) technologies, to the detriment of society, the environment and the economy.¹⁸⁶

The aim of fostering eco-innovation is to significantly speed up the development and diffusion of **technological improvements** that will

curb growing pressures on the environment, and keep the future cost of doing so manageable. Green innovations often emerge in “niches” at the margins of mainstream activities; innovations can occur at any point in systems of production and consumption, and interventions at one “leverage point” can influence change across the system as a whole.¹⁸⁷ Innovations face many challenges: breaking into the mainstream, including the resistance to change of established social norms and economic and policy frameworks; lack of knowledge and financial resources; and inadequate mechanisms to promote the spread of new ideas and practices.

According to the OECD, innovation in new business models also has a major role to play in providing solutions to key environmental challenges. Other measures are also needed, such as specific research and development (R&D) support policies, standards, regulations, institutions and voluntary programmes to encourage innovation, as well as effective mechanisms for green technology transfer to other countries.¹⁸⁸ “Social innovations” such as new mindsets, behaviours and norms that promote more sustainable lifestyles and consumption patterns are also needed.

One of the Europe 2020 strategy’s headline targets is to increase Europe’s spending on research and innovation to 3% of GDP by 2020.¹⁸⁹ It was 1.9% of GDP in 2008¹⁹⁰ and has not moved significantly for a decade. Europe’s innovation gap has several causes, notably barriers to entry, capital market failures and fragmentation of the internal market. Innovation in the EU is also too compartmentalized among countries and disciplines: 85% of public research is done at national level and less than 6% of total public R&D investment is made in a collaborative, transnational way.¹⁹¹ Finally, not all innovation explicitly supports a sustainable agenda: as well as incentivizing eco-innovation, mainstreaming sustainability requirements in all R&D projects is a must to ensure that low carbon emissions, energy efficiency and resource efficiency are integrated into new products and services from their conception.

Maximize policy synergies and multiple benefits

There are strong linkages between the different environmental and socio-economic issues, as highlighted by the OECD: **“Policies that maximize synergies and co-benefits can lower the cost of meeting (environmental) objectives”**.¹⁹² The OECD also highlights the economic opportunities from tackling environmental challenges, including job creation, poverty reduction and fiscal consolidation.

Figure 8 below summarizes the relationships between ecosystem services and well-being, and their intensity: if some ecosystem services are improved, this has massive benefits for several constituents of well-being.

These synergies and multiple benefits are critical as they save money and/or time to shift to sustainable economies. This in turn reduces the scale of the challenges we face, making them more easily achievable.

Figure 8.
Ecosystem services and well-being relationships

United Nations, 2005. *Millennium Ecosystem Assessment: Ecosystems and Human Well-Being*

Arrow's colour

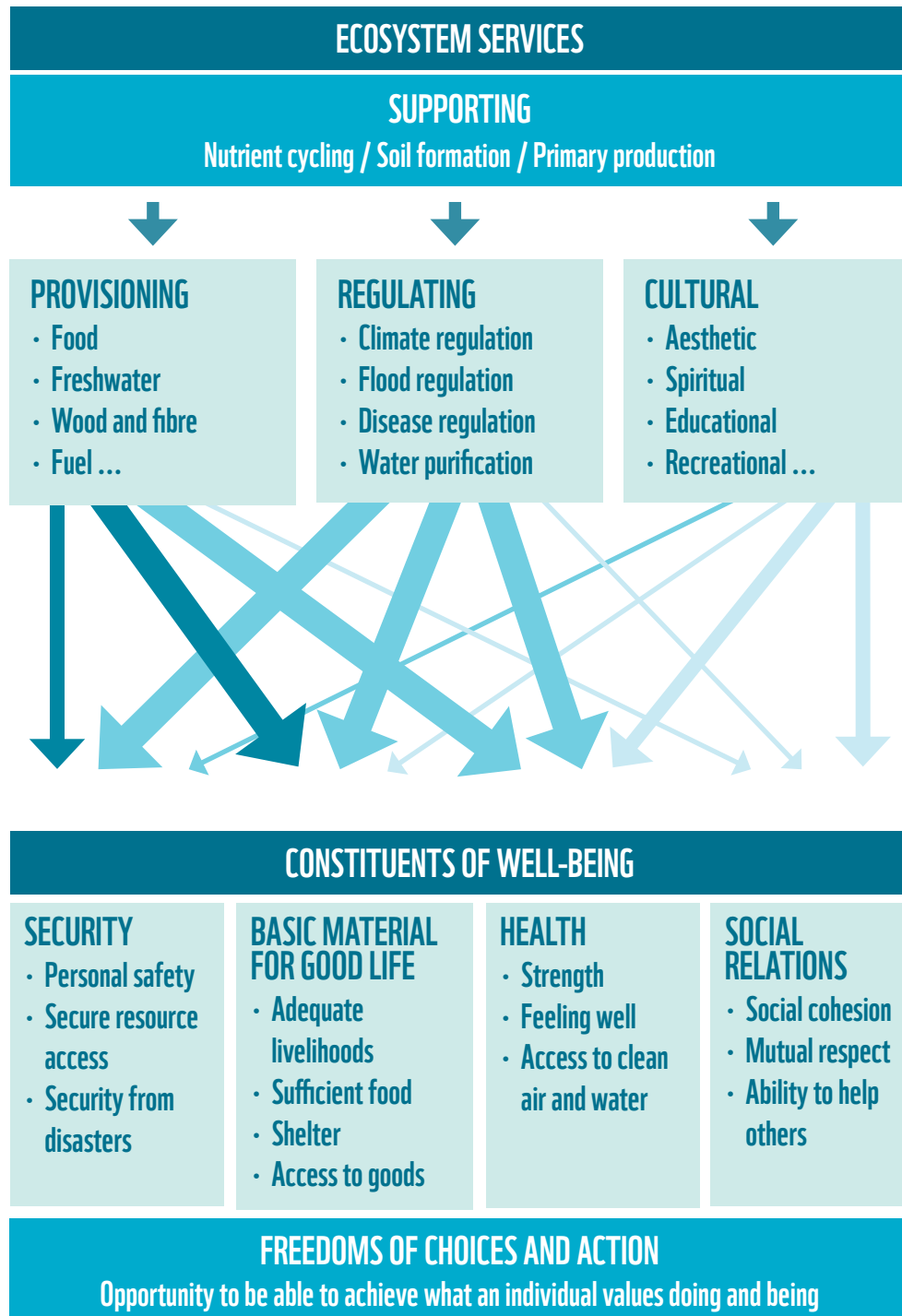
Potential for mediation by socio-economics factors

- High
- Medium
- Low

Arrow's width

Intensity of linkages between ecosystem services and human well-being

- Strong
- Medium
- Weak



2.2. The enormous benefits for Europe

Ample evidence shows that a rapid transition to sustainable European economies has the potential to deliver huge and multiple benefits. The environmental gains – a direct aim of such a transition – are the most obvious, but employment, economic, social, health and international benefits are also assessed.

Examples of environmental benefits

- A Fraunhofer Institute study¹⁹³ finds that maximizing Europe's energy-efficiency potential could cut EU energy demand in half by 2050 compared with projections. This would lead to emission cuts of 79% on 1990 levels and save €500 billion of energy costs annually by 2050.
- The Commission estimates that the EU Energy Performance of Buildings Directive could save the equivalent to 120 million tonnes of oil annually by 2016 – more than the annual consumption of EU aviation.
- More efficient waste management in Europe could reduce CO₂ emissions by 146-244 million tonnes by 2020.¹⁹⁴

“Environmental sustainability is not a job killer, [...] it can lead to more and better jobs, poverty reduction and social inclusion.”

Juan Somavia,
Director-General,
International Labour
Organization¹⁹⁶

2.2.1. Jobs benefits¹⁹⁵

The shift to sustainable economies will reshape the labour market significantly, but evidence clearly points to significant net gains for employment. Most studies confirm that employment gains far outweigh losses in a shift to a sustainable economy, for two main reasons:

- Higher average labour intensity of production; and
- Greater domestic content (more jobs are situated in Europe and fewer abroad – and cannot be delocalized).

Examples of jobs benefits

- According to the Commission, the full implementation of existing and new energy-efficiency measures could create up to 2 million jobs¹⁹⁷ and the renewable energy sector up to 3 million more jobs by 2020.¹⁹⁸ In addition the full recycling of ETS/CO₂ tax revenues to reduce the costs of labour would create up to 1.5 million jobs by 2020.¹⁹⁹
- A report commissioned by the German Federal Ministry for the Environment finds that achieving a 30% CO₂ emissions reduction by 2020 would provide 6 million additional jobs Europe-wide.²⁰⁰
- A 30% improvement of resource productivity by 2030 could create over 2 million jobs.²⁰¹ Every percentage point reduction in resource use leads to 100,000-200,000 new jobs.²⁰²
- Recycling 70% of key materials in the EU could create over 400,000 jobs by 2020.²⁰³
- Environmental taxes have the potential to reduce EU unemployment by 2.2 percentage points by 2020.²⁰⁴

“Up to 20 million jobs could be created between now and 2020 in the green economy”

European Commission²⁰⁹

Across Europe, low-carbon sector jobs have grown significantly, even in those countries experiencing severe recessions like Spain.²⁰⁵ In the last years, employment has continually grown in the recycling sector.²⁰⁶ In addition, the Commission identifies green economy – which it defines as a “competitive, low carbon and resource efficient economy” – as one of the three most promising sectors for job creation, alongside ICT and EU health and social care.²⁰⁷ Interestingly, recent studies²⁰⁸ report that investments in green technologies have the prospect of being beneficial for both high- and low-skilled workers. Jobs created by green technologies are to a certain extent non-tradable and encompass all types of activities: from technology design to production, to installation and maintenance. In short, strong evidence shows that the green job potential is real and massive.

In addition, the “blue economy” represents around 5.4 million jobs with job creation potential in sustainable fisheries, aquaculture and tourism.²¹⁰

2.2.2. Economic benefits

“Acting now is not only environmentally rational, it is also economically rational.”

OECD²¹¹

The most obvious economic benefit of sustainable economies is to cut the growing cost of inputs – raw materials and energy. But there are also immense immediate economic opportunities and longer-term macro-economic co-benefits that should be taken into account:

Cutting the cost of inputs

Resource costs make up a significant part of the cost structure of European business. These business also need available and predictable supplies. A Europe Innova study finds that EU manufacturing firms spend on average 40% of their costs on raw materials (going up), far more than labour costs (18-20%, going down) or energy costs.²¹²

Examples of economic benefits

- A major study from McKinsey estimates that the increase of resource productivity across all sectors in the EU could save companies €270 to €310 billion per year in material costs, or 3% of the EU 2010 GDP, under its moderate scenario.²¹³ The maximum resource saving potential is estimated at €630 billion per year for EU industry.²¹⁴
- The Commission estimates that reaching our 20% energy saving target by 2020 could reduce EU oil imports by the equivalent of 2.6 billion barrels a year, or up to €200 billion a year (the size of the Finnish economy).²¹⁵
- The International Energy Agency (IEA) estimates that policies consistent with limiting climate warming to 2°C could cut the EU fossil fuel import bill by 46% or €275 billion a year by 2035.²¹⁶ By 2050, the saving would be €320 billion per year, according to the Commission.²¹⁷
- The deployment of smart grids could save €52 billion per year in the EU by reducing losses from electricity distribution and enabling greater energy efficiency.²¹⁸

“It takes one tonne of ore to get one gram of gold. But you can get the same amount from recycling the materials in 41 mobile phones.”

Janez Potočnik²²³,
Environment Commissioner

Additionally, more efficient recycling would reduce costs to the economy and society by lowering the demand for primary raw materials and enhancing reuse of valuable materials:

- Recovering 10 kilograms of aluminium via recycling saves more than 90% of the energy and 20 kilograms of CO₂ compared to primary production.²¹⁹
- 1,000 used mobile phones contain about 585 grams of silver, 60 grams of gold and 22 kilograms of copper;²²⁰ as Commissioner Potočnik points out, “It takes one tonne of ore to get one gram of gold. But you can get the same amount from recycling the materials in 41 mobile phones.”²²¹

Improving NOT impeding competitiveness of EU industry

In recent years, decision-makers have been increasingly focused on the competitiveness issue. Importantly, however, “cost-competitiveness is only one dimension of price-competitiveness, itself only one dimension of external competitiveness.”²²² And external competitiveness is only one element of investment attractiveness and business performance. Focusing only on cost-competitiveness risks hindering more systemic and effective approaches.

Environmental innovation drives competitiveness

Innovation in green technologies and services offers the opportunity to enhance competitiveness by focusing on potentially high-productivity, emerging technologies. Ecorys finds that high European standards have fostered clean technology innovation, which provides a source of *competitive advantage*:²²³ firstly, as it enables more efficient production with increasingly costly resources; and secondly, as a sector itself with large development prospects internationally.²²⁴ A large body of research has found that:

- Environmental regulation can increase environmental innovation, according to the European Environment Agency²²⁵ – especially for the energy sector.²²⁶
- This can in turn increase the competitiveness of firms or countries in green sectors.²²⁷
- Sector-specific innovation can spill over into other sectors, increasing the overall economic competitiveness of the economy.

Conservative industry lobbyists have sought to undermine the Emission Trading Scheme (ETS) by repeatedly claiming that cutting pollution by putting a price on greenhouse-gases emissions will make them less competitive. These claims stand in stark contrast to real-life experience. Repeated studies,²²⁸ reports,²²⁹ and analyses²³⁰ show no evidence of carbon leakage as defined by the ETS Directive. Even in energy-intensive sectors, EU carbon pricing has not led to measurable carbon leakage. This empirical evidence is even confirmed by shareholders in some energy-intensive companies who concede that the ETS has not been a significant factor in the context of competitiveness concerns.²³¹

Environmental regulation boosts exports by developing new markets

By developing new products and services, the transition to sustainable economies can be a source of non-price competitiveness, particularly in the longer term. Several econometric studies analysed the impact of environmental regulation on EU export performance:²³² they found that environmental regulation can increase export competitiveness in green sectors. More recently, Costantini and Mazzantini found that environmental regulation is associated with increased general export competitiveness, specifically in the high-tech and medium/low technology sectors.²³³ Setting global standards for eco-efficiency through EU regulation (first move approach) would also bring benefits: it would support European companies to trade their products and services effectively across the world.²³⁴

Environmental fiscal reform (EFR) has no or very small negative impacts

The “pollution haven hypothesis” – where environmental regulation leads to the off-shoring of environmentally damaging production – has been subject to much research. An econometric study²³⁵ of export performance in the EU finds that “**overall, the effect**

of environmental taxes does not conflict with export performances, while in some cases they give a large impulse to export dynamics.” Econometric analysis in the UK shows that the climate change levy had a positive impact on energy intensity but finds no negative effect on firm performance.²³⁶ Quirion and Hourcade find that an EU carbon tax in energy-intensive sectors, without any recycling, would have less impact on firms’ marginal costs than year-on-year exchange rate variations.²³⁷ In short, studies show that the advantages EU companies enjoy in terms of human capital, physical capital and natural capital far outweigh any negative consequences of EU environmental regulation in term of competitiveness. Any negative competitiveness impacts of EFR are likely to be limited to a very small number of specific industries; politically acceptable approaches to cushion these impacts are possible.²³⁸

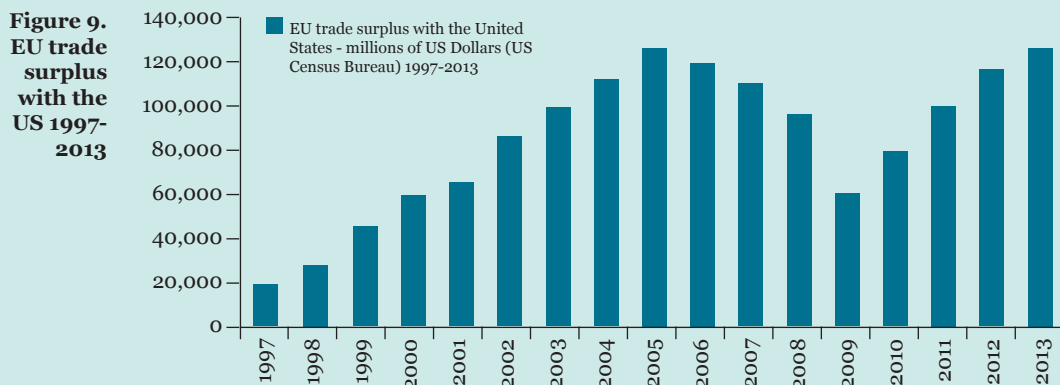
Energy costs are not a major issue for competitiveness

Some EU conservative voices raise concerns that proper energy and carbon prices in Europe would reduce EU business competitiveness abroad. But research shows the opposite:

- There is growing evidence that only a few sectors are likely to be at high risk of carbon leakage²³⁹ – far less than those benefiting from free ETS credits currently.
- Direct energy costs represent a small fraction of most industries’ overall costs: only an average 3% of total production costs for German²⁴⁰ and UK manufacturers, for example.²⁴¹
- Many factors make up the overall costs of energy, of which climate and energy policies are just one: others are wholesale energy costs, network and operational costs, and profit margins.²⁴²
- The Global Competitiveness Report of the World Economic Forum does not include energy prices among the key drivers of competitiveness.²⁴³ Nor does Deloitte’s annual Global Manufacturing Competitiveness Index, in which 550 senior manufacturing executives consider energy prices to have less impact on competitiveness than an innovative and skilled workforce; the structure of economic, trade, financial and tax systems; and the cost and availability of labour and materials.

The proof by example: EU-US positive trade balance

Despite lower energy prices in the US, the EU has maintained a longstanding trade surplus with the US (Figure 9), showing that energy prices are not critical to external competitiveness.



Supporting fiscal consolidation

Better use of market-based instruments like green taxation, removal of EHS and new economic opportunities in sustainable sectors can help governments to improve their finances through additional revenues and/or less spending. Unlocking the huge energy investments needed in Europe may help support economic recovery by generating fiscal multipliers.²⁴⁴ Energy investment can be compatible with public deficit reduction: it is largely private sector led and long term²⁴⁵, especially suited to institutional investors who collectively hold €13.8 trillion in assets, equivalent to the EU's total GDP.²⁴⁶

Increasing security, independency and resilience

Beyond cutting industry costs, energy and resource efficiency bring huge macro-economic benefits. They will help Europe to manage rising commodity prices and reduce dependency on external resources, secure a sustainable supply of resources and reduce the impact of volatile prices on its economy²⁴⁷ – improving the EU's resilience to external shocks. A number of studies have quantified the hedge that climate/environmental policy provides against resource constraints:

- Countries that reduced their energy dependency by improving efficiency and diversifying the energy mix have reduced their exposure to oil shocks over the period 1970-2010.²⁴⁸
- Modelling studies²⁴⁹ estimate that the EU 2020 climate policies – even though their ambition is too low – will improve energy security and reduce exposure to oil price rises.²⁵⁰

2.2.3.Social and health benefits

Improving public health

Ambitious decarbonization is expected to cut the costs of healthcare and air pollution control substantially by lowering air pollution from power production and transportation. Reducing greenhouse-gas emissions by 20% by 2020 could lead to health savings worth €52 billion annually,²⁵² potentially rising to €60-80 billion with a 30% emissions cut across the EU.²⁵³

There is also increasing evidence that sustainable lifestyles can promote well-being. For example, UK government guidelines on healthy diets include eating less meat than is currently consumed on average, which would be beneficial for health and the environment.²⁵⁴ More sustainable travel behaviours, such as driving less, and walking and cycling more, can improve fitness, reduce stress, reduce traffic and improve air quality.²⁵⁵

“The greening of economies is (...) a net generator of decent jobs, and it is also a vital strategy for the elimination of persistent poverty”

UNEP²⁵¹

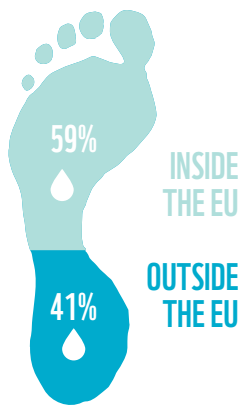
**ENERGY-EFFICIENCY
MEASURES CAN
SAVE EUROPEAN
CONSUMERS UP TO
€200 BILLION BY 2020**

Reducing energy poverty

An energy-efficiency drive will help lower fuel bills, combatting fuel poverty among the poorest in society while driving down energy costs for European households and consumers across the board. According to the European Environment Agency, a key element in tackling energy poverty is to improve levels of household energy efficiency to reduce heating demand and its associated costs. According to the Commission, energy-efficiency measures can save European consumers up to €200 billion by 2020;²⁵⁶ meeting our 20% energy saving target could lower average household energy bills by as much as €1,000 a year.²⁵⁷

2.2.4. Global benefits

EU WATER FOOTPRINT



The EU heavily imports natural resources, energy and goods from other parts of the world. According to the Water Footprint Network, 41% of the water footprint of European consumption is outside the EU; in the UK, water used in the production of imported goods accounts for two-thirds of the country's overall demand for water.²⁵⁸ This is also putting an upward pressure on the price of resources. One of the consequences is that the poorest countries, which consume few resources per capita but have very limited financial capacity, struggle even more to access resources and their resource supplies can become less secure – impeding their development. In principle, exporting countries should be able to use the money they gain by selling resources to support domestic development, social and environmental protection, and so on. But developing countries are under several pressures to provide good terms for trade and investment and eliminate protectionism of their own markets, so this often leads to unbalanced deals.

**REDUCING THE
EU'S EXCESSIVE
ECOLOGICAL
FOOTPRINT
WILL REDUCE
THE ECONOMIC
PRESSURE ON GLOBAL
RESOURCES**

As seen above, improving EU resource and energy efficiency and recycling inside Europe can cut a significant part of EU resource and energy imports. On a finite planet, reducing the EU's excessive ecological footprint will reduce the economic pressure on global resources. More specifically it can ease the pressure on threatened ecosystems in developing countries that are the source of an important part of EU imports, such as the Amazon (providing soy) or Borneo (providing palm oil). Another issue concerns (often illegal) EU waste exports to developing countries that do not have the capacity in place to recycle the materials safely or turn waste into energy: less waste and more recycling would reduce this negative impact.

We can make extreme poverty history without stressing the planet

Oxfam points out that eradicating extreme poverty “could be achieved with strikingly little additional demand on resources” and tiny environmental impacts:²⁵⁹

- Food: Providing the additional calories needed by the 850 million people facing hunger would require just 1% of the current global food supply.
- Energy: Bringing electricity to the 1.3 billion people who currently lack it could be achieved with less than a 1% increase in global CO₂ emissions. UNDP shows that in developing countries off-grid, decentralized and renewable energy for poor households are feasible both technically and financially to ensure energy access with minimal climate impact.²⁶⁰
- Income: Ending income poverty for the 1.4 billion people who live on less than US\$1.25 a day would require just 0.2% of global income.

Example: WWF’s Heart of Borneo programme - investing in nature for a sustainable economy

A 2012 study initiated by WWF concludes that a sustainable economy pathway in Borneo (Indonesia, Malaysia, Brunei) makes more economic sense than business-as-usual.²⁶¹ Current economic growth is largely based on unsustainable forestry, mining and agriculture, eroding the island’s stunning natural capital. The study finds that with a business-as-usual pathway, by 2020, the environmental costs of economic growth are projected to outweigh revenues from natural capital. Under a sustainable economy scenario, an investment of 0.6% of GDP per year is necessary to ensure economic development and environmental quality beyond 2020. In the long term, economic development will increase more rapidly under a sustainable economy scenario. This is due to avoided costs – such as reduced risk and damage from floods and droughts, resulting also in less road and infrastructure disruption – and added benefits, including higher production of non-timber forest products and ecotourism. Central to this is an economic framework where taxation and spending reward sustainable practices.²⁶²

2.3. Why Europe should rapidly shift to sustainable economies

“Never let a good crisis go to waste”

Winston Churchill

“Never let a good crisis go to waste,” said Winston Churchill. The crisis is shaking EU fundamentals: this is a unique opportunity to jump into the future. With several assets and strengths, Europe is uniquely placed globally to become a credible sustainable leader. But it has also weaknesses and time is ticking: Europe could fail and lag behind if it doesn’t act immediately and ambitiously. The following SWOT analysis shows that, in addition to its moral and legal obligations, the EU has an intrinsic interest in rapidly shifting to a sustainable economy – more than any other major region in the world.

STRENGTHS OF EUROPE

THE EU IS IN A POSITION TO BE A GLOBAL STANDARD SETTER FOR GREEN PRODUCTS AND SERVICES

- **A comprehensive environmental policy framework**

Sustainable development is a mandatory objective of the Lisbon Treaty;²⁶³ over the past 40 years, the EU has also established a systematic and increasingly comprehensive body of law and policy relating to the environment.²⁶⁴ While far from perfect, environmental policy is one of the success stories of the EU – this includes the Natura 2000 network, the Water Framework Directive (now inspiring China²⁶⁵), the binding climate policies leading to absolute carbon decoupling,²⁶⁶ the binding renewables target (138 countries have since adopted renewables targets²⁶⁷) and the chemical legislation REACH. The benefits of coordinated EU action stand out clearly and visibly, both in terms of improvements in environmental standards in Member States and in driving forward the international agenda.²⁶⁸ The EU's approach to environmental policy has been able to evolve considerably over the years – from direct impacts to managing production and consumption and mainstreaming environmental considerations.²⁶⁹ In addition, several Member States go beyond the EU acquis (EU law) and can provide related expertise.

- **Some EU long-term targets giving the direction**

The EU has already set some key targets for 2050: the decarbonization of our economy by 80-95% compared to 1990 levels, and the full restoration of EU biodiversity and ecosystem services.²⁷⁰ The Commission also developed important 2050 roadmaps like the Low-carbon Roadmap,²⁷¹ the Energy Roadmap,²⁷² the Resource Efficiency Roadmap²⁷³ and the Transport White Paper.²⁷⁴ The EU 2020 Biodiversity Strategy²⁷⁵ also sets the commitment to stop EU biodiversity loss by 2020.

- **EU citizens and businesses largely aware and supportive**

Contrary to many countries (e.g. the US), EU citizens are largely aware of the ecological limitations of the planet. Embarking on a new, ambitious path to a sustainable Europe could give impetus to European integration: for example, 86% of citizens think that more efficient resource use would have a positive effect on the quality of life in their country and 78% a positive effect on employment opportunities.²⁷⁶ EU industry also recognizes the strong business case for improving resource productivity;²⁷⁷ it can count on a robust base of green skills, including in SMEs,²⁷⁸ with 8.7 million green jobs in the EU in 2006.²⁷⁹

- **The world's biggest economy**

The EU has the world's biggest market, worth US\$17.4 trillion in 2013 (vs. US\$16.8 trillion for the US and US\$9.2 trillion for China).²⁸⁰ It will remain the biggest economic and trading bloc in the world for at least 15-20 years. The EU can use its enormous single market (half a billion rich consumers with an average 2013 GDP per capita of US\$34,300) to boost the offer and demand for sustainable goods and services²⁸¹ and lower their cost by mainstreaming them. But the EU is also in a position to be a global standard setter for green products and services. Because the EU is the world's biggest trader and the second largest exporter and importer in the world (excluding intra-EU trade), many EU policies governing production, consumption and trade have global effects, as shown by EU standards on car emissions, chemical products or trade rules for fighting illegal timber.

OPPORTUNITIES FOR EUROPE

THE GLOBAL LOW-CARBON AND ENVIRONMENTAL BUSINESS MARKET IS WORTH AROUND €4 TRILLION A YEAR, GROWS AT OVER 4% A YEAR AND IS EXPECTED TO TRIPLE BY 2030

- **Reduce resource dependency**

Europe has the world's highest per capita imports of resources, while the US, Brazil, Russia and China to some extent have important domestic resources. Strong evidence suggests that scarcity pressures will remain. An economic premium will be placed on improving resource efficiency and decoupling resource use from environmental impacts, and this premium may be higher for Europe than for other regions in the world.²⁸⁵ This can make Europe the single biggest beneficiary of resource and energy efficiency in the world.

- **Benefit from booming global markets for environmental products and services**

The global low-carbon and environmental business market is worth around €4 trillion a year,²⁸⁶ grows at over 4% a year and is expected to triple by 2030.²⁸⁷ Clean energy technology is on track to become the world's third largest industrial sector, behind automobiles and electronics.²⁸⁸ The UN reports 65 countries are now actively pursuing some green economy policies, raising new opportunities.²⁸⁹ The EU has carved out a 22% share of this global environmental market (compared with 19% for the US, 13% for China and 6% for both India and Japan²⁹⁰) and makes 35% of all global low-carbon patents today.²⁹¹ Europe is very well placed to benefit from the quickly growing global demand for low-carbon, clean, sustainable goods and services.

- **Good timeline to refurbish EU infrastructures**

Europe will have to refurbish a very significant part of its energy, transport and ICT infrastructures in coming decades. This provides enormous opportunities to refocus on highly efficient, innovative low-carbon infrastructures and coordinate the large-scale investments needed to maximize benefits and eliminate harmful or sub-economic projects.

WEAKNESSES OF EUROPE

- **Major implementation gaps of EU environmental policies²⁸²**

Actions do not always live up to policies, in particular on biodiversity (failure to achieve the EU target of ending biodiversity loss by 2010), water, air pollution, and waste prevention and recycling. In many cases the Commission has not used the powers given to it to start infringement procedures against violators. Under a business-as-usual scenario, the cost of not implementing the EU environmental acquis will skyrocket from around €50 billion annually today to €200-300 billion annually in 2020-2030.²⁸³

- **Lack of cooperation and buy-in from Member States**

Several Member States are not supportive of further EU integration. For example, the EU has – on paper – a single market, but there is no functioning European energy market after decades of debate, and no proper market for secondary raw materials. National environmentally harmful subsidies are still plentiful despite repeated commitments to end them. EU countries supported the Commission’s call for a “European Industrial Renaissance”, but failed to present a well-defined strategic plan.²⁸⁴

- **Decreasing environmental and climate ambition**

This can be seen in the Commission’s unambitious proposal for the 2030 climate-energy package (not in line with climate science, EU commitment to 80-95% greenhouse-gas cut by 2050 or the EU’s fair share of global efforts); ineffective carbon prices not fixed in the EU ETS market, despite years of evidence; and the inability to set up sustainability guidelines for biofuels and biomass, for example.

€300 BN THE COST OF NOT IMPLEMENTING THE EU ENVIRONMENTAL ACQUIS MAY SKYROCKET FROM AROUND €50 BILLION ANNUALLY TODAY TO €200-300 BILLION ANNUALLY IN 2020-2030²⁸³

THREATS FOR EUROPE

- **Europe risks losing the “first mover” benefits and lagging behind as the clean and low-carbon business race has started**

China and the US are already targeting low-carbon markets, and new and ambitious low-carbon challengers are quickly emerging (South Korea, Japan, India).²⁹² By lacking ambition and delaying action, Europe risks losing its existing advantages:

- The EU share of global clean energy investments is down from 40% in 2009 to just 25% in 2012.²⁹³ In 2013 China (at US\$56 billion) invested more in renewable energy than the whole EU (US\$48 billion).²⁹⁴ China aims to produce 16% of its primary energy from renewable sources by 2020 – not far from the EU 2020 target of 20%.
- The US low-carbon business market is almost on a par with the EU.
- South Korea targets an 18% share of the world’s renewable energy market by 2030.²⁹⁵
- China is developing a new concept of “ecological civilization” which is integrated in its five-year plans.²⁹⁶

- **Europe increasingly risks a “low-carbon leakage”²⁹⁷**

Some EU-based low-carbon, renewable-energy and energy-efficiency companies fear European potential will not be realized because weak and sometimes contradictory policies in the EU are not sufficient to fix market failures and convince investors. As a result, they increasingly invest outside Europe (US, China and Asia, etc.) where opportunities are more concrete.²⁹⁸

THE EU SHARE OF GLOBAL CLEAN ENERGY INVESTMENTS IS DOWN FROM 40% IN 2009 TO JUST 25% IN 2012



3. THE RECOMMENDATIONS: A POLICY ROADMAP FOR EUROPE

These recommendations are mainly focused toward EU institutions in the next five years (the new European Parliament and Commission as well as the European Council). They operationalize concretely the path to sustainable European economies presented in the previous part.

3.1. A new strategic vision for Europe from now to 2050

“By defining our goal more clearly – by making it seem more manageable and less remote... we can help all people to see it, to draw hope from it and move irresistibly towards it.”

John F. Kennedy
on the US moon mission³⁰⁰

The current EU economic turmoil offers a unique opportunity to demonstrate economic leadership and at the same time to champion international action on sustainability. At the moment, in spite of several efforts, European progress toward sustainability remains slower than it needs to be and should be. **A renewed strategic vision for Europe and a step change in political will are essential.**

To ensure clarity, such a strategic vision must be translated into several complementary elements:

- **An overarching goal** with a measurable 2050 result, and embedded in an overarching economic strategy (the Europe 2020 strategy to be revised and the future Europe 2030 strategy). EU leaders should not focus on more of the same, as they need (and seek) a positive agenda beyond austerity. They should therefore set a new strategic direction and reflect it in a new EU overarching goal: to maximize the sustainable well-being of EU citizens.
- **A set of four key enabling frameworks** to foster the economic transition toward sustainable economies. Three frameworks deal with the core failures of our economic system as already discussed (measuring and valuing properly, setting prices that reflect full costs and setting boundaries to the market) while the fourth framework deals specifically with EU international action. At the same time these frameworks build as much as possible on the existing EU acquis and institutional structures to avoid delays in reshuffling EU governance. They include:
 - A **climate and energy** framework;
 - A **resource efficiency and management** framework;
 - A **fiscal and financial** framework;
 - A framework for renewed **international leadership** building on EU domestic action to determine the EU approach globally.

“Longer term certainty for private investors drives down costs for taxpayers and consumers, releases efficiency savings from long-term planning and consistency and gives the supply chain greater clarity”

Her Majesty's Treasury,
UK Government³⁰²

- **Five cross-cutting priority policies** that complement the four enabling frameworks, as they deal with transversal issues that cannot be properly included in a specific framework. These complementary policies primarily aim to incentivize and accelerate the transition toward sustainable economies:
 - Eco-innovation
 - Green jobs
 - Green public procurement
 - Beyond GDP measurement
 - Consumer empowerment.

Each framework builds on a small set of targets (measured with relevant indicators and based on roadmaps). Three ingredients are also required to ensure success:

- A smart integration of these interrelated issues, to ensure effective complementarity, maximize synergies and deliver win-wins;
- Appropriate communication to sell a positive agenda for change;
- Improved participation to build ownership.²⁹⁹

- **Targets and indicators**

Targets and indicators might strike some as a technical issue, but the reality is that we cannot achieve what we cannot measure, and targets give investors and businesses ambitious long-term policy certainty.³⁰¹

Building sustainable economies in Europe in 5 steps

| EU economic policy overarching framework | | |
|--|---|---|
| EU long-term goal | Maximize the sustainable well-being of Europe's citizens | |
| 2050 result | Europe is the first global leader to have fully achieved its transition to sustainable economies | |
| Overarching economic strategy | | |
| 2020 and 2030 targets | Should notably include the framework's targets below | |
| 2050 roadmap | To be developed | |
| Instruments | EU Semester | |
| Cross-cutting policies | | |
| What? | Aim | Instrument |
| Eco-innovation policy | Fostering eco-innovation | Horizon 2020 research fund |
| Green job policy | Re-skilling, up-skilling people | EU budget notably European Social Fund |
| Green public procurement policy | 2020 target: 100% GPP achieved | Common sectoral criteria |
| Beyond GDP measurement policy | Rebalance environmental, social, economic indicators | Beyond GDP initiative |
| Empowering consumers policy | Provide information helping to shift consumer behaviour | Eco-labelling, smart metering |
| Climate change and energy framework | | |
| 2020 targets | 20-20-20 | |
| 2030 targets | 55% CO2 cut 40% energy efficiency 45% renewable energy | |
| 2050 targets | 95% CO2 cut 100% renewable energy | |
| 2050 roadmap | Low carbon/ energy/ transport roadmaps | |
| Instruments | Energy efficiency and renewables directives Emission trading system Emission performance standard, etc. | |
| Resource efficiency and management framework | | |
| 2020 targets | End EU biodiversity loss Accounting of ecosystem services | |
| 2030 targets | Significant cut of EU resource consumption Restoration of a significant amount of ecosystems | |
| 2050 targets | 95% CO2 cut 100% renewable energy | |
| 2050 roadmap | Resource efficiency roadmap | |
| Instruments | Key environmental directives, circular economy package, etc. | |
| | Supports | |
| Fiscal and financial framework | | |
| 2020 targets | End of environmentally harmful subsidies | |
| 2030 targets | Public and private funding for sustainable economies (measurable targets to be defined) | |
| 2050 roadmap | To be realized/ some financial elements in low carbon, energy, transport, resource-efficiency roadmaps | |
| Instruments | To be defined | |
| | | Policy Coherence for Development (ensuring consistency) |
| International leadership | | |
| Post-2015 targets | Sustainable Development Goals | |
| 2050 roadmap | To be done in partnership with relevant international organizations and other stakeholders | |
| Instruments | Policy Coherence for Development/ etc. | |

▼ Drives

Supports

▲
Policy Coherence for Development
(ensuring consistency)

3.1.1. Revising the Europe 2020 strategy and preparing the Europe 2030 strategy

EU policy process

The EU adopted the Europe 2020 strategy³⁰³ in early 2010, and consequently created the European Semester, the implementing tool. In 2014 the Commission published a progress review,³⁰⁴ opening a public consultation to revise the Europe 2020 strategy in 2014-2015.

Overarching economic strategies are needed to clarify European economic policy priorities and structure EU action in an effective way, maximizing complementarities and avoiding redundancies of more specific economic policies. They should also be built on a roadmap showing the way forward and the needed milestones. Logically, they should integrate the main targets of the four frameworks to ensure consistency.

The Europe 2020 strategy is presented by the Commission as the EU's overarching economic policy. Unfortunately, it falls short of properly covering and addressing the challenges discussed in this paper. While it includes the 2020 climate and energy targets and opens a door on resource efficiency through the "Resource-efficient Europe" flagship initiative, it is very limited on important areas like financial issues, services, agriculture, international leadership and beyond GDP indicators. In fact, it focuses mainly on industrial competitiveness and largely neglects the rest of our economy.

It is therefore critically important to revise the Europe 2020 strategy. Additionally, an economic roadmap should be realized as a background document to help prepare the discussion for the Europe 2030 strategy.

WWF recommendations

- The Europe 2020 strategy should include a resource-efficiency headline target, as suggested by the Commission,³⁰⁵ to reflect the progress made on this issue (see Chapter 3.1.1).
- It should also ensure clear consistency with the future Sustainable Development Goals (SDGs) at the international level. The SDGs will apply universally, and will set targets for developed countries like EU Member States (see Chapter 3.5.1).
- The Beyond GDP initiative should be integrated in the strategy and pushed forward more strongly, to ensure new much-needed environmental and social indicators get more prominence.
- The focus of the European Semester should be broadened from fiscal consolidation and financial stabilization to a broader economic policy reform agenda fostering the rapid transition to sustainable economies. Notably, it should more closely monitor environmental fiscal reform, the elimination of environmentally harmful subsidies, and green job creation.
- The Commission should initiate an EU-wide 2050 economic roadmap in the next three years as a background document to feed the Europe 2030 strategy discussion.

3.1.2. Eco-innovation policy

EU policy process

The Innovation Union³⁰⁶ is a flagship initiative under the Europe 2020 strategy. The new EU Budget 2014-2020 provides opportunities for eco-innovation, mainly through the research fund Horizon 2020 (€70 billion) but also with other funds like the Cohesion Policy.

In 2011 the Commission adopted an Eco-innovation Action Plan³⁰⁷ to expand the EU's focus from green technologies to non-technological innovative products, services and processes.

The Ecodesign Directive³⁰⁸ establishes a framework to set mandatory ecological requirements to reduce energy and resource use, pollution and waste, and improve recyclability. It should be reviewed by the end of 2014.

Getting the right EU-wide policy framework to develop and diffuse innovation is crucial: the EU aims to stimulate innovation through policies, legislation, financial support and standardization. More cooperation is needed across borders and institutions in research, development, testing, marketing, and getting products and services to market (especially for SMEs).³⁰⁹ Mainstreaming low-carbon, energy and resource requirements in R&D is also a concern: while mainstreaming of low-carbon requirements in the Horizon 2020 fund has started,³¹⁰ more is needed and data on resource efficiency is lacking, casting doubt on its integration throughout the funding programmes.

Simultaneously, many eco-innovative products and services have been put on the market but their diffusion remains far too confined – wasting readily available opportunities to save energy, resources, carbon and related costs. Available innovative technologies and behaviours should be generalized as quickly as possible.

The Ecodesign Directive is critical in term of “eco-standardization” of products, fostering innovation for more energy-efficient and resource-efficient products. EU law is already phasing out the most energy-hungry products. The EU should adopt minimum performance standards that are regularly updated (e.g. every three years), which will raise the bar as technologies progress, incentivizing the most energy- and resource-efficient products and helping to remove the least efficient ones from the market.

WWF recommendations

- The EU should mainstream low-carbon, energy-efficiency and resource-efficiency requirements in all R&D processes, notably in the Horizon 2020 and the Cohesion Policy funds (through general calls for proposals, specific eco-innovation calls, etc.)
- Through its revision, the Ecodesign Directive should be extended to all products and some services; products should be subject to standard recyclability requirements and producer responsibility schemes should be improved.
- The revision of the Ecodesign Directive should also substantially strengthen the market surveillance mechanism, including through coordination between national market surveillance authorities and the harmonization of sanctions.³¹¹

3.1.3. Green jobs policy

EU policy process

In 2012 the Commission issued a communication ‘Towards a job-rich recovery’³¹² accompanied with an in-depth analysis of the green jobs potential.³¹³ In 2014 it launched a Green Employment Initiative³¹⁴ creating the framework for unlocking the job-creation opportunities of a more energy- and resource-efficient and circular economy. In 2014 the European Resource Efficiency Platform (EREP) highlighted the need to develop a broad strategy for greening jobs, skills and education.

There is a large body of evidence³¹⁵ on the huge job potential of greening our economies but also on the required condition: the labour force has to be equipped with the relevant skills. Fortunately Europe has strong assets: 42% of SMEs have at least one part- or full-time green employee (5% increase since 2012) – amounting to more than 20 million jobs across the EU.³¹⁶

Studies³¹⁷ suggest that **the move toward a green economy requires an investment in re-skilling, re-training and re-educating the workforce.**

Training, lifelong learning and access-to-learning mobility across Europe should be generalized. The case for government support to drive this forward is clear – industry cannot do it alone. Governments have a role to play in ensuring that learners, providers and employers are more “joined up” to create training products relevant to industry needs. Regional governments lead the way in providing comprehensive and organized skills responses and creating networks of regional training centres, coordinated nationally, that play a very positive role and help mobility of workers between regions.

The good news is that case studies³¹⁸ strongly suggest that enabling a person to fulfil a new occupation is often a matter of “up-skilling” or adding to existing core skills. For example, workers with experience in shipbuilding and in the oil and gas sector are highly sought after in the wind-turbine industry for their skills in welding, surface treatment and outfitting. Similarly, in the crucial buildings energy-efficiency sector, a high volume of workers require relatively little upgrading of skills.³¹⁹

According to several studies, none of the EU Member States have put in place integral skills response strategies, and have instead a disjointed and fragmented approach.³²⁰ As stated in the 7th Environment Action Programme,³²¹ tapping the full green jobs potential also depends on improving environmental integration in economic sectors. Governments should also beware of brutally removing support like feed-in tariffs, as illustrated by the recent collapse of the solar photovoltaic industry in Spain.

Investment into human capital is a crucial expenditure that should not be compromised. Education, vocational training and research are extremely vulnerable areas during economic downturns. Stripping educational budgets reduces the value of human capital that could otherwise help to stimulate the economy out of recession.³²² Finally, youth unemployment is a huge European concern. The EU should better orientate young workers toward long-term industries that have the potential to provide careers.

Example: Finland

Lessons can be learned from Finland where during the economic crisis in the early 1990s, the government made a commitment to avoid cuts on essential services, favouring R&D and educational institutions. Finland experienced a quick recovery from recession with a world-class educational system and highly skilled workforce.

WWF recommendations

- The Commission, with Member States, should improve integration and coordination of existing European and national policies to maximize green job opportunities.
- Relevant EU funds should be strongly mobilized to support green job creation – notably Cohesion Policy (European Social Fund, European Regional Development Fund and Cohesion Fund), Rural Development and the European Maritime and Fisheries Fund (see Chapter 3.4.3).
- Green job creation should be monitored through the European Semester process, as the 2013 and 2014 Annual Growth Surveys (part of the process) stressed the green job creation potential and the need to develop strategic frameworks to exploit it.³²³

3.1.4. Green public procurement policy

EU policy process

Green public procurement (GPP) is defined by the Procurement Directives and the Remedies Directive,³²⁴ which clarify how public purchasers can include environmental considerations in their procurement procedures. A 2008 Commission communication³²⁵ defines an indicative 50% GPP target by 2010. The EU Competitiveness Council of September 2008 highlighted the role which GPP can play in facilitating a highly competitive and innovative European knowledge economy.³²⁶

GPP builds on clear, verifiable and ambitious environmental criteria for products and services, based on a life-cycle approach. This is a powerful tool to better internalize environmental issues. Common GPP criteria were established in 2008 for a first set of 10 priority sectors and new criteria are progressively developed for new sectors. These common GPP criteria are designed to assist contracting authorities in properly undertaking GPP in the legal framework of the provisions of the Treaty on the Functioning of the European Union and the conditions of the General Procurement Agreement of the World Trade Organization.³²⁷

In addition 22 EU Member States have now adopted National Action Plans for GPP.³²⁸ Because public institutions can set an example, they should be front runners in buying greener products and services through GPP. It makes more economic sense that they create demand for clean products rather than support manufacturers directly with subsidies.

Importantly, GPP yields three different benefits:

1. It can be a major driver of more innovative and greener products and services, given the huge annual public procurement spending.
2. It contributes to meeting EU environmental targets.
3. It also saves scarce public money at a time of austerity.

Green products and services are wrongly perceived as costing more – a misconception which arises by focusing solely on the purchase price when evaluating offers, rather than the full life-cycle cost. But an authoritative study³²⁹ showed that in most cases the overall costs of green goods and services are lower, as the often slightly higher purchasing price is more than offset by savings on operating, maintenance or disposal costs. The study found an average cost reduction of 1.2% in 2006-2007 from GPP: mainstreaming it at the EU level would save around €20 billion a year.

WWF recommendations

- GPP should become mandatory for all programmes and projects using EU Budget funds.
- EU institutions should reach 100% GPP by 2016 and EU Member States should achieve it by 2020 through a mix of incentives and regulation (as a comparison the Dutch government met its 100% GPP target by 2011).³³⁰
- The Commission should urgently update its 2008 green procurement guidelines on food and catering, and include guidance on sustainable diets and food-waste reduction.
- The Commission should further develop guidance for new sectors, provide simplified guidance for small local and regional authorities and facilitate networking among public procurement officers to foster cooperation and exchange of best practice.

3.1.5. Beyond GDP measurement policy

EU policy process

In November 2007, the Commission, together with the European Parliament, the Club of Rome, WWF and the OECD, organized the Beyond GDP conference.³³¹ Under the GDP and Beyond initiative,³³² the Commission adopted a communication in 2009³³³ identifying five actions that have been reviewed in 2013.³³⁴

The 2013 review of the Commission-led Beyond GDP initiative shows several areas of progress; specifically, a preliminary scoreboard of resource-efficiency indicators was proposed in the context of the Roadmap to a Resource-Efficient Europe (see Chapter 3.3.1) and research is ongoing to put a monetary value on the loss of natural resources (see Chapter 3.3.1). Still, Action 4 (“Improving measurement towards sustainability”) has not been achieved. Feasibility testing of an EU Sustainable Development Scoreboard has been inconclusive due to lack of data; in addition, the scientific basis for identifying environmental tipping points requires more work to make it operational for environmental management and target-setting for resource efficiency.

WWF recommendations

- With new beyond GDP indicators increasingly available (notably for the environment), the Commission should systematically use them in policy assessment and evaluation, put more emphasis on communicating the new insights they provide, and ensure they contribute to policy-making.
- Such new indicators are notably relevant for monitoring the Europe 2020 strategy through the European Semester, and also the Cohesion Policy, the EU 7th Environment Action Programme and the follow up on the Rio +20 conclusions.³³⁵
- The development of an EU Sustainable Development Scoreboard should be achieved without delay.

3.1.6. Consumer empowerment policy

EU policy process

The Energy Labelling Directive³³⁶ provides energy labels on products to inform consumers and provides incentives for the industry to innovate. It will be revised in 2014 - 2015.

Empowering consumers, whether individuals, businesses, municipalities or industries, means providing them with access to information and giving them the opportunity to act on it. Many European consumers have little idea of the “greenness” of products on sale or what resources they consume. Providing transparent information aims to foster the emergence of green products and services by changing product, service and company preferences and, more broadly, to help make consumer lifestyles and behaviours more sustainable.

Current market prices do not properly reflect full environmental costs, so educating consumers on the real environmental impact of their consumption is important. Labelling systems can provide information. Smart metering can give consumers more control over their energy and water use, which it is in their own interests to limit. Ideally shorter-term incentives for behaviour change should be provided so that sustainable living becomes attractive and the norm.

Information is not advertisement, that by definition promotes a given product or service. Building on existing precedents,³³⁷ it is important to protect vulnerable people (especially children) from excessive commercial pressures through comprehensive and effective regulations across all media, and to ensure that advertising cannot deliver misleading messages on the environmental benefits or impacts of a given product or service.

WWF recommendations

- Transparent information must be provided to all consumers on the environmental impact of the products and services they buy: labelling on energy- and resource-efficiency and low-carbon features of products and services should be mainstreamed.
- The Energy Labelling Directive put in place a confusing system that misleads consumers by concentrating products in the upper classes of the label (A+, A++, A+++). The 2014-2015 revision should agree a clearer label that truly helps consumers to select the most efficient products and cut their energy bill.
- Smart metering for energy and water should be quickly developed and mainstreamed.

3.2. An ambitious enabling framework for climate and energy by 2030

The agreed EU long-term climate target is to cut our greenhouse-gas emissions by 80-95% compared to 1990 levels.³³⁸ Based on updated climate science,³³⁹ WWF recommends reaching the upper end of this target with 95% decarbonization – ensuring a high probability of staying below 2 degrees warming – and a 100% renewable energy system.³⁴⁰ The EU has already built a climate and energy framework, the 2020 climate-energy package. It makes much sense to build on this framework with a new 2030 milestone, but lessons learned should lead to increased ambition and improved instruments. Most importantly, the 2030 framework must put the EU on a stable and secure path toward the 2050 targets. The emphasis should be on domestic emissions, with additional reduction effort supported abroad under a reformed approach that no longer functions as a supply of “offsets”.

A bold and consistent framework for climate and energy requires a smart, integrated approach with complementary elements:

- **Targets:** mandatory targets by 2030 are required to provide mid-term predictability and stability – in order to ensure confidence that investors will get a return on their investment.³⁴¹
- **Instruments:** the EU Emissions Trading Scheme (ETS) must be fixed and completed with an Emission Performance Standard to drive cost-effective decarbonization to maximize EU-wide potential of renewable energy and energy savings. Completing the EU grid and ensuring sustainability of renewables are also needed.
- **Security of supply and competitiveness:** the framework should not only be considered through the prism of energy prices, but must focus on overall productivity by prioritizing skills, research and innovation. The development of the EU’s energy system must also focus on the least risky decarbonization options.

Energy savings: the top priority

There is consensus among experts that the most important and cost-effective means of achieving climate, energy, economic and security-of-supply goals is through energy savings – our “first fuel” according to the IEA.³⁴² Energy savings facilitate the European decarbonization path by reducing the amount of energy produced and used from all sources, and the infrastructure needed to deliver it – significantly reducing costs, as well as generating jobs and cutting pollution. The 2020 energy-efficiency target is a central issue.

3.2.1. A comprehensive EU economic policy overarching framework

EU policy process

The new Energy Efficiency Directive (EED)³⁴³ establishes a common framework of energy efficiency measures in order to achieve the 2020 target. The Energy Performance of Buildings Directive (EPBD)³⁴⁴ is the main legislative instrument to reduce the energy consumption of buildings – 40% of EU final energy use and 36% of greenhouse-gas emissions.

Worryingly, the EU is not on track to meet its target of reaching 20% energy saving by 2020 because energy-efficiency policy-making has been under-achieving. The Commission latest forecast is that the EU will only achieve 18-19% savings by 2020.³⁴⁵ What is alarming is that about one-third of the progress was achieved through reduction of energy use caused by the economic crisis and not by structural measures improving energy efficiency. However, new elements have emerged:

- The new context of prolonged economic crisis puts a greater premium on saving money by saving energy.
- Measures whose primary aim is addressing the economic crisis also provide new opportunities for delivering energy savings.³⁴⁶
- The Ukraine-Russia crisis put more emphasis on the importance of saving energy to reduce EU dependency on gas and oil imports.

Example: General Electric’s “ecomagination” strategy

General Electric (GE) has saved over €73 million in the past five years through its “ecomagination” strategy. GE reduced its energy intensity by 33% between 2004 and 2010, surpassing its goal of 30% by 2012. By 2015, GE aims to improve the energy intensity of its operations by 50%.³⁴⁷

WWF recommendations

- The 20% energy saving target must be achieved by 2020. Member States should step up efforts on implementation and enforcement of the existing energy-efficiency legislation, particularly the EED and the EPBD.

3.2.2. Maximize the impact of three complementary targets for 2030 on energy savings, renewable energy and CO2 reduction

EU policy process

The Commission’s White Paper on the 2030 climate and energy framework³⁴⁸ was published in January 2014: it proposes a binding climate target of reducing CO2 emissions by 40% and a 27% renewable target binding at EU level. In February 2014 the European Parliament endorsed a resolution³⁴⁹ calling for three binding targets, including a 40% energy savings target. In October 2014 the European Council endorsed a framework with an at least 40% greenhouse-gas (GHG) reduction, at least 27% renewable energy and at least 27% energy savings.

The agreed outlines of the 2030 package are unambitious and fail to propose a framework in line with the 2050 targets. The levels are below those recommended by WWF and other stakeholders: 55% GHG reduction, 45% renewables and 40% energy savings. Additionally, the nature of the targets is problematic: the GHG target is binding and to be achieved domestically, but the renewable target is only binding at EU level (dropping national sub-targets), and the energy efficiency target is indicative.

This patchwork of approaches will likely compromise the effectiveness of implementation.

**40 % ENERGY EFFICIENCY
IMPROVEMENT BY 2030
WOULD REDUCE THE EU'S
GAS IMPORTS BY 40%
AND OIL IMPORTS BY
19% COMPARED TO 2010**

Energy savings

A 40% energy-efficiency target is needed to deliver the multiple benefits of energy efficiency. The Commission's Impact Assessment accompanying the July 2014 Energy Efficiency Communication shows that a 40% energy efficiency target by 2030 will reduce the EU's gas imports by 40% and oil imports by 19% compared to 2010. 27% is at or below the trends without further policy intervention.

Renewable energy

With an ambitious renewable-energy target, Europe will maximize its most reliable and least risky decarbonizing energy sources and benefit from early investments that continue to reduce costs – in contrast to unproven carbon capture and storage and increasingly expensive nuclear power. The 27% target is only 3% higher than business-as-usual projections, which will not help to secure needed investments and will barely reduce the EU energy-import bill.

CO₂ reduction

With an ambitious CO₂ reduction target, Europe will deliver CO₂ cuts in line with its responsibility and capability to mitigate climate change. A target of -55% in 2030 would continue the current reduction rate of 2% a year, which reaches -95% in 2050.³⁵⁰

Although the levels agreed by the EU Council are inadequate, with the “at least” language and a mandate to return to this issue after the Paris COP21, the door is open to agreeing more ambition.

WWF recommendations

- The 2030 EU framework on climate and energy must be based on three legally binding complementary targets; the current agreement is inadequate . WWF advocates:
 - Energy efficiency: at least 40% less energy use than in 2005;
 - Renewable energy: at least 45% renewables in final energy consumption;
 - CO₂ reductions: at least 55% cuts in domestic CO₂ compared to 1990.
- The flexibility left by Council to agree higher targets should be maximized, including in light of the EU's stated commitment to closing the “gigatonne gap” in the UNFCCC – the difference between commitments and needed reductions to avoid dangerous global warming.

“With something like a third of all our growth accounted for by green business last year (2011), the UK could be a global front-runner in the shift to low-carbon”

John Cridland, Director General, Confederation of British Industry (the most important British business association)³⁵¹

3.2.3. Complementary demands for 2030: carbon market, grids and sustainability guidelines

In addition to the 2030 climate and energy targets that will give Europe a clear policy direction, some complementary and more specific elements of reform are needed to ensure full consistency with the targets, remove inefficiencies and provide a consistent enabling framework:

- Fix the Emission Trading System (ETS) permanently and complement it with an Emissions Performance Standard;
- Build a pan-European smart grid;
- Introduce binding, stringent sustainability criteria for renewable energy, notably biomass/biofuels.

Fix the carbon-market failures permanently³⁵²

EU policy process

The EU Emissions Trading System (ETS),³⁵³ established in 2003, set a framework for long-term industrial greenhouse-gas cuts.

The ETS has not delivered an adequate pollution price signal because policy-makers failed to set ambitious enough reduction targets and approved too many free allowances. They even exacerbated their mistake by allowing the use of international offset credits, which leads to massive oversupply. These initial failings have not been corrected despite nearly 10 years of operation. The Commission’s proposal to establish an ETS Market Stability Reserve will not avoid a lock-in of investments into high-emitting infrastructure. **Without action, the ETS will remain redundant for at least another decade.**

**THE COMMISSION’S
WHITE PAPER DOES
NOTHING TO END
THE PERVERSE
REVIVAL OF LIGNITE**

In addition the Commission’s White Paper does nothing to end the perverse revival of lignite, the most polluting form of energy. The IEA has explicitly stated that non-price measures are required in tandem with a CO₂ price. This is why an **Emissions Performance Standard (EPS)**³⁵⁴ is required, to set a plant-level maximum of greenhouse-gas emissions per unit of electrical output or limit emissions on an annualized operation basis. This would leave the ETS-driven carbon price to direct investments to decarbonization technologies operating below that level. An EPS already features in parts of EU climate and energy policy: in 2013 the European Investment Bank’s established an EPS standard for its investments in fossil-fuel power plants, and the UK has legislated for an EPS as well. The US Environmental Protection Agency also introduced Carbon Pollution Standard for new power plants in 2013.³⁵⁵

WWF recommendations

- The ETS should be reformed quickly (cancel around 2.2 billion surplus allowances) and permanently (increase the rate of annual greenhouse-gas cuts to 2.6%) to reach and maintain adequate carbon prices.
- “Back-door” greenhouse-gas cuts through international offsets should be excluded.
- All pollution permits should be auctioned and earmarked to provide more funds for the deployment of renewable energy and energy-saving technologies, including through industrial clean-tech innovation.
- The ETS should be complemented by an EPS to block the dirtiest power plants, prevent lock-in to high-carbon energy infrastructure, and provide a clear investment signal for the decarbonization of the sector.

Build a pan-European electricity grid

Deeper integration of the internal electricity market will make our decarbonization cheaper by providing more efficient power supplies, furthering the integration of renewable energy and better use of production capacity, and reducing the volume of investments required for power production. An effective pan-European electricity grid will contribute to that goal.

Smart grids investments at the distribution level are also important for enabling decentralized generation. Investment requirements for distribution grids are several times larger than transmission grids and investment could exceed €700 billion by 2030 and €1.4 trillion by 2050.³⁵⁶ Offshore grids are also needed to connect power markets around the North and Baltic seas region. Electricity storage should also be supported.

WWF recommendations

- The bottlenecks to an effective pan-European electricity network should be addressed. Notably, funding from the Connecting Europe Facility should be largely mobilized for this purpose.
- Support to smart distribution grids should be scaled up. The Cohesion Policy should play a significant role.
- Electricity infrastructure should be planned carefully in order to avoid negative impacts on biodiversity and ecosystems.

Set binding sustainability criteria for renewables

EU policy process

The Renewable Energy Directive³⁵⁷ sets out sustainability criteria for biofuels that have applied since 2010. The integration of indirect land-use change for biofuels is not yet finalized, with a second reading under preparation in the European Parliament.³⁵⁸ The Commission's White Paper on the 2030 climate and energy framework³⁵⁹ makes clear that "an improved biomass policy will be necessary to maximise the resource-efficient use of biomass".

Biofuels have sparked huge controversy on their real vs. supposed climate benefits and their impact on land-use change, as well as food security.³⁶⁰ But the EU has reacted sluggishly and hasn't yet finalized its legislative proposal to include indirect land-use change in greenhouse-gas accounting of biofuels. Although **biomass** use will unavoidably grow in the next decades given European energy and resource needs, the EU has no policy in place for ensuring sustainable use of biomass.

In addition, other renewable-energy technologies can have negative impacts on ecosystems as well, if not planned and managed well. This is especially the case with **hydropower**, which can lead to fragmentation of rivers and decline in freshwater biodiversity and ecosystem services.³⁶¹ **Healthy ecosystems are a key asset for climate-change adaptation and mitigation; the EU should therefore generally ensure that climate and energy policies lead to co-benefits not negative impacts for ecosystems, to ensure synergies and reduce costs.**

WWF recommendations

- The EU should quickly finalize its legislative proposal on indirect land-use change due to biofuels, ensuring that only those biofuels that lead to a proven, significant reduction of emissions are accepted.
- The EU should ensure resource-efficient use of biomass and should put in place binding sustainability criteria for the energy use of biomass.
- Member States should build a legal framework establishing sustainable planning and mapping mechanisms for energy development, including "no go" areas – in particular for hydropower. Hydropower investments should be prioritized toward modernization and refurbishment, combined with measures that reduce the impact of existing hydropower plants. New investments should stay well away from protected areas or river stretches with high/good ecological status; negative consequences on ecosystems and biodiversity must be properly assessed, avoided and/or mitigated and adequately monitored (including their cumulative effect).

3.3. A complete enabling framework for resource efficiency and management

For WWF, the long-term resource goal of Europe by 2050 is a European resource use that is sustainable (within the limits of the planet) and fair (sharing benefits of exploiting resources and leaving resources for the poor). The EU has already set the target of full restoration of EU biodiversity and ecosystem services by 2050.³⁶² Although the EU already benefits from many regulations in key areas (water, biodiversity, waste, etc.), it still lacks a fully integrated framework for resource use that would link the different parts coherently under an umbrella approach with key flagship targets.

WWF recommends the following architecture for a complete EU resource efficiency and management framework:

- **Set an overall resource efficiency target for 2030**, with relevant indicators, including footprints, underpinned by data from ecosystem valuation and accounting. Such a headline target is critical to raise the profile of the resource-efficiency agenda at the EU and national levels.
- **Protect our natural capital** by improving management of the Natura 2000 European network of protected areas, and better implementing the Water Framework Directive.
- **Produce sustainably** by properly implementing the sustainability requirements of Common Fisheries and Agriculture policies, and fostering a European circular economy.
- **Consume sustainably**: make our diets more sustainable and healthy, ensure that the natural resources we import (especially timber and fish) are legal, and reduce EU consumption's impacts on deforestation.

3.3.1. Set resource efficiency target and indicators

A binding and ambitious resource efficiency target by 2030

EU policy process

“Resource-efficient Europe” is a flagship initiative of the Europe 2020 strategy.³⁶³ On this basis the Commission published the 2011 Roadmap to a Resource-Efficient Europe.³⁶⁴ In the 7th Environmental Action Programme³⁶⁵, Member States and the European Parliament³⁶⁶ agreed that the EU should establish indicators and set targets for resource efficiency, and assess the appropriateness of a lead indicator and target in the European Semester. A 30% resource productivity target by 2030 has been suggested by the Commission.³⁶⁷

Rising commodity prices increase costs for businesses and households. Improving resource efficiency – in other words, producing products and services with fewer resources and reducing EU imports of resources – is set to become more important than labour productivity as a driver of competitive advantage, according to McKinsey.³⁶⁸

Reducing EU dependency on resource imports brings equally important macro-economic and geopolitical benefits as reducing our oil and gas dependency.

A resource efficiency target should have the following characteristics:

- **Relevant:** A relative indicator like resource productivity (GDP divided by raw material consumption) is not meaningful to measure what is at stake: European overuse of resources in absolute terms. Reducing European resource use (and imports) in absolute terms should be the aim – as with energy efficiency, which is not measured relative to GDP growth. Total Material Consumption is therefore a more relevant lead indicator. Some might consider Total Material Consumption data not yet robust enough, but it can become so in one or two years.
- **Binding:** The current failure to reach the voluntary 2020 energy efficiency target pleads in favour of a mandatory target for resource efficiency, to ensure investor confidence.
- **Ambitious:** The Commission modelled several resource-productivity scenarios by 2030 from 14% (business as usual) to 50% (“ambitious and flexible improvement”)³⁶⁹ but suggested a mild 30% target. A far more ambitious target must be retained, as it will benefit Europe environmentally and economically.

Use a set of relevant indicators for measuring European resource use

EU policy process

To measure European resource use, the Roadmap to a Resource-Efficient Europe³⁷⁰ proposed a lead indicator (discussed above), complemented by a dashboard of macro-indicators (materials, carbon, land and water), and third-tier, more specific thematic indicators. Consequently Eurostat published for the first time a European Resource Efficiency Scoreboard at the end of 2013.³⁷¹

These steps forward are positive, but improvements are required:

- **Use carbon, water and land footprint indicators in the dashboard.** The footprint is the best indicator to include domestic but also international impacts of European consumption. Neglecting the international aspect must absolutely be avoided, as in several cases it is the most problematic area.
- **Add biodiversity to the dashboard.** Biodiversity constitutes the basic building blocks for resilient ecosystems, but was largely forgotten in the Commission’s proposal. WWF recommends the following indicator, which is considered the most relevant: **Conservation Status of Habitats and Species of Community Importance.**³⁷² It is publicly available and easily accessible, and provides an overall status of biodiversity across the whole EU.
- More biodiversity indicators are also needed as thematic indicators.

Scarcity of a given resource and environmental risks or impacts attached to its use are other important issues. The Commission should develop second-tier indicators that measure sensitivity and impacts of materials, and can inform policy decisions to reduce impacts.

WWF recommendations

- The EU should set a binding target for resource efficiency by 2030 with a similar approach to energy efficiency. WWF recommends an absolute reduction of EU Total Material Consumption.
- The dashboard of indicators should focus on carbon, water and land footprint and add one biodiversity indicator: Conservation Status of Habitats and Species of Community Importance.

Finalize the framework for ecosystem valuation and accounting

EU policy process

The EU 2020 Biodiversity Strategy³⁷³ endorsed by the Council in 2011³⁷⁴ puts forward a commitment for Member States to map and assess their ecosystem services by 2014 and “promote the integration of these values into accounting and reporting systems at EU and national levels by 2020”.³⁷⁵ In 2011, the Regulation on European Environmental Economic Accounts³⁷⁶ was adopted: it requires Member States to regularly report on several environmental areas (“modules”). The regulation allows for new modules to be introduced, such as a module on ecosystem services, as explicitly mentioned; the next opportunities for adding new modules are 2016 and 2019.

As we have described in our WWF publication “Accounting for Natural Capital in EU Policy Decision-Making: A WWF background paper on policy developments”,³⁷⁷ ecosystem valuation is an anthropocentric approach that focuses on human benefits. It should not undermine the importance of the intrinsic value of nature, which should be adequately acknowledged in accounting and reporting systems as well as in policy-making. The ecosystem valuation and accounting processes should also be accelerated significantly to achieve existing commitments and targets by 2020.

WWF recommendations

- By 2020, EU ecosystems and their services should be valued and accounted for at national and EU levels. To do so, the Commission should propose a new module for ecosystem accounting in the EU Regulation on Environmental Economic Accounts in 2016 or at the latest in 2019, to step up the implementation of the EU commitment.
- At the EU level, three related processes are ongoing with overlapping goals in environmental and ecosystem accounting – Mapping and Assessment of Ecosystems and their Services (MAES),³⁷⁸ Beyond GDP initiative, Regulation on Environmental Economic Accounts. The co-ordination between these parallel processes should be enhanced, as well as with related processes at the global level,³⁷⁹ to ensure synergies and avoid duplication of effort.
- The Commission should play a more active steering role by delivering and promoting an appropriate accounting system and by making use of existing positive examples such as the UK Natural Capital Committee and the National Ecosystems Assessment process.

3.3.2. Protect our natural capital

Halt the loss of nature

EU policy process

The Birds and Habitats Directives³⁸⁰ are the cornerstone of EU nature conservation. The EU failed to achieve its target of halting EU biodiversity loss by 2010.³⁸¹ The EU 2020 Biodiversity Strategy³⁸² sets the goal to halt the loss of biodiversity and ecosystem services in the EU by 2020, to restore at least 15% of European degraded ecosystems and to establish green infrastructures.

The Birds and Habitats Directives establish the Natura 2000 network of protected areas, which covers 18% of EU land with 25,000 sites. Natura 2000 is acknowledged to be one of the world's most modern and ambitious approaches to halting the loss of biodiversity. According to a Commission study,³⁸³ annual investment of €5.8 billion is needed to manage Natura 2000 adequately: this amount is dwarfed by the socio-economic benefits from Natura 2000, which reach €200-300 billion per year. **Every year, Natura 2000 sites boast 1.2 to 2.2 billion visitor days, and provide direct or indirect support to 4.5-8 million full-time equivalent jobs in the tourism and recreation sectors alone.**³⁸⁴ Despite these enormous benefits, it is estimated that only 9-19% of EU-wide investment needed for Natura 2000 is covered,³⁸⁵ resulting in the loss of ecosystems services for our society. The EU Budget 2014-2020 provides many opportunities to support Natura 2000 and green infrastructures.³⁸⁶

More emphasis should also be put on sustainable spatial planning –for land and sea. This should ensure better land-use efficiency and promote the re-use of existing infrastructure and urban stock before any expansion into natural and agricultural lands. On seas, in conjunction with the blue economy agenda, maritime spatial planning³⁸⁷ should aim to ensure that human activities are as efficient and sustainable as possible.

Example: Green infrastructure more efficient than technical solutions (Ireland)

In Anne Valley, an integrated wetland was constructed instead of installing a traditional water treatment plant. Not only is the wetland more efficient in clearing mostly livestock wastewater than a traditional plant, it also offers multiple benefits like flood control and climate regulation. Capital costs were €715,000 for the project: this is less than half the estimated cost of an equivalent traditional plant (€1,530,000). In addition €220,000 was spent on new tourism facilities which are creating economic value, which would be impossible with a traditional plant. Annual maintenance costs are also lower.

WWF recommendations

- The Birds and Habitats Directives are the cornerstone of EU nature conservation policy and a successful, modern and flexible tool. Better implementation is required to unlock their full potential and help meet the target of halting the loss of biodiversity and ecosystem services by 2020.
- The Commission and Member States should ensure that €5.8 billion per year is allocated to the management and restoration of Natura 2000 areas, notably through the EU Budget 2014-2020 (Cohesion Policy, Rural Development) (see Chapter 3.4.3).

Secure clean and healthy waters

EU policy process

The Water Framework Directive³⁸⁸ (WFD) requires long-term sustainable water management. It sets objectives of achieving good ecological and chemical status of all surface and groundwater bodies by 2015 (with possibility to extend deadlines under certain conditions).³⁸⁹

Water is crucial for agriculture, industry, energy production, healthy ecosystems – and people’s well-being. But it is increasingly turning into a rare and precious resource.

By 2015, only 53% of water bodies are expected to reach good status, far from the EU target.³⁹⁰ Pollution, hydromorphological pressures (pressures on the physical characteristics of a water body) and excessive abstraction are mostly driven by unsustainable practices in agriculture, energy production, transport and industry. In addition the implementation of the WFD is significantly challenged by a widespread use of exemptions, by which Member States are postponing much-needed management measures and setting lax objectives.

The preparation of the second cycle of river basin management plans by end 2015 offers a great opportunity to increase the EU ambition in water management and ensure the bulk of water bodies are brought to good status by 2021.

WWF recommendations

- To ensure improved implementation of the WFD, the Commission should ensure that exemptions are not misused and are adequately justified and reported, and that users and polluters contribute adequately to full cost recovery.
- Member States and the Commission should prioritize green infrastructures that supports nature conservation, in particular when designing flood and drought management measures (e.g. by substituting traditional “grey” with green infrastructure), and improve planning for WFD-compliant infrastructures (dams, dykes, groins etc.).

3.3.3. Produce sustainably: management of natural resources

Recover fish stocks

EU policy process

The new Common Fisheries Policy (CFP)³⁹¹ entered into force on 1 January 2014. It includes measures to halt overfishing and to reduce fish discards at sea. As the main implementation tool of the CFP, regional Multi Annual Plans (MAPs) allow the design of management solutions that can answer the specific needs of regional fisheries, deliver on CFP and are consistent with EU environmental legislation.

Overfishing is widespread in EU waters. Over €3 billion is lost every year due to overfishing, whereas recovered stocks could support more than 100,000 jobs.³⁹²

WWF recommendations

- Ensure that the implementation of the CFP meets its target of halting overfishing through the achievement of the maximum sustainable yield goal in annual negotiations between Commission and Member States on fishing opportunities. (Maximum sustainable yield is the highest annual catch of a fish stock than can be sustained over time without impairing stocks)
- Ensure all MAPs are based on an ecosystem approach and full stakeholder participation and are put at the heart of fisheries management to deliver effective regionalization: the Commission should develop a roadmap for the adoption of MAPs.
- Ensure that the European Maritime and Fisheries Fund is used to improve the state of marine resources and to make fishing operations more sustainable, and that environmentally harmful subsidies are phased out in the Fund (see Chapter 3.4.3).

Ensure a sustainable European agriculture

EU policy process

The Common Agricultural Policy (CAP) was renewed as part of the EU Budget 2014-2020.³⁹³ The first pillar (direct payments) includes a 30% greening component with three implementing measures and the second pillar (rural development) maintains existing agri-environment measures.

Although the EU committed to a more sustainable CAP, the specific implementation elements of the regulations are riddled with exemptions and loopholes. Whether the new CAP 2014-2020 will lead to lower negative impacts on water, soil and biodiversity resources will depend on Member States' implementation and Commission's monitoring. So far the situation is quite worrying, with for example a recent scientific article concluding that the new CAP will fail on biodiversity protection.³⁹⁴

WWF recommendations

- Member States should strengthen the agri-environment measures in Rural Development through budget modulation, prioritizing context-specific measures shown to support biodiversity, ecosystem services and water quality, and setting clear and measurable targets that are coherent with the EU Biodiversity Strategy;
- In the greening measures of Direct Payments, eligible land used for Ecological Focus Areas should prioritize elements that benefit biodiversity and ecosystem services. Through the EU Budget mid-term review in 2016 and the 2017 evaluation of Ecological Focus Areas³⁹⁵, the EU should strengthen the greening measures of Direct Payments – notably by increasing the share of Ecological Focus Areas.
- The EU should include Water Framework Directive requirements in CAP cross-compliance.
- The EU should ensure consistency of CAP subsidies with future post-2015 Sustainable Development Goals and the EU Policy Coherence for Development process (see Chapter 3.5.1 and 3.5.3).

Transform the European economy into a circular economy

EU policy process

The Waste Framework Directive³⁹⁶ lays down key waste management principles such as the “waste hierarchy”, the “polluter pays principle” and the “extended producer responsibility” and set targets. Waste prevention programmes have recently been adopted by the Member States, as required by the Waste Framework Directive, and are currently reviewed by the European Environment Agency. The Commission recently adopted a communication towards a European circular economy that proposes to review recycling targets by 2030 and support design and innovation for a more circular economy (ecodesign, green public procurement, etc.).³⁹⁷

There is a huge potential to improve resource productivity by shifting to “closed loop” or circular systems that reuse and recycle materials and minimize waste far more than our current linear supply chains.³⁹⁸ The EU should promote a system – a functioning internal market – in which a life-cycle approach is adopted for all key resources. **Creating a circular economy is only possible if producers aim to reduce consumption of primary raw materials and take responsibility for their products from “cradle to grave”, and if consumers buy greener products and dispose of them efficiently.** The ultimate goal should be a “cradle-to-cradle”³⁹⁹ approach, where the re-use and recycling of all materials allows Europe to gradually become waste free.

Example: Recycling end-of-life vehicles

SITA France/Suez Environnement and a big car manufacturer have formed a joint venture in France to recycle end-of-life vehicles. They aim to recover 95% of each vehicle by 2015.⁴⁰⁰

WWF recommendations

- European policy frameworks related to production, consumption and waste should put the life-cycle approach at the core, starting with key resources.
- The priority is to generate less waste: waste prevention should be strengthened by setting targets to ensure the absolute reduction of waste.
- Recycling should be scaled up with ambitious 2030 targets and a policy framework to create an effective EU market for secondary materials. Landfilling should be banned quickly.

3.3.4. Consume natural resources sustainably

Consumption has to become fully sustainable step by step. More specifically, two areas of the EU consumption of natural resources have major environmental impacts:

- Food consumption;
- EU consumption of natural resources from developing countries, e.g. timber and fish.

Foster more sustainable and healthy consumption

EU policy process

The EU Roadmap to a Resource-Efficient Europe⁴⁰¹ set a target to reduce the EU food chain's resource use by 20% by 2020; the Commission should present a communication to operationalize it.⁴⁰² The Commission also recently proposed to reduce food waste in the manufacturing, retail and food service sectors and households by at least 30% by 2025.⁴⁰³

“Nothing less is required than a redesign of the whole food system to bring sustainability to the fore”

UK Foresight Report
on the Global Food System

Food represents 20-30% of the EU's environmental footprint, yet one third of food is wasted from farm to fork. At the same time, Europe has consistently high levels of obese and overweight people. This is associated with 2.8 million deaths per year, leading to significant health costs. WWF developed the LiveWell for LIFE project with Friends of Europe to show that encouraging healthy and sustainable diets would be the most effective means to improve public health and reduce greenhouse-gas emissions from the food chain. The LiveWell Plate outlines a diet that resembles current eating patterns but reduces the carbon footprint by 25% and saves some money.⁴⁰⁴

WWF recommendations

- Support and strengthen specific legislative proposals from the Commission such as the recent food-waste target and the upcoming proposal on the revision of Green Public Procurement Guidelines for Food;
- Build on the Commission's forthcoming communication Building a Sustainable European Food System to develop a future EU food strategy. Ensure that any future EU food strategy strikes the right balance between production, waste and consumption – not focusing only on production or waste.

Stop illegal timber trade and reduce EU impact on deforestation

EU policy process

The EU Timber Regulation (EUTR)⁴⁰⁵ aims to halt the trade in illegal timber in Europe; a review is foreseen for 2015. In 2008 EU Environment Ministers committed to half global forest cover loss by 2030 and cut tropical deforestation by at least half by 2020 compared to 2008 levels.⁴⁰⁶ The 7th Environment Action Programme⁴⁰⁷ proposes an EU action plan on deforestation and forest degradation.

The EU represented one third of the global timber trade in 2011. **Illegal timber accounts for 30% of the global timber trade and contributes to more than 50% of tropical deforestation in Central Africa, the Amazon and Southeast Asia.** Despite the EUTR, illegally harvested timber and timber products can still enter the European Union because of poor implementation and enforcement of the law by a number of EU Member States, as recently highlighted by the Commission.⁴⁰⁸

WWF recommendations

- To achieve the EU target by 2020, all Member States should adopt appropriate national legislation, including effective penalties and sanctions, and enforce the law. The Commission should take legal action against non-compliant Member States.
- The product scope of the EUTR should be extended in the 2015 review, to ensure a level playing field.
- The Commission should develop an ambitious and comprehensive Action Plan on Deforestation and Forest Degradation by 2015 aiming at making the EU consumption and production more sustainable, helping developing countries to end deforestation and ensuring the legality of activities.

End illegal fishing

EU policy process

The EU IUU Regulation⁴⁰⁹ (regarding illegal, unreported and unregulated fishing) aims to close the loopholes that allow illegal fishing operators to profit from their activities.

The EU is the world's largest seafood market. Indeed, it consumes 25% of world seafood, 65% of which is imported. To prevent IUU seafood from entering the European market, the EU IUU Regulation mandates the use of catch certificates for seafood imports into the EU, which certify that the products were caught in compliance with national and international regulations. Nonetheless it is to date still possible for seafood from criminal activities to enter the European market, due to lack of uniform implementation of the EU IUU Regulation by EU Member States, as well as some key procedural gaps in implementation processes.

One major procedural flaw is the possibility for re-use of the same catch certificate, or copied versions of it, through border control points of different EU countries, due to the absence of a centralized processing system.

WWF recommendations

- Ensure a harmonized implementation of the EU IUU Regulation across EU Member States, particularly the application of a risk-based approach to the verification of catch certificates and inspection of consignments, standardized rigorous assessment of high-risk catch certificates and consignments, and standardized record keeping of catch certificates.
- Establish an EU-wide electronic system (e.g. database) for processing and recording information from catch certificates, to eliminate the possibility for their fraudulent re-use.

3.4. A supportive fiscal and financial framework

Finance is a critical cog of our whole economic system. The long-term goal is to shift investments and capital flows in a way consistent with sustainable economic activities; such a shift includes both mobilizing financial support for sustainable economic activities and disincentivizing malpractice or harmful activities. **Despite the post-financial crisis regulatory effort, the EU has not yet built a comprehensive and integrated fiscal and financial framework enabling the achievement of policy targets through adequate financial support.** Schematically, three complementary areas should be included in such a framework:

- **Taxation and subsidies:** End environmentally harmful subsidies and undertake environmental fiscal reform in Member States to “tax the bads not the goods”.
- **Refocus public spending on sustainable economies** – whether in the form of loans, grants, guarantees, equity, etc. There are important opportunities with the EU Budget 2014-2020 for doing so; additionally, the European Investment Bank, the European Bank for Reconstruction and Development and many national public financial institutions should scale up their ambition levels. Public financial institutions should be first movers setting stringent standards and leveraging private finance accordingly.
- **Make private finance support real and sustainable economies:** The scale of the challenge is such that public funding is not enough and private finance needs to be largely mobilized.

3.4.1. Eliminate environmentally harmful subsidies (EHS)⁴¹⁰

EU policy process

The Europe 2020 strategy emphasized the need for Member States to phase out EHS, limiting exceptions to people with social needs.⁴¹¹ The European Parliament⁴¹² and the Council⁴¹³ renewed their longstanding request to the Commission for a roadmap to eliminate EHS sector by sector. At the global level too, the EU has repeatedly committed to removing EHS.⁴¹⁴

“Achieving the objective to phase out these subsidies by 2020 is not likely to be achieved without further substantial effort”

European Commission⁴¹⁹

In a time of austerity, eliminating environmentally harmful subsidies makes more sense than ever. There is now a large and available body of expertise and lessons learned to drive effective environmental fiscal reform and to properly eliminate harmful subsidies, from the IMF,⁴¹⁵ OECD⁴¹⁶ and many more.⁴¹⁷ This includes how to assess if the removal of large subsidies might have negative social impacts, and if so how to design targeted mechanisms to ensure vulnerable people will not be negatively impacted. Still, the implementation of the many commitments to end EHS has been uneven and sluggish among Member States. Some recent EU processes failed to make significant progress (notably on the CAP⁴¹⁸) and several Member States have even gone backward; the UK, for example, recently announced the world’s most generous subsidies for shale gas.

Example: Identifying environmentally harmful subsidies ⁴²⁰

- Reports identifying EHS in key sectors have been published in the last years in Germany,⁴²¹ the Netherlands, France,⁴²² Sweden,⁴²³ Finland and Flanders (Belgium).
- The Commission launched an unprecedented report to list and evaluate all EU energy subsidies and externality costs in October 2014.⁴²⁴

WWF recommendations

The EU urgently needs to become serious about the repeated commitments to end EHS:

- The first step is to identify EHS through transparent inventories to highlight impacts, and communicate the benefits of reform.
- Regular and transparent annual reporting by Member States on progress should be carried out under the European Semester. Annual reports and country-specific recommendations should become more specific⁴²⁵ (see Chapter 1.2).
- The EU should lead by example, with the Commission identifying and developing an inventory of EU-level harmful subsidies and roadmaps for reform in key sectors.
- On the basis of the Commission's report on EU energy subsidies and externalities,⁴²⁶ the Commission should publish similar reports in all key sectors including transport, agriculture, water and fisheries, to provide a clear overview.

3.4.2. Environmental fiscal reform: tax the bads not the goods

EU policy process

The European Semester⁴²⁷ – the implementing tool of the Europe 2020 strategy – sets annual country-specific recommendations for economic policy reform. Fiscal reform is included and annual recommendations regularly focus on environmental fiscal reform.

Contrary to the “goods” (labour, income), pollution, resource depletion, energy and material waste are “bads” harming our society in a costly way. Taxing them incentivizes more sustainable activities, innovation and behavioural change. This in turn reduces tax revenue. **But even reduced, these bads remain bads, so there is a good case to periodically increase related tax rates.** In many instances (although not all) environmental taxation is critically important to internalize externalities and ensure that prices reflect full costs.⁴²⁸

The logic of environmental fiscal reform has been broadly accepted. But progress is painfully slow. In many Member States, revenues from environmental taxes are falling simply because of the lack of indexation of tax rates.⁴²⁹ In the UK, the proportion of taxation from green taxes in 2012 is lower than it was in 1997.⁴³⁰ According to the Commission, one third of Member States have space for a tax shift from labour to environmental taxation while another third have scope to improve the design of existing environment-related taxation.⁴³¹

Example: National environmental fiscal reforms

Several improvements are under way or planned: Estonia (increases to excise duties), Finland (increases in taxes of traffic fuels, peat, waste), the Netherlands (reduced tax rates for certain uses of diesel) and France (new carbon tax).⁴³²

WWF recommendations

- The EU should revise and extend existing EU market-based instruments, including no reduced VAT rate for harmful products and services and reduced VAT rates for environmentally friendly products and services.⁴³³
- Annual progress by Member States should be monitored under the European Semester, in which reports and country-specific recommendations should become more specific on how to shift from labour to environmental taxation and/or to improve the design of existing environment-related taxation.

3.4.3. Ensure better spending of the EU Budget

EU policy process

The 2010-2013 review establishing the new EU Budget (“Multiannual Financial Framework”) 2014-2020 brought several opportunities to increase sustainable investments:

- *20% of overall EU spending should support climate action.*
- *The Common Provisions Regulation requires that sustainable development is integrated in all programmes,⁴³⁴ with ex-ante conditionalities ensuring environmental mainstreaming. The Commission has the right to suspend EU budget expenditure in case of severe violation.*
- *Concrete and detailed guidance for climate and biodiversity proofing has been developed by the Commission.⁴³⁵*
- *A mid-term review (2016) and a performance review (2019) provide opportunities to check progress and remedy problems.*

Still, many of these opportunities depend on Member States’ implementation and the Commission’s monitoring. The first results are gloomy: **the share of the EU Budget supporting climate action reached only 12.7% in the annual budget 2014 and 12.5% in 2015,⁴³⁶ far from the 20% committed.**

In addition the European Court of Auditors recently published a very critical assessment of the use of Cohesion Policy money for biodiversity. The EU’s auditors have warned that Member States do not adequately monitor the effectiveness of Cohesion Policy-funded biodiversity projects (with an absence of results indicators in some cases) and allocate a tiny part of Cohesion Policy funds to biodiversity, in spite of the Commission asking them to invest more EU money in this as part of a 2011 strategy.⁴³⁷

WWF recommendations

- The 20% climate commitment in the overall EU Budget should be achieved by 2016.
- Biodiversity and climate proofing of EU-funded programmes and projects should be ensured through the guidance published, and closely monitored by the Commission.
- Member States should make full use of sustainable investment opportunities for eco-innovation, resource and energy efficiency, renewable energy, low-carbon projects, nature and water protection and green infrastructures in Cohesion Policy, CAP, Horizon 2020 (research) and the Connecting Europe Facility (infrastructure). The 2016 mid-term review should check progress.
- For the post-2020 EU Budget, the EU should at least double its climate ambition to a 40% climate spending commitment target and improve cross-cutting environmental mainstreaming (notably on ecosystems and biodiversity protection).

3.4.4. Refocus public finance on sustainable economies

EU policy process

The European Investment Bank (EIB) will set up a climate policy review in 2014-2015. The OECD Export Credit Group – the international forum agreeing standards for national public export credit agencies – is discussing the opportunity to restrict support to coal power plant technology.

There are several types of public financial institution in the EU and Member States:

- The European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD);
- National public banks (KfW in Germany, the Green Investment Bank in UK, etc.);
- National development finance institutions (FMO in Netherlands, AFD in France, etc.); that provide support to developing countries;
- National export credit agencies that back national businesses' exports.

Although these institutions are diverse and have different mandates, there are key commonalities: they are all supposed to implement some public policy objectives; they act on behalf of the EU and/or Member States; and they are partly funded or backed by taxpayers' money. **The objectives and policies of all these public financial institutions should progressively be made fully consistent with the transition to sustainable economies.** As a positive step, since 2013 many public financial institutions are ending support to coal-fired power plants – including the EIB, the EBRD and the French, English, Dutch, German and Scandinavian national aid agencies – and evidence suggests that many more financial institutions will follow suit.

All together, these institutions represent each year at least €250 billion of loans, guarantees, equity investments and grants and that amount is growing. It is critically important that they better leverage private investments for the transition to sustainable economies in the EU and globally. The IDDRI makes clear that **public banks will have to play a stronger role to bridge the long-term financing gap for a low-carbon economy.**⁴³⁸ As the biggest public financial institution in Europe, the EIB has a key role to play.

WWF recommendations

- As first movers in the financial sector, public financial institutions in the EU and Member States should quickly adopt stringent sustainability policies setting cross-cutting requirements for low carbon emissions, resource efficiency and energy efficiency, and protection and sustainable management of natural resources. This should include full transparency and consultation of all stakeholders including local communities and civil society organizations.
- Accordingly, public financial institutions should immediately end their support to coal and phase out their support to all fossil fuels before 2020 (with specific exceptions, especially in developing countries). This includes export credit agencies, which should reach an OECD agreement to end support for coal technology exports.
- Based on the robust experience of the EIB and several Member States,⁴³⁹ new instruments to support the transition to sustainable economies should be developed – notably scaling up the issuance of green bonds in order to mobilize private investments, with systematic stringent criteria and independent third-party certification to ensure credibility.
- The EIB should progressively be turned into the biggest green bank in the world – starting with an ambitious climate policy by 2015 through the ongoing climate policy review, and additional investments into the sustainable management of natural resources.

3.4.5. Make private finance support a real and sustainable economy

EU policy proces

The Commission adopted in early 2014 a communication on long-term financing of the EU economy,⁴⁴⁰ following a Green Paper⁴⁴¹ and an own initiative report by the Parliament⁴⁴² in 2013. It includes actions and potential studies on the transparency of investors and asset managers on environmental and social issues, and on the link between fiduciary duties and sustainability. Recent Commission proposals on non-financial reporting⁴⁴³ and occupational pension funds⁴⁴⁴ integrate requirements to disclose relevant environmental information to investors or consider investment risks related to the scarcity of resources and climate change.

The need to refocus the financial system on supporting the real economy and, more particularly, long-term investments is obvious. According to the World Economic Forum, global sustainable economies require roughly US\$5 trillion per year.⁴⁴⁵ For example, in the energy sector the replacement of Europe’s old polluting fleet by clean energy sources and the substantial upgrade of infrastructure (smart grids) will require €1 trillion by 2020, €2.5 trillion by 2025 and up to €7 trillion by 2050.⁴⁴⁶ Public finance alone is too scarce for these challenges but private capital is sufficient in theory: it should be progressively reallocated to the relevant economic activities. According to some experts⁴⁴⁷ there is only one place where this enormous amount of capital can be found: in the US\$80-trillion global bond market – underlining the importance of developing green bonds.

Recent evidence shows a step change in the **carbon stranded assets debate**⁴⁴⁸ – the theory that fossil fuel reserves will be rendered “unburnable” with climate regulations – and related concerns on the profitability of skyrocketing fossil-fuel costs. Indeed, since 2000 oil exploration and production costs have risen threefold but output is up just 14%; in 2013 the largest European oil groups (BP, Shell, Total, Statoil and Eni) spent US\$161 billion on operations and dividends, but generated US\$121 billion in cash flow.⁴⁴⁹ A wave of new broker research from major investment banks like Citigroup, Deutsche Bank, Goldman Sachs, HSBC and Morgan Stanley takes a markedly bearish view of the prospects for the fossil-fuel sectors, pointing to serious difficulties with their economics.⁴⁵⁰ **In its World Energy Investment Outlook 2014, the IEA warned investors that “around \$300 billion in fossil fuel assets [could be] left stranded by stronger climate policies” by 2035.** A broader assessment from Kepler Cheuvreux, the leading European broker research group, finds that fossil-fuel companies could face losses of US\$28 trillion in revenues over the next two decades if governments get serious about limiting carbon emissions.⁴⁵¹ In October 2014, Bank of England governor Mark Carney became the latest to warn that fossil fuel companies could end up with a product they can’t sell.⁴⁵²

US\$28 TRILLION
FOSSIL-FUEL COMPANIES
COULD FACE LOSSES
OF US\$28 TRILLION IN
REVENUES OVER THE
NEXT TWO DECADES

Meanwhile the fossil-fuel divestment movement is developing very quickly according to an Oxford University analysis.⁴⁵³ By September 2014, 181 institutions and local governments representing over US\$50 billion had pledged to divest from fossil fuels – including the Rockefeller Brothers Fund, Stanford University and the World Council of Churches.⁴⁵⁴ In 2013, fossil-free investment portfolios soared 50% according to a survey from the investment company First Affirmative,⁴⁵⁵ and mainstream institutional investors like the US\$249-billion asset manager Scottish Widows Investment Partnership⁴⁵⁶ or the US\$121-billion pension fund Storebrand divested from coal companies, finding them “worthless financially” in the future.⁴⁵⁷

WWF recommendations

- EU regulations should require financial institutions to assess their exposure to climate and natural capital risks and liabilities in order to inform investors' decisions, and integrate these risks into asset appraisal and portfolio risk models;⁴⁵⁸ the integration of these risks into accounting standards and fiduciary duty should be discussed at EU level.
- Private investors should gradually build a 2°C investment framework to ensure consistency of their portfolio with the 2°C climate limit. This implies divesting from coal, gradually reducing fossil-fuels investments and shifting from high- to low-carbon assets.
- Targeted financial instruments to support the transition to sustainable economies should be developed – notably scaling up the issuance of green bonds, with systematic stringent criteria and independent third-party certification to ensure credibility.
- The regulation of financial markets⁴⁵⁹ and corporate governance should facilitate not undermine long-term financing.

3.5. A renewed international leadership

EU domestic action to rapidly shift to sustainable economies should lead to renewed international leadership from Europe articulated around four areas:

- A new global vision with ambitious post-2015 Sustainable Development Goals (SDGs);
- Scaled-up public financing for sustainable development and global public goods;
- Improved Policy Coherence for Development;
- Corporate reporting and accountability.

3.5.1. Support a new global vision with post-2015 Sustainable Development Goals (SDGs)

EU policy process

At Rio+20 in 2012, governments agreed a process to build on the Millennium Development Goals and renew them in 2015 with a new set of goals. The Commission issued a related communication in 2013⁴⁶⁰ supported by the Council⁴⁶¹, and a new communication in 2014 describing key principles and priority areas and potential targets.⁴⁶²

The framework for post-2015 SDGs is a huge opportunity for the EU to support a new global vision. These new goals need to lead to significant policy changes which catalyse

and complement “bottom-up” processes of economic, technological and social change toward sustainable development. The universality principle of the post-2015 sustainable development framework means that developed countries will also commit to deliver on goals and targets. **Once the SDGs are agreed, the EU will have to integrate them in relevant EU policies domestically and internationally** – not least in the Europe 2020 strategy and the future potential Europe 2030 strategy (see Chapter 1.2).

WWF recommendations

In term of content, the EU should ensure the post-2015 sustainable development framework responds to the key challenges of:

- Improving human well-being and reducing inequalities now and for future generations;
- Integrating in a balanced way the economic, social and environmental dimensions of sustainable development;
- Restoring and maintaining ecosystems and their services to underpin food and water security, health, energy, livelihoods and economic development;
- Climate change and the additional threats it poses to current and future development prospects.

In term of process, the EU should ensure that:

- National and local goals and indicators are consistent with global goals but also reflect national and local contexts, needs and priorities;
- The full process is transparent, inclusive, participative and informed by the latest science on global environmental challenges;
- Strong accountability mechanisms are put in place.

3.5.2. Scale up public financing for sustainable development and global public goods

EU policy process

Under the 2009 Copenhagen Accord, developed countries committed to mobilize US\$100 billion per year of climate finance for developing countries by 2020. This was confirmed by the Council in 2013.⁴⁶³ The 2012 CBD COP11 in Hyderabad (India) committed to double international biodiversity-related financial flows by 2015, and this was confirmed by the EU 7th Environment Action Programme in 2013.⁴⁶⁴ Recent G8 and G20 meetings discussed the prevention of tax evasion and avoidance to secure domestic public resources.

The EU has shown willingness to achieve its commitments for climate and biodiversity finance, but needs now to ensure timely implementation.

In addition, aid is important to finance development in the short term; however, in the long term domestic resources and particularly taxes are the best and most sustainable way to pay for the sustainable development of countries and citizens' well-being. Corporate tax evasion and avoidance remain a major concern for securing domestic resources in developing countries. The EU and its Member States have shown willingness to play a leading role on this matter – notably on global automatic exchange of tax information. However, the Directive on Anti-Money Laundering⁴⁶⁵ contains loopholes that allow criminals to hide behind anonymously owned corporate structures (companies, trusts and foundations).

WWF recommendations

In term of content, the EU should ensure the post-2015 sustainable development framework responds to the key challenges of:

- Improving human well-being and reducing inequalities now and for future generations;
- Integrating in a balanced way the economic, social and environmental dimensions of sustainable development;
- Restoring and maintaining ecosystems and their services to underpin food and water security, health, energy, livelihoods and economic development;
- Climate change and the additional threats it poses to current and future development prospects.

In term of process, the EU should ensure that:

- National and local goals and indicators are consistent with global goals but also reflect national and local contexts, needs and priorities;
- The full process is transparent, inclusive, participative and informed by the latest science on global environmental challenges;
- Strong accountability mechanisms are put in place.

3.5.3. Improve Policy Coherence for Development

EU policy process

EU action in many fields can have a significant impact in developing countries. Policy Coherence for Development (PCD)⁴⁶⁶ is a Treaty obligation and a critical EU process aiming at building synergies and ensuring that EU policies in non-aid sectors do not undermine the EU's overarching development objectives. PCD is applied in 12 policy areas related to the current UN Millennium Development Goals.⁴⁶⁷

The EU has still a huge amount of work ahead to ensure coherence between many of its non-aid policies and development policies. For example, **a fairer system of food production is required for the world's 805 million people that suffer from hunger despite sufficient agricultural production for all globally.**⁴⁶⁸ The EU has a special responsibility in this, being the world's largest actor in agricultural trade: it needs to change several of its current policies affecting food security in developing countries ranging from trade and agriculture to financial regulation, climate, research, energy and investment in foreign land.

WWF recommendations

- To make PCD a reality, at the political level the Commission's President, High Representative of the Union for Foreign and Security Policy and Commissioner for International Cooperation and Development must demonstrate political will to implement it and be accountable for its delivery.
- At the technical level, the European Parliament needs to push for prevention and cure systems: to strengthen impact assessments and monitoring of the impacts of EU policies on the ground, provide a space for affected people's voices to be heard, and apply concrete mechanisms to allow the EU's policies to be adapted when they are shown to be damaging people's welfare or the environment elsewhere.
- The EU should also promote PCD as an important mechanism and means of implementation for all countries to consider in the future post-2015 sustainable development framework.

3.5.4. Ensure corporate reporting and accountability

EU policy process

In 2013 the Accounting Directives⁴⁶⁹ and the Transparency Directive⁴⁷⁰ were amended to require large companies in the extractive (oil, gas and mining) and logging industries to disclose payments to governments on a country and project basis. The 2013 Capital Requirements Directive⁴⁷¹ also required country-by-country reporting for the banking sector. In mid-2014 the Council adopted conclusions on the role of the private sector in development.⁴⁷²

The EU has impacts in many developing countries, especially through EU businesses' investments, financing, supply chains and imports. These can be positive or negative depending on how they are managed – how transparent they are and with what social, environmental or tax standards. In the critical area of natural resources and extractive industries – the biggest export sector in many developing countries – many citizens do not benefit from the natural wealth of their lands, which is exploited for final consumption in the EU.

During the last few years, the EU has made efforts toward more transparency of transnational companies' activities. But more is needed: only a few sectors are required to report, reporting obligations remain too general, and more corporate accountability is needed to ensure the private sector has a positive impact on sustainable development in developing countries.

WWF recommendations

- The EU should extend mandatory country-by-country reporting for large transnational companies in all sectors – based on the adequate model already adopted for the EU banking industry.
- The EU should impose more specific requirements on non-financial reporting for extractive industries, taking into account the specific risks they carry for ecosystems, livelihoods and local communities. Reports should include detailed information on environmental and human rights matters, risk management, policies implemented and results obtained.
- The EU could promote its Forest Law, Governance and Trade Initiative (FLEGT) as a global environmental governance model to be replicated elsewhere.

WWF COMMITMENTS AND PRIORITIES FOR THE NEXT FIVE YEARS

With its mission to “stop the destruction of the planet’s natural environment and build a future in which humans live in harmony with nature”, WWF has been engaging to promote and implement sustainable economies in Europe for years.

In the past years WWF conducted intense work to reach another level: to scale up effectiveness and outcomes of our work and leverage major transformational impacts, WWF has decided a strategic planning framework – the WWF European Policy Plan 2014-2018 – agreed by all the European national offices.

It includes six major and ambitious policy results:

- Result 1: By 2018, WWF intervention has secured ambitious policy reforms and implementation of key environmental legislation. The EU maintains its global leadership and promotes environmental sustainability globally.
- Result 2: By 2018, a 2030 framework for climate and energy policies includes legislation which is compatible with 80-95% emissions reduction by 2050, and the EU plays a full part in securing an international agreement on global emissions.
- Result 3: By 2018, the EU’s development policy and external relations policies integrate environmental sustainability, ecosystem health and climate change actions.

- Result 4: By 2018, policy and funding decisions at EU level enable achievement of conservation results and reduce threats in European priority places (such as the Danube–Carpathian and Mediterranean).
- Result 5: By 2018, EU policies related to relevant commodities such as soy, palm oil, maize, timber and others, have been improved to positively contribute to the reduction of the EU’s footprint in WWF priority places.
- Result 6: By 2018, public and private investment decisions are incentivized by a better system of policies, subsidies, taxation and resource accounting to reduce EU’s footprint in WWF Priority Places.

For each result related strategies have been designed to deliver progress. `

WWF will promote the creation of European sustainable economies in Europe using all its levels of action:

- WWF network: we will engage and mobilise our 20 WWF offices in Europe representing over 3.5 million people;
- EU Institutions: We will influence the European Commission, Parliament and Council;
- EU people: We will scale up campaigns and communication across Europe to engage with millions of people;
- Businesses: We will engage and collaborate with progressive businesses to multiply our impact.

WWF and European people stand for sustainable economies that deliver better well-being and protect the environment:

90% OF EUROPEANS
 BELIEVE THAT SUPPORTING AN ECONOMY THAT USES LESS
 RESOURCES AND EMIT LESS GREENHOUSE GASES IS IMPORTANT
 FOR THE EU IN ORDER TO EXIT THE PRESENT FINANCIAL AND
 ECONOMIC CRISIS AND PREPARE FOR THE NEXT DECADE

(Source Eurobarometer 82, November 2014)





REFERENCES

Recommended reading

- Costanza, R., Alperovitz, G., Daly, H.E. and J. Farley. 2012. Building a sustainable and desirable economy in society in nature.
- COWI, Ecorys, Cambridge Econometrics, for the European Commission. 2011. The cost of not implementing the environmental acquis: Final report.
- European Commission. 2011. Our life insurance, our natural capital: an EU biodiversity strategy to 2020. COM(2011) 244 final.
- European Commission. 2013. Roadmap to a Resource-Efficient Europe. COM(2011) 571 final.
- European Policy Centre. 2012. Green revolution: making eco-efficiency a driver for growth.
- Green Growth Group. 2013. Going for Green Growth – The case for ambitious and immediate EU low carbon action.
- IDDRI. 2011. Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe.
- IEEP. 2012. Running out of time? Stepping up action for Europe’s environment.
- International Energy Agency. 2013. World Energy Outlook Special Report 2013: Redrawing the Energy Climate Map.
- Jackson, T. 2009. Prosperity without growth? The transition to a sustainable economy.
- McKinsey. 2011. Resource Revolution: Meeting the world’s energy, materials, food and water needs. McKinsey Global Institute.
- Stern, N. 2007. The Economics of Climate Change (“Stern review”).
- OECD, 2012. Environment outlook to 2050 – The consequences of inaction.
- Sukhdev, P. and Kumar, P. 2010. The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature (“TEEB study”).
- United Nations. 2005. Millennium Ecosystem Assessment: Ecosystems and Human Well-Being.
- World Bank. 2012. Inclusive Green Growth – The Pathway to Sustainable Development
- WWF-Ecofys. 2011. The Energy Report.
- WWF. 2014. Accounting for Natural Capital in EU Policy Decision-Making – A WWF background paper on policy developments.
- WWF, Global Footprint Network, Water Footprint Network, Zoological Society of London. 2014. Living Planet Report 2014.

References in main text

- ¹ In this report “Europe” is the European Union of 28 Member States.
- ² The European Commission is referred to as “the Commission” hereafter.
- ³ Stern, N. (2007), *The Economics of Climate Change* (“Stern review”).
- ⁴ Sinn, H.W. (2010), *Casino Capitalism: How the Financial Crisis Came About and What Needs to be Done Now*, Oxford University Press, New York. “Casino finance” is a term for a financial strategy that is considered extremely risky, often referring to large “bets” on financial products that are typically high risk, with an anticipated high potential reward outcome, but where the financier “player” could lose it all.
- ⁵ There is no commonly agreed definition of an environmentally harmful subsidy. At the EU level, in research commissioned by the European Commission, the Institute for European Environmental Policy proposes the following definition adapted from the OECD’s 1998 and 2005 definition of ‘subsidy’: “A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs, but in doing so, discriminates against sound environmental practices”. From IEEP (2009), *Environmentally Harmful Subsidies (EHS): Identification and Assessment*, Final Report.
- ⁶ Raskin, P et al. (2002), *Great transition: The promise and lure of the times ahead*. Stockholm Environment Institute, Boston, US.
- ⁷ In this report “Europe” is the European Union of 28 Member States.
- ⁸ The European Commission is referred to as “the Commission” hereafter.
- ⁹ This is the definition of “green economy” by the Green Economy Coalition, of which WWF is a founder member. The Green Economy Coalition was established in 2009 and includes UNEP, ILO, ITUC, IUCN, WWF, IIED, IISD, TEEB for Business, Global Reporting Initiative, EcoLogic, EcoUnion, Global Sustainability Institute, Stakeholder Forum, SEI, Global Footprint Network, ICAEW.
- ¹⁰ UN Secretary General’s High Level Panel on Global Sustainability (2012), *Resilient People, Resilient Planet: A Future Worth Choosing*.
- ¹¹ See for example UNEP (2012), *Global Environmental Outlook 5*; OECD (2012), *Environmental Outlook to 2050*; Millennium Ecosystem Assessment (2005), *Ecosystems and human well-being: synthesis report*.
- ¹² UN (2011), *Millennium Development Goals Report*.
- ¹³ FAO (2014), *The State of World Fisheries And Aquaculture 2014*.
- ¹⁴ The Living Planet Index measures more than 10,380 representative populations of mammals, birds, reptiles, amphibians and fish.
- ¹⁵ The Ecological Footprint includes renewable resources we consume for food, fuel and fibre, lands we build on and forests we need to absorb our carbon emissions.
- ¹⁶ See www.worldwildlife.org/pages/overshoot-day
- ¹⁷ European Environment Agency (2010), *EU 2010 Biodiversity baseline*.
- ¹⁸ OECD (2012), *Environment outlook to 2050 – The consequences of inaction*.
- ¹⁹ White, J.W.C. et al. (2013), *Abrupt Impacts of Climate Changes: Anticipating Surprises*, National Academies Press.
- ²⁰ www.theguardian.com/environment/2013/jan/27/nicholas-stern-climate-change-davos
- ²¹ Stern, N. (2007), *The Economics of Climate Change* (“Stern review”).
- ²² *Ibid.*
- ²³ International Energy Agency(2012), *World Energy Outlook 2012*.
- ²⁴ Sukhdev, P, Kumar, P. (2010), *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature*; Braat, L. and ten Brink, P. (2008), *The Cost of Policy Inaction – The case of not meeting the 2010 biodiversity target*, IEEP, Ecologic, UNEP, GHK. These values relate only to land-based ecosystem changes (not marine and freshwater ecosystems) and not all of those: as such, they are an underestimate.
- ²⁵ McKinsey Global Institute (2011), *Resource Revolution: Meeting the world’s energy, materials, food and water needs*.
- ²⁶ International Energy Agency (2011), *World Energy Outlook*.
- ²⁷ Sukhdev, P, Kumar, P. (2010), *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature*; UNEP (2011), *Towards a Green Economy: pathways to sustainable development and poverty eradication*; Millennium Ecosystem Assessment (2005), *Ecosystems and human wellbeing: synthesis report*; Intergovernmental Panel on Climate Change (2007) *Fourth Assessment Report*
- ²⁸ Sternberg (2012), *Chinese drought, bread and the Arab Spring*. Applied Geography.
- ²⁹ EU Commissioners Potocnik, Piebalgs and Barnier, *World Water Day 2013*, 21 March 2013, Brussels, http://europa.eu/rapid/press-release_MEMO-13-270_en.htm
- ³⁰ FAO (2014), *The State of Food Insecurity in the World 2014*.
- ³¹ Institution of Mechanical Engineers(2014), *Global Food: Waste Not, Want Not*.
- ³² Milanovic (2011), *The haves and the have not: A brief and idiosyncratic history of global inequality*.
- ³³ Credit Suisse (2011), *Global Wealth Report*.
- ³⁴ www.cgdev.org/page/mdg-progress-index-gauging-country-level-achievements
- ³⁵ Budowsky, B. 2013. *Occupy Wall Street Should Seek a Meeting With Pope Francis*, Huffington Post, 22 September 2013. See www.huffingtonpost.com/brent-budowsky/occupy-wall-streeshould_2_b_3968263.html
- ³⁶ International Monetary Fund (2013), *Stability and Growth for Poverty Reduction*, Bretton Woods Committee Annual Meeting. International Monetary Fund, Washington DC.
- ³⁷ Halper, D. 2011. *Obama on Occupy Wall Street: ‘We Are on Their Side’*, The Weekly Standard, 18 October 2011. See www.weeklystandard.com/blogs/obama-occupy-wall-street-we-aretheir-side_598251.html
- ³⁸ World Economic Forum (2014), *Global Risks 2014 – Ninth Edition*.
- ³⁹ UNDP (2005), *Human Development Report 2005: International cooperation at a crossroads*.
- ⁴⁰ UNDP (2011), *Human Development Report 2011*; Sukhdev, P and Kumar, P. (2010), *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature*.
- ⁴¹ World Bank, *Poverty, Growth and Inequality*
- ⁴² Pritchett (2005), *Country Note B in World Bank, Economic Growth in the 1990s: Learning from a Decade of Reform*
- ⁴³ See for example DFID (2008), *Building jobs and prosperity in developing countries, which designs eight essential conditions*.
- ⁴⁴ Jackson, T. 2009. *Prosperity without growth? The transition to a sustainable economy*.
- ⁴⁵ Laeven, L. and Valencia, F. 2012. *Resolution of Banking Crises: The Good, the Bad, and the Ugly*. Luc Laeven is Deputy Division Chief in the Research Department of the International Monetary Fund.
- ⁴⁶ The shadow banking system comprises the financial intermediaries not subject to regulatory oversight and the unregulated activities of regulated financial institutions.
- ⁴⁷ UK Financial Services Authority (2009), *Turner Review*.
- ⁴⁸ European Commission (2011), *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, COM(2011) 244 final.
- ⁴⁹ WWF et al. (2014), *Living Planet Report 2014*.
- ⁵⁰ RPA and al. (2014), *Study on economic and social benefits of environmental protection and resource efficiency*.
- ⁵¹ European Environment Agency (2011), *Air Quality Report in Europe*.
- ⁵² Brandt, J. et al. CEEH (2011), *Assessment of Health-Cost Externalities of Air Pollution at the National Level using the EVA Model System*.
- ⁵³ Eurostat
- ⁵⁴ In 2012 the youth unemployment rate was over 50% in Spain and Greece and 31.9% in Italy. <http://theeconomiccollapseblog.com/archives>
- ⁵⁵ In 2012, 24.8% of the EU population (124.2 million people) were at risk of poverty or social exclusion compared with 24.3% in 2011 (Eurostat).

- ⁵⁶ The Guardian. 2012. Greece on the breadline: HIV and malaria make a comeback. 15 March 2012.
- ⁵⁷ Vourloumis, S. (2012), Reforming EU and Global Financial Regulation: Crisis, Learning and Paradigm Shifts.
- ⁵⁸ Avgouleas, E. (2011), Breaking Up Mega-Banks: A New Regulatory Model for the Separation of Commercial Banking from Investment Banking. Kluwer Law International, The Hague.
- ⁵⁹ GEC (2014), Finance Sector reform – a thought-piece.
- ⁶⁰ European Commission (DG Trade) website: <http://ec.europa.eu/trade/creating-opportunities/trade-topics/rawmaterials>
- ⁶¹ European Commission (2008), Regions 2020 – An Assessment of Future Challenges for EU Regions.
- ⁶² IEA (2013), World Energy Outlook Special Report 2013: Redrawing the Energy Climate Map.
- ⁶³ European Policy Centre (2013), European energy policy – Towards greater solidarity.
- ⁶⁴ European Commission (2006), Action Plan for Energy Efficiency: Realising the Potential, COM(2006)545 final.
- ⁶⁵ Green Growth Group (2013), Going for Green Growth – The case for ambitious and immediate EU low carbon action.
- ⁶⁶ UK National Ecosystem Assessment (2011), Chapter 21: UK dependence on non-UK ecosystem services.
- ⁶⁷ “The environmental Taliban: George Osborne slams Parliamentary climate change campaigners as Treasury fights to water down Energy commitments.” The Independent, 17 October 2012. www.independent.co.uk/news/uk/politics/the-environmental-taliban-george-osborne-slams-parliamentary-climate-change-campaigners-as-treasury-fights-to-water-down-energy-bill-commitments-8215495.html
- ⁶⁸ WWF-Greece (2014), Environmental legislation in Greece: 10th annual review – Summary.
- ⁶⁹ Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
- ⁷⁰ European Commission (2013), Press Release, REFIT – Fit for growth – Commission takes ambitious next steps to make EU law lighter, 2 October 2013.
- ⁷¹ Hallegatte et al. (2011), From growth to green growth, World Bank, Working Paper n°5872; IEA (2011), World Energy Outlook 2011.
- ⁷² World Bank (2012), Inclusive Green Growth – The Pathway to Sustainable Development.
- ⁷³ Stern, N. (2007), The Economics of Climate Change; OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ⁷⁴ Stern, N. (2007), The Economics of Climate Change.
- ⁷⁵ Eurelectric (2013), Power Choices Reloaded.
- ⁷⁶ www.knaufinsulation.com/sites/corporate.knaufinsulation.net/files/09012014%20Letter%20to%20Tony%20Robson%20CEO%20Knauf%20Insulation%20to%20President%20Barroso%20-%2020%2020%20.pdf
- ⁷⁷ Green Economy Coalition (2014), Green Economy Barometer: who is doing what, where and why?
- ⁷⁸ UN Population Division (2012), The Population Prospect: The 2012 Revision, <http://esa.un.org/wpp>
- ⁷⁹ Kharas, H. 2010. The emerging middle class in developing countries. OECD Development Centre Working Paper No. 285; OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ⁸⁰ See for example Stiglitz, Sen and Fitoussi (2009), Report on the Measurement of Economic Performance and Societal Progress; Helm, D. (2001), The sustainable borders of the state, Oxford Review of Economic Policy; Anderson, V. (1991), Alternative economic indicators. Routledge, London.
- ⁸¹ Costanza, R., Hart, M., Posner, S. and J. Talberth (2009), Beyond GDP: The need for new measures of progress. Boston, US.
- ⁸² Boulding, K. (1968), Beyond economics: essays on society, religion and ethics. Ann Arbor, MI, US.
- ⁸³ IDDRI (2011), Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe.
- ⁸⁴ Ibid.
- ⁸⁵ Costanza, R., Alperovitz, G., Daly, H.E. and J. Farley (2012), Building a sustainable and desirable economy in society in nature.
- ⁸⁶ Sukhdev, P. and Kumar, P. (2010), The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature.
- ⁸⁷ MaxNeef, M. (1995), Economic growth and quality of life: a threshold hypothesis. Ecological Economics 15:115-118. See also Talberth, J., Coob, C. and N. Slatery (2007), The Genuine Progress Indicator (GPI) 2006; A tool for sustainable development, Redefining Progress, Oakland, CA, US.
- ⁸⁸ A measure of welfare designed to adjust for the inadequacies of GDP. See chapter 2.1.
- ⁸⁹ Gadrey, J. (2012), Adieu à la croissance, Bien vivre dans un monde solidaire, Co-édition Les petits matins / Alternatives Economiques.
- ⁹⁰ See Karabell, Z. (2014), The Leading Indicators: A Short History of the Numbers That Rule Our World.
- ⁹¹ Report to the US Congress in 1934.
- ⁹² IDDRI (2011), Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe.
- ⁹³ International Monetary Fund (2013), Jobs and growth: analytical and operational considerations for the Fund: “the relationship between growth and job creation – commonly referred to as Okun’s Law – may be unstable”; International Monetary Fund (2012), Okun’s law: Fit at 50?
- ⁹⁴ European Policy Centre (2010), Challenge Europe - Europe 2020: delivering well-being for future Europeans.
- ⁹⁵ Remarks to the High-level Delegation of Mayors and Regional Authorities, New York, US, 23 April 2012, www.un.org/News/Press/docs/2012/sgsm14249.doc.htm
- ⁹⁶ Cassiers, I. and Thiry, G. (2011), Du PIB aux nouveaux indicateurs de prospérité : les enjeux d’un tournant historique. In : Cassiers, I. et al., Redéfinir la prospérité. Jalons pour un débat public, La Tour d’Aigues, Editions de l’Aube, pp. 49-76.
- ⁹⁷ See for example Stiglitz, J. (2009), Report by the Commission on the Measurement of Economic Performance and Social Progress.
- ⁹⁸ ec.europa.eu/environment/beyond_gdp/background_en.html
- ⁹⁹ Gallai, N. et al (2009), Economic valuation of the Vulnerability of World Agriculture with Pollinator Decline, Ecological Economics 68(3): 810–821
- ¹⁰⁰ Costanza, R., de Groot, R. et al. (2014), Changes in the global value of ecosystem services, Global Environmental Change 26 (2014): 152–158. This study updates a famous study from 1997 – Costanza, R. et al. (1997), The value of the world’s ecosystem services and natural capital, Nature 387: 253-260.
- ¹⁰¹ Source: International Monetary Fund.
- ¹⁰² Notably United Nations (2005), Millennium Ecosystem Assessment: Ecosystems and Human Well-Being; Sukhdev, P. and Kumar, P. (2010), The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature (“TEEB study”)
- ¹⁰³ TEEB study
- ¹⁰⁴ Mace, Norris and Fitter (2012), Biodiversity and ecosystem services: a multilayered relationship. Trends in Ecology and Evolution, 2012:27; Naeem, Bunker, Hector, Loreau and Perrings (eds.) (2009), Biodiversity, ecosystem functioning and human wellbeing.
- ¹⁰⁵ unstats.un.org/unsd/envaccounting/seearev
- ¹⁰⁶ UN Principles for Responsible investment – UNEP Finance Initiative (2011), Why environmental externalities matter to institutional investors.
- ¹⁰⁷ TEEB for Business coalition Trucost (2013), Natural capital at risk: The top 100 externalities of business
- ¹⁰⁸ Ricketts, B. Secretary General of Euracoal – EWEA public debate “Subsidies to the power sector”, 29 April 2014.
- ¹⁰⁹ European Policy Centre (2012), Green revolution: making eco-efficiency a driver for growth.
- ¹¹⁰ Ecofys for the European Commission (2014), Subsidies and costs of EU energy – An interim report.
- ¹¹¹ IEEP (2012), Study supporting the phasing out of environmentally harmful subsidies – Final report.
- ¹¹² www.oecd.org/site/tadffss
- ¹¹³ UNEP (2011), Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.
- ¹¹⁴ European Commission (2014), Panorama Info-Regio n°50, Autumn 2014, p32
- ¹¹⁵ Mondbiot, G. (2014), “It’s simple. If we can’t change our economic system, our number’s up.” The Guardian, 27 May 2014, www.theguardian.com/commentis-free/2014/may/27/if-we-cant-change-economic-system-our-number-is-up
- ¹¹⁶ Ibid.
- ¹¹⁷ McKinsey Global Institute (2011), Resource Revolution: Meeting the world’s energy, materials, food and water needs.
- ¹¹⁸ Ibid.
- ¹¹⁹ Association d’Instituts Européens de Conjoncture Économique (2010), World commodity prices 2010 to mid-2012, Working Group on commodity prices.

- ¹²⁰ Hamilton, J. (2012), Oil prices, exhaustible resources and economic growth, National Bureau for Economic Research, Working Paper n°17759; Peersman, G. and Van Robays, I. (2011), Cross-country differences in the effects of oil shock, *Energy Economics*.
- ¹²¹ IDDRI (2011), *Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe*.
- ¹²² McKinsey (2011), *Resource Revolution: Meeting the world's energy, materials, food and water needs*, McKinsey Global Institute.
- ¹²³ IDDRI (2011), *Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe*.
- ¹²⁴ Sinn, H.W. (2010), *Casino Capitalism: How the Financial Crisis Came About and What Needs to be Done Now*. Oxford University Press, New York. "Casino finance" is a term for a financial strategy that is considered extremely risky, often referring to large "bets" on financial products that are typically high risk, with an anticipated high potential reward outcome, but where the financier "player" could "lose it all".
- ¹²⁵ Plansky, J., Regelman, R. and C. Lyman (2009), *The OTC Derivatives Boom*.
- ¹²⁶ www.elysee.fr/president/les-dossiers/economie/face-a-la-crise/en-amont-du-plan-de-relance/toulon-25-septembre-2008/situation-economique-de-la-france.5348.html
- ¹²⁷ Greenspan, A. (2013), *The Map and the Territory: Risk, Human Nature and the Future of Forecasting*, Penguin Press: "I have since regretted that we regulators never pursued the issue of capital adequacy in a timely manner." Alan Greenspan was Chairman of the Federal Reserve of the United States from 1987 to 2006.
- ¹²⁸ Pearce et al. (1989) propose the "five capitals framework". These capitals should be understood in the sense of a stock or accumulation or heritage – a patrimony received from the past and contributing to the welfare of the present and future.
- ¹²⁹ World Bank (2012), *Inclusive Green Growth - The Pathway to Sustainable Development*.
- ¹³⁰ Allcott, H. and Mullainathan, S. (2010), *Behavior and Energy Policy*, *Science* 327 (5970):1204–05.
- ¹³¹ IEA (2012), *World Energy Outlook 2012*.
- ¹³² World Economic Forum, *Global Risks 2014 – Ninth Edition*.
- ¹³³ Crutzen, P.J. (2002), The effects of industrial and agricultural practices on atmospheric chemistry and climate during the Anthropocene. *Journal of Environmental Science and Health, Part A* 37:423-424.
- ¹³⁴ Daly, H.E. (2005), *Economics in a full world*. *Scientific American*, 293:100-107.
- ¹³⁵ According to the UN Partnership Action for a Green Economy (PAGE), 65 countries are now actively pursuing some green economy policies. See www.unep.org/greeneconomy/PAGE/PAGENewsEvents/tabid/130497/language/en-US/Default.aspx
- ¹³⁶ The term "green economy" was first coined in *Blueprint for a Green Economy* (Pearce et al., 1989).
- ¹³⁷ UNEP (2011), *Towards a Green Economy: pathways to sustainable development and poverty eradication*.
- ¹³⁸ OECD (2011), *Towards green growth – A summary for policy makers*.
- ¹³⁹ For example in the recent Green Employment Initiative, where the European Commission uses both terms. European Commission (2014), *Green Employment Initiative: Tapping into the job creation potential of the green economy*. COM(2014) 446 final.
- ¹⁴⁰ The Green Economy Coalition was established in 2009 and includes UNEP, ILO, ITUC, IUCN, WWF, IIED, IISD, TEEB for Business, Global Reporting Initiative, EcoLogic, EcoUnion, Global Sustainability Institute, Stakeholder Forum, SEI, Global Footprint Network, ICAEW.
- ¹⁴¹ Interestingly, this agenda is even extending from land to sea through the development of the 'Blue Economy' concept. One definition of the 'Blue Economy' is marine-based economic development that leads to improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.
- ¹⁴² See WWF contribution to public consultation on the EU position for the 2012 UN Conference on Sustainable Development ('Rio+20'), April 2011.
- ¹⁴³ In 2012 the UK's Office for National Statistics researched what people consider important to their well-being, finding that the top five answers were (in decreasing order of importance): health, good connections with friends and family, good connections with a spouse or partner, job satisfaction and economic security, and present and future conditions of the environment. ONS (2011) National Statistician's reflections on the national debate on measuring national wellbeing.
- ¹⁴⁴ OECD (2012), *Measuring a green economy: Insights from Beyond GDP indicators*. Rio, 21 June 2012.
- ¹⁴⁵ Jackson, T. (2009), *Prosperity without growth? The transition to a sustainable economy*.
- ¹⁴⁶ Sen, A. (1999), *Commodities and Capabilities*. Oxford University Press, USA. Sen won the Nobel Prize for Economics in 1998.
- ¹⁴⁷ European Policy Centre (2012), *Green revolution: making eco-efficiency a driver for growth*.
- ¹⁴⁸ Natural capital is a concept proposed by Pearce et al. (1989) as part of the 'five capitals framework' (see also Ekins, 1992 and ten Brink et al., 2012). These capitals should be understood in the sense of a stock or accumulation or heritage – a patrimony received from the past and contributing to the welfare of the present and future.
- ¹⁴⁹ OECD (2011), *Towards green growth – A summary for policy makers*.
- ¹⁵⁰ UNEP (2011), *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*.
- ¹⁵¹ World Bank (2012), *Inclusive Green Growth – The Pathway to Sustainable Development*.
- ¹⁵² UK Foreign and Commonwealth Office, Green Growth Team, 2013; HM Government (2011) *Enabling the Transition to a Green Economy: Government and business working together*.
- ¹⁵³ Leader of the TEEB study, head of UNEP's Green Economy Initiative and on secondment from Deutsche Bank.
- ¹⁵⁴ For example, this agenda is supported by UNEP, the European Commission, the UK and French governments, Green Economy Coalition, OECD, and the UN high level panel on sustainability. Supportive economists include Joseph Stiglitz, Amartya Sen, Jean-Paul Fitoussi, Partha Dasgupta and Dieter Helm.
- ¹⁵⁵ UNEP (2012), *Measuring Progress towards an Inclusive Green Economy*.
- ¹⁵⁶ OECD (2012), *Measuring a green economy: Insights from Beyond GDP indicators*. Rio, 21 June 2012.
- ¹⁵⁷ New Economics Foundation (2009), *The cuts won't work: The second report of the Green New Deal Group*.
- ¹⁵⁸ New Economics Foundation (2008), *Triple crunch: Joined-up solutions to financial chaos, oil decline and climate change to transform the economy*.
- ¹⁵⁹ UNEP (2012), *Measuring Progress towards an Inclusive Green Economy*.
- ¹⁶⁰ OECD (2012), *Towards Green Growth: Monitoring Progress - OECD Indicators*. The five indicator groups are Environmental and resource productivity of the economy; The natural asset base; The environmental dimension of quality of life; Economic opportunities and policy responses, and Socio-economic context and characteristics of growth.
- ¹⁶¹ ec.europa.eu/environment/beyond_gdp/index_en.html
- ¹⁶² World Commission on the Environment and Development (1987), "Brundtland report"; first UN Conference on Environment and Development ("Rio conference", 1992), Agenda 21.
- ¹⁶³ Millennium Ecosystem Assessment (2005), *Ecosystems and Human Well-being: Synthesis*. Island Press, Washington DC.
- ¹⁶⁴ Sukhdev, P. and Kumar, P. (2010), *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature* ("TEEB study").
- ¹⁶⁵ See for example TEEB study, 2010; Goulder and Kennedy (2011), *Interpreting and estimating the value of ecosystem services*. In: Kareiva et al. *The theory and practice of mapping ecosystem services*; Millennium Ecosystem Assessment (2003), *Concepts of ecosystem value and valuation approaches*. In: *Ecosystems and Human Well-being: A Framework for Assessment*. A Report of the Conceptual Framework Working group of the Millennium Ecosystem Assessment. De Groot et al. (2012), *Global estimates of the value of ecosystems and their services in monetary units*. *Ecosystem Services*.
- ¹⁶⁶ OECD (2012), *Environment outlook to 2050 – The consequences of inaction*.
- ¹⁶⁷ *Water Framework Directive, Article 9*.
- ¹⁶⁸ Critical voices at Rio included Bolivia and Venezuela and the World Development Movement; see also the Kari-Oca 2 Declaration of Indigenous Peoples.
- ¹⁶⁹ See for example Monbiot, G. (2012), *Putting a price on the rivers and rain diminishes us all*. *The Guardian*, 6 August 2012.
- ¹⁷⁰ Spangenberg and Settlea (2010), *Precisely incorrect? Monetising the value of ecosystem services*. *Ecological Complexity*.
- ¹⁷¹ More information on the limits of, and alternatives to, cost-benefit analysis can be found in Wegner and Pascual (2011), *Cost-benefit analysis in the context of ecosystem services for human well-being: A multidisciplinary critique*. *Global Environmental Change*; and Turner (2010), *A Pluralistic Approach to Ecosystem Services Evaluation*. CSERGE Working Paper.

- ¹⁷² WWF (2014), Accounting for Natural Capital in EU Policy Decision-Making – A WWF background paper on policy developments.
- ¹⁷³ McKenzie et al. (2011), Integrating ecosystem services in decisions. Chapter 19 in Kareiva et al. The theory and practice of mapping ecosystem services.
- ¹⁷⁴ OECD (2013), Effective Carbon Prices; OECD (2012) Environment outlook to 2050 – The consequences of inaction.
- ¹⁷⁵ Saez, E. Externalities : Problems and Solutions. University of California, Berkeley.
- ¹⁷⁶ Eunomia Research & Consulting et al. (2014), Environmental Fiscal Reform Potential in 12 EU Member States.
- ¹⁷⁷ European Commission (2012), Growth friendly tax policies in Member States and Better Tax Coordination in the EU. Annex to Commission Communication - Annual Growth Survey 2012. COM(2011)815, Vol 5/5, Annex IV, 23.11.2012, Brussels.
- ¹⁷⁸ Heine, D., Norregaard, J. and I. Parry (2012), Environmental Tax Reform: Principles from Theory and Practice to Date. IMF Working Paper.
- ¹⁷⁹ OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ¹⁸⁰ IDDRI (2011), Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe.
- ¹⁸¹ There is no commonly agreed definition of an environmentally harmful subsidy. At the EU level, in research commissioned by the European Commission, the Institute for European Environmental Policy proposes the following definition adapted from the OECD's 1998 and 2005 definition of 'subsidy': "A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs, but in doing so, discriminates against sound environmental practices". From IEEP (2009), Environmentally Harmful Subsidies (EHS): Identification and Assessment, Final Report.
- ¹⁸² OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ¹⁸³ IEEP (2012), Study supporting the phase out of environmentally harmful subsidies – Final report.
- ¹⁸⁴ International Energy Agency (2012), World Energy Outlook 2012, pp. 280-282.
- ¹⁸⁵ OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ¹⁸⁶ Acemoglu et al. (2009), The Environment and Direct Technical Change. National Bureau of Economics; Unruh, G. (2002) Escaping carbon lock in. Energy Policy 30(4).
- ¹⁸⁷ Elzen, Geels and Green (2004), System Innovation and the Transition to Sustainability; Meadows (1999) Leverage points: places to intervene in a system. The Sustainability Institute.
- ¹⁸⁸ OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ¹⁸⁹ European Commission (2010), Europe 2020 - A strategy for smart, sustainable and inclusive growth. COM(2010) 2020.
- ¹⁹⁰ European Policy Centre (2012), Green revolution: making eco-efficiency a driver for growth.
- ¹⁹¹ European Commission (2011), State of the Innovation Union 2011 – Progress Report. COM(2011) 849 final.
- ¹⁹² OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ¹⁹³ Fraunhofer Institute (2012), Contribution of Energy Efficiency Measures to Climate Protection within the European Union until 2050.
- ¹⁹⁴ Prognos (2008), Resource savings and CO2 reduction potential in waste management in Europe and the possible contribution to the CO2 reduction target in 2020.
- ¹⁹⁵ According to the International Labour Organization (ILO), "Jobs are green when they help reduce negative environmental impact ultimately leading to environmentally, economically and socially sustainable enterprises and economies. More precisely green jobs are decent jobs that: reduce consumption of energy and raw materials; limit greenhouse-gas emissions; minimize waste and pollution; protect and restore ecosystems."
- ¹⁹⁶ ILO press release, 31 May 2012, Transition to green economy could yield up to 60 million jobs, ILO says.
- ¹⁹⁷ European Commission (2011), Energy Efficiency Plan 2011, COM(2011) 109 final.
- ¹⁹⁸ European Commission (2011), Renewable Energy: Progressing towards the 2020 target, COM(2011) 31 final.
- ¹⁹⁹ European Commission (2012), Employment potential of green growth, SWD(2012) 92 final.
- ²⁰⁰ Oxford University, Potsdam Institute for Climate Impact Research (PIK), National Technical University of Athens, Université Paris 1 Panthéon-Sorbonne, European Climate Forum (2011). A new Growth Path for Europe. Study commissioned by the German Federal Ministry for the Environment.
- ²⁰¹ GWS mbH (2001), Macroeconomic modelling of sustainable development and the links between the economy and the environment.
- ²⁰² Cambridge Econometrics et al. (2014), Modelling the Economic and Environmental Impacts of Change in Raw Material Consumption.
- ²⁰³ Friends of the Earth (2010), More jobs, less waste – potential for job creation through higher rates of recycling in the UK and EU.
- ²⁰⁴ Ekins, P and Speck, S. (2011). Environmental Tax Reform (ETR): A Policy for Green Growth. Oxford University Press, Oxford.
- ²⁰⁵ ILO (2012), Green Jobs for Sustainable Development: A Case Study of Spain. www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_186715.pdf
- ²⁰⁶ European Environmental Agency (2011), Earnings, jobs and innovation: the role of recycling in a green economy.
- ²⁰⁷ European Commission (2012), Towards a job rich recovery. COM (2012) 173 final.
- ²⁰⁸ Voituriez, T. and Balmer, B (2012), The Muddle over Green race. IDDRI.
- ²⁰⁹ European Commission (2014), Press Release, Employment : Commission outlines measures to maximize job opportunities in the green economy, July 2014. ec.europa.eu/maritimeaffairs/policy/blue_growth/
- ²¹⁰ OECD (2012), Environment outlook to 2050 – The consequences of inaction.
- ²¹¹ Europe INNOVA (2012), Guide to resource efficiency in manufacturing: Experiences from improving resource efficiency in manufacturing companies.
- ²¹² Research by McKinsey & Co published in Ellen MacArthur Foundation (2012), Towards the circular economy.
- ²¹³ Europe INNOVA (2012), Guide to resource efficiency in manufacturing: Experiences from improving resource efficiency in manufacturing companies.
- ²¹⁴ Commission President Barroso, Presentation to the June 2013 European Council.
- ²¹⁵ IEA (2013), World Energy Outlook Special Report: Redrawing the Energy Climate Map.
- ²¹⁶ IDDRI (2012), Green Investments in a European Growth Package.
- ²¹⁷ Oracle (2011), The Future of Energy – an independent report for Oracle Utilities.
- ²¹⁸ "Set World Standards For Electronics Recycling, Reuse To Curb E- waste Exports To Developing Countries, Experts Urge" Science Daily, 17 September 2009.
- ²¹⁹ Ibid.
- ²²⁰ Ibid.
- ²²¹ Environment Commissioner Potocnik, speech on the Commission's circular economy package, 2 July 2014.
- ²²² IDDRI (2011), Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe.
- ²²³ Ecorys (2012), The number of jobs dependent on the Environment and Resource Efficiency.
- ²²⁴ Ecorys (2012), The number of jobs dependent on the Environment and Resource Efficiency; IDDRI (2011) Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe.
- ²²⁵ European Environment Agency (2011), Environmental tax reform in Europe: opportunities for eco-innovation. EEA Technical Report n°17.
- ²²⁶ Costantini, V. and Crespi, F. (2008), Environmental regulations and the export dynamics of energy technologies. Ecological Economics 66 (2-3); Johnstone et al. (2010), Renewable energy policies and technological innovation: evidence based on patent counts. Environmental & Resource Economics 45(1).
- ²²⁷ Bleischwitz, R. (2010), International economics of resource productivity – Relevance, measurement, empirical trends, innovation, resource policies. International Economy Policy 7(2-3).
- ²²⁸ Ellerman, A.D., Convery, F.J. and C. De Perthuis (2010), Pricing Carbon: The European Union Emissions Trading Scheme. Cambridge University Press, Cambridge, UK.
- ²²⁹ Reinaud, J. (2008), Issues behind Competitiveness and Carbon Leakage Focus on Heavy Industry. OECD/International Energy Agency, Paris.
- ²³⁰ Branger, F., and Quirion, P. (2014), Climate Policy and the 'carbon haven' Effect. Wiley Interdisciplinary Reviews: Climate Change 5(1): 53-71.
- ²³¹ caneurope.org/resources/doc_download/2319-igcc-letter-president-barroso-9-january-2014
- ²³² Huberty, M. and Zachmann, G. (2011), Green exports and the global product space: Prospects for EU industrial policy, Bruegel; Costantini, V. and Crespi, F. (2008) Environmental regulations and the export dynamics of energy technologies. Ecological Economics 66 (2-3).
- ²³³ Costantini, V. and Crespi, F. (2012), On the green and innovative side of trade competitiveness? The impact of environmental policies and innovation on EU exports. Research Policy 41(1).

- ²³⁴ European Policy Centre (2012), Green revolution: making eco-efficiency a driver for growth.
- ²³⁵ Costantini, V. and Crespi, F. (2012), On the green and innovative side of trade competitiveness? The impact of environmental policies and innovation on EU exports. *Research Policy* 41(1).
- ²³⁶ Martin, R. et al. (2011), The impacts of the Climate Change Levy on Manufacturing: Evidence from Microdata. CEP Discussion Paper n° 917.
- ²³⁷ Quirion, P. and Hourcade, J.C. (2004), Does the CO₂ emission trading directive threaten the competitiveness of EU industry? Quantification and comparison to exchange rate fluctuations.
- ²³⁸ IDDRI (2011), Exiting the crisis in the right direction: A sustainable and shared prosperity plan for Europe. See also WWF (2014) Competitiveness & climate policy: The either-or fallacy. Briefing Paper.
- ²³⁹ See for example De Bruyn, S., Markowska, A. and D. Nelissen (2010), Will the energy-intensive industry profit from EU ETS under Phase 3? CE Delft Report; Laing, T., Sato, M., Grubb, M. and C. Combetti (2013), Assessing the effectiveness of the EU Emissions Trading System. Centre for Climate Change Economics and Policy, Grantham Research Institute Report; (UK) Climate Strategies Reports (2007 – 2009), Tackling Leakage in a world of unequal carbon prices; (France) Hourcade et al. (2007), Differentiation and Dynamics of EU ETS Industrial Competitiveness Impacts, Climate Strategies; (Germany) Öko-Institut, Fraunhofer ISI, DIW (2008), Impacts of the EU Emissions Trading Scheme on the industrial competitiveness in Germany.
- ²⁴⁰ European Commission President Barroso, Presentation to the June 2013 European Council.
- ²⁴¹ HM Treasury, UK (2012).
- ²⁴² DECC (2013), Estimated Impacts of Energy & Climate Policies on Energy Prices & Bills.
- ²⁴³ World Economic Forum. Global Competitiveness Report 2013-2014.
- ²⁴⁴ IDDRI (2012), Green Investments in a European Growth Package.
- ²⁴⁵ HM Treasury (2013), Investing in Britain's Future.
- ²⁴⁶ European Commission (2014), Long-term Financing of the European Economy, COM(2014) 168 final.
- ²⁴⁷ UK government (2011), Enabling the transition to a green economy: Government and business working together.
- ²⁴⁸ Peersman, G. and Van Robays, I. (2011), Cross-country differences in the effects of oil shock, *Energy Economics*; Rozenberg et al. (2010), Climate policies as a hedge against the uncertainty on future oil supply, *Climatic Change* 101(3).
- ²⁴⁹ Joint Research Centre (2012), Does climate policy make the EU economy more resilient to oil price rises? A CGE analysis; Ecofys et al. (2009) Analysis of impacts of climate change policies on energy security.
- ²⁵⁰ Ibid.
- ²⁵¹ UNEP. 2011. Green Initiative.
- ²⁵² WWF, Health and Environment Alliance, Climate Action Network Europe (2008), The co-benefits to health of a strong EU climate change policy. See also European Commission (2010), Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage.
- ²⁵³ Health and Environment Alliance and Health Care Without Harm Europe (2010), Acting now for better health – a 30% reduction target for EU climate policy.
- ²⁵⁴ WWF and Rowett Institute of Nutrition and Health (2011), Livewell: a balance of healthy and sustainable food choices.
- ²⁵⁵ De Hartog et al (2010), Do the health benefits of cycling outweigh the risks? *Environmental Health Perspectives*; Pucher et al (2010), Walking and cycling to health: a comparative analysis of city, state, and international data. *American Journal of Public Health*.
- ²⁵⁶ European Commission (2011), Saving Energy – time to step up our efforts, Luxembourg: Publications Office of the European Union.
- ²⁵⁷ European Commission (2011), Analysis associated with the Roadmap to a Resource Efficient Europe, SEC(2011) 1067 final.
- ²⁵⁸ UK National Ecosystem Assessment (2011), Chapter 21: UK dependence on non-UK ecosystem services.
- ²⁵⁹ Raworth, K. (2012), A safe and just space for humanity. Published by Oxfam. The following sources were used: Food: UN Food and Agriculture Organisation statistics (author's calculations); Energy: OECD/IEA (2011) Energy for All: Financing Access for the Poor; Income: Chandy and Gertz (2011), Poverty in numbers: The changing state of global poverty from 2005 to 2015. The Brookings Institution.
- ²⁶⁰ UNDP (2011), Human Development Report: Sustainability and equity: a better future for all.
- ²⁶¹ Van Paddenburg, Bassi, Buter, Coslett and Dean (2012), Heart of Borneo: Investing in Nature for a green Economy, WWF Heart of Borneo Global Initiative, Jakarta.
- ²⁶² To find out more see www.hobgreeneconomy.org
- ²⁶³ Article 191(1) of the Lisbon Treaty states that protecting the environment and improving the quality of life for European citizens are integral aims and purposes for the European Union; article 191(2) enshrines the precautionary principle and the polluter pays principle.
- ²⁶⁴ For a more in-depth analysis see IEEP (2012), Running out of time? Stepping up action for Europe's environment.
- ²⁶⁵ Notably through the EU-China River Basin Management Programme. See Yang, X. and Griffiths, I.M. (2010) A Comparison of the Legal Frameworks Supporting Water Management in Europe and China, Peking University and Kings College London.
- ²⁶⁶ World Resources Institute (2012), Global Coal Risk Assessment.
- ²⁶⁷ WWF (2012), Response to the European Commission public consultation on a 2030 climate and energy package.
- ²⁶⁸ Some studies find that the post-Lisbon architecture should also allow the EU to progressively develop a truly integrated external policy toolbox, based on enhanced integration between EU internal and external policies as well as on a more holistic combination of intergovernmental and communitarian methods. See for example Missiroli, A. (2010), The new EU 'foreign policy' system after Lisbon: A work in progress, *European Foreign Affairs Review*, Kluwer Law International 15(4), New York.
- ²⁶⁹ See IEEP (2012), Running out of time? Stepping up action for Europe's environment.
- ²⁷⁰ European Council of 25-26 March 2010.
- ²⁷¹ European Commission (2011), A Roadmap for moving to a competitive low carbon economy in 2050, COM(2011) 112 final.
- ²⁷² European Commission (2011), Energy Roadmap 2050, COM(2011) 885/2.
- ²⁷³ European Commission (2013), Roadmap to a Resource Efficient Europe, COM(2011) 571 final.
- ²⁷⁴ European Commission (2011), White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144 final.
- ²⁷⁵ European Commission (2011), Our life insurance, our natural capital: an EU biodiversity strategy to 2020, COM(2011) 244 final.
- ²⁷⁶ Flash Eurobarometer 388: Attitudes of Europeans towards Waste management and Resource Efficiency.
- ²⁷⁷ European Commission (2014), Towards a circular economy: A zero waste programme for Europe, COM(2014)398 final.
- ²⁷⁸ European Commission (2014), Progress Report on the Roadmap to a Resource Efficient Europe, SWD(2014)206.
- ²⁷⁹ European Commission (2007), The EU Eco-Industry, Luxembourg.
- ²⁸⁰ World Bank's statistics from data.worldbank.org
- ²⁸¹ IDEA Consult (2010), Scoping Study on completing the European Single Market for environmental goods and services.
- ²⁸² COWI, Ecorys, Cambridge Econometrics, for the European Commission (2011), The cost of not implementing the environmental acquis, Final report.
- ²⁸³ Ibid.
- ²⁸⁴ European Council of 20-21 March 2014, Council Conclusions.
- ²⁸⁵ McKinsey (2011), Resource Revolution: Meeting the world's energy, materials, food and water needs
- ²⁸⁶ UK's Department for Business, Innovation and Skills (July 2013), Low Carbon and Environmental Goods and Services Report.
- ²⁸⁷ IDEA Consult, ECORYS (2009), Study on the competitiveness of the EU eco-industry; Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2009), Greentech - Made in Germany 2.0.
- ²⁸⁸ WWF (2009), Clean Economy, Living Planet.
- ²⁸⁹ UN Partnership Action for a Green Economy (PAGE), www.unep.org/greeneconomy/PAGE/PAGENewsEvents/tabid/130497/language/en-US/Default.aspx
- ²⁹⁰ UK's Department for Business, Innovation and Skills (July 2013), Low Carbon and Environmental Goods and Services Report.

- ²⁹¹ OECD Statistics: Patents in Environmental Technologies.
- ²⁹² South Korea Aims to Create 1.5 Million Jobs in 'Green Energy', Bloomberg News, (7 June 2011). For a deeper view on the recent developments and forecasts of the global renewable market see also WWF (2014), Global coal 2013-2014: The market has shifted.
- ²⁹³ Bloomberg New Energy Finance (2013), Who's Winning the Clean Energy Race?
- ²⁹⁴ UNEP-Bloomberg New Energy Finance (2014), Global trends in renewable energy investment 2014 – Key findings.
- ²⁹⁵ South Korea Aims to Create 1.5 Million Jobs in 'Green Energy', Bloomberg News, (7 June 2011).
- ²⁹⁶ China battles to be first ecological civilization, New Scientist, 13 June 2014.
- ²⁹⁷ See for example: China must find unique way to build ecological civilization, China Daily, 07 December 2013.
- ²⁹⁸ www.euractiv.com/energy/low-carbon-leakage-begins-eu-pre-news-532794
- ²⁹⁹ See European Environment Agency (2013), Towards a green economy in Europe – EU environmental policy targets and objectives 2010–2050, EEA Report No 8/2013.
- ³⁰⁰ John Fitzgerald Kennedy, American University speech, June 1963.
- ³⁰¹ Green Growth Group (2013), Going for Green Growth – The case for ambitious and immediate EU low carbon action.
- ³⁰² Her Majesty's Treasury (2013) Investing in Britain's Future. See: www.gov.uk/government/uploads/system/uploads/attachment_data/file/209279/PU1524_IUK_new_template.pdf
- ³⁰³ European Commission (2010), Europe 2020 - A strategy for smart, sustainable and inclusive growth, COM(2010) 2020.
- ³⁰⁴ European Commission (2014), Taking stock of the Europe 2020 strategy for smart, sustainable and inclusive growth, COM(2014) 130 final.
- ³⁰⁵ European Commission (2014), Towards a circular economy: A zero waste programme for Europe, COM(2014) 398 final: "The review of the Europe 2020 strategy is currently underway supported by public consultation to gather all views on its development. The Commission therefore considers that any decision on setting a resource productivity headline target should be taken in the review."
- ³⁰⁶ ec.europa.eu/research/innovation-union/index_en.cfm
- ³⁰⁷ ec.europa.eu/environment/ecoap/about-action-plan/index_en.htm
- ³⁰⁸ Directive 2009/125/EC of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.
- ³⁰⁹ European Policy Centre (2010), Europe 2020: delivering well-being for future Europeans.
- ³¹⁰ The Commission estimated that 35% of Horizon 2020 spending will support a low-carbon shift. Regulation from 30 November 2011 establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020), COM(2011)89 final.
- ³¹¹ See WWF (2014), More Efficient, More Competitive, Briefing Paper.
- ³¹² European Commission (2012), Toward a job-rich recovery, COM(2012) 173 final.
- ³¹³ European Commission (2012), Exploiting the employment potential of green growth, SWD(2012) 92 final.
- ³¹⁴ European Commission (2014), Green Employment Initiative: Tapping into the job creation potential of the green economy, COM(2014)446 final.
- ³¹⁵ See for example ILO (2012), Working towards sustainable development: opportunities for decent work and social inclusion in a green economy; OECD (2012), The jobs potential of a shift towards a low carbon economy.
- ³¹⁶ European Commission (2014), Green Employment Initiative: Tapping into the job creation potential of the green economy, COM(2014)446 final.
- ³¹⁷ UNEP (2011), Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.
- ³¹⁸ Cedefop (European Centre for the Development of Vocational Training) (2010), Skills for green jobs.
- ³¹⁹ Bird, J. and Lawton, K. (2009), The Future's Green: Jobs and the UK low-carbon transition, Institute for Public Policy Research, London.
- ³²⁰ ILO and Cedefop (2010), Skills for green jobs – European Synthesis Report; European Commission (2013), Joint Employment Report, COM(2013) 801 final.
- ³²¹ Decision No 1386/2013/EU of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'.
- ³²² Qalyoubi, R. (2012), The seven steps towards green governance.
- ³²³ European Commission (2014), Annual Growth Survey 2014, COM(2013) 800 final.
- ³²⁴ Procurement Directives 2004/17/EC and 2004/18/EC and Remedies Directive 2007/66/EC.
- ³²⁵ European Commission (2008), Public procurement for a better environment, COM(2008) 400 final.
- ³²⁶ Competitiveness Council of the EU of 25-26 September 2008.
- ³²⁷ For more details see European Commission (2011), Buying green! A handbook on green public procurement 2nd Edition.
- ³²⁸ ec.europa.eu/environment/gpp/action_plan_en.htm
- ³²⁹ PricewaterhouseCoopers, Ecofys and Significant (2009), Collection of statistical information on Green Public Procurement in the EU.
- ³³⁰ In June 2011 the Dutch government announced that 99.8% of public procurement at national level in 2010 was green. In addition, Dutch provinces recorded 96% GPP (target: 50%), municipalities 86 to 90% GPP (target: 75%), water boards 85% GPP (target 50%), tertiary educational institutions such as universities over 75% GPP. ec.europa.eu/environment/ecoap/about-eco-innovation/policies-matters/eu/743_en.htm
- ³³¹ www.beyond-gdp.eu
- ³³² ec.europa.eu/environment/beyond_gdp/index_en.html
- ³³³ European Commission (2009), A roadmap for action: GDP and beyond - Measuring progress in a changing world, COM(2009) 433 final.
- ³³⁴ European Commission (2013), Progress on 'GDP and beyond' actions, SWD(2013) 303 final.
- ³³⁵ European Commission (2013), A decent life for all: Ending poverty and giving the world a sustainable future, COM(2013) 92 final.
- ³³⁶ Directive 2010/30/EU of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products.
- ³³⁷ See the UK 2011 Bailey Review on the commercialization and sexualization of childhood.
- ³³⁸ European Council of 25-26 March 2010.
- ³³⁹ Intergovernmental Panel on Climate Change (IPCC) (2014), 5th Assessment Report. See www.ipcc.ch/report/ar5
- ³⁴⁰ WWF (2011), The Energy Report: 100% renewable energy by 2050.
- ³⁴¹ European Policy Centre (2012), Green revolution: making eco-efficiency a driver for growth.
- ³⁴² IEA, Energy (2013), Efficiency Market Report 2013.
- ³⁴³ Directive 2012/27/EU of 25 October 2012 on energy efficiency. 347 Directive 2010/31/EU of 19 May 2010 on the energy performance of buildings.
- ³⁴⁴ Directive 2010/31/EU of 19 May 2010 on the energy performance of buildings.
- ³⁴⁵ European Commission (2014), Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy, COM(2014) 520 final.
- ³⁴⁶ See WWF (2013), Re-energizing Europe: Making more effective energy savings policy at EU level.
- ³⁴⁷ Figures provided by General Electric.
- ³⁴⁸ European Commission (2014), A policy framework for climate and energy in the period from 2020 to 2030, COM(2014) 15 final.
- ³⁴⁹ European Parliament resolution of 5 February 2014 on a 2030 framework for climate and energy policies (2013/2135(INI)).
- ³⁵⁰ CE Delft for WWF (2012), Re-Energising Europe: Cutting energy related emissions the right way.
- ³⁵¹ CBI press release, on the launch of their report The colour of growth: maximising the potential of green business, 5 July 2012.
- ³⁵² For more information see WWF (2014), Competitiveness & climate policy: The 'either-or' fallacy.
- ³⁵³ Directive 2003/87/EC of 13 October 2003 establishing a scheme for greenhouse-gas emission allowance trading within the Community.
- ³⁵⁴ For more information see WWF and al. (2014), Emissions Performance Standard (EPS) – a key to countering the EU's coal addiction.
- ³⁵⁵ www2.epa.gov/carbon-pollution-standards/what-epa-doing
- ³⁵⁶ European Commission (2011), Energy Roadmap 2050, COM(2011) 885/2.
- ³⁵⁷ Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources.
- ³⁵⁸ ec.europa.eu/energy/renewables/biofuels/biofuels_en.htm

- ³⁵⁹ European Commission (2014), A policy framework for climate and energy in the period from 2020 to 2030, COM(2014) 15 final.
- ³⁶⁰ See for example www.scientificamerican.com/article/controversy-over-biofuels-and-land-cut-from-ipcc-summary
- ³⁶¹ See World Commission on Dams (2000), Dams and Development: A Framework for Decision Making; WWF (2013), Seven Sins of Dam Building.
- ³⁶² European Council of 25-26 March 2010.
- ³⁶³ European Commission (2010), Europe 2020 – A strategy for smart, sustainable and inclusive growth, COM(2010) 2020.
- ³⁶⁴ European Commission (2013), Roadmap to a Resource Efficient Europe, COM(2011) 571 final.
- ³⁶⁵ Decision No 1386/2013/EU of 20 November 2013 on a General Union Environment Action Programme to 2020, Living well, within the limits of our planet.
- ³⁶⁶ The European Parliament also issued the resolution of 24 May 2012 A resource-efficient Europe (2011/2068(INI) asking for targets and indicators.
- ³⁶⁷ European Commission (2014), Towards a circular economy: A zero waste programme for Europe, COM(2014) 398 final.
- ³⁶⁸ McKinsey Global Institute (2011), Resource Revolution: Meeting the world's energy, materials, food and water needs.
- ³⁶⁹ European Commission (2014), Analysis of an EU target for resource productivity, SWD(2014)211.
- ³⁷⁰ European Commission (2013), Roadmap to a Resource Efficient Europe, COM(2011) 571 final.
- ³⁷¹ Eurostat News Release, 6 December 2013: "The scoreboard presents a set of 30 robust and easily understandable indicators for assessing the use of natural resources in the EU and for monitoring the progress towards a resource-efficient and circular economy."
- ³⁷² Data source: European Environmental Agency, European Topic Centre on Biological Diversity.
- ³⁷³ European Commission (2011), Our life insurance, our natural capital: an EU biodiversity strategy to 2020, COM(2011) 244 final.
- ³⁷⁴ Environment Council of 21 June 2011, Luxembourg.
- ³⁷⁵ European Commission (2011), Our life insurance, our natural capital: an EU biodiversity strategy to 2020, COM(2011) 244 final: Target 2 Action 5.
- ³⁷⁶ Regulation No 691/2011 of 6 July 2011 on European environmental economic accounts.
- ³⁷⁷ WWF (2014), Accounting for Natural Capital in EU Policy Decision-Making: A WWF background paper on policy developments. wwf.panda.org/about_our_earth/all_publications/?222134/Accounting-for-Natural-Capital-in-EU-Policy-Decision-Making-A-WWF-background-paper-on-policy-developments
- ³⁷⁸ See European Commission (2013), An analytical framework for ecosystem assessments under Action 5 of the EU Biodiversity Strategy to 2020.
- ³⁷⁹ Such as the UN System of Environmental-Economic Accounting (SEEA), WAVES (Wealth Accounting and the Valuation of Ecosystem Services) and the Natural Capital Declaration.
- ³⁸⁰ Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds and the Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
- ³⁸¹ Summit of EU Heads of State of Gothenburg, Sweden, June 2001.
- ³⁸² European Commission (2011), Our life insurance, our natural capital: an EU biodiversity strategy to 2020, COM(2011) 244 final.
- ³⁸³ IEEP, GHK, Ecologic for the European Commission (2010), Costs and Socio-Economic Benefits associated with the Natura 2000 Network.
- ³⁸⁴ European Commission (2013), The Economic benefits of the Natura 2000 Network – Synthesis Report.
- ³⁸⁵ Kettunen M, Baldock D, Gantioler S and al., (2011), Assessment of the Natura 2000 co-financing arrangements of the EU financing instrument. A project for the European Commission – final report, Institute for European Environmental Policy (IEEP), Brussels, Belgium.
- ³⁸⁶ Green infrastructure consists of spatially or functionally connected natural, semi-natural and man-made elements, that provide essential features for the maintenance of ecosystem services and help adaptation to climate change (European Commission).
- ³⁸⁷ Based on the Directive 2014/89/EU of 23 July 2014 establishing a framework for maritime spatial planning.
- ³⁸⁸ Directive 2000/60/EC of 23 October 2000 establishing a framework for action in the field of water policy.
- ³⁸⁹ Later deadlines are 2021 and 2027, the latter being the final deadline.
- ³⁹⁰ European Commission (2012), Blueprint to Safeguard Europe's Water Resources, COM/2012/0673 final.
- ³⁹¹ Regulation No 1380/2013 of 11 December 2013 on the Common Fisheries Policy.
- ³⁹² New Economics Foundation (2012), Jobs Lost at Sea.
- ³⁹³ ec.europa.eu/agriculture/cap-post-2013
- ³⁹⁴ Peér and al (2014), EU agricultural reform fails on biodiversity, sciencemag.org 344(6188):1090-1092.
- ³⁹⁵ Regulation No 1307/2013 of 17 December 2013 establishing rules for direct payments to farmers, Article 32 – Ecological focus area: "By 31 March 2017, the Commission shall present an evaluation report on the implementation of the first subparagraph accompanied, where appropriate, by a proposal for a legislative act as referred to in the second subparagraph."
- ³⁹⁶ Directive 2008/98/EC on waste.
- ³⁹⁷ European Commission (2014), Towards a circular economy: A zero waste programme for Europe, COM(2014)398 final.
- ³⁹⁸ McKinsey Global Institute (2011), Resource Revolution: Meeting the world's energy, materials, food and water needs; Ellen MacArthur Foundation (2012), Towards the circular economy; and Aldersgate Group (2012), Resilience in the Round – seizing the growth opportunities of the circular economy.
- ³⁹⁹ The Cradle to Cradle network brings together EU regions to share and capitalize on regional good practice in implementing a cradle to cradle economy. See www.c2cn.eu
- ⁴⁰⁰ Example from Suez Environnement.
- ⁴⁰¹ European Commission (2013), Roadmap to a Resource-Efficient Europe, COM(2011) 571 final.
- ⁴⁰² European Commission (2014), Building a Sustainable European Food System, forthcoming.
- ⁴⁰³ European Commission (2014), Towards a circular economy: A zero waste programme for Europe, COM(2014)398 final.
- ⁴⁰⁴ See livewellforlife.eu
- ⁴⁰⁵ Regulation No 995/2010 of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market.
- ⁴⁰⁶ ec.europa.eu/clima/policies/forests/deforestation/index_en.htm
- ⁴⁰⁷ Decision No 1386/2013/EU of 20 November 2013 on a General Union Environment Action Programme to 2020, Living well, within the limits of our planet.
- ⁴⁰⁸ ec.europa.eu/environment/forests/pdf/EUTR%20implementation%20scoreboard.pdf
- ⁴⁰⁹ Regulation No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing.
- ⁴¹⁰ On the definition of environmentally harmful subsidies see Part II Chapter 1.2
- ⁴¹¹ European Commission (2010), Europe 2020 – A strategy for smart, sustainable and inclusive growth, COM(2010) 2020.
- ⁴¹² INI/2009/2152, 6 May 2010.
- ⁴¹³ Environment Council conclusions of 20 December 2010, Brussels.
- ⁴¹⁴ For instance in the Strategic Plan for Biodiversity 2011-2020, agreed by the Parties to the Convention on Biological Diversity in Nagoya, Japan in October 2010, and the G20's declaration in Pittsburgh in 2009 on fossil fuels subsidies.
- ⁴¹⁵ IMF (2014), Getting energy prices right; IMF (2013), Energy subsidy reform: lessons and implications.
- ⁴¹⁶ OECD (2011), Environmental Taxation – A Guide for Policy Makers.
- ⁴¹⁷ See notably Laan, T., Beaton, C. and B. Presta (2010), Strategies for reforming fossil-fuel subsidies: practical lessons from Ghana, France and Senegal; International Institute for Sustainable Development – Global Subsidies Initiative (2014), A guidebook to fossil-fuel subsidy reform.
- ⁴¹⁸ See Peér and al. (2014), EU agricultural reform fails on biodiversity, sciencemag.org 344(6188): 1090-1092.
- ⁴¹⁹ European Commission (2014), Progress Report on the Roadmap to a Resource-Efficient Europe, SWD(2014)206.
- ⁴²⁰ For more information see Withana, S. et al. (2012), Study supporting the phasing out of environmentally harmful subsidies. A report by IEEP, IVM, Ecologic Institute and VITO for the European Commission – DG Environment. Final Report. Brussels.
- ⁴²¹ The Federal Environment Agency in Germany publishes a report on "Environmentally harmful subsidies in Germany" (2010, 2012).
- ⁴²² In France two reports were produced in 2011: one by the Committee to Evaluate Tax Expenditures and Social Security Contribution Exemptions, which stressed the environmentally harmful effects of tax exemptions on certain fossil fuels, and one by the Strategic Analysis Centre on government subsidies harmful to biodiversity.

- ⁴²³ A 2012 report by the Swedish Environment Protection Agency examines government subsidies that have a potentially negative environmental impact and discusses how subsidies can be better handled in policy instruments.
- ⁴²⁴ Ecofys for the European Commission (2014), Subsidies and costs of EU energy – An interim report. Covering power and heat (not transport fuels).
- ⁴²⁵ See also IEEP (2012), Running out of time? Stepping up action for Europe's environment.
- ⁴²⁶ Ecofys for the European Commission (2014), Subsidies and costs of EU energy – An interim report.
- ⁴²⁷ ec.europa.eu/economy_finance/economic_governance/the_european_semester/index_en.htm
- ⁴²⁸ Daly, H.E. (2010), From a failed growth-economy to a steady-state economy, *Solutions* 1: 37-43.
- ⁴²⁹ European Commission (2014), Progress Report on the Roadmap to a Resource Efficient Europe, SWD(2014)206
- ⁴³⁰ Costanza, R., Alperovitz, G., Daly, H.E. and J. Farley (2012), Building a sustainable and desirable economy-in-society-in-nature.
- ⁴³¹ European Commission (2013), Tax reforms in EU Member States 2013 – Tax policy challenges for economic growth and fiscal sustainability.
- ⁴³² European Commission (2014), Progress Report on the Roadmap to a Resource-Efficient Europe, SWD(2014)206.
- ⁴³³ For more information see IEEP (2012), Running out of time? Stepping up action for Europe's environment.
- ⁴³⁴ Article 8 of the Common Provisions Regulation (1303/2013/EU), which relates to the Cohesion Policy, Rural Development and the Maritime and Fisheries Fund.
- ⁴³⁵ Notably European Commission (2014), Financing Natura 2000 in 2014-2020 – Guidance Handbook, ec.europa.eu/environment/nature/natura2000/financing/docs/handbook.pdf; IEEP for the European Commission (2014), Common Framework for Biodiversity-Proofing of the EU Budget, ec.europa.eu/environment/nature/biodiversity/comm2006/proofing.htm; European Commission (2013), The Guide to multi-benefit Cohesion Policy investments in nature and green infrastructure; European Commission (2014) Technical guidance: financing the renovation of buildings with Cohesion Policy Funding.
- ⁴³⁶ European Commission (2014), Preparation of the 2015 Draft Budget – Document 1, SEC(2014)357 final.
- ⁴³⁷ European Court of Auditors (2014), Press release: “The Commission and Members States must ensure better use of the European Regional Development Fund for halting biodiversity loss,” say EU Auditors, 17 September 2014.
- ⁴³⁸ IDDRI (2013), EU Low-Carbon Investment and New Financial Sector Regulation: What Impacts and What Policy Response?
- ⁴³⁹ Robins, N., Knight, Z. (2012) Bonds and climate change: the state of the market in 2012. HSBC Global Research
- ⁴⁴⁰ European Commission (2014), Communication on long-term financing of the European economy, COM(2014)168 final.
- ⁴⁴¹ European Commission (2013), Green Paper – Long term financing of the European economy, COM(2013)150.
- ⁴⁴² European Parliament resolution of 26 February 2014 on long-term financing of the European economy (2013/2175(INI)).
- ⁴⁴³ Directive of 15 April 2014 amending Directives 78/660/EEC and 83/349/EEC as regards disclosure of non-financial and diversity information by certain large companies and groups.
- ⁴⁴⁴ European Commission, Proposal for a Directive on the activities and supervision of institutions for occupational retirement provision, COM(2014) 167 final.
- ⁴⁴⁵ World Economic Forum 2013, The Green Investment Report: The ways and means to unlock private finance for green growth
- ⁴⁴⁶ Sources: respectively, Presentation by Commission President Barroso; IEA (2012), World Energy Outlook 2012; Institutional Investors Group for Climate Change (2013), 2030 Energy & Climate Change Green Paper Consultation Submission.
- ⁴⁴⁷ See www.climatebonds.net
- ⁴⁴⁸ See blogs.worldbank.org/climatechange/carbon-bubbles-stranded-assets
- ⁴⁴⁹ Evans-Pritchard, A. (2014), “Fossil industry is the subprime danger of this cycle”, Daily Telegraph, 9 July 2014.
- ⁴⁵⁰ Mackenzie, C. (2013), Is the tide turning on 'big carbon'? The surprising step change in the stranded assets debate. Responsible Investor, 30 August 2013, www.responsible-investor.com/home/article/c_mac_sa/P0
- ⁴⁵¹ reneweconomy.com.au/2014/fossil-fuels-face-30-trillion-losses-from-climate-renewables-11465
- ⁴⁵² www.rtcc.org/2014/10/14/energy-companies-unprepared-for-climate-risks-study
- ⁴⁵³ Oxford University (2013), Stranded assets and the fossil fuel divestment campaign: what does divestment mean for the valuation of fossil fuel assets?, Stranded Asset Programme.
- ⁴⁵⁴ Arabella Advisors (2014), Measuring the Global Fossil Fuel Divestment Movement.
- ⁴⁵⁵ www.rtcc.org/2014/05/15/fossil-free-investment-portfolios-soared-50-in-2013
- ⁴⁵⁶ www.responsible-investor.com/home/article/c_mac_sa/P0
- ⁴⁵⁷ www.storebrand.no/site/stb.nsf/Pages/newsdesk.html#/news/storebrand-reduces-carbon-exposure-in-investments-19-companies-excluded-62954
- ⁴⁵⁸ See the recommendations of the TEEB for Business coalition-Trucost report Natural capital at risk: The top 100 externalities of business (2013): 1. Identify which assets are most exposed to natural capital risk, and which companies and governments are able and willing to adapt. 2. Identify the probability and impact of natural capital costs being internalized. 3. Build natural capital risks, adjusted for the likelihood of internalization, into asset appraisal and portfolio risk models.
- ⁴⁵⁹ For example the Basel III prudential standards and the Capital Requirement Directive (CRD IV).
- ⁴⁶⁰ European Commission (2013), A decent life for all – Ending poverty and giving the world a sustainable future, COM(2013) 92 final.
- ⁴⁶¹ General Affairs Council of 25 June 2013, Luxembourg.
- ⁴⁶² European Commission (2014), A Decent Life for All: from Vision to collective Action.
- ⁴⁶³ ECOFIN Council meeting of 15 October 2013, Luxembourg.
- ⁴⁶⁴ Decision No 1386/2013/EU of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'.
- ⁴⁶⁵ Directive 2005/60/EC of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing.
- ⁴⁶⁶ ec.europa.eu/europeaid/policies/policy-coherence-development_en
- ⁴⁶⁷ These 12 policy areas are: trade, security, environment and climate change, social policies (employment), bilateral fisheries agreements, migration, agriculture, research and innovation, information technologies, transport, energy.
- ⁴⁶⁸ FAO (2014), The State of Food Insecurity in the World 2014.
- ⁴⁶⁹ Directives 78/660/EEC and 83/349/EEC concerning the annual accounts of certain types of companies and consolidated accounts.
- ⁴⁷⁰ Directive 2004/109/EC of 15 December 2004 on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market.
- ⁴⁷¹ Directive 2013/36/EU of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms.
- ⁴⁷² Foreign Affairs Council of 23 June 2014, Luxembourg.



This programme is implemented with the support of the European Union.
The contents of this publication are the sole responsibility of WWF and can in no way be taken to reflect the views of the European Union.

WWF in Europe

100%
RECYCLED



20 MILLION

Up to 20 million jobs could be created or maintained between now and 2020 in the transition to European sustainable economies.

Source: European Commission

€310 BILLION

EU businesses could save €270-310 billion per year in the cost of materials by adopting more resource efficient processes.

Source: McKinsey



1%

Providing the billion people who currently live in extreme poverty with essential material needs would require only 1% of the resources we currently use globally.

Source: Oxfam

18%

The annual cost of environmental degradation from human activity could rise to 18% of global GDP in 2050 if no action is taken.

Source: Trucost/UNEP



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

www.wwf.eu