

DIRECTORATE-GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT
ECONOMIC AND SCIENTIFIC POLICY **A**

Economic and Monetary Affairs

Employment and Social Affairs

**Environment, Public Health
and Food Safety**

Industry, Research and Energy

Internal Market and Consumer Protection



**EU Subsidies for
polluting and
unsustainable practices**

ENVI



DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

ENVIRONMENT, PUBLIC HEALTH AND FOOD SAFETY

EU Subsidies for polluting and unsustainable practices

STUDY

Abstract

The report provides an overview of the environmental relevance of the largest fields of expenditure within the EU budget. Based on existing methodologies, it assesses the sustainability level of key budget items in the EU sectoral policies. It also provides recommendations in the context of a potential reform of subsidies that would contribute to the alignment of the EU budget towards a more sustainable growth as called in the EU2020 Strategy.

IP/A/ENVI/ST/2010-17

February 2011

PE 457.359

EN

This document was requested by the European Parliament's Committee on Environment, Public Health and Food Safety.

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LINGUISTIC VERSIONS

Original: EN
Executive summary: DE/FR

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Manuscript completed in February 2011.
Brussels, © European Parliament, 2011.

This document is available on the Internet at:
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LIST OF ABBREVIATIONS

ACP	Africa, Caribbean and Pacific
AES	Agri-environmental scheme
CAP	Common Agricultural Policy
CCS	Carbon Capture and Storage
CF	Cohesion Fund
CFP	Common Fisheries Policy
CMO	Common market organisation
CoR	Committee of the Regions
CSE	Consumer Support Estimates
CSG	Community Strategic Guidelines
ERDF	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
EFF	European Fisheries Fund
EHS	Environmentally Harmful Subsidies
EIA	Environmental Impact Assessment
ERDF	European Regional Development Fund
ESA	European system of accounts
ESF	European Social Fund
FIFG	Financial Instrument for Fisheries Guidance
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product

- IRENA** Indicator Reporting on the integration of ENvironmental concerns into Agricultural policy
- IUU** Illegal, unreported and unregulated fishing
- JRC** Joint Research Centre
- NRP** National Reform Programmes
- NSDS** National Sustainable Development Strategies
- NSRF** National Strategic Reference Framework
- NUTS** Nomenclature of Territorial Units for Statistics
- OECD** Organisation for Economic Co-operation and Development
- PSE** Producer Support Estimates
- RTDI** Research, Technological Development & Innovation
- SAPS** Single Area Payment Scheme
- SDI** Sustainable Development Indicator
- SDS** Sustainable Development Strategy
- SEA** Strategic Environmental Assessment
- SPS** Single (Farm) Payment Scheme
- TEN-E** Trans-European networks – Energy
- TEN-T** Trans-European Networks – Transport
- TERM** Transport and Environment Reporting Mechanism
- WTO** World Trade Organization

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EXECUTIVE SUMMARY

Subsidies are a pervasive phenomenon interconnected directly or indirectly to most of the consumption and production activities that take place in our daily lives. Several sectors benefit from support given by national governments that in principle seek to achieve laudable objectives, but that in many cases ends up having environmentally harmful side-effects and often benefiting powerful rather than needy groups. Subsidies are not inherently bad, nevertheless, when they are aligned towards sustainability, they might have to compete with other unsustainable activities that also receive public support, which could decrease their efficiency.

The EU has committed itself to gradually phase out environmentally harmful subsidies (EHS) for example through the reform of agricultural and fisheries policies. Nonetheless, there is still a lot to do to have a more sustainable EU budget and thus, compatible with the targets of the EU2020 Strategy.

This report provides an overview of the EU sectoral policies (agriculture, cohesion policy, transport, energy and fisheries) that benefit from public support and that, at the same time, are linked to the main unwanted side effects. Explicitly, the scope is set on on-budget subsidies (i.e. subsidies visible in the EU budget as public expenditure).

Agriculture

The Common Agricultural Policy (CAP) comprises market related expenditure and direct aids (first pillar, €42.5 billion) as well as expenditure on rural development (second pillar, €14.4 billion) in 2011. It is thus one of the largest items of the EU budget.

The 2003 CAP reform removed a large part of the environmentally harmful subsidies by decoupling agricultural support from production levels. This reduced incentives leading to over-production and intensification of farming methods. The new support-scheme is subject to "cross-compliance" conditions relating to environmental, food safety and animal welfare standards. Nonetheless, the environmental benefits delivered by these standards are disproportionately small as compared to the provided payments.

Likewise, most of the Member States have oriented the decoupled payments towards historic production levels, which particularly favours large and intensive producers instead of small farm units that support the deliverance of environmental benefits via traditional farming.

RECOMMENDATIONS

- The payment scheme should be orientated towards environmental components going beyond the existing cross-compliance standards and thereby supporting traditional farming methods rather than intensive production schemes.
- The environmental benefits delivered by cross-compliance standards are disproportionately small as compared to the provided payments. The adoption of measurable targets and the establishment of an output monitoring mechanism would increase the effectiveness of the cross-compliance standards.
- Considering the need to spend public money for public goods, the basic payments should be linked to the payments that remunerate the provision of public goods and maintain the natural capital. The remunerated public goods should be extended and take into consideration a higher variety of public goods provided by agriculture.

Structural and Cohesion Policy

The European Structural and Cohesion Funds are most essential to reduce social and economic disparities between the European regions. The cohesion policy earmarks €344 billion for the programming period 2007-2013, distributed among its three priorities: convergence¹ (81.5%), regional competitiveness and employment² (16%) and territorial cooperation³ (2.5%).

The environmental expenditure amounts to €105 billion, the highest ever. About 21 categories (out of 86) have an ecological focus, such as promotion of clean urban transport, renewable energy (wind, solar, biomass, hydroelectric, geothermal and other), energy efficiency, assistance to SMEs for the promotion of environmentally-friendly products and production processes (eco-innovation in SMEs), cycle tracks, etc.

At large, the expenditure is more oriented towards end-of-pipe approaches such as management of household and industrial waste, rehabilitation of industrial sites and contaminated land (ca. 69% of the financial volume), than towards prevention approaches such as integrated prevention and pollution control or risk prevention (ca. 31% of the financial volume) of projects.

¹ Convergence comprises promotion of growth-enhancing conditions and factors leading to convergence for the least-developed Member States and regions.

² Regional competitiveness and employment comprises promotion of economic change through innovation and the support of the knowledge society, entrepreneurship, protection of the environment, and improvement of their accessibility.

³ Territorial cooperation, including cross-border and transnational cooperation, comprises joint local and regional initiatives, and interregional co-operation and exchange of experience.

More than 62% of the budget is selected for infrastructure investments projects in the field of transport (i.e., environmentally-friendly transport modes such as railways) and waste and waste water. A further 13% refers to rehabilitation and regeneration projects. It is striking that direct climate change investments only amount to 9.1% (2.6% of the total Structural and Cohesion Funds' budget), as well as that subsidies for renewable energies represent 8.6% of the environmental budget (1.5% of the total budget). Support for eco-innovation is only 2.4% (0.7% of total funding), while projects within the field natural heritage and biodiversity amount to 5% (1.5% of total).

RECOMMENDATIONS

- The EU cohesion policy should support European priorities. Thus, investments should focus on projects that deliver the largest environmental benefits at European level. In this context, financial support given through the Structural and Cohesion Funds should be environmentally and cost effective in the long term. Therefore, the EU should primarily support solutions that have proven environmental and cost effectiveness over time.
- In order to increase the coherence within and across European policies, the Structural and Cohesion Funds should be part and result of an integrated strategy.
- The systematic inclusion of the term resource efficiency in cohesion policies is necessary to increase the coherence between policies.
- The assessment of the effectiveness of the Structural and Cohesion Funds requires more transparency and better reporting from Member States. In this context, the reporting methodology should rather focus on results than on financial performance. To this end, a comprehensive system of environmental reporting mechanisms should be applied throughout the whole programming cycle.
- The ex ante, mid-term and ex post evaluations should make use of the Sustainable Development Indicators (SDIs). The current indicators used primarily focus on management and financial control. Evaluation should introduce indicators for measuring the environmental impacts.
- Green Public Procurement should be incorporated as a condition for granting funds.

Transport and energy

Transport and energy expenditure is related to several headings of the budget. Commitments for transport expenditures in the 2011 draft EU budget amount to €13.8 billion. 85% of the commitments are through the Structural and Cohesion Funds including contributions to Trans-European Networks – Transport (TEN-T) projects, and 9% are for TEN-T projects directly. Transport research has a 4% share, and inland, air and maritime transport 1%.

In general terms, the EU budget needs to allocate better the expenditure related to transport and undertake a shift of resources to more sustainable transport areas.

As for energy, the expenditures in the 2011 draft EU budget amount to €2.9 billion. 54% of the commitments are through the Structural and Cohesion Funds including contributions to Trans-European Networks – Energy (TEN-E) projects, 1% is for TEN-E project directly.

Fusion energy has a share of 14%, energy research under different titles 12%, nuclear energy under different titles 12%, and conventional and renewable energies 4%.

Although energy expenditure appears to perform well, the results of the assessment carried out have to be interpreted cautiously as several items have been left out the assessment (e.g. fusion and fission energy, carbon capture and storage) due to the uncertainty related to their sustainability.

RECOMMENDATIONS

- Support for the transport sector should ensure that there is no associated increase of the greenhouse gas emissions. Thus, the EU should re-focus its investment on urban and regional public transport, sustainable traffic management, cycling, rail transport, and intermodal infrastructure shifting freight from road to rail.
- On the basis of the assessment carried out, a shift of the investment should be encouraged from non-sustainable to sustainable energy sources, which would contribute to the reduction of greenhouse gas emissions.
- A synopsis of existing sectoral environmental and sustainability assessments (like TERM or the Energy and Environment Reports of the European Environment Agency) is an essential recommendable tool to deliver insights of policy impacts and to overcome methodological and data constraints that limit comparisons of specific sectoral analyses. Moreover, focused analyses of certain budget headings and budget titles with respect to sustainability indicators are also recommended.

Fisheries

The European Fishing industry faces immense challenges in economical, ecological and social respects. In an effort to support the transition of the sector, the European Union and its Member States grant subsidies to the fishing industry.

A variety of subsidies have been eliminated, such as the construction of new vessels, and funds have been redirected to programs aimed at reducing fleet capacity, but the overall fishing capacity has not been sufficiently reduced to date. In fact, the EU has failed to meet the sustainability objectives laid out in the CFP. Too many boats continue to chase too few fish; subsidies have contributed to this.

Likewise, it remains a challenge to align the respective management and control systems in such a way that fisheries subsidies do not cause harm to fish resources, which would require an improvement of the regulatory framework.

RECOMMENDATIONS

- Support to the fisheries sector should be subject to the achievement of the objectives of the CFP and to the fulfilment of reporting requirements by Member States. Thus, non-compliance with the CFP rules should have an effect on the availability of funds.
- More efforts on the fostering transparency are needed to assess the extent to which the subsidy helps to achieve the objectives of the CFP.
- Potentially good subsidies shall be fostered, such as participation in the monitoring and control regime of fisheries; scientific research for stock assessments; reduction of impacts on marine habitats and ecosystems; research and training in the use of environmentally friendly fishing techniques or aquaculture activities; and retraining fishermen for alternative employment opportunities.
- Potentially harmful subsidies shall be phased out, such as contributions to operating costs, processing activities or price support; aid for individual fishing operations and vessel modification; and payments for fishing access in third country waters.

Conclusion

EU subsidies in the fields of agriculture, cohesion policy, transport, energy and fisheries have unintended harmful effects in the environment. The results of this study suggest a more detailed assessment that would eventually lead to a phasing out of environmentally harmful subsidies. To this end, it is necessary to assess in depth the direct and indirect effects of current EU subsidy framework and proceed to reform. The EHS reform tools could be a good basis for the proposed assessment (for more information see Valsecchi et al., 2009).

A study drawing on country-specific research and expertise within Member States points out that "(t)here is general recognition that the structure of the budget does not reflect the EU's political objectives and policy priorities. In broad terms, the consultation indicates a need for increased spending on the environment, energy and competitiveness, research and knowledge – as well as greater cross-policy coherence in meeting EU goals in these areas (...)" (Bachtler et al., 2009).

The assessment of several budget items has highlighted the need of more transparency in terms of sound information and monitoring of the impacts of policies. The European Transparency Initiative (European Commission, 2006b; 2007h), which among other issues addresses the management and use of Community funds, could be the basis for this task. Likewise, there is a need to improve monitoring systems and to increase reporting efforts from Member States. This could improve decision-making and enable a more efficient assignment of economic resources.

The current economic situation provides a good opportunity to change trends and carry out a shift from environmentally harmful subsidies towards subsidies that could support the EU2020 vision. Investments on environmentally friendly-agriculture, energy and resource efficiency, renewable energies, sustainable mobility, eco-friendly technologies, etc. could improve competitiveness and increase employment in sectors that are considered to be crucial in the short, mid and long term.

RECOMMENDATIONS

- Carry out a full EHS reform tool analysis of the critical budget titles in order to provide clear and well-founded recommendations for political action to remove unsustainable elements of the EU budget. When granting funds, the EU should ensure that the environmental pillar is not undervalued in benefit of other interests, creating thereby win-win situations.
- Increase the efforts in fostering sound information and transparency in line with the European Transparency Initiative.
- Encourage Member States to increase their effort in reporting so as to improve the assessment of the effectiveness of the funds notably with respect to Structural and Cohesion Funds and fisheries, and to provide thereby the necessary information to allow an effective allocation of funds.

1. INTRODUCTION

Subsidies are a pervasive phenomenon interconnected directly or indirectly to most of the consumption and production activities that take place in our daily lives. Sectors such as agriculture, energy, water, transport, manufacturing, forestry or fishery benefit from support given by national governments that in principle seek to achieve laudable objectives, but that in many cases ends up having environmentally harmful side-effects (OECD, 2005) and often benefiting powerful rather than needy groups (Myers and Kent, 2001).

Currently there are no universally accepted definitions of what subsidies and environmental harmful subsidies (EHS) are. The existing definitions depend on the perspective and characteristics of the assessments and so do the issues covered⁴ (e.g. on-budget subsidies, off-budget subsidies, internalisation of externalities, etc.). A number of studies have examined environmentally harmful subsidies in recent years, for example Valsecchi et al. (2009), FÖS (2008), IEEP et al. (2007), Brunner and Huyton (2007), OECD (2005) and Kjellingbro and Skotte (2005). Valsecchi et al. (2009) provide the following definitions for EHS, based on the previous work of the OECD (1998; 2005):

“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.”

“All other things being equal, the [environmentally harmful] subsidy increases the levels of output/use of a natural resource and therefore increases the level of waste, pollution and natural exploitation to those connected.”

The use of subsidies is not new in the economy. Historically governments have tended to manipulate market prices through the use of subsidies in order to support economic sectors, institutions, business or individuals in the development of activities that otherwise would have developed unfavourably. Public institutions have mainly addressed economic and social aspects through the application of subsidies, but since the first UN Conference on the Human Environment (Stockholm 1972) and the increasing prominence of the concept of sustainable development, the importance of the environmental dimension is constantly growing and is currently an important motivation for the assignment of subsidies (van Beers and de Moor, 2001).

Government intervention in markets usually has a laudable motivation targeted at increasing the welfare of society. Examples of motivations behind subsidies include the protection of national sectors from external competition, the support of employment and income of some population segments, etc. (Barde and Honkatukia, 2003). Unfortunately, subsidies do not always fulfil the intended purpose and have negative side effects. In this vein, these actions can result in failures that have counterproductive effects in regard to other policies aimed at correcting market failures or in unintended negative welfare effects that are larger than the positive welfare effects achieved by the subsidy (van Beers and de Moor, 2001). Examples of these subsidies include:

1. agricultural subsidies that foster an intensive model of agriculture often connected to loss of biological diversity and harmful emissions into soil, air and water;
2. energy subsidies promoting CO₂-emissions;

3. subsidies for fisheries that contribute to overcapacities in fishing fleets and thus, endangering local fish populations;
4. transport subsidies that promote unsustainable means of transport, etc.

Subsidies are not inherently bad. There are subsidies that, for instance, support the development of renewable energies, foster environmentally friendly agriculture or promote sustainable means of transport. Nevertheless, this expenditure is usually inefficient, as these measures need to counteract the environmental damage caused by the EHS. This fact reduces the overall environmental gain of the application of subsidies (Barde and Honkatukia, 2003).

1.1. Subsidies as a pervasive phenomenon

There is no agreement on the total monetary value of subsidies throughout the world. Differences arise not only due to the lack of an agreed definition for the term subsidy, which in fact changes between sectors and countries, but also for the limitation of complete data and for a common accounting framework that would increase the comparability of different estimations across sectors and countries. Steenblik argues that efforts should be increased to provide practical criteria to support the quantification of subsidies rather than to argue for a conceptually perfect definition (IEEP et al., 2007). The OECD is currently working on a common reporting framework that will support the partial overcoming of these barriers (ibid.).

The OECD estimates that an amount not lower than \$400 billion is given for supporting different sectors in OECD countries. The most recent sectoral data is for 2002 (Barde and Honkatukia, 2003; OECD, 2005). Van Beers and de Moor (2001) estimate the amount of subsidies in OECD countries to be at \$725 billion per year (for the period 1994-1998) and \$1,065 billion for the whole world. This represents about 4% of the world GDP. The structural differences of the public support given to different sectors are shown in Table 1.

Table 1: Estimates of the annual public subsidies for the period 1994-1998

	billion \$	OECD	Non-OECD	World
Natural resource sectors				
Agriculture		335	65	400
Water		15	45	60
Forestry		5	30	35
Fisheries		10	10	20
Mining		25	5	30
<i>Subtotal</i>		390	155	545
Energy and industry sectors				
Energy		80	160	240
Road transport		200	25	225
Manufacturing industry		55	negligible	55
<i>Subtotal</i>		335	185	520
<i>Total</i>		725	340	1,065
Total in % GDP		3.4	6.3	4.0

Source: van Beers and de Moor (2001).

⁴ For more information on the issues covered by the definitions given by ESA, WTO or OECD see IEEP et al. (2007).

As mentioned above, many of these subsidies have unwanted environmental effects and do not achieve their intended aim. This situation results in an inefficient allocation of resources that could otherwise be used in other ambits. For instance, the amount of 4% GDP (van Beers and de Moor 2001) dedicated to subsidies is much higher than the Official Development Aid (OECD, 2007). It is also higher than the required investment (1% GDP during the next 2 years) to “seed a significant greening of the global economy” in the context of UNEP’s Green New Deal (UNEP, 2009) or the needed investments to stabilise the atmospheric CO₂ concentration at 500-550ppm (annual 1% GDP until 2050) (Stern, 2007).

1.2. Political commitments to remove EHS

The problem of EHS is not new, neither is the aim of removing them. For example, in 1987 the World Commission for Environment and Development mentioned in *Our Common Future*, also known as the Brundtland report, the distortions in the environment caused by EHS. Since then, the concept of sustainable development has increasingly gained importance within and out of the EU and has thus become a guiding principle of major policies at EU and country level.

The importance of the removal of EHS from policies has had major recognition at all scales during the last decade. The UN highlighted in the formal output of the UN World Summit for Sustainable Development of Johannesburg in 2002 the need to “reform of subsidies that have considerable negative effects on the environment and are incompatible with sustainable development” (UN, 2002). In this line, the OECD called in its environmental strategy for a fiscal reform that would enable the removal of the EHS (OECD, 2001).

Also the EU is has made the removal of EHS a political objective. In this vein, the 6th Community Environmental Action Programme, which covers the period 2002-2012, took the same objective (European Communities, 2002). The Integrated Guidelines for Growth and Jobs (2008-2010) and the recently launched EU 2020 Strategy through its Flagship Initiative on Resource Efficient Europe also call for a reform to progressively eliminate the EHS (European Commission, 2007a; 2010a). The Strategy also emphasises the need to “improve the effectiveness and efficiency of the existing EU budget through stronger prioritisation and better alignment of EU expenditure with the goals of the Europe 2020” as the budget “must play a central role in achieving the EU2020 objectives” (European Parliament, 2010).

The Commission has taken the first steps in phasing out the EHS through the reform of fisheries policy and as part of the CAP health check (European Commission, 2009a). Other actions include the call for developing a roadmap for a sectoral reform of the EHS aimed at phasing out EHS (European Council, 2006; European Commission, 2007b) and the recommendation to develop an indicator representing relevance of EHS, which would be part of the so-called Sustainable Development Indicators (Eurostat 2007; 2009). Efforts of the EU also include the funding of studies on the possibilities and barriers for removing the EHS (see for example IEEP et al., 2007; Valsecchi et al., 2009).

More recently the Council conclusions of 20 December 2010 (European Council, 2010) have reiterated its “longstanding invitation to the Commission to present a roadmap for the removal of subsidies that have considerable negative effects on the environment so as to allow the monitoring and further regular reporting on progress from 2011 onwards, taking into account the Europe 2020 Strategy”.

1.3. Changing unsustainable trends

The call for the phasing out of EHS is unanimous within government institutions at all levels (e.g. UN, OECD, WTO and EU) and civil society organisations (see for example EEB 2004a; 2004b; FoE, 2010; BirdLife Europe, 2010). But if there is an apparent consensus on the need to remove EHS, what is hindering the process?

Van Beers and de Moor (2001) identify three types of obstacles (economic, political and institutional) that hamper the removal of EHS and thus, the extent of what they refer to as the *addiction to subsidies*. The effectiveness of the barriers depends on the nature of the subsidy and on the level of economic development.

The **economic barriers** are the result of the so-called rent-seeking behaviour and of high adjustment costs. The subsidisation of an activity often induces the recipient to increase the production and the investment in order to maximize its benefit, which makes him dependent on the subsidy. In these cases, the removal of the subsidy will have important adjustment costs that might lead to bankrupt or to the need to further increase the production level in order to adapt to the new situation.

Political barriers arise when rent-seeking behaviour leads to the consolidation of powerful groups (lobbies) that will oppose to a reform that decreases their profit. A subsidy reform makes visible the losers (the recipients), but does not clearly expose all the potential beneficiaries, which creates imbalances on the incentives to defend each group's interests. Furthermore, the removal of subsidies might also have negative effects on international competitiveness of national companies and therefore on employment.

Institutional barriers are often motivated by the aim of governments to get political support from the lobbying groups, which are an important piece of political stability.

Efficiently reforming or assigning a subsidy is not an easy task. The unintended side effects and the barriers that arise after the earmarking of subsidies show that it is essential to assess the interlinkages between the economy, the society and the environment.

The way of carrying out the reform is also a complex issue. EHS can be addressed separately or in a broader context that would also include the greening of the tax base through an environmental fiscal reform, "shifting the tax burden from welfare-negative taxes (on labour, capital, consumption) to welfare-positive taxes (on environmental externalities), and on reforming subsidies, some of which are harmful to the environment and may have outlived their original purpose" (EEA, 2006a).

The current economic situation in the aftermath of the financial crisis requires the assessment of the past and the choice of the future (economic) development path. Many countries within and outside the EU are currently limited by high public deficits, which might create the momentum for cutting environmentally harmful subsidies and thus, for alleviating overburdened budgets.

1.4. Scope of the assessment

This report identifies the key terms of the EU sectoral policies that will support decision-making in the context of a hypothetical reform of subsidies that do not meet the criteria of sustainability. Explicitly, the scope is set on on-budget subsidies.

The on-budget approach comprises subsidies that are visible in the EU budget as public expenditure and includes measures such as direct and potential transfer of funds (e.g. grants, loans in non-market conditions, coverage of liability, etc.) and provision of goods and services.

It is important to bear in mind that off-budget measures such as tax exemptions, internalisation of externalities or preferential market access⁵ lie out of the scope of this paper.

The quantification of subsidies and the assessment of their effects are usually carried out in a sectoral basis due to the limitations of national accounts for analytical purposes (OECD, 2005). Nevertheless, this approach also has its own limitations (e.g. lack of a consistent definition across sectors and countries, which hinders comparability and economy-wide assessments; disparities that relate to coverage, systems of classification, and measurement methods, etc).⁶

Determining the environmental effects associated to public financial support is a major challenge due to the complex linkages between subsidies and the environment. Existing assessments of the environmental performance of subsidies do not allow direct comparisons due to different models, assumptions and data (ibid.).

Valsecchi et al. (2009) is the most recent report that tests three OECD tools developed for the identification and assessment of EHS and provides methodological recommendations for their future use in policy making. While these OECD tools were not presented as an authoritative methodology, they are among the most widely respected tools for the identification and assessment of EHS (general definitions of these tools and their strengths and weaknesses are provided in Annex 1):

- Tool 1 - the 'quick scan'
- Tool 2 - the 'checklist'
- Tool 3 - the 'integrated assessment framework'

Likewise, the EEA has developed several sectoral sets of indicators that support the assessment of the link between subsidies and the environment. These include indicators for the agricultural, transport and energy sectors (see Annex 1).

The report covers the main sectors that benefit from public support and that, at the same time, are linked to the main unwanted side effects caused by the so-called environmental harmful subsidies. The chapters are sorted according to the weight that each sector has in the EU budget (see Table 2):⁷

- Agriculture
- Structural and Cohesion Funds
- Transport
- Energy
- Fisheries

⁵ See IEEP et al. (2007) for a complete list of public support measures covered by the off-budget approach.

⁶ See OECD, 2005 for more information.

⁷ A more detailed description of the EU budget can be seen at: <http://eur-lex.europa.eu/budget/www/index-en.htm> [16.02.2011]

Table 2: EU 2011 draft budget

million €	Budget 2010 (1)		New draft budget 2011		Difference	
	CA ⁸	PA ⁹	CA	PA	CA	PA
1. Sustainable Growth	64,249.4	47,714.1	64,501.2	53,328.2	0.4%	11.8%
<i>Margin (2)</i>			-27.2			
— Competitiveness for growth and employment	14,862.9	11,343.3	13,520.6	11,645.8	-9.0%	2.7%
<i>Excluding energy projects to aid economic recovery (EERP)</i>	<i>12,882.9</i>	<i>10,315.8</i>	13,520.6	11,620.6	5.0%	3.0%
<i>Margin (2)</i>			-33.6			
— Cohesion for growth and employment	49,386.6	36,370.9	50,980.6	41,682.5	3.2%	14.6%
<i>Margin</i>			6.4			
2. Preservation and Management of Natural Resources	59,498.8	58,135.6	58,659.2	56,409.3	-1.4%	-3.0%
<i>Margin</i>			1,678.8			
3. Citizenship, Freedom, Security and Justice	1,687.5	1,411.0	1,821.9	1,460.2	8.0%	3.5%
<i>Margin</i>			67.1			
— Freedom, security and justice	1,006.5	738.6	1,139.0	814.3	13.2%	10.2%
<i>Margin</i>			67.0			
— Citizenship	681.0	672.4	682.9	646.0	0.3%	-3.9%
<i>Margin</i>			0.1			
4. EU as a Global Player	8,141.0	7,787.7	8,754.3	7,249.0	7.5%	-6.9%
<i>Margin (3)</i>			-70.4			
5. Administration	7,908.0	7,907.5	8,081.7	8,080.4	2.2%	2.2%
<i>Margin (4)</i>			334.3			
Total	141,484.8	122,955.9	141,818.3	126,527.1	0.2%	2.9%
Excluding energy projects to aid economic recovery	139,504.8	121,928.4	141,818.3	125,502.1	1.7%	2.9%
<i>Margin (5), (6)</i>			1,982.6	7,934.9		
Appropriations as % of GNI	1.17%	1.02%	1.13%	1.01%		

(1) Budget 2010 includes amending budgets 1 to 7.

(2) The margin for heading 1a does not take into account the appropriations related to the European Globalisation adjustment Fund (€500 million).

(3) The margin for heading 4 does not take into account the appropriations related to the Emergency Aid Reserve (€253.9 million).

(4) For calculating the margin under the ceiling for heading 5, account is taken of the footnote (1) of the financial framework 2007-2013 for an amount of €82 million for the staff contributions to the pension's scheme.

(5) The global margin for the commitments does not take into account the appropriations related to the European Globalisation adjustment Fund (€500 million), the Emergency Aid Reserve (€253.9 million) and to the staff contributions to the pension's scheme (€82 million).

(6) The global margin for the payments does not take into account the appropriations related to the Emergency Aid Reserve (€100 million) and to the staff contributions to the pension's scheme (€82 million).

Source: European Commission, 2010b.

⁸ Commitment appropriations

⁹ Payment appropriations. The difference between both concepts is explained in http://ec.europa.eu/budget/other_main/glossary_en.htm [10.02.2011]

The Common Agricultural Policy (CAP) is included under section 2 (preservation and management of natural resources) and comprises market related expenditure and direct aids (€42.5 billion) and expenditure on rural development (€14.4 billion) in 2011. Fisheries (ca. 1 billion) are also part of this section.

Structural and Cohesion Funds (€51.0 billion) are included under heading 1b (cohesion for growth and employment). Transport (> €13.7 billion) and energy (> €2.8 billion) expenditure is related to several headings of the budget, being Structural and Cohesion Funds the largest contributor (see cf. Chapter 3).

In-depth analyses of the individual EU budget titles are beyond the scope of the present analysis.

2. AGRICULTURE

KEY FINDINGS

- The 2003 CAP reform transferred a large part of the most environmentally harmful subsidies by decoupling agricultural support and production. This reduced incentives for over-production and intensification of farming methods. Ultimately, this helped to reduce negative environmental impacts.
- The orientation of the decoupled payments towards historic production levels however particularly favours large and intensive producers instead of small farm units with traditional farming methods that can support the delivery of environmental benefits.
- The environmental benefits of cross-compliance standards are disproportionately small as compared to the provided payments. Their effectiveness is difficult to assess due to missing measurable targets or output monitoring.
- The basis payment should only be paid if farmers fulfil the requirements linked to the environmental component beyond the existing cross-compliance standards.
- It has to be evaluated whether the rest of coupled payments do not cause high levels of environmental pressure.
- Considering the need to spend public money for public goods, the basic payments should be linked to the payments that remunerate the provision of public goods and maintain the natural capital. The remunerated public goods should be extended and take into consideration a higher variety of public goods provided by agriculture.
- The options provided by the CAP are a good start but need to be developed further and implemented appropriately. To support this, an improved strategy to reduce harmful subsidies is necessary.

2.1. Introduction

2.1.1 Importance of the Common Agricultural Policy

The policy areas of agriculture and rural development fall under heading 2, "Preservation and Management of Natural Resources", in the financial framework for the enlarged EU (2007-2013). Approximately €413.1 billion have been designated to this policy area¹⁰, which represents 42% of the total EU budget and therewith the second largest portion of the EU budget.¹¹ In detail, heading 2 includes the common agricultural and fisheries policy (CAP and CFP), rural development (so-called second CAP pillar) and environmental measures. However, the biggest share of the CAP is dedicated to market related expenditures and direct payments from the so-called first pillar of the CAP and account for €330.1 billion (80 % of the total budget).

¹⁰ Table under http://ec.europa.eu/budget/prior_future/fin_framework_en.htm [19.01.2011]

¹¹ Largest EU budget (45%) is spent on heading 1, "Sustainable Growth (comprising competitiveness and cohesion components)".

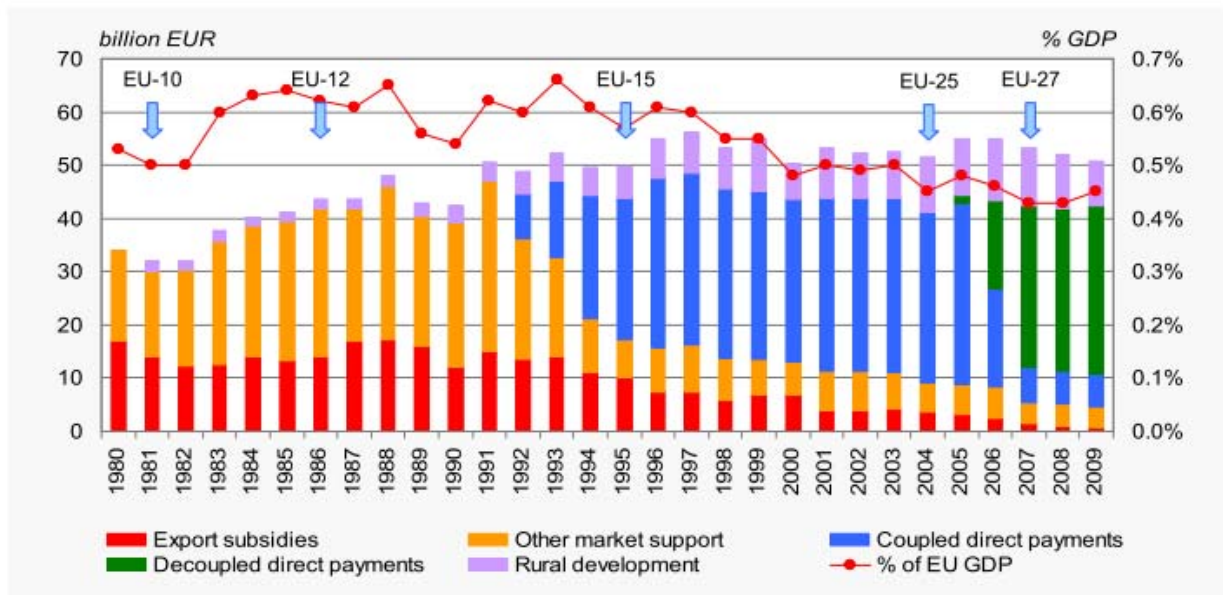
The CAP is of great importance because it not only represents one of the most important items in terms of the total EU budget, but it also directly impacts and is linked with the environment. Agriculture can potentially have many negative effects on the environment, such as polluting ground water, exaggerating soil erosion and compaction, or causing a loss of biodiversity; at the same time, however, agricultural productivity depends on environmental conditions, for example soil quality and water availability. As such, there are many links between the CAP and the specific goals of EU environmental policy.

2.1.2 Characteristics of the 2003 CAP Reform and the 2008 "Health Check"

The 2003 CAP Reform replaced the majority of direct subsidies with a new system of direct payments, the Single (Farm) Payment Scheme (SPS) in the first CAP pillar. This new scheme is decoupled from agricultural production subject to "cross-compliance" conditions relating to environmental, food safety and animal welfare standards. The second CAP pillar was strengthened with the introduction of a compulsory modulation, shifting funds for bigger farms from the first to the second CAP pillar. As the first CAP pillar payments are still partially coupled with production, modulation also contributes to a shift of the CAP subsidies into the Green Box¹² (Brunner and Huyton, 2007). The new rural development policy (second CAP pillar)¹³ has a stronger emphasis on the environment and identifies biodiversity protection as a key objective.

This reform held the most importance for the environment. It decoupled agricultural support from production, thereby removing the perverse incentive to over-produce and subsequently cause environmental damage. The proportion of the budget used for market support (cereals, sugar, beef and milk) and export subsidies has decreased, whilst the amount for direct aid to producers and rural development has increased.

Figure 1: CAP expenditure and CAP reform path (2007 constant prices)



Source: European Commission, 2010c and http://ec.europa.eu/agriculture/cap-post-2013/graphs/graph2_en.pdf [19.01.2011]

¹² i.e. subsidies that are considered to be non trade distorting.

¹³ Council Regulation (EC) No. 1698/2005.

A further reforming step was taken in November 2008, when the EU agriculture ministers reached a political agreement on the “Health Check” of the CAP. In addition to abolish arable set-aside, increase milk quotas gradually leading up to their abolition in 2015, and convert market intervention into a genuine safety net, also new environmental challenges and opportunities faced by European agriculture were identified. These include agriculture, including climate change, the need for better water management, the protection of biodiversity, and the production of green energy. In order to better respond to these challenges, ministers also agreed to increase modulation, whereby direct payments to farmers are reduced and the money transferred to the Rural Development Fund.

2.1.3 Types of subsidies and funding instruments for the agriculture sector

The current first CAP pillar concentrates on providing basic income support to farmers, giving them greater freedom to produce in response to market demands; the second CAP pillar supports agriculture as a provider of public goods in its environmental and rural functions.

The first CAP pillar includes all market support mechanisms, such as export subsidies and intervention, but principally consists of decoupled and partially coupled direct payments. Most of the CAP budget is now spent on decoupled payments and direct aid, while market and export support (which previously received the bulk of CAP expenditures) captured only 9% of the CAP budget in the period from 2007-2009. Support under rural development has also been steadily increasing, representing 19% of the total CAP budget from 2007-2009 (European Commission, 2010c).

While the first CAP pillar is entirely financed by the EU budget, the second CAP pillar is co-financed.

Direct payments

Decoupled direct payments are currently the major form of EU funding in agriculture (see Figure 1). As a result of the introduction of the Single Payment Scheme (SPS), the majority of the support provided to the different sectors was transferred between 2005 and 2006 from the common market organisations (CMOs) to the new system of direct payments. The SPS mainly aims to guarantee stable incomes for farmers. To receive the SPS, the farmers must meet certain standards in the areas of environmental protection, animal welfare, food safety and land condition and ensure that there is no significant reduction in permanent pasture as a percentage of their total agricultural area (cross-compliance mechanism). With the new system, farmers can adjust their levels of production to address the level of demand, i.e. they can react to market signals. The entitlements for the single payments are calculated on the basis of the payments received by the farmers during a reference period (2000-2002) (basic/historic approach) or they can be determined based on area (the number of eligible hectares farmed during the first year of implementation of the scheme (regional/flat rate approach)); alternatively, a combination of both models may also be used.¹⁴ The majority of the Member States chose the historic allocation model (European Commission, 2010d). Average payments are between €200 and €300 per ha, although they can reach approximately €700 per ha in France for farmers that grew sugar during the reference period, or even more for tobacco related support (Brunner and Huyton, 2007).

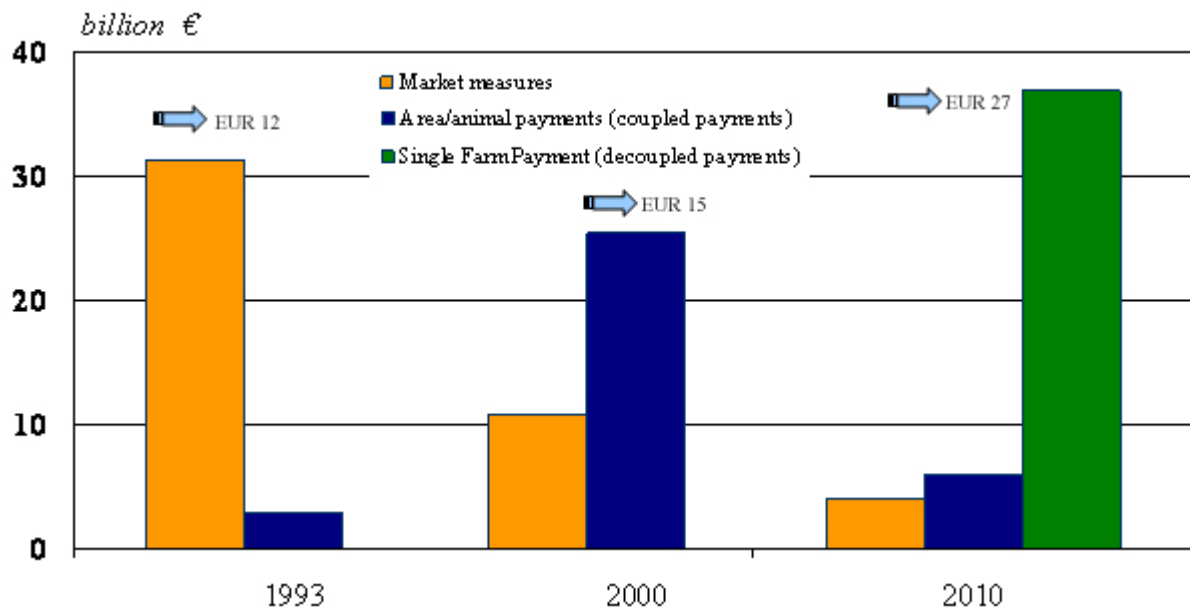
¹⁴ For more detailed information see also Annex 2.

A simplified scheme, the Single Area Payment Scheme (SAPS), was proposed for the new Member States; ten states have implemented this scheme to date. SAPS involves the payment of uniform amounts per eligible hectare of agricultural land up to an agreed upon national ceiling. The SPS is being phased in over a ten-year period in the new Member States and will be fully implemented by 2013.

Market measures

In addition to single payments, Member States may decide to reduce the value of their payment entitlements and continue to make direct payments linked to production under certain limited conditions.¹⁵ These additional aid schemes only have a minor impact on agricultural expenditure and, regardless, there will be only very few coupled payments left after 2012.¹⁶ These other specific support schemes are linked to the area under crops or to production and have been introduced or maintained for the following products: protein crops, rice, nuts, starch potatoes, milk and milk products, seeds, cotton, olive groves, fruit and vegetables, soft fruits, beef and veal; there is a separate payment for sugar for those new Member States applying the SAPS. Traders and processors can, in certain circumstances, receive export refunds as well as processing and transformation subsidies. In addition, the so-called 'Article 68 measures' provide assistance to sectors or regions having particular difficulties.¹⁷

Figure 2: Structure of direct payments and market measures in 1993-2010



Source: http://ec.europa.eu/agriculture/markets/sfp/index_en.htm [19.01.2011]

¹⁵ Up to 25% of the payments for cereals and up to 100% for suckler beef to avoid land abandonment.

¹⁶ Only some payments for goats, sheep and suckler cows, themselves subject to tight thresholds and conditions, as well as some payments for cotton will continue to be linked to production.

¹⁷ http://ec.europa.eu/agriculture/grants/index_en.htm [20.01.2011]

Rural development measures

Under the Rural Development Regulation (Council Regulation (EC) No. 1698/2005), the second pillar of the CAP will contribute over €96 billion to Member States from 2007 to 2013 and is focused on three commonly accepted core policy objectives:

- improving the competitiveness of the agricultural and forestry sectors (axis 1);
- improving the environment and the countryside (axis 2); and
- improving the quality of life in rural areas and encouraging a diversification of the rural economy (axis 3).

Three thematic axes correspond to the three core objectives in the rural development programmes. The thematic axes are complemented by a methodological, i.e. LEADER, axis 4. The LEADER axis introduces funding opportunities for locally based approaches to rural development.

Expenditure under the Rural Development Regulation receives much less support than the first CAP pillar, although it is slightly increasing. The range of rural development measures includes: agri-environment, forestry, processing and marketing of agricultural products, training and development, and less favoured area support. To secure European funding for measures under the second CAP pillar, Member States (or regions within them) are required to prepare a Rural Development Plan which then have to be approved by the Commission.

Main funding instruments

Agricultural expenditures are financed by two funds, forming part of the EU's general budget:

- the European Agricultural Guarantee Fund (EAGF) finances direct payments to farmers and measures to regulate agricultural markets such as intervention and export refunds, and
- the European Agricultural Fund for Rural Development (EAFRD) finances the rural development programmes of the Member States.

2.1.4 Current CAP debate (CAP post-2013)

The Communication of the Commission "The CAP towards 2020" (European Commission, 2010e) of 18 November 2010 outlines options for the future CAP and opened the debate to other institutions and stakeholders. The legal proposals are foreseen for 2011.

The Communication outlines three options for further reform.

Option 1: Do nothing: It would leave the current direct payment system unchanged. It suggests "more equity in the distribution of direct payments between Member States". Slight changes are proposed for the market management system (e.g. intervention) and risk management tools and the rural development programmes (the second CAP pillar) will also be strengthened in an effort to deal with climate change and renewable energy.

Option 2: Gradual reform (compromise option): It would reshape the direct payment system to make the level of direct payments more equal between EU countries. It "introduces a new scheme for small farms", while also considering "the contribution of large farms in rural employment".

Option 3: Radical reform: It would phase out all direct payments and provide limited payments for environmental public goods and for regions with natural constraints. All market management measures such as intervention and import levies would be abolished.

2.2. Environmentally Harmful Subsidies

2.2.1 Definition and Classification of Environmentally Harmful Subsidies

OECD (2005) notes that agriculture is the most advanced sector in terms of in using a widely accepted definition of the term 'subsidy'.¹⁸ Annually, the OECD produces the total producer support estimate (PSE), providing a measure of subsidies that is comparable across countries. The PSE measures the annual monetary value of gross transfers from consumers and taxpayers to support agricultural producers at the farm-gate level. OECD measures government support to agriculture in the European Union and other major economies using indicators such as Producer Support Estimates (PSE) and Consumer Support Estimates (CSE).¹⁹



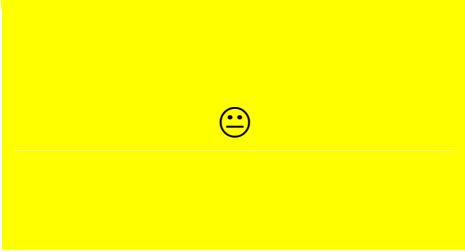


2.2.2 Assessment of Environmental Impacts

Subsidies can have negative effects on the environment that are unforeseen, undervalued or ignored in the policy process. The checklist for environmentally harmful subsidies developed by the OECD together with the existing analytical and empirical work on the relative environmental impacts of subsidies, as presented in the OECD report (2005), provides a good basis for an initial identification of environmentally harmful subsidies. The checklist focuses on two interrelated issues: the effects of subsidy removal on the decisions of consumers and producers and the linkages between those decisions and the environment. It is assumed that all production and consumption activities have potential impacts on the environment. The OECD study (2005, on the basis of OECD, 2002a) indicates the relative potential impacts of producer support measures in agriculture on the environment. It lists the main categories of PSE measures that can be ranked according to their relative impacts on the environment (see Table 3; for more detailed information, also see Annex 2).

¹⁸ General definition of the environmentally harmful subsidy and the definition of the agriculture subsidies are provided in Annex 2.

¹⁹ Producer and Consumer Support Estimates OECD database, URL: http://www.oecd.org/infobycountry/0,3380,en_2649_33773_1_70405_119656_1_37401,00.html [16.02.2011], http://www.oecd.org/document/59/0,3746,en_2649_33797_39551355_1_1_1_37401,00.html [16.02.2011]

Table 3: Main categories of PSE measures and their relative impacts on the environment

PSE measure	Impact on producer	Potential impact on environment
Market price support and payments based on output	Increase the price received by producers for a specific commodity	
Payments based on input use (such as pesticides and chemical fertilisers)	Reduce the cost of inputs used by producers	
Payments based on area planted/animal numbers	Reduce the cost of land/livestock for current plantings/animal numbers No encouragement to increase yields and to produce as intensively as with the measures above	
Payments based on historical entitlements ²⁰ or on overall farming income ²¹	No obligation to plant, own animals, or produce any particular commodities	
Payments based on input constraints	Foster reduction, replacement or withdrawal on the use of inputs often for environmental purposes	

Source: Adapted from OECD (2005 on the basis of 2002a).

According to the OECD (2005), agricultural subsidies such as market price support, output payments and input subsidies are considered the most harmful forms of subsidies for the environment.

²⁰ i.e. past support, area, animal numbers, production, or income.

²¹ Paid on the condition that the overall farmers' income is below a pre-defined level.

Box 1 : Subsidies for the raw tobacco sector**Subsidies for the raw tobacco sector**

According to a survey conducted by the Gallup Organisation (2009), about 26% of EU citizens smoke in a daily basis. Moreover, 14% of non-smokers are usually exposed to other people's tobacco smoke at home and 20% near the work place for more than an hour a day. In fact, tobacco "is the single largest cause of avoidable death" as it is responsible of about 15% of all deaths in the EU (ibid.). In this context, it is striking the inconsistency between subsidizing a product that collides with public health protection and funding campaigns to increase public awareness of the harmful effects of smoking.²²

The Commission recommended in its proposal for the Sustainable Development Strategy (SDS) to phase out tobacco subsidies and to assess alternative work activities for the workers affected (European Commission, 2001). In 2004 the Council of EU Agricultural Ministers decided to undertake changes in the raw tobacco sector in line with the CAP reform of June 2003. Hence, a partial decoupling between financial support and production was programmed for the period 2006-2009²³, while a complete decoupling was mandatory from 2010 on, which would allow farmers to grow other products and at the same time maintain stable incomes. In this vein, a 50% of the support given to the raw-tobacco sector will be incorporated into the single payment, while the other 50% will be shifted to rural development programmes, particularly in regions affected by the tobacco reform.²⁴

In general terms, the last reforms of the Common Agricultural Market have contributed to the reduction of tobacco cultivated area and production. Nevertheless, the EU tobacco production grew 15% in 2008, due to changing conditions on the world tobacco market and increasing payments done by the industry. This growing trend suggests that farmers might be able to grow tobacco without the need of subsidies by 2013. However, the reform should be adjusted to address the potential loss of employment as it "lacks clearly any measure for the employees" (for detailed information see Kiele et al., 2009).

Since 2006, the European Commission adopted 28 agri-environmental indicators that aim to address specific questions regarding agricultural driving forces, pressures and benefits, the state of and impact on habitats and biodiversity as well as agri-environment policy responses. The intention is to gain a better understanding of whether policy or production changes threaten environmental conservation goals or if they positively impact the preservation and betterment of environmental resources. At present, the level of development of the indicators varies greatly. While six are already operational and have produced clear data, others are still under development. Therefore, trends and patterns within the indicator set as a result of modifications within the CAP cannot yet be identified for all indicators. Available results and overarching patterns to date are outlined in Annex 2.

²² The EU earmarked up to €17 million per year for the so-called Community Tobacco Fund, which funds campaigns to increase public awareness of the harmful effects of tobacco consumption as well as research into the production of less harmful tobacco varieties projects to shift tobacco production resources to other crops.

²³ Due to the fast decoupling of some countries, the budget for tobacco subsidies declined from €922 million in 2005 to €321 million in 2007 (European Commission, 2008a).

²⁴ http://ec.europa.eu/agriculture/markets/tobacco/index_en.htm [24.02.2011]

2.3. Conclusions and recommendations

The 2003 CAP reform transferred a large part of the most environmentally harmful subsidies, namely the market support payments, to payments based on historic entitlements or area and linked to cross-compliance standards. The decoupling of agricultural support and production reduces incentives to over-produce and intensify farming and, in this way, potentially reduces negative environmental impacts. However, the orientation towards historic production levels particularly favours those companies that have historically produced intensively and industrially (FÖS, 2008; Brunner and Huyton, 2007). Furthermore, the environmental criteria have not been considered in the calculation of direct payments, and farmers who reduced production during the reference period as part of environmental scheme may have lost the entitlements. In this way, the single payment scheme supports producers who had the most intensive practices during the reference period instead of redistributing funds to small farm units and the delivery of environmental benefits via traditional farming.

One can argue that linking the receipt of direct payments with cross-compliance requirements enhances the maintenance of environmental, food safety, animal and plant health and animal welfare standards in farming practices. In this case, the payments are based on input constraints and are considered to be the most environmentally effective producer-support measure. However, studies show that the demands placed on farmers as a result of these minimum standards and consequently the benefits they deliver are disproportionately small as compared to the provided payments (Brunner and Huyton, 2007); furthermore, the effectiveness of this instrument is dependent upon its implementation in the Member States and, to date, is difficult to assess due to missing measurable targets or output monitoring (European Court, 2009).

Considering the above aspects, it becomes evident that the main aim of the direct payments scheme is to support and improve farmer incomes. However, several studies (Dewbre, 2002; OECD, 2002b) show that securing farm income through area based payments is not very effective, as only 47% of the monetary transfers go to increasing net farm incomes. Almost all of these designated funds (98%) may be expected to be capitalised into land values.²⁵

The de facto decoupling from production amount is generally slow. Furthermore, to date, the decoupled single payment scheme has not been applied in all agricultural sectors. Even if coupled payments comprise just a small amount of the total EU agricultural budget and guarantee farmers a fixed price (thereby reducing the price risk), they are linked with intensified farming, increased monoculture, increased use of environmentally sensitive land and consequently high levels of pressure for the environment and harmful environmental effects. It has to be monitored if the rest of coupled payments fulfil the tight requirements.

The payments for agri-environment and several other rural development measures fall into the category of payments based on input constraints and are the most environmentally effective. Subsidies that enhance positive externalities cannot be categorised as perverse. However, the budget foreseen for the Axis 2 rural development measures is comparatively low and has to be co-financed by the Member States. In addition, the payments of agri-environmental schemes (AESs), for example, are annual and calculated on the basis of costs incurred and income foregone, with the option of adding up to 20% for what are now known as 'transaction costs' (previously labelled as incentive payments).

²⁵ The capitalisation effect means that the value of land increases as a result of the increased revenue induced by the subsidies. Increased land values raises costs for farmers leasing or buying land and thus reducing the income effect further (Kjellingbro and Skotte, 2005).

This formula is necessitated by the Green Box definition, but fails to recognise the value of the environmental benefits delivered; consequently, it is not always attractive for farmers to enter AESs. In addition, the payments that remunerate the provision of public goods should be extended and take other public goods provided by agriculture into consideration, for example agricultural landscapes, farmland biodiversity, water, soil and air quality, climate stability, resilience to fire and flooding.

Last but not least, the future key priorities of the CAP reform should take into account the principles of simplification, transparency and fairness with regard to the potential beneficiaries and the amount of subsidies given to them.

A first step into that direction has been taken with the recent Commission Communication *The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future* (European Commission, 2010e), which was presented on 18 November 2010, and prepares the ground for the legal proposals to be adopted by the Commission during 2011. The reform aims at making the European agriculture sector more dynamic, competitive, and effective in responding to the Europe 2020 vision of stimulating sustainable growth, smart growth and inclusive growth.

3. STRUCTURAL AND COHESION POLICY

KEY FINDINGS

- The European Structural and Cohesion Funds are most essential to reduce social and economic disparities between the European regions. For the programming period 2007-2013 it comprises €344 billion.
- For the governance and consolidation of the European path to sustainable development the Structural and Cohesion Funds bear large potentials. The volume for projects related to the environment amounts to €105 billion.
- Trade-offs within the instrument and lack of transparency, however, can unfold adverse or conflicting impacts in terms of environmental effectiveness. Various studies classify sections of the Structural and Cohesion Funds as environmentally harmful subsidies, in particular those of road-based transport infrastructures (12% of total Structural and Cohesion Funds).
- The tools for improvement are available in the instrument. Changes in the programming and evaluation processes can contribute to prevent environmentally harmful subsidies derived from the Structural and Cohesion Funds.

3.1. Allocation structure and priorities of Structural and Cohesion Funds

In the programming period 2007-2013, the European cohesion policy will benefit from 35.7% of the total EU budget or approx. €344 billion (European Commission 2010f). The European Regional Development Fund (ERDF) will contribute approx. €200 billion for regional development, economic change, enhanced competitiveness and territorial co-operation; the European Social Fund (ESF) will contribute about €75 billion for employment, social inclusion and tackling discrimination; and the Cohesion Fund will assign €70 billion for environment and transport.

Table 4: Objectives, Structural Funds and instruments, 2007-2013

Objectives	Structural Funds and instruments		
Convergence	ERDF	ESF	Cohesion Fund*
Regional Competitiveness and Employment	ERDF	ESF	
European Territorial Cooperation	ERDF		

*Note: aimed at Member States whose Gross National Income (GNI) per inhabitant is less than 90% of the Community average.

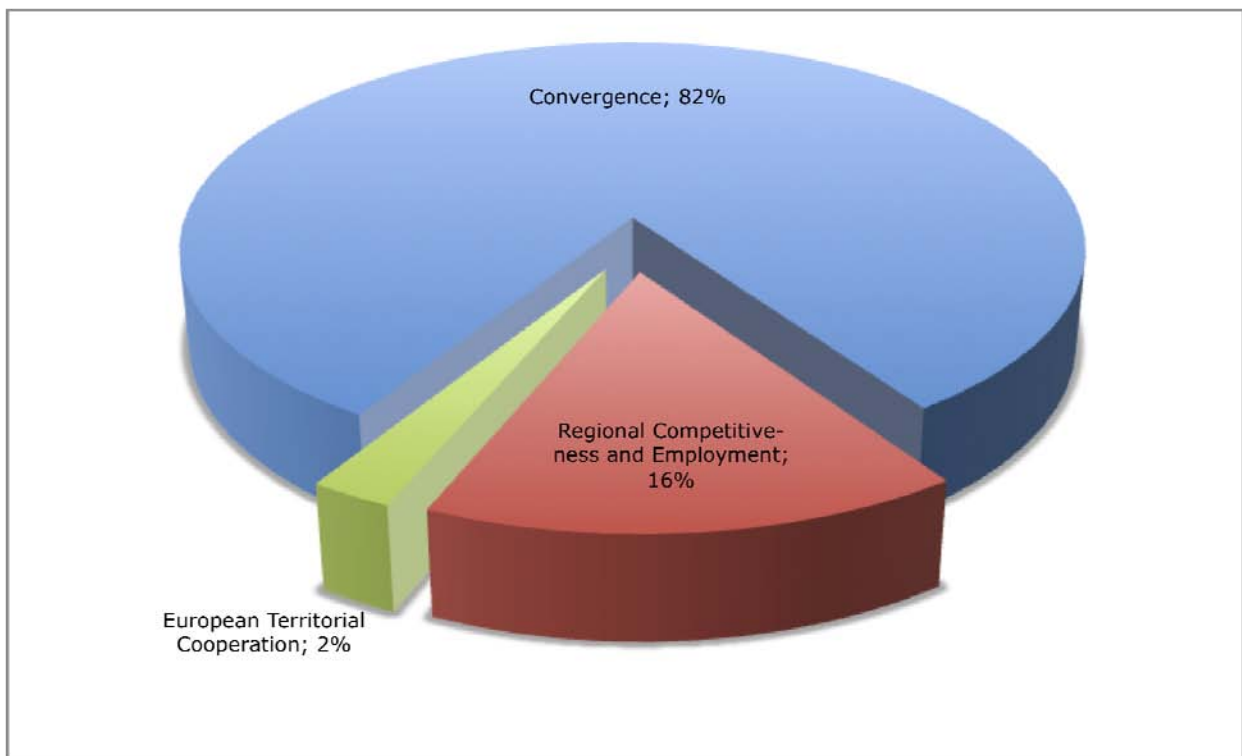
Source: European Commission 2011a.

The cohesion policy for 2007-2013 covers the following priorities:

- 1) *Convergence* (promotion of growth-enhancing conditions and factors leading to convergence for the least-developed Member States and regions),
- 2) Regional *competitiveness* and *employment* (promotion of economic change through innovation and the support of the knowledge society, entrepreneurship, protection of the environment, and improvement of their accessibility)
- 3) Territorial *cooperation*, including cross-border and transnational cooperation (joint local and regional initiatives, and interregional co-operation and exchange of experience) (Nordregio, 2009; European Commission, 2011a).

The allocation by objective is 81.5% for convergence, 16% for regional competitiveness and employment and 2.5% for European territorial cooperation (European Commission, 2007c).

Figure 3: Allocation between themes of Cohesion Policy for 2007-2013



Source: European Commission, 2007c.

For the programming period 2007-2013 the cohesion policy has been stronger aligned with the Lisbon Strategy by determining to earmark large percentages to growth and jobs. The EU15 Member States are committed and the EU12 Member States are asked to select their programmes on a voluntary basis accordingly, i.e. 60% Lisbon earmarking in respect of the Convergence programmes and 75% in respect of the Regional and Competitiveness and Employment programmes. €230 billion are now targeted on Lisbon priorities. During the programming period Member States have to report on the progress by submitting a National Strategic Reports showing how the cohesion policy is contributing to the Lisbon Strategy (European Commission, 2007d). However, as both are two different strategic processes a “governance gap” is acknowledged at present by the Commission (Nordregio, 2009; European Commission, 2010g).

In the Council Decision *Community strategic guidelines (CSG) on economic, social and territorial cohesion, 2007-2013* it is constituted that “cohesion policy should focus to a greater extent on knowledge, research and innovation, and human capital” (European Commission, 2006a) and increase resources accordingly. A second priority is the objective of sustainable development by emphasising the role of the environment in growth, competitiveness and employment. It is assumed that synergies between environmental protection and growth can be strengthened by decreasing the external environmental costs and stimulating innovation and job creation. As a related priority, the requirement “to reduce traditional energy dependency through improvements in energy efficiency and renewable energies” is emphasised (ibid.).

3.2. Methodology of report

In the programming period 2000-2006 the regional policy instruments mainly focused on the European regions lagging behind and the regions that were undergoing structural change at that time (Nordregio, 2009). Both foci were called objective 1 and objective 2 regions. For the programming period 2007-2013, a reform of the regional policy was implemented by introducing the term *territorial cohesion*. The overarching target of the cohesion policy is to reduce imbalances and disparities between the manifold European regions under the framework of “Convergence, competitiveness and cooperation” (European Commission, 2004; 2010g; 2010h). At the same time, Article 17 “Sustainable development” of the Council Regulation No 1083/2006 of 11 July 2006 declares that the “objectives of the funds shall be pursued in the framework of sustainable development and the Community promotion of the goal of protecting and improving the environment as set out in Article 6 of the Treaty”. The EU uses ten categories of Sustainable Development Indicators (SDI), 34 subcategories and altogether 192 SDIs. Against this background, the objective of the present analysis is to identify the key items of the EU structural and cohesion policies in the current EU budget that still do not fulfil the set sustainability criteria. Although the sustainability criteria this section refers to are displayed in the *Sustainable Development Monitoring Report*, in particular in the sections “Climate change and energy” and “Sustainable transport” (Eurostat, 2009; see also Annex 3), it is not possible to provide a detailed analysis of the fulfilment of those indicators. This is due to a lack of data availability in the mid-term (or on-going) evaluation reports as explained in the following sections 3.3 to 3.5.

The present analysis refers to the OECD Quick scan tool (OECD 1998; 2005) based on the assumption that the impacts of a subsidy on the environment depend on the conditions of the support and on the size of the subsidy determining the distortionary impacts on the marginal costs or revenues of the recipient sector (Valsecchi et al., 2009). A further reference is made to the methodology of TERM (Transport and Environment Reporting Mechanism) of the EEA (2010) (see Annex 1).

3.3. The programming process of the cohesion policy

The programming system follows different stages:²⁶

The **National Strategic Reference Frameworks (NSRF)** 2007-2013 contains the development strategy for the Member States and constitutes the framework for preparing the thematic and regional programmes (= 27 reports).

The **Operational Programmes (OP)** specify the activities and priorities at Member State level. There are altogether 455 operational programmes for the whole European Union.²⁷

The implementation, monitoring and assessment process is in charge of the management authorities of the 27 EU countries. The **Strategic Environmental Assessment (SEA) Directive** is applicable to the programming documents in the same way as to any other plan or programme. Requirements are defined in the SEA Directive (GRDP, 2006). For large projects, an **Environmental Impact Assessment** is also required.²⁸

The Commission negotiates and approves the NSRFs and OPs proposed by the Member States, and uses these as a basis for allocating resources. In addition, the Commission is involved in overall programme monitoring, pays out the approved expenditure and verifies the national control systems.

Halfway through the multiannual programming period, Member States have to submit **National Strategic Reports**²⁹ in order to document progress and success of the implementation of the operational programmes and deliver good practice examples. The National Strategic Reports of the current period have to be submitted in the years 2009 and 2012.

3.4. The evaluation process of the cohesion policy

The evaluation process of the structural and cohesion policy carries out strategic ex ante evaluations that have an EU-wide dimension and thematic ex ante evaluations of planned programmes, intermediate evaluations of running programmes and ex post evaluations of completed programmes. It has to be noted, however, that programming and evaluation process go hand in hand and are interdependent.

The **ex ante evaluations** for the programming period 2007-2013 were conducted at varying stages in the process of writing the OPs on the basis of the *Indicative Guidelines on Evaluation Methods* of the European Commission in August 2006. The objective of the ex ante process is to improve the focus of the programmes and to increase transparency and efficiency. A consistency check is to be made in order to ensure a correspondence of Community priorities and the regions' requirements (Nordregio, 2009).

The ex ante evaluation process includes the following documents:

- Strategic Evaluation on **Innovation and the Knowledge based Economy** in relation to the Structural and Cohesion Funds, for the programming period 2007-2013 (= 27 country reports and a synthesis report)

²⁶ Detailed information can be found at http://ec.europa.eu/regional_policy/policy/etap/index_en.htm [16.02.2011]

²⁷ For Germany, for example, a national OP and 17 regional OPs (16 Länder and Lüneburg) were submitted and adopted.

²⁸ SEAs of complete planning processes and EIAs of individual projects are both often assessed as insufficient; c.f. BirdLife et al., 2010, 30.

²⁹ In accordance with Article 29 (2) and (3) of Regulation (EC) No 1083/2006 of 11 July 2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Regulation (EC) No 1260/1999.

- Strategic Evaluation on **Environment and Risk Prevention** under Structural and Cohesion Funds for the programming period 2007-2013 (November 2006) (= 15 full reports, 15 executive summaries, a (synthesis) report)
- Strategic Evaluation on **Transport Investment Priorities** under Structural and Cohesion Funds for the programming period 2007-2013 (October 2006)

For the current period, a shift from the concept of mid-term evaluations (compulsory evaluations at predetermined points of the programming period) towards a more flexible, demand-driven approach to evaluation (on-going evaluation in the Member State responsibility for frequency) has been implemented (European Commission, 2007e; Applica, 2010). The **on-going evaluation** is being done in the form of a series of evaluation exercises that check the physical and financial performance of the operational programmes.

The **on-going process** of evaluation includes:

- the **Annual Implementation Reports (AIR)** for each programme (= 27 country reports and a synthesis report by the Expert Evaluation Network)
- the **National Strategic Reports** in 2009 and 2012
- the **Commission Strategic Reports** in 2010 and 2013 (see chapter 3.3)

The Member States are in charge of the monitoring of the operational programmes and the on-going evaluations and have to take corrective measures if required (European Commission, 2007e). Apart from a great complexity of the whole management and control structures, it is not always clear if the effects in some Member States are in fact attributable to the policy, as the effectiveness of the monitoring and evaluation is sometimes carried out with poor data.

3.5. Results of the mid-term evaluation of the European Regional Development Fund 2007-2013

The added value gained by the cohesion policy and its current design is undoubtedly the leverage effect of the resources for less developed European regions. The multi-annual planning allows for a consolidated support and potential refocusing of objectives on a mid-term perspective. The earmarking of public resources and the monitoring and evaluation process increases the political credibility and accountability. The territorial dimension supports interregional cooperation and the sharing of best practices. However, interest groups, NGOs and research institutions also criticise from different perspectives.

3.5.1 Slow progress in selection of resources and implementation process

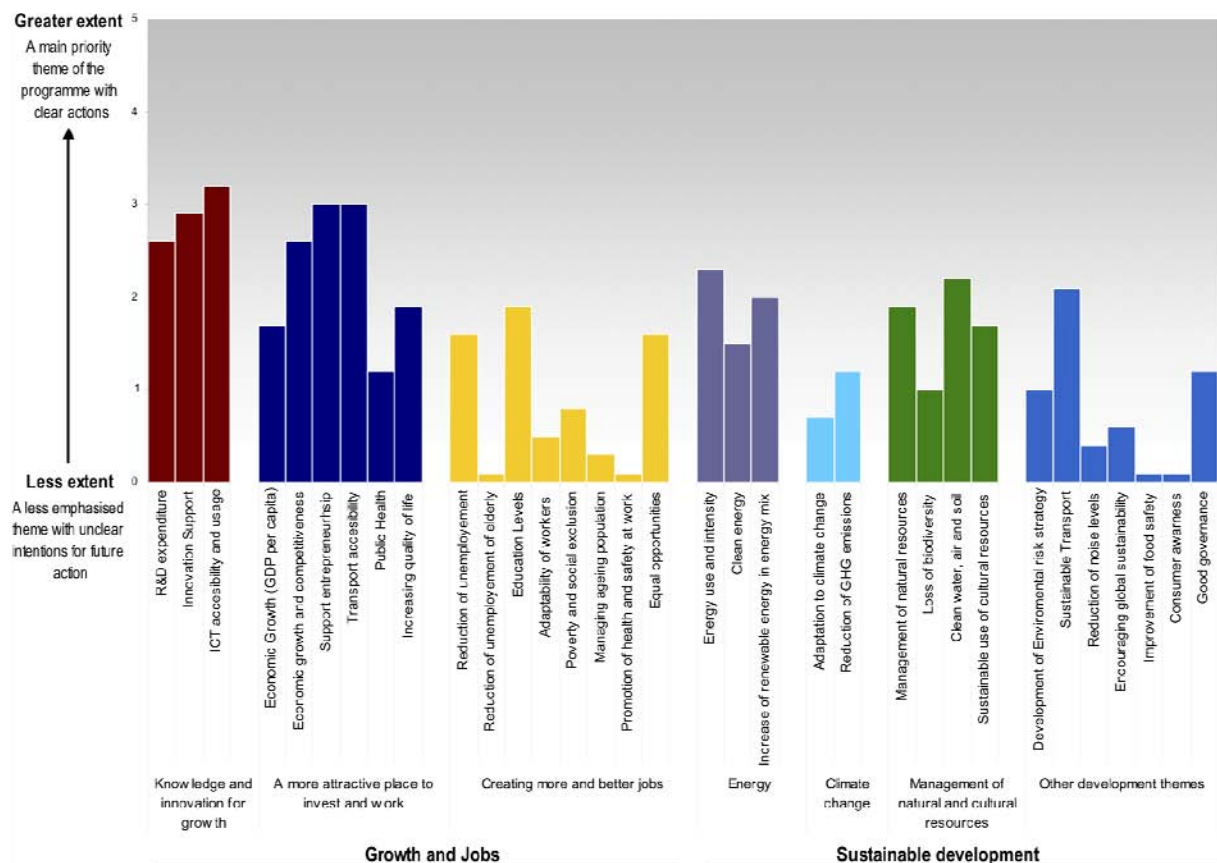
A delay in the implementation of the programmes has been stated for the current period applicable in almost all Member States. The years 2008/2009 have shown that Member States “failed to take advantage of a significant part of the financial support available to them from the Structural and Cohesion Funds” (Applica, 2010, FoEE 2010). €93.4 billion (27%) of the total available EU cohesion policy resources and €63 billion of the earmarked projects had been selected at half time (European Commission, 2010h). Hence, it has to be considered if and to what extent the Structural and Cohesion Funds “played an important role in helping to counter the effects of the economic downturn” which however, “raises a question mark over additionally” (Applica, 2010).

One argument for the slow implementation process is the complexity of the funding mechanisms, which require that European projects “are driven more and more by compliance of administrative procedures rather than development strategy” (CoR, 2010). In addition, the fragmentation of the EU funding can hamper an effective implementation. Moreover, the evaluation of the degree of fund implementation redirects the focus from the actual performance and effectiveness of the cohesion policy as regards content. The Committee of the Regions (CoR, 2010) suggests a reporting methodology focusing rather on the results than on the financial performance.

3.5.2 The relation between earmarking of funds and sustainable development

A study comparing the cohesion policy expenditure with the policy priorities expressed in the OPs, thus investigating the potential for regional policy instruments to contribute to the Lisbon and Gothenburg objectives for growth, jobs and sustainable development, reveals that in the OPs related to the **Convergence** principle infrastructural themes are claimed to be most important. These are ICT accessibility and usage, transport accessibility and innovation support and economic growth. Within the Gothenburg context, i.e. sustainable development objectives, the management of natural resources, clean water, air and soil and sustainable transport are the most important priority themes (see figure below).

Figure 4: Priority themes* in National Convergence Operational Programmes for the programming period 2007-2013 referring to Lisbon and Gothenburg themes

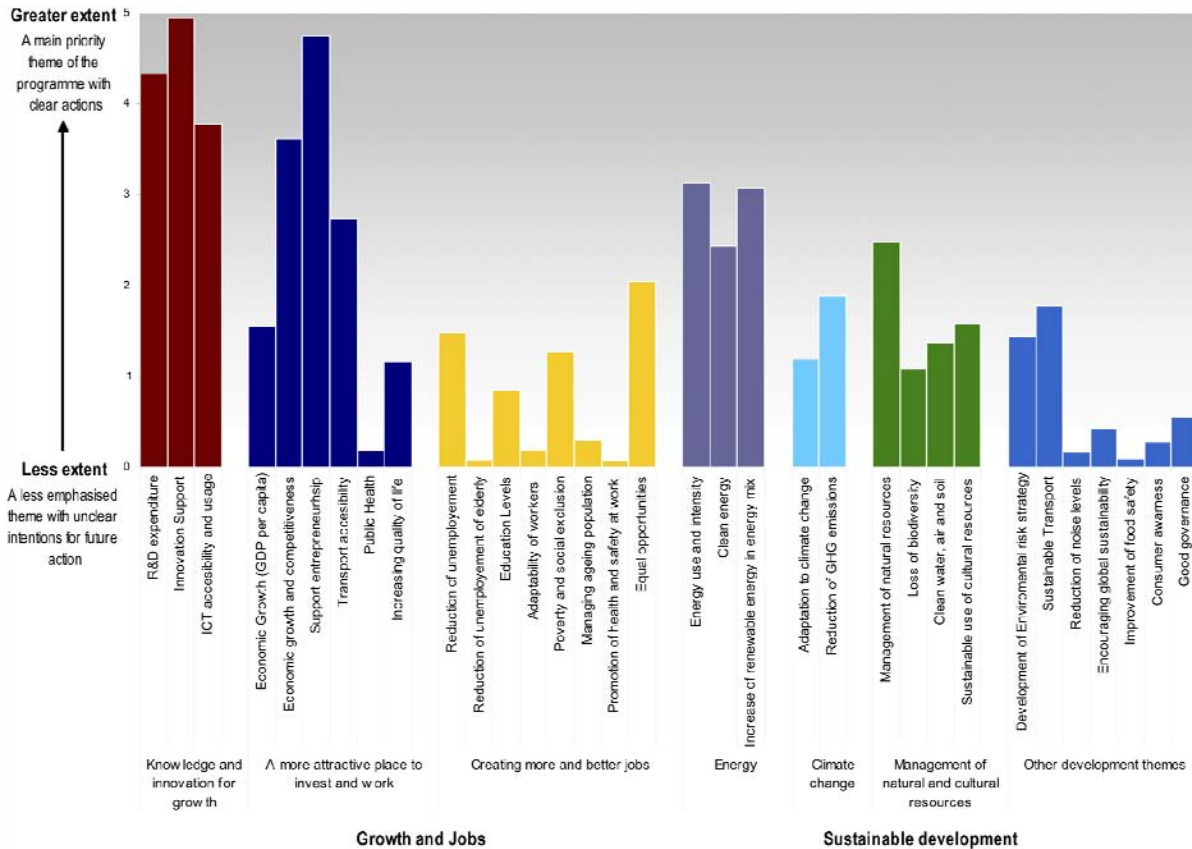


*Extent of priority by theme (0=lowest, 5=highest)

Source: Nordregio 2009.

Within the **Regional Competitiveness and Employment** programmes the content is strongly Lisbon-related. Innovation, knowledge and technology are being emphasised and innovation support and the support of entrepreneurship are the highest priorities, while R&D expenditure and economic growth and competitiveness are also considered important themes for these OPs. As regards sustainable development, energy use and the intensity and increase of renewable energy in the energy mix have a relatively high priority (Nordregio, 2009).

Figure 5: Priority themes* in National Competitiveness Operational Programmes for the programming period 2007-2013 within referring to Lisbon and Gothenburg themes



*Extent of priority by theme (0=lowest, 5=highest)

Source: Nordregio, 2009.

The results are based on the analysis of 246 Operational Programmes, 27 NRPs, NSDSs and NSRFs, a representative sample of 74 ex ante evaluations and 27 National Reports. They are not surprising due to a large percentage of the funding earmarked to Lisbon priorities. Although the earmarking of funds is on a voluntary basis for the EU12 countries, the study also shows that countries that commit less to Lisbon objectives focus on the non-Lisbon environmental protection and risk prevention categories (Bulgaria, Romania, Estonia, Malta, Lithuania, Hungary and Cyprus with around 20-30%) relevant to Gothenburg (van Well, 2009). In addition, one-third of the programmes have an integrated “three-pillar” approach of sustainable development, but a “de facto emphasis on [the] economic dimension” (especially in Convergence OPs) (ibid.).

Nordregio (2009) points out that the Lisbon Strategy is more short-term oriented, whereas Gothenburg goals include longer-term commitments. It suggests to reconcile this imbalance in the cohesion policy and to put the concept of sustainable development as the overarching principle to EU structural funding.

3.6. Identification of potentially environmentally harmful subsidies within the European Regional Development Fund 2007-2013

According to the Expert Evaluation Network it is difficult to establish coherent evidence on output and results due to the huge amount of projects (several tens of thousands) for which no aggregate information is available, but rather indicator-based data of partly insufficient quality (Schwab, 2010). This conclusion made for the case of Germany also applies to most other Member States. Single indicator systems of certain programmes can be of good quality “but as soon as we try to establish a comprehensive picture across programmes, we face severe problems due to the inconsistency of indicators and the varying quality of data” (ibid.).

The monitoring process (as shown in the sections 3.3 to 3.5) refers to financial allocation and project implementation; it does not refer to sustainable development indicators. In fact, the monitoring reports provide data on, for instance, the number of projects, the policy implementation rate, the allocation of financial means according to regions, their project allocation between the objectives convergence, competitiveness and cooperation, the instruments applied, the percentage of total funding, etc. Apart from not analysing output as regards Sustainable Development criteria, the data is mainly provided by the Member States, then compiled and analysed by the Expert Evaluation Network (Applica 2010).

Due to this lack of data availability, it is not possible to draw conclusions in how far certain parts of the ERDF explicitly contribute to environmental relief or must be classified as environmentally harmful subsidies. There is no installed process of relating ERDF environmental indicators to the European Sustainable Development Strategy. For this reason, this section will refer to a comprehensive approach such as TERM compiling macro-data for the transport sector of all European countries and derive conclusions at a macro-level.

3.6.1 Proportions within the environmental funding framework

The total Structural and Cohesion Funds comprise ca. €344 billion. According to the European Commission (2009b), the environment spending is on a record for this period as it is three times higher than in the foregoing period 2000-2006. The budget comes up to about 30% of the total fund with an amount of about €105 billion. Without doubt such a high budget is contributing to a large range of positive environmental impacts. However, the proportions of the environmental funding for different themes in the programming period 2007-2013 have to be looked closer.

There are 86 priority themes or investment categories within the programming period 2007-2013. The CSG theme “Environment” covers 12 priority themes but further environment-related themes can be found in other CSG themes, such as transport, energy, RTDI and the territorial dimension (European Commission 2010h). Altogether 21 categories have an ecological focus, such as promotion of clean urban transport, renewable energy (wind, solar, biomass, hydroelectric, geothermal and other), energy efficiency, assistance to SMEs for the promotion of environmentally-friendly products and production processes (eco-innovation in SMEs), cycle tracks, etc. (ibid.).

Table 5 shows the allocation of planned subsidies with respect to CSG themes.

Table 5: Allocation of resources within the environmental framework of Structural and Cohesion Funds and share of funding in per cent, 2007-2013

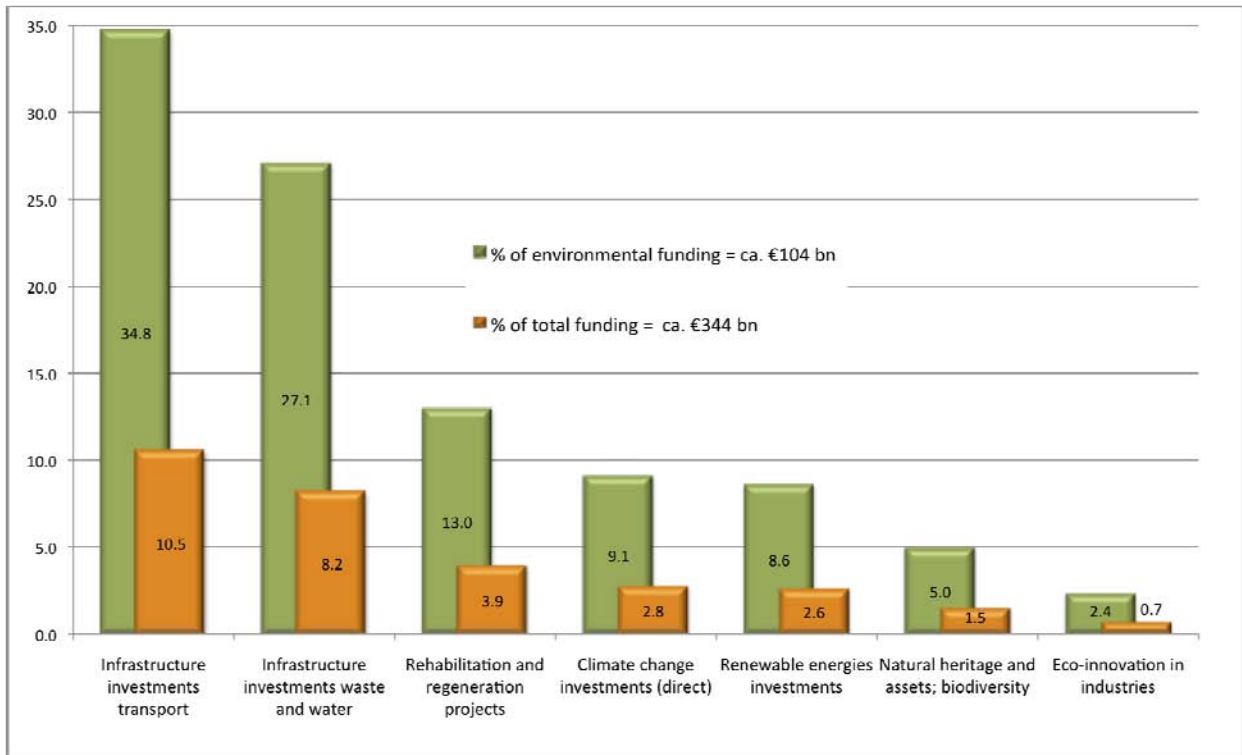
No.	Title	Planned EU environmentally-friendly investments (million €)	% of environmental funding	% of total funding
6	Eco-innovation SMEs	2,476	2.4%	0,7%
16	Railways	4,133	4.0%	1,2%
17	Railways (TEN-T)	18,428	17.7%	5,4%
18	Mobile rail assets	629	0.6%	0,2%
19	Mobile rail assets (TEN-T)	666	0.6%	0,2%
24	Cycle tracks	604	0.6%	0,2%
25	Urban transport	1,660	1.6%	0,5%
26	Multimodal transport	1,629	1.6%	0,5%
27	Multimodal transport (TEN-T)	447	0.4%	0,1%
28	Intelligent transport systems	1,086	1.0%	0,3%
29	Inland waterways (regional and local)	268	0.3%	0,1%
30	Inland waterways (TEN-T)	604	0.6%	0,2%
39	Renewable energy: wind	785	0.8%	0,2%
40	Renewable energy: solar	1,064	1.0%	0,3%
41	Renewable energy: biomass	1,786	1.7%	0,5%
42	Renewable energy: hydroelectric, geothermal and other	1,124	1.1%	0,3%
43	Energy efficiency, cogeneration, energy management	4,270	4.1%	1.2%
44	Management of household and industrial waste	6,239	6.0%	1.8%
45	Management and distribution of water (drink water)	8,144	7.8%	2.4%
46	Water treatment (waste water)	13,887	13.3%	4.0%
47	Air quality	1,018	1.0%	0.3%
48	Integrated prevention and pollution control	739	0.7%	0.2%
49	Mitigation and adaptation to climate change	305	0.3%	0.1%
50	Rehabilitation of industrial sites and contaminated land	3,451	3.3%	1.0%
51	Promotion of biodiversity and nature protection (Natura 2000)	2,676	2.6%	0.8%
52	Promotion of clean urban transport	6,127	5.9%	1.8%
53	Risk prevention	5,801	5.6%	1.7%
54	Other measures to preserve the environment and prevent risks	1,676	1.6%	0.5%
55	Promotion of natural assets	1,137	1.1%	0.3%
56	Protection and development of natural heritage	1,405	1.3%	0.4%
61	Integrated projects for urban and rural regeneration	10,136	9.7%	2.9%
Total environment funding		104,400	100	30.3
Total budget		344,306		

CSG theme: RTDI
 CSG theme: Transport
 CSG theme: Energy
 CSG theme: Environment
 CSG theme: Territorial dimension

Source: European Commission 2010h, compilation by Bahn-Walkowiak/Wuppertal Institute 2011.

At large, the CSG theme “Environment” is more oriented towards end-of-pipe approaches such as management of household and industrial waste, rehabilitation of industrial sites and contaminated land (ca. 69% of the financial volume), than towards prevention approaches such as integrated prevention and pollution control or risk prevention (ca. 31% of the financial volume) of projects).

When the environmental framework are structured alongside the categories infrastructure, climate change, renewable energy, and biodiversity a very dominant proportion of subsidies for infrastructural projects becomes apparent in the total Structural and Cohesion Funds 2007-2013.

Figure 6: Proportions of environmental funding for different themes, 2007-2013

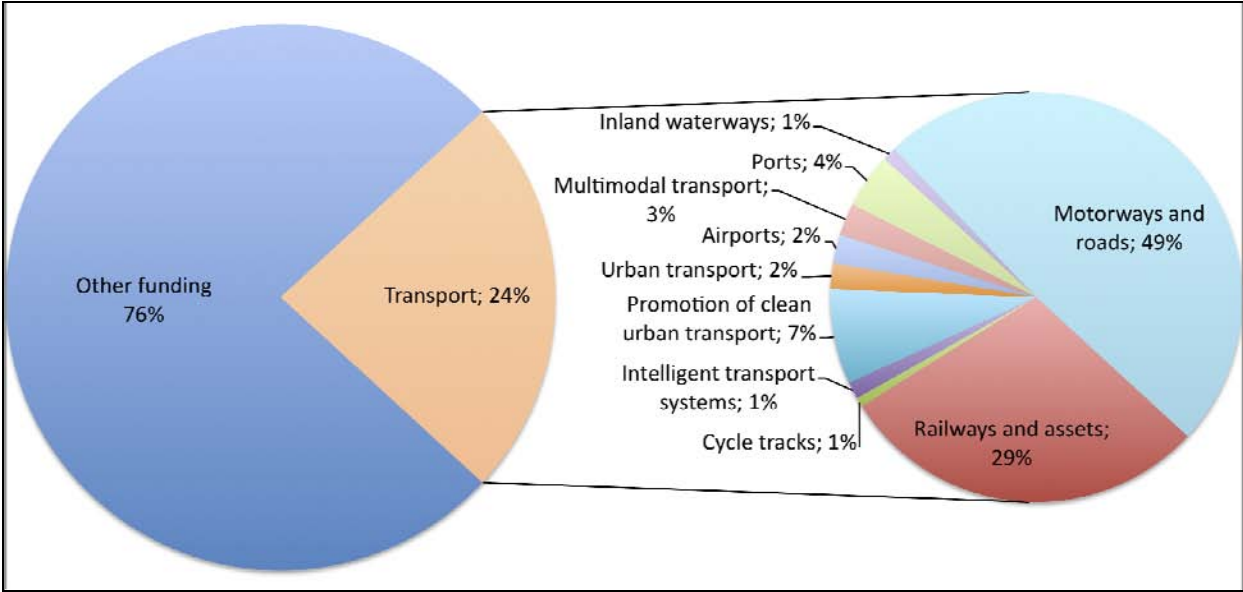
Source: Bahn-Walkowiak/Wuppertal Institute 2011.

More than 62% of the budget is selected for infrastructure investments projects in the field of transport (i.e., environmentally-friendly transport modes such as railways) and waste and waste water. A further 13% refers to rehabilitation and regeneration projects. It is striking that direct climate change investments only amount to 9.1% (2.6% of the total Structural and Cohesion Funds budget), as well as that subsidies for renewable energies represent only 8.6% of the environmental budget (1.5% of the total budget). Support for eco-innovation is only 2.4% (0.7% of total funding), while projects within the field natural heritage and biodiversity amount to 5% (1.5% of total).

3.6.2 Road-based transport infrastructure investments

When the budget is inspected in detail, it is striking that a large proportion of the total budget is granted for transport infrastructure investments (24%). These investments comprise both sustainable and unsustainable transport modes. In this context, a breakdown shows that 49% of the investments are selected for motorways and roads (within and without the TNE-T and national and regional roads). 29% are planned for railways (within and without TNE-T and mobile assets), while only 2% are planned for urban transport and 7% for the promotion of clean urban transport.

Figure 7: Breakdown of EU planned investments for transport in EU-27 according to mode, 2007-2013

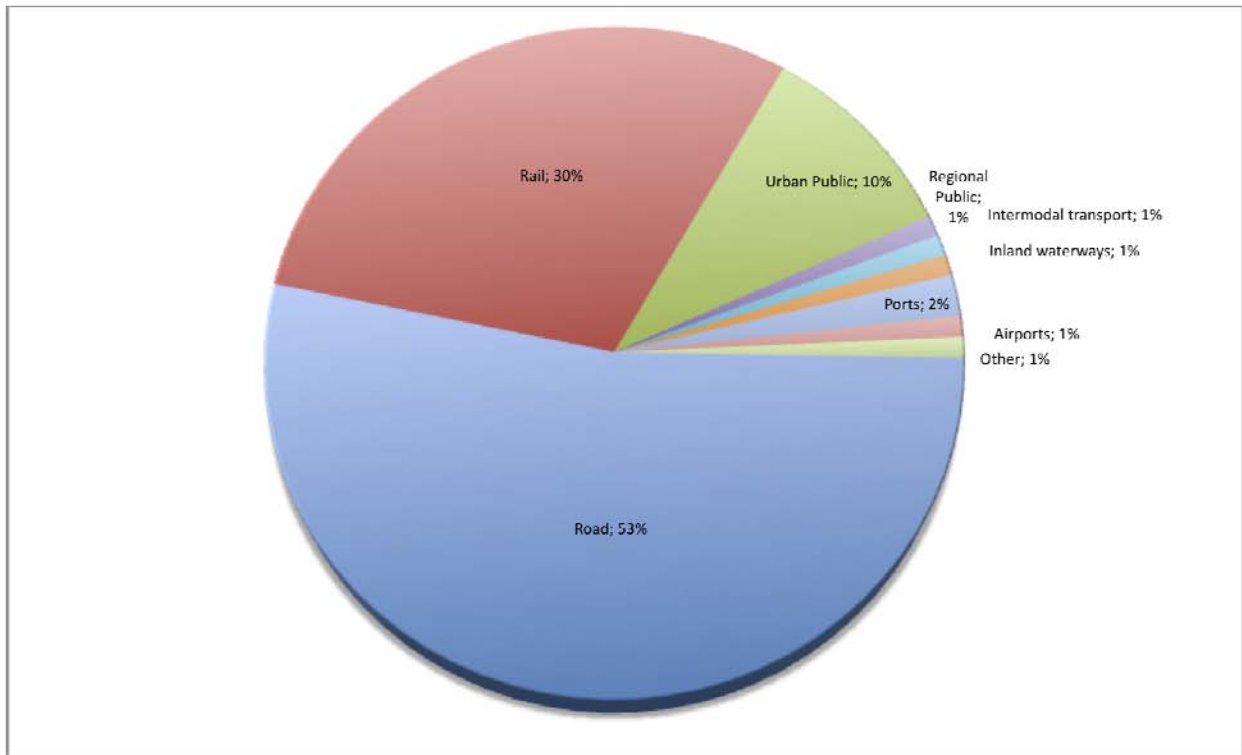


Source: Bahn-Walkowiak/Wuppertal Institute 2011.

In fact, a considerable amount of the cohesion policy funding (almost 12%) is used to subsidise transport infrastructure projects that contribute to increased use of non-renewable resources, irreversible landscape alterations and greenhouse gas emissions in the concerned regions (BirdLife Europe et al., 2010; European Commission 2010h). There is a striking imbalance in favour of one of the least efficient and least sustainable transport modes, i.e., roads and motorways entailing private mobility and heavy goods traffic.

With respect to the ten central and eastern European Member States (CEE10), the imbalance is greater due to high development gaps in the transport sector. Approximately half of the amount of the Structural and Cohesion Funds will go to these 10 CEE countries. Approximately 30% of the total for the countries, i.e., almost €50 billion, is planned to be invested in transport. The figure below shows the allocation between transport modes showing that major transport infrastructure projects merely leave 17% for mixed or urban transport modes. A further difficulty is that Member States are not required to guarantee that the support of the transport sector would not cause an increase of greenhouse gas emissions (BirdLife Europe et al., 2010).

Figure 8: Breakdown of EU funds for transport in CEE10 countries according to mode, 2007-2013



Source: CEE Bankwatch et al. 2007a.

The Transport and Environment Reporting Mechanism (TERM) reports, which have been published since 2000 as an official indicator-based reporting mechanism, deliver important insights on the transport development. The latest EEA report (2010) confirms that road dominated investments contribute to an unsustainable path in transport development. The trends in this sector are as follows:

- Freight transport continues to grow. Road and air freight transport, and the resulting CO₂ emissions, show the largest increase.
- Passenger transport by car continues to grow and the modal split for passenger transport was dominated by the private car in all EEA member countries.
- Greenhouse gas emissions from transport continue to rise steadily.

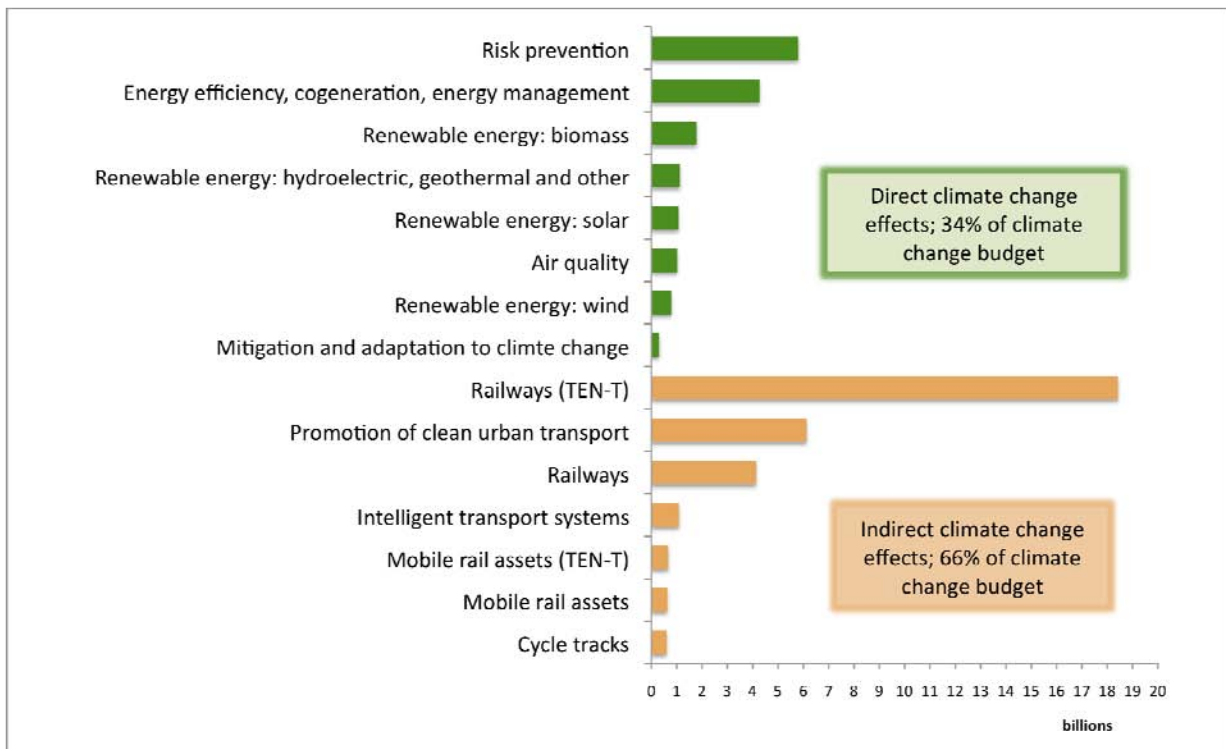
The EEA report (2010) comes to the conclusion that “passenger and freight transport by road will remain the principal mode of travel with the greatest market share if present trends continue and no action is taken to reduce emissions”. If the EU wants to promote sustainable transport and tackling climate change, its transport funding should be systematically re-focused on urban and regional public transport, sustainable traffic management, cycling, rail transport, and intermodal infrastructure shifting freight from road to rail.

3.6.3 Direct and indirect climate change mitigation

The topic of climate change mitigation has to be considered in connection with the previous section. Greenhouse gas emissions from transport continue to rise steadily and now account for 19.3% of EEA member country emissions (EEA, 2010). The expenditure for the category “Mitigation and adaptation of climate change” within the financial framework in the EU is rather small with 9.1% of the funding for environmental projects (2.8% of total funding, see Figure 6; see also BirdLife Europe et al., 2010).

The analysis of the individual categories having direct and indirect climate change effects delivers interesting insights. Following the European Commission Strategy Report, the following categories are correctly classified as measures with direct relieving effects: energy efficiency measures (4.1%), support of renewable energies such biomass, wind, solar, etc. (4.5%), measures to improve the air quality (1.0%), risk prevention (5.5%) (European Commission, 2010h). It is controversial however to what extent investments for the expansion of infrastructures contribute to environmental relief (ADE, 2008). After using large amounts of resources and energy for the investment itself, the sustainability of the investments will be determined by the mid to long-term reduction of greenhouse gas emissions associated to a potential shift from freight and passenger transport to rail transport, which will have to grow in order to show environmental relief.

Figure 9: Allocation of climate change investments according to category themes, 2007-2013



Source: Bahn-Walkowiak/Wuppertal Institute 2011.

In the context of climate change mitigating measures, buildings are estimated to account for 40% of the energy use with the resulting carbon emissions, being substantially more than those in the transport sector. Considering that large parts the greenhouse gas emissions result from, inter alia, poor thermal insulation and waste of energy in residential and commercial buildings, subsidies for energy efficiency measures appear much lower (4.1%) compared to the other categories (Stefanowa and Konecny, 2008; CEE Bankwatch et al. 2007b).

3.6.4 Further aspects: Waste incineration and biodiversity

Referring to Figure 6, infrastructure investments for waste and water (and waste water) are with 27.1% the second largest part of the environmental section of the Structural and Cohesion Funds and amount to 8.2% of the total fund. Several studies report a high number of waste incineration projects (up to 100), particularly in the CEE10 countries, setting the wrong market incentives and blocking valuable funding for more cost-effective and sustainable waste solutions such as separate collection, recycling and composting (FoEE, 2009; GAIA, 2010). "Waste incineration is an outdated and expensive technology, with poor climate performance. The inflexibility and long life of incinerators (usually 20 years) freezes potential improvements of reducing and recycling waste because it needs to burn the same amount of waste to remain economically profitable. The current practice of supporting harmful waste treatment practices such as investments for incinerators or landfills should be replaced by integrated waste management concepts, tailor-made for the region concerned" (BirdLife Europe et al., 2010).

Regarding biodiversity, NGOs criticise that EU funding and EU policies, in particular the goal to halt the loss of species and the threat of habitats by 2010, are conflicting and need more transparency in terms of sound information and monitoring of impacts (Mey, 2010). An obligatory participation of stakeholders in the monitoring committees of the ERDF is presently not implemented. Biodiversity and Natura 2000 comprise small parts (2.5%) but are no funding priorities (WWF, 2006).

Box 2: Structural and Cohesion Funds for incineration plants

Funding incineration plants

CEE Bankwatch has developed an interactive map³⁰ displaying 55 “environmentally harmful and often also economically dubious projects (...) that are being financed – or are planned to be financed – by the EU funds and the EIB” in central and eastern European countries. It estimates a total cost of €23 billion, of which €12 billion could be granted through EU funds.

One of the conflicting points raised by NGOs refers to the construction of several incineration plants in several central and eastern European countries (e.g. Lithuania, Czech Republic, Croatia, Hungary, Slovakia and Poland). The latter case has coped most of the attention as the 12 planned plants would consume €1.1 billion (ca. 66% of the entire allocation for waste management projects to be co-financed by the EU in the 2007-2013 budget period in Poland) (CEE Bankwatch, 2009).

Currently Poland diverts about 90% of the municipal waste to landfill (Pajak, 2010; Beyer and Klysz, 2010). Pajak argues that “waste incineration plant projects in Poland are an important and a real step towards implementation of the new Waste Framework Directive, the Landfill Directive and the development of modern municipal waste treatment systems”.

Nevertheless, the large focus on incineration might leave other waste management options such as recycling and composting, which are in a higher position in the waste hierarchy, underfinanced and might jeopardise the achievement of waste recycling targets set by the EU (CEE Bankwatch and FoEE, 2008).

3.7. Conclusions and recommendations

By focusing on competitiveness and growth the new period of 2007-2013 led to a paradigm shift in regional policy inducing adjustments in the orientation of contents of the Member States’ programmes away from the Gothenburg objectives. The fund still seems to be rather dedicated to traditional regional economic development schemes. Infrastructural road-based expansion will contribute to a long-term consolidation of the increase in the pressure on the environment. In addition, although large parts of the EU structural funding are environment-related, it is still primarily focused to end-of-pipe environmental protection (Schepelmann et al., 2009). A comprehensive system of environmental reporting mechanisms should be applied throughout the whole programming cycle (BirdLife Europe et al., 2010).

3.7.1 Earmarking to environmental priorities and green public procurement of projects

In order to maximise the leverage effect, the EU cohesion policy should concentrate on projects that deliver the largest environmental benefits at European level and thus, reflect European priorities. The present earmarking of means should give up the sustainable development principle as a subordinate principle and upgrade it. The relationship between growth, infrastructure and environmental quality and the dynamic interplay between them has to be examined more systematically because “investment costs are borne in the short term while benefits appear in the long run” (ADE, 2008).

As Green Public Procurement is a voluntary instrument which rules are not standard or obligatory for Structural and Cohesion Funds projects, it should be incorporated as a condition for the granting of funds.

³⁰ <http://www.bankwatch.org/billions/index.html> [11.02.2011]

That way EU funds can be systematically used to promote green products and services and gain additional environmental benefits. The green market segment can be essentially be strengthened and send further transformational messages to economic operators (BirdLife Europe et al., 2010).

In this context, subsidies of the Structural and Cohesion Funds should be environmentally and cost effective in the long term, and the EU should therefore primarily support solutions that have proven environmental and cost effectiveness over time (ADE, 2008).

3.7.2 Review of evaluation process - closing the knowledge gap

As the costs are borne by the public (i.e. the taxpayers) transparency and good quality information and accessible data are most important for political credibility, in particular in the field of subsidies. The EU Structural and Cohesion Funds should provide full disclosure.

Existing sectoral environmental and sustainability assessments (like TERM or Energy and Environment Reports; EEA, 2010; 2006b) currently fill the gap of the insufficient monitoring and ex-post evaluation process as regards fulfilment of sustainability criteria and therefore are an essential and recommendable tool to deliver insights of environmental impacts and partly counterbalance methodological and data constraints that limit comparisons of specific sectoral analyses.

In the future, the ex ante, mid-term and ex post evaluations should use compulsory indicators aligned towards the SDIs. As the current indicators are mainly concentrated on management and financial control, they have to introduce indicators for measuring the environmental impacts.

In all evaluation and monitoring tools, it should be differentiated more systematically between environmental projects with direct positive impacts and indirect positive impacts, and positive impacts in the short, mid- and long-term.

3.7.3 Increase of policy coherence - closing the governance gap

In order to increase the coherence within and across European policies and instruments, the Structural and Cohesion Funds should be part and result of an integrated strategy (Schepelmann, 2010). The targeted spending of the public money for a limited number of priorities that are clearly identified and justified is essential. The Lisbon priorities "Growth and jobs" are very broad and partly conflicting with environmental objectives. The relation between the two main principles "growth and jobs" and sustainable development needs clarification.

The term resource efficiency has not been systematically introduced in the documents of the cohesion policy although resource efficiency belongs to the core strategies of Europe in the meantime. Accordingly, there are no related indicators to disclose Member State's performance. Resource efficiency has to be integrated in order to strengthen the coherence with other policies, such as the Europe 2020 (European Commission, 2010a).

4. TRANSPORT AND ENERGY

KEY FINDINGS

- Commitments for transport expenditures in the 2011 draft EU budget amount to €13.8 billion. 85% of the commitments are through the Structural and Cohesion Funds including contributions to Trans-European Networks – Transport (TEN-T) projects, and 9% are for TEN-T projects directly. Transport research has a 4% share, and inland, air and maritime transport 1%.
- In general terms, the EU budget needs to allocate better the expenditure related to transport and undertake a shift of resources to more sustainable transport areas.
- Commitments for energy expenditures in the 2011 draft EU budget amount to €2.9 billion. 54% of the commitments are through the Structural and Cohesion Funds including contributions to Trans-European Networks – Energy (TEN-E) projects, 1% is for TEN-E project directly. Fusion energy has a share of 14%, energy research under different titles 12%, nuclear energy under different titles 12%, and conventional and renewable energies 4%.
- Although energy expenditure appears to perform well, the results of the assessment carried out have to be interpreted cautiously as several items have been left out the assessment (e.g. fusion and fission energy, carbon capture and storage) due to the uncertainty related to their sustainability.

4.1. Methodology

The objective of the present analysis is to identify the key items of the EU transport and energy policies in the current EU budget that still do not fulfil the set sustainability criteria.

It is important to highlight here that this **objective limits the analysis to EU budget relevant issues**, while it excludes all policies and regulatory actions at EU level that are not related to the EU budget, i.e. to revenues or expenditures by EU institutions. The EU policies and regulatory actions have a major impact on the achievement of sustainability goals. Furthermore, policies and budgets at Member State level are not included in the present analysis.

In the scientific literature and the political debate a focus is put on the analysis of *environmentally harmful subsidies* (EHS).³¹

4.1.1 Definition of a subsidy

Defining what a subsidy is can be a rather complex issue. In fact, the definition usually depends on the scope of the assessment (cf. Chapter 1). The treatment of externalities not internalised through policy measures, which is particularly relevant in transport and energy, is generally considered a subsidy in the transport sector, while in the energy sector this is not the case:

³¹ See for example the Green Budget Europe Annual Conference 2010, <http://www.foes.de/veranstaltungen/dokumentationen/2010/budapest-08-09072010/>

The following subsidy definitions are used in OECD sectoral analyses (OECD, 2005):

- *“Transport:* subsidies are commonly measured on a purely financial basis as the gap between government expenditures on transport systems and the revenues collected from those systems. Measurement on an economic basis has also been attempted, on the basis of the deficit or surplus of revenues produced by current taxes and charges compared with those that would pertain in an optimum where all transport services are priced at their marginal social costs (including the external costs of congestion, scarcity, accidents, noise, air pollution, climate change and so on).”
- *“Energy:* the OECD measures grants or soft loans to producers or consumers of energy; market price support; differential tax rates on different fuels; and publicly funded research and development programmes” (OECD, 2005). It is important to note here, that in contrast to the definition used for transport, this definition does not include environmental externalities as subsidies.

Valsecchi et al. (2009) suggest using the following subsidy definition for purposes of identifying environmentally harmful subsidies:

“A result of a government action that confers an advantage on consumers or producers, in order to supplement their income or lower their costs.”

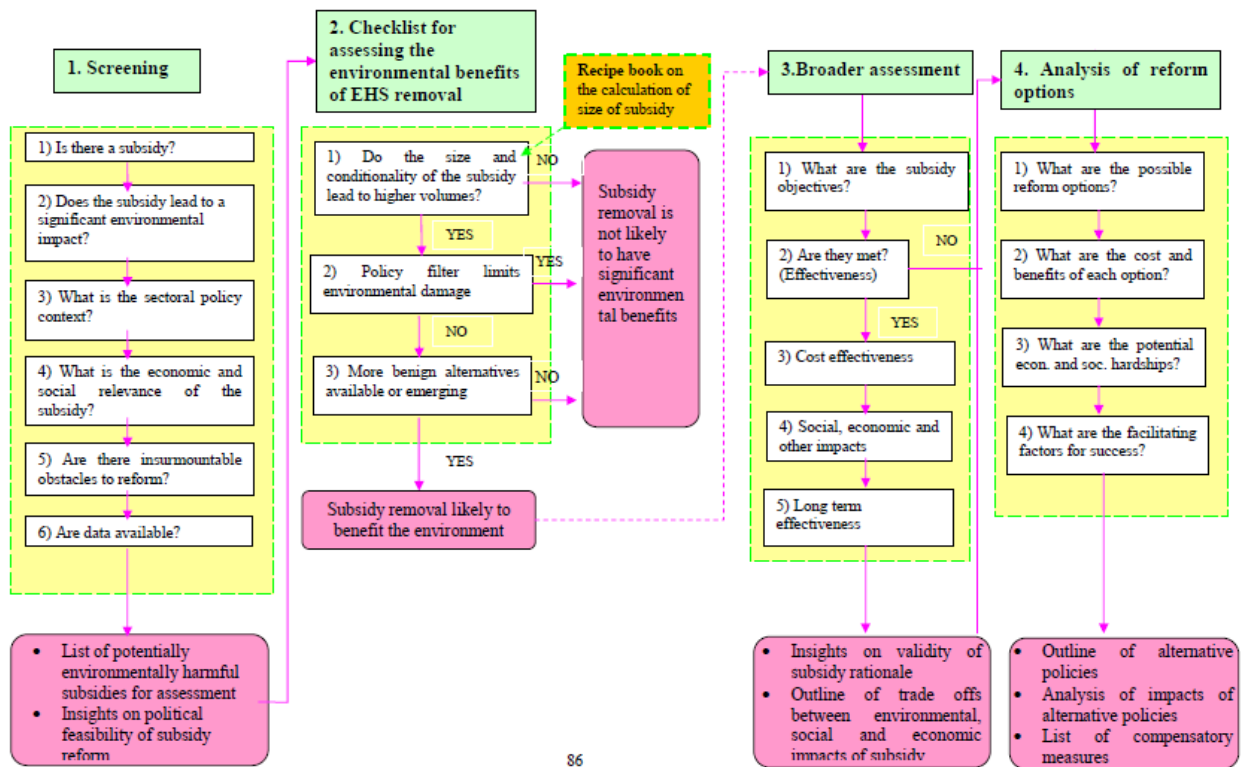
Furthermore, Valsecchi et al. (2009) provide a list of possible types of subsidies of which the direct transfer of funds, e.g. grants, is the most relevant in connection with the EU budget. Many of the subsidy types listed are off-budget subsidies. These are the result of policy action and are neither visible in the EU budget, nor can be calculated from the budget accounts.

Off-budget subsidies are not part of the present analysis. Here, the focus will be on on-budget subsidies according to the definition of Valsecchi et al. (2009) reproduced above.

4.1.2 Identification and evaluation of environmentally harmful action

The OECD has developed, in a very broad and comprehensive international process, three tools for identifying EHSs (OECD, 2005). These tools are described and analysed by Valsecchi et al. (2009), who propose an improved and integrated “EHS reform tool”. This is presented in Figure 10 below.

Figure 10: “EHS reform tool”



Source: Valsecchi et al., 2009.

The present analysis concentrates on the first screening phase of the tool. “This screening phase serves to identify and prioritise those subsidies that have clear environmental harm and are politically more viable for reform.” Notably, step 2 of the screening phase is of relevance here for the identification of key items of the EU transport and energy policies in the current EU budget that still do not fulfil the set sustainability criteria.

Valsecchi et al. (2009) provide examples of checklist questions, checklist criteria, impact dimensions and a scoring model allowing identifying and prioritising items for reform. In the present analysis the sustainability indicators used by Eurostat (Eurostat, 2009) on the basis of European Commission Sustainable Development Indicators (SDIs) (European Commission, 2005; 2007f) (see Annex 3) will be used. From Valsecchi et al. (2009), impact dimensions and the scoring model are applied to the SDIs. For transport and energy, the relevant SDIs are identified separately based on which sustainability of budget items will be assessed. This will be complemented by publicly available literature in order to achieve robust results.

On the basis of the outcome of the present analysis, it is recommended to carry through a full EHS reform tool analysis in order to provide clear and well-founded recommendations for political action to remove unsustainable elements of the EU budget.

4.2. Transport

4.2.1 Transport in the EU budget

Budget expenditures for transport are listed under the following budget headings and budget titles (European Commission, 2010i):

Table 6: Transport in the EU budget

Heading	Policy Area	Title	
1a	Enterprise	02 04 01 03	Research related to transport (Galileo)
	Transport	06 01	Administrative expenditure of 'Mobility and Transport' policy area
		06 02	Inland, air and maritime transport
		06 03	Trans-European Networks – Transport (TEN-T)
		06 06	Research related to transport
	Research	08 07	Cooperation – Transport (including aeronautics)
	JRC	10 02	Directly financed research operational appropriations – FP7 – EC-JRC
1b			Structural and Cohesion Funds
2	Health	17 03 09	Complex research on Health, Environment, Transport and Climate Change (HETC) – Improvement of indoor & outdoor air quality

Source: European Commission, 2010i.

In the other budget headings no transport expenditures were identified.

4.2.2 Size of transport expenditures in the EU budget

The size of the transport expenditures is defined for each individual budget title. The Structural and Cohesion Funds under heading 1b encompass many topics including transport.

They have a complex structure (cf. Chapter 3) of national and regional programmes, many of which include transport aspects. Each programme has different foci and award criteria. Thus, it is not straightforward to calculate the expenditures related to transport.

In the current financial programming period of 2007 – 2013, cohesion policy investments in transport are concentrated in the convergence regions. These include “those regions whose gross domestic product (GDP) per capita is below 75% of the EU average, as well as the regions that would otherwise have been eligible had it not been for the statistical effect of enlargement ('phasing-out regions')” (European Commission, 2010i)

For the current financial programming period of 2007 – 2013, transport expenditures in the convergence regions are distributed as follows:

- **“TEN-T projects** across all transport modes will receive €38 billion (11% of the total of cohesion policy investments). About half of that will be allocated to road infrastructure and the remainder to rail.
- Overall almost €41 billion (12% of the total) will be available for **road infrastructure**, including TEN-T and national, regional and local roads.
- For **rail infrastructure**, a total of €23.6 billion (6.8%) will be spent, including TEN-T projects.

- Other allocations include: **urban transport**: €8.1 billion (2.3%), **ports and inland waterways**: €4.1 billion (1.2%), **multimodal transport and intelligent transport systems**: €3.3 billion (1%); **airports**: €1.9 billion (0.5%)” (European Commission, 2011b).

Average annual amounts broken down into road, rail and other transport modes are presented in Table 7.

Table 7: EU transport commitments in the convergence regions through the Structural and Cohesion Funds

million €	2007-2013	per year	% of Convergence Transport Commitments
Road infrastructure	41,000	5,857	50%
Rail infrastructure	23,600	3,371	29%
Urban transport	8,100	1,157	10%
Ports and inland waterways	4,100	586	5%
Multimodal transport intelligent transport systems	3,300	471	4%
Airports	1,900	271	2%
Total	82,000	11,714	

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011 based on European Commission, 2010i.

An overview of the total transport expenditures in the EU budget is provided in Table 8. It shows the dominance of Structural and Cohesion Funds in transport expenditures with 85% followed by TEN-T with 9% and research under different titles with 4%.

Table 8: EU transport commitments

Heading	Policy Area	Title	Transport	million € per year	% of Transport	Budget Title	Comments
1a	Enterprise	02 04 01 03	Research related to transport (Galileo)	63	0.5%		
	Transport	06 01	Administrative expenditure of 'Mobility and Transport' policy area	66	0.5%		
		06 02	Inland, air and maritime transport	191	1.4%		
		06 03	Trans-European Networks – Transport (TEN-T)	1,228	8.9%		
		06 06	Research related to transport	62	0.4%		
	Research	08 07	Cooperation – Transport (including aeronautics)	414	3.0%		
	JRC	10 02	Directly financed research operational appropriations – FP7 – EC-JRC			31.2	partly dedicated to transport
1b			Structural and Cohesion Funds	11,714	85.3%		annual average
2	Health	17 03 09	Complex research on Health, Environment, Transport and Climate Change (HETC) – Improvement of indoor & outdoor air quality	p.m.		1.5	payments 2011
Total				13,738			excl. JRC, Health

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011 based on European Commission, 2010i; 2011b.

It should be noted that according to a detailed analysis by BirdLife et al. (2010) the combined TEN-T and cohesion budgets allocated to TEN-T are exceeded by around 30% by European Investment Bank's loans to TEN-T projects, and by almost 300% by Member States budgets allocated to TEN-T. In other words, EU budgets allocated to TEN-T represent around 16%-17% of total TEN-T budgets.

Thus leveraging a roughly 6 times higher budget, the EU budget criteria for TEN-T projects have a substantial (positive or negative) effect on sustainability.

4.2.3 Sustainability of EU transport expenditures

For the purpose of the present analysis, the sustainability of each transport-related budget title will be assessed. On the basis of this assessment, the budget titles related to transport will be classified according to their performance.

The EU budget expenditures in the transport sector in the order of their size in the EU budget are:

1. TEN-T: direct TEN-T expenditures, structural and cohesion funds expenditures for TEN-T
 - a. Road
 - b. Rail
 - c. Urban transport
 - d. Ports and inland waterways
 - e. Multimodal transport and intelligent transport systems
 - f. Airports
2. Structural and cohesion funds (transport expenditures other than TEN-T)
3. Transport research
4. Inland, air and maritime transport

The budget titles are analysed according to their objectives and guidelines. Reviewing in how far these objectives achieved and the guidelines obeyed is beyond the scope of the present assessment.

Road infrastructure expenditures are invested in the extension of the road network, and in the extension of the traffic capacities of existing roads. Both types of investments are aimed at increasing traffic in order to enhance economic activity. This entails a number of negative impacts on the relevant SDIs identified (see Annex 3):

- increasing greenhouse gas and pollutant emissions, and increasing population exposure to pollutants,
- increasing noise exposure,
- increasing energy consumption,
- volume of freight and passenger transport, and road vehicle-kilometers,
- people killed in road accidents.

The construction activity itself also has negative impacts, notably direct and indirect emissions.

Furthermore, road infrastructure extension increases the built-up land area and is criticized for further fragmenting natural areas and potentially destroying areas of high biodiversity value (BirdLife et al., 2010).

The rationale behind these expenditures is to improve the socio-economic cohesion of Europe by improving mobility of freight and people in economically less developed regions. Thus, road infrastructure expenditures need to be assessed against this objective, and it needs to be assessed whether other investments would result in comparable or even higher economic effects at less environmental damage. Transport on inland waterways and by rail in general entails significantly lower negative environmental impacts for comparable transport capacities. What is more, reducing the spatial resistance by providing new transport infrastructure will generate transport demand that otherwise would not develop.

On the other hand, road transport does not reduce transport volumes of modes with even worse environmental impacts, notably air transport. Thus, road transport does not reduce negative environmental impacts of other activities.

An example of other infrastructure investments with potentially much higher economic impact is the extension of the glass fibre communication network to rural areas allowing commercial entities and private people benefiting from broadband Internet connections. In many areas of Europe to which structural and cohesion funds are available, road infrastructure is not a bottleneck to economic development, while the lack of fast communication infrastructure definitely is.

Economically speaking, road construction entails long-term commitments for operation and maintenance costs for the infrastructure. This binds increasing shares of budgets of local, regional and national public entities reducing their financial flexibility. The economic sustainability of this development is questionable.

Box 3: Via Baltica expressway**Via Baltica**

Via Baltica is an expressway included within the Trans-European Corridor I, which intends to connect Finland with several southern and western European countries. The expressway crosses Poland, Lithuania, Latvia and Estonia and has been source of conflict due to the impacts that the route could have caused in several protected areas in Poland (BirdLife International and CEE Bankwatch, 2010). The project was partially funded by the TEN-T budget item.

The route proposed as a first option threatened several protected sites in Poland:

- The Biebrza Marshes (Natura 2000 and Ramsar wetland)
- The Augustow Primeval Forest and the Knyszyn Primeval Forest (Natura 2000)
- The Narew River valley (Natura 2000)

Thus, the Standing Committee of the *Convention on the conservation of European wildlife and natural habitats* recommended Poland in its 23rd meeting (December, 2003) to carry out a complete SEA and a detailed EIA including all the alternative routes that would avoid to the extent possible the harmful impacts that would have the construction of the expressways in the protected natural environment (Directorate of Culture and Cultural and Natural Heritage, 2003).

The case required the intervention of the European Commission and of the European Court of Justice as the works continued on the construction of the Polish stretch (European Commission, 2007g; BirdLife International et al., 2010). In October 2009 the Polish Council of Ministers decided to adopt an alternative route for the Polish stretch based on the SEA carried out and received thus the environmental consent in December 2009 (ibid.).

Nevertheless, NGOs have raised concerns in regard to the Polish section of the route of Via Carpatia, which would connect Lithuania, Poland, Slovakia and Hungary (ibid.).

Rail infrastructure expenditures on the one hand have negative environmental impacts from construction activities and from increased traffic volumes and related emissions. Similarly to road infrastructure, rail infrastructure potentially occupies land area of high biodiversity value, and may fragment natural areas.

On the other hand, rail transport in general has significantly lower environmental impacts than road transport. Thus, increasing rail transport at the expense of road transport has a significant net positive environmental impact, notably on pollutant and greenhouse gas emissions.

Criticism is expressed with respect to large projects of high-speed rail links. High-speed rail has higher energy consumption and related emissions than "conventional" rail transport, and infrastructure costs are disproportionately higher. Criticism is also expressed for an alleged prioritisation of high-speed projects over regional network development activities.

In a net balance view, high-speed rail is a competition to air transport and thus has net positive environmental impacts, while "conventional" rail in a more regional perspective is a competition to road transport with net positive environmental impacts as well.

As far as **urban transport** expenditures in the EU budget are limited to public urban transport, bicycles and pedestrians these have net positive environmental impacts. Nonetheless, environmental standards of transport technologies vary especially with respect to pollutant emissions. Nitrogen oxide emissions as well as particulate matter emissions are critical to air quality in most large European cities. Within urban public transport notably bus activities are critical in this respect. Particulate matter traps, compressed natural gas vehicles and other solutions exist, but need to find widespread implementation. Environmental improvements by (road) traffic management systems aimed at reducing and avoiding traffic congestions are limited or none-existent.

Expenditures for **ports and inland waterways** have a mixed environmental balance. The development of waterways for commercial transport has potentially significant impacts on natural habitats and biodiversity. Pollutant emission limits for inland water-borne transport are significantly less stringent than for road transport. On the other hand, water-borne transport is significantly more energy efficient than road or rail transport, which gives it a significant advantage with respect to greenhouse gas emissions.

Pollutant emissions from maritime transport are extremely high. Fuel qualities are extremely poor, e.g. with respect to sulphur content which directly translates into sulphur oxide emissions. But also nitrogen oxide emissions from maritime transport are very high just as other emissions including heavy metals. As an example, the major source of pollutant emissions in the city of Hamburg, Germany, is the sea port.

Multimodal transport and intelligent transport systems is a conglomerate of many different actions. The focus here often is on the avoidance of economically damaging traffic congestion, which has little positive environmental impacts. Thus, it is not possible to assess this budget title in general terms.

Air transport is the most environmentally critical mode of transport, notably with respect to greenhouse gas emissions, and benefits from a number of significant fiscal privileges in addition to EU expenditures for airports. These expenditures can thus be assumed to be among the environmentally most harmful expenditures. This includes infrastructure investments aimed at improving airport accessibility, e.g. by high-speed rail links, which mainly result in increasing air transport figures.

The development of the **European Satellite Navigation System (Galileo)** with a view to the next technology generation for all transport modes, including intermodality, is complex to analyse with respect to sustainability criteria. Galileo may have positive impacts on sustainable development as it may improve transport efficiency, and it can be used for innovative dynamic road tolling etc. But it may also have negative impacts on sustainable development through increasing air traffic etc.

Fuel Cells and Hydrogen (FCH) Joint Undertaking: see below at section 4.3.3.

SESAR Joint Undertaking: "The mission of the SESAR Joint Undertaking is to develop a modernised air traffic management system for Europe. This future system will ensure the safety and fluidity of air transport over the next thirty years, will make flying more environmentally friendly and reduce the costs of air traffic management" (SESAR, 2011). Air traffic being the most carbon intensive transport mode, the objective of SESAR to ensure air transport growth over the coming 30 years is clearly unsustainable.

The objective of the **Clean Sky Joint Undertaking** is to speed up new, greener design in aircraft. The vision document of 2001 that is the foundation of the Clean Sky Joint Undertaking specifies: "A Vision for 2020: Aircraft and an air transport system that are responding to society's needs, despite a three-fold increase in air transport".

In concrete terms, the core environmental achievement aimed at is “a 50% cut in CO₂ emissions per passenger kilometre [...] in the new aircraft of the year 2020” (Group of personalities, 2001). Keeping in mind a typical 30-year service life of aircraft, reducing new aircraft emissions by 50% while tripling air traffic still gives rise to massive increases in the climate change impact of air traffic even in the very long-term.

Transport research encompasses aeronautics, rail, water, road and multimodal transport as well as horizontal topics. Sustainability is a major overall objective of the transport research programme. Nonetheless, there are unsustainable elements to the programme, notably research related to air transport without environmental objectives.

Table 9: Summary of unsustainable EU budget expenditures in transport

Heading	Policy Area	Title		Sustainability	Comments
1a	Enterprise	02 04 01 03	Research related to transport (Galileo)	☺	
	Transport	06 01	Administrative expenditure of 'Mobility and Transport' policy area	☺	
		06 02	Inland, air and maritime transport	☹	air
		06 03	Trans-European Networks – Transport (TEN-T)	☹	notably road
		06 06	Research related to transport	☹	
	Research	08 07	Cooperation – Transport (including aeronautics)	☹	notably air
	JRC	10 02	Directly financed research operational appropriations – FP7 – EC-JRC	-	partly dedicated to transport
1b			Structural and Cohesion Funds	☹	road, air, partly multimodal
2	Health	17 03 09	Complex research on Health, Environment, Transport and Climate Change (HETC) – Improvement of indoor & outdoor air quality	-	
Total				☹	excl. JRC, Health

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011

Based on the above assessment, a need to better allocate economic expenditure in the area of transport has been identified.

4.3. Energy

4.3.1 Energy in the EU budget

Budget expenditures for energy are listed under the following budget headings and budget titles (European Commission, 2010i):

Table 10: Energy in the EU budget

Heading	Policy Area	Title	
1a	Research	08 05	Cooperation - Energy
		08 20	Euratom – Fusion energy
		08 21	Euratom – Nuclear fission and radiation protection
	JRC	10 02	Directly financed research operational appropriations – FP7 – EC-JRC
	Energy	32 01	Administrative expenditure of 'Energy' policy area
		32 03	Trans-European Networks – Energy (TEN-E)
		32 04	Conventional and renewable energies
		32 05	Nuclear energy
		32 06	Research related to energy
1b			Structural and Cohesion Funds
2	Agriculture Rural Dev.	05 02 17 03	Support for initiatives for low carbon, low energy, locally marketed food production
4	Dev. ACP	21 04 01	Environment and sustainable management of natural resources, including energy
	Energy	32 04 11	Energy Community

Source: European Commission, 2010i.

In the other budget headings no energy expenditures were identified.

4.3.2 Size of energy expenditures in the EU budget

The size of the energy expenditures is defined for each individual budget title. The Structural and Cohesion Funds under heading 1b encompass many topics including energy.

They have a complex structure (cf. Chapter 3) of national and regional programmes, many of which include energy aspects. Each programme has different foci and award criteria. Thus, it is not straightforward to calculate the expenditures related to energy.

“In the regions falling under the "Convergence" objective, the European Regional Development Fund and the Cohesion Fund can support trans-European energy networks with the objective of improving the security of supply, completing the internal market, integrating environmental considerations, improvement of energy efficiency and development of renewable energies. For both Convergence and the Regional Competitiveness and Employment objectives an important ERDF priority is to stimulate energy efficiency and renewable energy production and the development of efficient energy management systems. [...]”.

In the framework programmes for 2007-2013, EU allocations of €4.8 billion have been made for projects in renewable energies (wind, solar, biomass, hydroelectric and geothermal), €4.2 billion for energy efficiency, co-generation and energy management and €1.7 billion for investment in traditional energy sources of which €674 million is allocated for investment in Trans European energy networks in electricity and gas³² (European Commission, 2011c). See Table 12 for an overview.

Table 11 breaks down the commitments of the Structural and Cohesion Funds to energy by fund objectives.

Table 11: EU energy commitments through the Structural and Cohesion Funds

million €	2007-2013	per year	% of Energy Commitments
Convergence	8,656	1,237	80%
Regional Competitiveness and Employment	1,824	261	17%
European Territorial Cooperation	334	48	3%
Total	10,814	1,545	

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011 based on European Commission, 2010i; 2011c.

Table 12: EU energy commitments through the Structural and Cohesion Funds by topic

million €	2007-2013	per year	% of Energy Commitments
Renewable Energy	4,763	680	44%
Energy Efficiency	4,273	610	40%
TEN-E	675	96	6%
Other	1,103	158	10%
Total	10,814	1,545	

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011 based on European Commission, 2010i; 2011c.

An overview of the total energy expenditures in the EU budget is provided in Table 13. It shows the dominance of structural and cohesion funds in energy expenditures with 54% followed by Euratom – fusion with 14%, research under different titles with 12%, nuclear energy under different titles with 12%, conventional and renewable energies with 4% and TEN-E with 1% plus 3% from TEN-E expenditures through the structural and cohesion funds.

³² The term “traditional energy sources” is not specified in more detail; it is assumed here that this refers to “conventional”, i.e. fossil energy sources.

Table 13: EU energy commitments

Heading	Policy Area	Title	Energy	million € per year	% of Energy	Budget Title	Comments
1a	Research	08 05	Cooperation - Energy	157	5.5%		
		08 20	Euratom – Fusion energy	396	13.9 %		
		08 21	Euratom – Nuclear fission and radiation protection	52	1.8%		
	JRC	10 02	Directly financed research operational appropriations – FP7 – EC-JRC			31.2	partly dedicated to energy
	Energy	32 01	Administrative expenditure of 'Energy' policy area	77	2.7%		
		32 03	Trans-European Networks – Energy (TEN-E)	24	0.8%		
		32 04	Conventional and renewable energies	126	4.4%		
		32 05	Nuclear energy	281	9.8%		
		32 06	Research related to energy	192	6.7%		
1b			Structural and Cohesion Funds	1,545	54.2 %		annual average
2	Agriculture Rural Dev.	05 02 17 03	Support for initiatives for low carbon, low energy, locally marketed food production	2	0.1%		
4	Dev. ACP	21 04 01	Environment and sustainable management of natural resources, including energy			134.0	partly dedicated to energy
	Energy	32 04 11	Energy Community	see above			
Total				2,852			excl. JRC, ACP

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011 based on European Commission, 2010i; 2011c.

4.3.3 Sustainability of EU energy expenditures

For the purpose of the present analysis, the sustainability of each energy-related budget title will be assessed. On the basis of this assessment, the budget titles related to energy will be classified according to their performance.

The EU budget expenditures in the energy sector in the order of their size in the EU budget are:

1. Structural and cohesion funds
 - a. Renewable energy
 - b. Energy efficiency
 - c. TEN-E
 - d. Other
2. Euratom – fusion: ITER

3. Research
 - a. Renewable electricity and fuel production
 - b. Carbon capture and storage technologies (CCS)
 - c. Clean coal technologies
 - d. Smart energy networks
 - e. Energy efficiency and savings
 - f. Fuel Cells and Hydrogen (FCH) Joint Undertaking
4. Nuclear energy
 - a. Nuclear safeguards
 - b. Nuclear safety and protection against radiation
 - c. Nuclear safety — Transitional measures (decommissioning)
5. Conventional and renewable energies
 - a. Intelligent Energy – Europe programme
6. TEN-E

The budget titles are analysed according to their objectives and guidelines. Reviewing in how far these objectives achieved and the guidelines obeyed is beyond the scope of the present assessment.

The sustainability of **renewable energies** is generally accepted. Electricity producing renewable energy technologies such as solar and wind power have very low negative impacts on the environment accruing from manufacturing of the installations, or impacts on natural habitats. Hydro power is more controversially discussed as dams can fragment habitats and can have other negative impacts. For smaller installations, these can be mitigated by technical means such as fish passes. For large plants, negative impacts on natural habitats and potentially on biodiversity are rather severe.

Critical issues arise with respect to the use of **biomass-based energies**. Here, sustainability criteria as laid down in the Renewable Energy Directive are a first step to ensure the sustainable production of biomass energy. Over the full fuel chain, greenhouse gas emission reductions of biofuels compared to conventional fuels of 35% are required until including 2016, 50% from 2017, and 60% from new installations from 2018. This compares to almost 100% reduction by electricity producing renewable energies. A strongly critical issue is the aspect of **indirect land use change**.³³ Furthermore, fragmentation of natural habitats, threats to biodiversity, competition to food production and other issues are critical. In essence, biomass energy is sustainable if certain boundary conditions are obeyed. Here, further action on European level is definitely required.

³³ Indirect land use change covers greenhouse gas emissions from converting land of high carbon stock, e.g. peatland, forest, etc., into land of low carbon stock, notably agricultural land. The sustainability criteria defined in the Renewable Energy Directive require including the greenhouse gas emissions stemming from direct land use change into the greenhouse gas balance. However, if high carbon stock land is converted to agricultural land, and former agricultural land to biomass production land, then land use change emissions are indirectly linked to biomass production. These emissions can be significantly higher than those associated with conventional fossil fuels.

Energy efficiency and savings are generally accepted as sustainable – reducing energy consumption while maintaining the level of service provided obviously reduces environmental burdens. Only in rare cases efforts for achieving energy efficiency improvements are similar or higher than the savings and thus do not entail net improvements. Included here are both efficiency improvements in energy supply, e.g. efficiency improvements in power plants or the combined heat and power production, and energy savings in energy use, e.g. improved thermal insulation of buildings.

Trans-European Network – Energy (TEN-E) expenditures include those from the budget title 32 03 as well as from the structural and cohesion funds. The latter are a factor of four higher than the former. Expenditures are assigned to both electricity and natural gas networks. An assessment of sustainability requires detailed information on the nature and objective of the individual expenditures. It is worth highlighting here that there is a need for extending and strengthening electricity grids in order for them to absorb higher shares of renewable energies. For natural gas grids, injection of upgraded biogas (bio-methane) into the gas grid requires certain infrastructure investments. Furthermore, fuel switching from coal or oil to natural gas results in measurable reductions of greenhouse gas emissions.

The objectives of TEN-E as laid down in Decision No 1364/2006/EC of the European Parliament and of the Council include both “encouraging the effective operation and development of the internal market in general and of the internal energy market in particular” and encouraging “the development and connection of renewable energy resources” (European Union, 2006).³⁴ **“Projects of European interest** have a cross-border nature or have a significant impact on trans-border capacity. They have first priority for funding from the Community TEN-E budget.” Projects with a “significant impact [...] on the use of renewable energy sources” only have second priority (European Commission, 2010j).

In its recent communication to the European Parliament and the Council, the European Commission has reemphasized this twofold objective (European Commission, 2010k). In order to enhance the limited impact of TEN-E “[...] the Commission intends to prepare, in 2011, as part of its proposals for the next multiannual financial framework [...] an Energy Security and Infrastructure Instrument”.

In light of these aspects, investments in electricity and gas grids may advance sustainable development, or at least are not counterproductive. Nonetheless, requiring TEN-E expenditures to comply with both requirements of enhancing the European integration of energy markets and of sustainability would bring about significantly enhanced sustainability gains.

Other or **“traditional energy sources”** are assumed here to designate fossil energy sources, which are not sustainable.

As for subsidies given to nuclear energy, “on the one hand some countries consider that it can be environmentally beneficial, as long as appropriate measures are taken to ensure safety, because the use of nuclear power contributes to the reduction of greenhouse gases. On the other hand, some other countries do not consider that nuclear power is an environmentally beneficial form of energy [...]” (OECD, 2005).

³⁴ The status and perspectives of electricity and natural gas market integration are discussed in detail in Altmann et al., (2010).

The three titles in the EU budget under the chapter on nuclear energy cover: a) nuclear safeguards; b) nuclear safety and protection against radiation; c) transitional measures (decommissioning). Therefore, EU direct support to nuclear power contributes to environmental and safety issues, related mostly to the 'risk' of high-level environmental damage, rather than to increase the generation of nuclear energy. Nonetheless, the question of how to safely store long-lived radioactive nuclear waste remains unresolved (EEA, 2004). In this vein, the quality of the existing information on radioactive waste and its comparability across Member States hinders the adoption of an indicator based on radioactive waste (European Commission, 2007e).

The sustainability of **nuclear energy** is thus a very complex issue and controversially debated in the public arena. Most of all, "the lack of consistent subsidy data is an obstacle to reaching more definite conclusions on the appropriateness of the amounts and structures of subsidies for the different fuels across the EU" (EEA, 2004).

Energy research encompasses the energy technologies discussed in the following paragraphs.

Fusion energy is acknowledged by all experts as a field of research with first commercial power plants online after 2050 at best. This requires fundamental breakthroughs in science and technology, which may or may not be achievable at all. In order to limit global warming to 2°C, industrialised countries need to reduce their greenhouse gas emissions by 90% by 2050. Thus, fusion energy will not be able to make any contribution to climate protection. Critics therefore demand to stop expenditures for fusion energy and to reallocate these budgets to sustainable energy technologies. Nevertheless, little research has been done on the role that fusion energy could play in both energy supply and CO₂ mitigation during this century (Tokimatsu et al., 2000).

Critical sustainability issues related to fusion energy include the consumption of finite natural resources³⁵, nuclear proliferation risks (Deutscher Bundestag, 2002) as well as issues of radioactivity such as radiation protection and radioactive waste, although at a lower level than with nuclear fission. Due to the complexity of nuclear fusion and the lack of complete data regarding the potential contribution of this source to future energy supply and CO₂ mitigation the sustainability of fusion energy is uncertain.

The concept of **carbon capture and storage (CCS)** which is in the research and development stage, consists of separating CO₂ emissions from fossil energy processes and of storing the gas in geological formations for an unlimited period. Sustainability issues include on the positive side the avoidance of greenhouse gas emissions, and on the negative side the reduced energy efficiency of the overall energy conversion process from fossil energy to end energy (electricity, fuel etc.), the risks posed by CO₂ handling and geological storage, the increased costs, which may make renewable energies simply more cost competitive, the limited geological storage capacities, the issue of reliable storage for an unlimited period or gas leakage as well as the continued reliance on depleting limited fossil energies. For these reasons, it's too premature to assess the impacts of this technology.

The objective of **clean coal** research and development is to improve the efficiency of plants, reliability and costs. The efficiency improvements aimed at are technologically speaking challenging. However, environmentally speaking they are very low compared to the technical lifetime of coal-fired power plants of typically 40 years.

³⁵ Notably consumption of lithium in the breeding of tritium from lithium as fusion fuel.

With technical maturity in 2020, efficiency improvements resulting in CO₂ emission reductions of 10% emissions will still be at 90% in 2060, while a reduction by 90% is required. Thus, clean coal is a stumbling block for sustainable development rather than a contribution to it.

Fuel Cell and Hydrogen Joint Undertaking is a public private partnership aimed at supporting research, technological development and demonstration (RTD) activities in fuel cell and hydrogen energy technologies in Europe. Fuel cells and hydrogen have the potential to significantly reduce carbon dioxide emissions, to ease dependence on fossil energies and to contribute to economic growth. The sustainability of hydrogen used in fuel cells or other technologies depends on the primary energies used for its production. Fuel cells improve energy efficiency of energy conversion and thus contribute to a sustainable development. In transport, hydrogen is a major enabler as a potentially 100% renewable fuel.

The **Intelligent Energy Europe** programme is exclusively funding actions in the field of sustainable energy.

Table 14: Summary of unsustainable EU budget expenditures in energy

Heading	Policy Area	Title		Sustainability	Comments
1a	Research	08 05	Cooperation - Energy	☹️	CCS, clean coal
		08 20	Euratom – Fusion energy	Controversial	
		08 21	Euratom – Nuclear fission and radiation protection	Controversial	
	JRC	10 02	Directly financed research operational appropriations – FP7 – EC-JRC	-	partly dedicated to energy
	Energy	32 01	Administrative expenditure of 'Energy' policy area	😊	
		32 03	Trans-European Networks – Energy (TEN-E)	😊	
32 04		Conventional and renewable energies	😊		
32 05		Nuclear energy	Controversial		
		32 06	Research related to energy	☹️	clean coal
1b			Structural and Cohesion Funds	😊	critical: "other" / "traditional" energy sources
2	Agriculture Rural Dev.	05 02 17 03	Support for initiatives for low carbon, low energy, locally marketed food production	😊	
4	Dev. ACP	21 04 01	Environment and sustainable management of natural resources, including energy	-	partly dedicated to energy
	Energy	32 04 11	Energy Community	-	
Total				26% of the budget is controversial	
				😊	Uncontroversial budget excl. JRC, ACP

Source: Altmann/ Ludwig-Bölkow-Systemtechnik GmbH 2011.

Based on the above assessment, it is difficult to supply detailed information on the performance of the expenditure in the energy field. Due to the uncertainty related to the sustainability of several areas and their important share on the expenditure (mainly related to both fusion and fission nuclear energy as well as carbon capture and storage), several items of the budget have been left out of the assessment. Thus, the results have to be interpreted cautiously.

4.4. Conclusions and recommendations

On the basis of the outcome of the analysis on transport and energy subsidies, it is recommended to carry out a full EHS reform tool analysis of the critical budget titles in order to provide clear and well-founded recommendations for political action to remove unsustainable elements of the EU budget. In-depth analyses of the individual EU budget titles are beyond the scope of the present analysis. Egenhofer et al. (2008) criticise in their energy policy and climate protection analysis of the EU budget:

“Although the reduction of greenhouse gas emissions is mentioned in the various guidelines of the budget, on many occasions it seems an insertion without much substance. An analysis of the regional operational programmes in member states benefiting from structural funds for convergence confirms that expenditures on energy efficiency and renewables are generally low and cannot be expected to offset the expected increases of emissions from planned developments, especially for transport and tourism.”

In addition to existing independent sectoral sustainability monitoring activities such as the Transport and Environment Reporting Mechanism (TERM), which has a broader scope, focused analyses of certain budget headings and budget titles with respect to sustainability indicators is recommended. A detailed review and assessment of the structural and cohesion funds with respect to the set European sustainability indicators, an assessment of the research priorities and programmes as well as of the Euratom programmes is recommended.

Certain expenditures in the EU budget neither have a positive nor a negative impact on sustainable development, i.e. they are sustainability-neutral. Alternatives for these budget titles exist or could be developed which advance sustainable development while achieving the original objectives as well.

Other desirable expenditures, which are not included in the EU budget, would have clear positive impacts. Complementing the present analysis, it would be rewarding to analyse such elements of non-action, and develop suitable recommendations.

Other sources of subsidies are much more significant than the EU budget expenditures. These include loans by the European Investment Bank and Member State expenditures, which are in the focus of criticism over unsustainable subsidies (Husova et al., 2009).

The EU has a potentially important influence on these sources of subsidies through EU policies. Thus, the EU budget represents only one element of several to foster a sustainable development at European level. Comprehensive independent analyses of all European policy elements with respect to sustainability are recommendable.

5. FISHERIES

KEY FINDINGS

- The EU has failed to meet the sustainability objectives laid out in the CFP. Too many boats continue to chase too few fish; subsidies have contributed to this.
- Member States continue to fail to adequately report on their efforts to balance fishing capacity and fishing opportunities.
- The regulatory regime for subsidies has to be improved. Effective reporting and monitoring tools have to be installed that allow for aid targeting the adaptation of EU fleet's capacity to existing resources. Additional measures include increased transparency, improved reporting compliance from the Member States and the exclusion of benefits to those operators infringing upon EU law.
- Potentially good subsidies, which benefit the entire fishing sector, should be fostered, such as aid for monitoring and control regimes, scientific research for stock assessments or the reduction of impacts on marine habitats.
- Subsidies should be curbed that may have potentially harmful effects in the absence of a reliable regulatory regime. This includes aid for modernisation, fuel subsidies, and other contributions for operating costs, processing activities or price support.

5.1. Introduction

The European Fishing industry faces immense challenges in economical, ecological and social respects. In an effort to support a respective transitioning of the sector, the European Union and its Member States grant subsidies to the fishing industry. As over 72 percent of the assessed EU fish stocks are overfished and 22 percent fall outside of safe biological limits (European Commission, 2010m), one of the main outcomes that is needed as a result of this transition is to bring the fishing capacity in line with the sustainable yield of stocks.

Subsides in the fisheries sector may have several negative effects such as creating or maintaining overcapacities or lowering retail prices, thereby increasing additional consumer demand for resources that are already under pressure. From a purely economic point of view, support schemes artificially increase potential revenue. Ultimately, subsidies may create incentives for unprofitable fleets to remain in business or to increase their fishing efforts, resulting in overcapacity and leading to an overexploitation of the resources (Sumaila and Pauly eds., 2007). The extent to which fisheries subsidies cause environmentally harmful effects depends on variables like the state of the existing management system, the type of fishery, the way in which it functions and control and enforcement measures as well as the biological status of stocks (Markus, 2010).

In the case of the European Union, it remains a challenge to align the respective management and control systems in such a way that fisheries subsidies do not cause harm to fish resources. The support schemes under the CFP have changed in recent years, reflecting the EU Sustainable Development Strategy from May 2001. A variety of subsidies have been eliminated, such as the construction of new vessels, and funds have been redirected to programs aimed at reducing fleet capacity, but the overall fishing capacity has not been sufficiently reduced to date ('Baltic Sea 2020', 2009).

On 22 April 2009, the European Commission published a Green Paper “Reform of the Common Fisheries Policy”. The paper illustrates how the substantial public financial support for the fisheries sector is often incompatible with, and even contradictory to other Common Fisheries Policy (CFP) objectives, particularly the need to reduce overcapacities (European Commission, 2009c). In addition, a recent evaluation of the European Fisheries Fund’s (Council Regulation (EC) No 1198/2006) predecessor, the Financial Instrument for Fisheries Guidance (FIFG 2000-2006), demonstrated that Member States generally failed to use environmental or social criteria to guide their decisions on where to allocate subsidies. As a consequence, EU fisheries subsidies continued to maintain and even increase fishing overcapacity in a number of fisheries (Cappell et al., 2010).

5.2. Overview of fisheries subsidies in the European Union

The total value of fisheries subsidies in the European Union is unknown. There are several reasons for this, including that subsidies come from a variety of sources, different definitions of subsidies are applied³⁶ and serious issues remain with transparency aspects and non-compliance with reporting requirements.³⁷ A recent study estimates that subsidies in the European Union account for about 46% of the landed value of fisheries (Sumaila and Pauly eds., 2007). In a number of EU Member States the cost to their national budget of managing and subsidising fisheries now surpasses the economic value of the catches (European Commission, 2008b).

The European Fisheries Fund (EFF) is the main structural funding instrument of the European Union in the fisheries sector. The EFF’s total budget is about €4.3 billion for the seven-year period from 2007-2013.³⁸

In addition, the fisheries sector profits from:

- Support to access the fishing zones of third countries;
- Community aid to support the controlling and monitoring efforts of the Member States;
- The EU tax exemption on fuel used by vessels.
- Support received through other structural funds such as the European Regional Development Fund (ERDF) and the European Social Fund (ESF) with the aim of reducing socio-economic disparities;
- Rescue and restructuring aid such as the emergency aid package to tackle the fuel crisis, the partial allocation of vessel decommissioning aid to firms that switch to smaller, more energy-efficient vessels, temporary reductions in employee contributions to social security payments and emergency aid for the temporary suspension of fishing activities;
- Funds granted for research activities; and
- State aid, above and below the *de minimis* aid level.

³⁶ For an overview of definitions see: OECD (2006).

³⁷ Information is also supplied at: <http://www.followthemoney.eu/through-the-net/> [16.02.2011],

³⁸ A detailed overview is presented in Annex 4. An overview of the different axis of the EFF is provided at: <http://ec.europa.eu/fisheries/cfp/eff/> [16.02.2011]

5.3. Conclusions and recommendations

The potential future impacts of subsidies will depend on the state of fish stocks, the type of management regime and on the degree of success at enforcing rules (OECD, 2010). The EU did not succeed in aligning these factors and, consequently, a gap remains between the official sustainability objectives of the CFP and the results actually achieved. Currently, no viable mechanism exists to assess the correspondence between fishing capacity and fishing opportunity. In the absence of reliable information (e.g. between specific species recovery plans and fleet adaptation to the kind required) (Lutchman et al., 2009), it remains likely that European fisheries subsidies will continue to have harmful effects.

As the problem of too many boats chasing too few fish persists, a proactive approach should be taken to guide the funds in the desired direction. Subsidies that are likely to have negative effects in the absence of a reliable regulatory regime should be curbed and phased out. Subsidies that directly contribute to the recovery of stocks and their environment should be supported. Additional efforts in this direction seem necessary as Member States have shown a clear preference in the past for allocating funds to potentially harmful projects, such as towards fleet adaptation and modernisation rather than nature conservation (Lutchman et al., 2009).

Necessary steps to ensure that public funds contribute to a sustainable fisheries industry include:

The improvement of the regulatory regime by:

- increasing transparency and consistently implementing measures such as the European transparency initiative (European Commission, 2006b; 2007h);
- making the access of Member States to structural funds dependent on the fulfilment of their reporting requirements, especially annual reporting obligations, in an effort to achieve a sustainable balance between fishing capacity and fishing opportunities;
- strengthening conditionality aspects between receiving subsidies and achieving the objectives of the CFP. Non-compliance with the CFP rules should have an effect on the availability of funds. Operators who have been convicted of fraud or IUU practices should face financial sanctions and be excluded from receiving future funding; and
- requiring that any spending under a future financial instrument for the EU fisheries transparently outlines the extent to which the subsidy helps to achieve the objectives of the CFP.

Fostering potentially good subsidies, such as:

- Development of a monitoring and control regime of fisheries;
- Scientific research for stock assessments;
- Reduction of impacts on marine habitats and ecosystems;
- Research and training in the use of environmentally friendly fishing techniques or aquaculture activities; and
- Retraining fishermen for alternative employment opportunities.

Curbing or phasing out potentially harmful subsidies, such as:

- Contributions to operating costs, processing activities or price support;
- Decreasing aid for individual fishing operations and vessel modification;
- Payments for fishing access in third country waters which contribute to overfishing as well as political havoc and armed conflict;³⁹ and
- Phasing out fuel subsidies.

³⁹ There is e. g. strong anecdotal evidence of harmful effects of EU subsidies in Somalia, where fishermen turned to piracy after overfishing from foreign vessels destroyed their means of employment

6. CONCLUSIONS AND RECOMMENDATIONS

The EU budget is considered to be a key item to achieve the targets of the EU2020 Strategy. Nevertheless, the EU budget is only one tool that can contribute to sustainable development.

EU subsidies in the fields of agriculture, cohesion policy, transport, energy and fisheries have unintended harmful effects in the environment. The results of this study suggest a more detailed assessment that would eventually lead to a phasing out of environmentally harmful subsidies. To this end, it is necessary to assess in depth the direct and indirect effects of current EU subsidy framework and proceed to reform. The EHS reform tools could be a good basis for the proposed assessment (for more information see Valsecchi et al., 2009).

A study drawing on country-specific research and expertise within Member States points out that "(t)here is general recognition that the structure of the budget does not reflect the EU's political objectives and policy priorities. In broad terms, the consultation indicates a need for increased spending on the environment, energy and competitiveness, research and knowledge – as well as greater cross-policy coherence in meeting EU goals in these areas (...)" (Bachtler et al., 2009).

The assessment of several budget items has highlighted the need of more transparency in terms of sound information and monitoring of the impacts of policies. The European Transparency Initiative (European Commission, 2006b; 2007h), which among other issues addresses the management and use of Community funds, could be the basis for this task. Likewise, there is a need to improve monitoring systems and to increase reporting efforts from Member States. This could improve decision-making and enable a more efficient assignment of economic resources.

The current economic situation provides a good opportunity to change trends and carry out a shift from environmentally harmful subsidies towards subsidies that could support the EU2020 vision. Investments on environmentally friendly-agriculture, energy and resource efficiency, renewable energies, sustainable mobility, eco-friendly technologies, etc. could improve competitiveness and increase employment in sectors that are considered to be crucial in the short, mid and long term.

RECOMMENDATIONS

- Carry out a full EHS reform tool analysis of the critical budget titles in order to provide clear and well-founded recommendations for political action to remove unsustainable elements of the EU budget. When granting funds, the EU should ensure that the environmental pillar is not undervalued in benefit of other interests, creating thereby win-win situations.
- Increase the efforts in fostering sound information and transparency in line with the European Transparency Initiative.
- Encourage Member States to increase their effort in reporting so as to improve the assessment of the effectiveness of the funds, notably with respect to Structural and Cohesion Funds and fisheries, and to provide thereby the necessary information to allow an effective allocation of funds.

AGRICULTURE

- The payment scheme should be orientated towards environmental components going beyond the existing cross-compliance standards and thereby supporting traditional farming methods rather than intensive production schemes.
- The environmental benefits delivered by cross-compliance standards are disproportionately small as compared to the provided payments. The adoption of measurable targets and the establishment of an output monitoring mechanism would increase the effectiveness of the cross-compliance standards.
- Considering the need to spend public money for public goods, the basic payments should be linked to the payments that remunerate the provision of public goods and maintain the natural capital. The remunerated public goods should be extended and take into consideration a higher variety of public goods provided by agriculture.

STRUCTURAL AND COHESION FUNDS

- The EU cohesion policy should support European priorities. Thus, investments should focus on projects that deliver the largest environmental benefits at European level. In this context, financial support given through the Structural and Cohesion Funds should be environmentally and cost effective in the long term. Therefore, the EU should primarily support solutions that have proven environmental and cost effectiveness over time.
- In order to increase the coherence within and across European policies, the Structural and Cohesion Funds should be part and result of an integrated strategy.
- The systematic inclusion of the term resource efficiency in cohesion policies is necessary to increase the coherence between policies.
- The assessment of the effectiveness of the Structural and Cohesion Funds requires more transparency and better reporting from Member States. In this context, the reporting methodology should rather focus on results than on financial performance. To this end, a comprehensive system of environmental reporting mechanisms should be applied throughout the whole programming cycle.
- The ex ante, mid-term and ex post evaluations should make use of the Sustainable Development Indicators (SDIs). The current indicators used primarily focus on management and financial control. Evaluation should introduce indicators for measuring the environmental impacts.
- Green Public Procurement should be incorporated as a condition for granting funds.

TRANSPORT AND ENERGY

- Support for the transport sector should ensure that there is no associated increase of the greenhouse gas emissions. Thus, the EU should re-focus its investment on urban and regional public transport, sustainable traffic management, cycling, rail transport, and intermodal infrastructure shifting freight from road to rail.
- On the basis of the assessment carried out, a shift of the investment should be encouraged from non-sustainable to sustainable energy sources, which would contribute to the reduction of greenhouse gas emissions.

- A synopsis of existing sectoral environmental and sustainability assessments (like TERM or the Energy and Environment Reports of the European Environment Agency) is an essential recommendable tool to deliver insights of policy impacts and to overcome methodological and data constraints that limit comparisons of specific sectoral analyses. Moreover, focused analyses of certain budget headings and budget titles with respect to sustainability indicators are also recommended.

FISHERIES

- Support to the fisheries sector should be subject to the achievement of the objectives of the CFP and to the fulfilment of reporting requirements by Member States. Thus, non-compliance with the CFP rules should have an effect on the availability of funds.
- More efforts on the fostering transparency are needed to assess the extent to which the subsidy helps to achieve the objectives of the CFP.
- Potentially good subsidies shall be fostered, such as participation in the monitoring and control regime of fisheries; scientific research for stock assessments; reduction of impacts on marine habitats and ecosystems; research and training in the use of environmentally friendly fishing techniques or aquaculture activities; and retraining fishermen for alternative employment opportunities.
- Potentially harmful subsidies shall be phased out, such as contributions to operating costs, processing activities or price support; aid for individual fishing operations and vessel modification; and payments for fishing access in third country waters.

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ANNEX 1: Tools for the identification of environmental harmful subsidies

Three tools have been developed by the OECD to allow the identification and assessment of EHS (Valsecchi et al., 2009):

- ‘Quick scan’: the quick scan (OECD, 1998) inter alia shows that there is no direct linkage between the amount of and nature of support and the environmental impact;
- ‘Checklist’: the ‘quick scan’ approach was developed further with the ‘checklist’ (OECD, 2005) which enables governments to assess whether, given the circumstances, removal of a subsidy will benefit the environment;
- ‘Integrated assessment framework’: the ‘integrated assessment framework’ (OECD, 2007) includes a sustainability perspective and ensures that social and economic trade-offs are included in the assessment. This Chapter provides a brief overview of the aims and structure of the three OECD tools.

In summary, the main strengths of the OECD tools are the following, i.e. they:

- Are effective initial screening tools;
- Avoid the resource intensiveness / rigidities of general equilibrium models or cost-benefit analysis;
- Can be applied at different levels of detail;
- Identify and un-bundle linkages;
- Highlight areas where further detailed empirical analysis is required;
- Prioritise EHS reform on the basis of benefits of removal;
- Are applicable to all sectors and to all subsidy types.

For each tool:

- The ‘quick scan’ is useful for the identification of subsidies following the classification provided and allows an understanding of their impacts on the environment, however it requires modelling.
- The ‘checklist’ is an efficient approach to identify whether subsidy removal is likely to benefit the environment and could be applied on its own, however it ignores potential synergies between impacts in the social and economic areas.
- The ‘integrated assessment’ provides a wealth of additional information and takes the assessment further into considering alternative policies, cost-effectiveness and possible scenarios of reform, thereby creating a stronger basis for embarking on any reform process.

Likewise, the EEA has developed several sectoral sets of indicators that support the assessment of the link between subsidies and the environment. The indicators listed below provide the framework to assess the environmental performance of each sector, which thereby supports the task of identifying and assessing EHS. Current reporting frameworks include indicators for the agricultural, transport and energy sectors (see Table 15, table 16 and Table 17).

Table 15: Set of Agri-Environmental Indicators⁴⁰

Domain	Sub-domain	Nr	Title
Responses	Public policy	1	Agri-environmental commitments
		2	Agricultural areas under Natura 2000
	Technology and skills	3	Farmers' training level and use of environmental farm advisory services
	Market signals and attitudes	4	Area under organic farming
Driving forces	Input use	5	Mineral fertiliser consumption
		6	Consumption of pesticides
		7	Irrigation
		8	Energy use
	Land use	9	Land use change
		10.1	Cropping patterns
		10.2	Livestock patterns
	Farm management	11.1	Soil cover
		11.2	Tillage practices
		11.3	Manure storage
	Trends	12	Intensification/extensification
		13	Specialisation
		14	Risk of land abandonment
	Pressures and benefits	Pollution	15
16			Risk of pollution by phosphorus
17			Pesticide risk
18			Ammonia emissions
19			Greenhouse gas emissions
Resource depletion		20	Water abstraction
		21	Soil erosion
		22	Genetic diversity
Benefits		23	High Nature Value farmland
	24	Renewable energy production	
State/Impact	Biodiversity and habitats	25	Population trends of farmland birds
	Natural resources	26	Soil quality
		27.1	Water quality - Nitrate pollution
		27.2	Water quality - Pesticide pollution
	Landscape	28	Landscape - state and diversity

Source:

http://epp.eurostat.ec.europa.eu/portal/page/portal/agri_environmental_indicators/introduction/analytical_frame_work [15.02.2011]

⁴⁰ A complete background on the trends of the Agri-Environmental Indicators is given in Annex 2.

Table 16: Set of TERM indicators

Indicator	
TERM 01	Transport final energy consumption by mode
TERM 02	Transport emissions of greenhouse gases
TERM 03	Transport emissions of air pollutants
TERM 04	Exceedances of air quality objectives due to traffic
TERM 05	Exposure to and annoyance by traffic noise
TERM 06	Fragmentation of ecosystems and habitats by transport infrastructure
TERM 07	Proximity of transport infrastructure to designated areas
TERM 08	Land take by transport infrastructure
TERM 09	Transport accident fatalities
TERM 10	Accidental and illegal discharges of oil at sea
TERM 11	Waste oil and tires from vehicles
TERM 11a	Waste from road vehicles (ELV)
TERM 12a/b	Passenger transport volume and modal split (core set indicator 035)
TERM 13a/b	Freight transport volume and modal split (core set indicator 036)
TERM 14	Access to basic services
TERM 15	Regional accessibility of markets and cohesion
TERM 16	Access to transport services
TERM 18	Capacity of infrastructure networks
TERM 19	Infrastructure investments
TERM 20	Real change in transport prices by mode
TERM 21	Fuel prices and taxes
TERM 22	Transport taxes and charges
TERM 23	Subsidies
TERM 24	Expenditure on personal mobility by income group
TERM 25	External costs of transport
TERM 26	Internalisation of external costs
TERM 27	Energy efficiency and specific CO ₂ emissions
TERM 28	Specific emissions
TERM 29	Occupancy rates of passenger vehicles
TERM 30	Load factors for freight transport
TERM 31	Uptake of cleaner and alternative fuels (core set indicator 037)
TERM 32	Size of the vehicle fleet
TERM 33	Average age of the vehicle fleet
TERM 34	Proportion of vehicle fleet meeting certain emission standards
TERM 35	Implementation of integrated strategies
TERM 36	Institutional cooperation
TERM 37	National monitoring systems
TERM 38	Implementation of SEA
TERM 39	Uptake of environmental mgt. systems by transport companies
TERM 40	Public awareness

Source: EEA, 2010.

Table 17: Set of indicators for energy and environment

Is the use and production of energy having a decreasing impact on the environment?	
EN01	Energy and non-energy related greenhouse gas emissions
EN02	Energy-related greenhouse gas emissions
EN05	Energy-related emissions of ozone precursors
EN06	Energy-related emissions of acidifying substances
EN07	Energy-related particle emissions
EN08	Emissions intensity of public conventional thermal power production
EN09	Emissions from public electricity and heat production — explanatory indicators
EN13	Nuclear waste production
EN14	Accidental oil tanker spills
EN15	Discharge of oil from refineries and offshore installations
Is energy use decreasing?	
EN16	Final energy consumption by sector (core set indicator 27)
EN18	Electricity consumption
How rapidly is energy efficiency increasing?	
EN17	Total energy consumption intensity (core set indicator 28)
EN21	Final energy consumption intensity
EN19	Energy efficiency of conventional thermal electricity generation
EN20	Combined heat and power
Is there a switch to less polluting fuels?	
EN26	Total energy consumption by fuel (core set indicator 29)
EN27	Electricity production by fuel
How rapidly are renewable energy technologies being implemented?	
EN29	Renewable energy consumption (core set indicator 30)
EN30	Renewable electricity (core set indicator 31)
Are environmental costs better incorporated into the pricing system?	
EN31	Energy prices
EN32	Energy taxes
EN34	Energy subsidies
EN35	External costs of electricity production

Source: EEA, 2006b.

ANNEX 2: AGRICULTURE

1. Options for SPS design and calculation

Member States have options in how they calculate and make payments. The main difference is whether they base the SPS on what direct payments individual farmers received in the historic reference period, thus producing different levels of SPS for each farmer, or whether all payments are averaged out over a state or region. The main options are:⁴¹

- Basic (historic) approach: each farmer is granted entitlements corresponding to the payments he received during the reference period (reference amounts) and the number of hectares he was farming during the reference period and which gave right to direct payments in the reference period.
- Regional (flat rate) approach: reference amounts are not calculated at individual farmer level but at regional level - the sum of the payments received by the farmers in the region concerned during the reference period. Regional reference amounts are then divided by the number of eligible hectares declared by the farmers of the region in the year of SPS introduction, to establish the value of a single entitlement in that region. Finally, each farmer receives a number of (flat rate) entitlements equal to the number of eligible hectares declared in the year of SPS introduction. This approach entails some redistribution of payments between farmers.
- Mixed models: Member States may, in justified cases, apply different calculation systems in different regions of their territory. They may also calculate SPS payments using a part-historic/part-flat rate approach. Such 'hybrid' systems can further vary over the period between first application of the SPS and full implementation, giving rise to dynamic as well as to static hybrid systems.

'Dynamic hybrid' systems can act as a vehicle to transit from the basic (historic) to the regional (flat) rate approach.

2. Subsidy Definitions Used in OECD Sectoral Analysis

"Agriculture: the most commonly used definitions and measures of subsidies are the producer support estimate (PSE), the consumer support estimate (CSE), the total support estimate (TSE), calculated annually by the OECD; and the aggregate measurement of support (AMS) used in the GATT Uruguay Round and WTO agricultural negotiations. OECD estimates cover market price support, financial transfers (including those to reduce the cost of fixed capital and/or variable inputs), general services (transfers covering the costs of research, marketing and structural/infrastructure services) and consumption subsidies. Data are available with respect to both production and consumption" (OECD, 2005).

"In general, a subsidy is harmful to the environment if it leads to higher levels of waste and emissions, including those in the earlier stages of production and consumption, than what would be the case without the support measure. This includes higher levels of resource extraction than is socially optimal as well as impacts on biodiversity. Removing the subsidy would result in an improvement in environmental outcomes, as the benefits from removing the subsidy would be expected to exceed the cost of removing the subsidy.

⁴¹ http://ec.europa.eu/agriculture/capreform/infosheets/pay_en.pdf [23.01.2011]

The main factors that determine the environmental effects of support measures are the:

- Level of protection from competition that support measures offer the recipient sector and the extent to which alternatives to the recipient sector are discouraged as a result;
- Environmental effects of the alternative products or technologies that are discouraged by the support measure, compared with those of the supported sector; and
- Circumstances that determine how sensitive the environment is to the particular change in emission or waste levels brought about by the support measure” (ibid.).

3. Impacts of PSE measures on the environment

Main categories of PSE measures that can be ranked according to their relative impacts on the environment, as follows (OECD, 2005 on the basis of 2002a):

Market price support and payments based on output both increase the price received by producers for a specific commodity such that the more the commodity is produced, the higher will be the support. Thus, the higher these forms of support, the greater is the incentive for monoculture, for increasing the use of inputs (such as chemicals), and/or for using environmentally sensitive land, and the higher is the pressure on the environment. Moreover, these payments have the lowest effectiveness in achieving environmental goals, as they are sector-wide payments that cannot be targeted to any environmental goal or situation that are generally local.

Payments based on input use reduce the cost of inputs used by producers such that the more the input is used the higher will be the support. Thus, the higher these payments, the greater the incentive to use the input, and the greater the impact on production and the environment. The more the payment is specific to a variable input (e.g. fertilizer, pesticide) the greater the incentive for production intensification, and the pressure on the environment. For example, the environmental impact of a credit subsidy for purchasing fertilizers or pesticides is potentially higher than a credit subsidy for acquiring farm land or extending farm buildings. Therefore, these payments may have a higher, the same, or a lower effect on production and the environment than an output payment depending on the type of input on which the payment is based.

Payments based on area planted/animal numbers reduce the cost of land/livestock for current plantings/animal numbers. As producers have to plant a specific crop or own specific animals, these payments may be an incentive for keeping environmentally sensitive land producing commodities non-environmentally-friendly in such land. Although these payments may be targeted to a specific environmental goal or situation, they provide an incentive to bring additional land or animals into specific production and encourage monoculture in the same way as the payments based on output. However, as producers are not encouraged to increase yields and to produce as intensively as they are with the forms of support outlined above, the environmental impact of these payments is potentially lower.

Payments based on historical entitlements (i.e. past support, area, animal numbers, production, or income) **and payments based on overall farming income** (paid on the condition that the overall farmers’ income is below a pre-defined level) also have the potential for retaining environmentally sensitive areas under production. However, as to receive these payments producers are not obliged to plant, own animals, or produce any particular commodities, they allow for individual choices on environmentally friendly production techniques, and do not encourage production intensification and/or monoculture.

Therefore, the impact of these payments on the environment is relatively benign or lower than the previous forms of support.

Payments based on input constraints are paid on the condition that farmers respect certain constraints (reduction, replacement or withdrawal) on the use of inputs often for environmental purposes. These payments may be targeted to specific environmental situations to address specific environmental issues associated with agriculture. They may contribute to offset the reduction on a positive environmental impact or the increase on a negative environmental impact of farming activities often benefiting from one or more of the previous forms of support. Mainly through input constraints that reduce production intensity, they encourage production diversification, or put environmentally sensitive land aside from production relative to what would otherwise occur. The environmental impacts of these payments depend on the type of constraint, but they have the potential for reducing environmental pressure and for being the most environmentally effective PSE measures.

4. Agri-environmental indicators (AEI)

Agri-environmental indicators (AEI) were developed to monitor the integration of environmental dimensions into the Common Agricultural Policy at the EU, national and regional levels. An initial list of AEI was developed in two Commission Communications from 2000 and 2001 and was revised as part of the IRENA (Indicator Reporting on the integration of ENvironmental concerns into Agricultural policy) operation shortly thereafter. The IRENA project produced a set of 42 indicators and sub-indicators as well as 40 fact sheets covering the EU15. As this data is now outdated, the European Commission adopted 28 agri-environmental indicators in a Communication in 2006 (European Commission, 2006c).

The set of indicators aims to address specific questions regarding agricultural driving forces, pressures and benefits, the state of and impact on habitats and biodiversity as well as agri-environment policy responses.⁴² The intention is to gain a better understanding of whether policy or production changes threaten environmental conservation goals or if they positively impact the preservation and betterment of environmental resources.

At present, the level of development of the newest indicators varies greatly. While six are already operational⁴³ and have produced clear data at the appropriate regional levels, others have substandard modelling approaches or lack regional or synchronised data.⁴⁴ Therefore, trends and patterns within the indicator set as a result of modifications within the CAP cannot yet be identified for all indicators. Available results and overarching patterns to date are outlined in this section.

Regarding **organic farming**, there has been an upward trend in the total organic area (the fully converted area and areas under conversion) within the EU27. Eurostat⁴⁵ has shown that there was an increase of 7.4% between 2007 and 2008, as compared to 5.9% between 2006 and 2007. Specifically, Belgium, Bulgaria, Greece, Spain, Hungary, Slovakia and the United Kingdom recorded a growth of over 10% from 2007-2008. During the same period, Italy's area under organic crops fell by 12.9% and Spain's increased by 33.3%.

⁴² See: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Agri-environment_indicators_essential_tools_to_assess_EU_agricultural_policy [16.02.2011]

⁴³ i.e. agricultural areas under EU nature protection (Natura 2000) ; area under organic farming ; irrigation, for example areas and crops which are irrigated; intensification/extensification; specialisation; and share of agriculture in greenhouse gas emissions (see http://epp.eurostat.ec.europa.eu/statistics_explained/images/e/ec/AEI.PNG [16.02.2011])

⁴⁴ See http://epp.eurostat.ec.europa.eu/portal/page/portal/agri_environmental_indicators/introduction

⁴⁵ See http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-10-010/EN/KS-SF-10-010-EN.PDF [16.02.2011]

Previous trends from 1998 – 2005 also show an increase in the total organic farming area by 130% in the EU-15; by 2005, the area amounted to 4% of the total utilised agricultural area (UAA) in the EU-25 (SoCo Project Team, 2009).

The impact of Axis 2 measures on **soil quality** remains less widely quantified. Limited evaluations completed as part of the 2000-2006 rural development programming period propose that soil quality has improved and soil erosion has decreased as a result of agri-environment measures (ibid.), although these assessments are often based on insufficient information and should be reassessed.

Specialisation and diversification trends were also highlighted by Eurostat (2010) due to their potential impacts on genetic diversity, the nutrient balance of the holdings and land abandonment (the consequence of reduced security from specialisation). Results indicate that the distribution of crop-specialist, livestock-specialist and mixed-farming holdings remained rather stable between 2003 and 2007. In 2007, 40% of agricultural holdings in the EU27 were specialised in cropping (field crops, horticulture, permanent crops), 22% in livestock (grazing livestock, granivores) and 38% were mixed-farming holdings (mixed cropping, mixed livestock, mixed cropping/livestock). While the Mediterranean and Scandinavian regions of Europe are dominated by specialist cropping farms, specialist livestock is the dominant farm type in parts of Western Europe (i.e. Ireland, UK, Benelux, Germany). In most new Member States, mixed farming is the dominant farm type.

For the **intensification/extensification** indicator, a different trend emerges for the old Member States (EU15) and the new Member States (NMS10) from the period 2004–2007.⁴⁶ While extensification in the EU15 was very slight but continuous, significant intensification took place in the NMS-10. Yet, the input expenditure per hectare in the NMS10 was much lower than in the EU15. More specifically, the share of UAA managed by high-intensity farms rose from 11% to 16% in the NMS-10 and decreased from 32% to 31% in the EU15. The UAA managed by low-intensity farms fell in the same period from 55% to 47% in the NMS10, but increased from 32% to 3 % in the EU15.

Eurostat's agri-environmental statistics from 2010⁴⁷ reveal that between 2003 and 2007, the total **irrigable area** in the EU (excluding Germany and Estonia) decreased by 8.2%. The actual irrigated area also decreased by 6.5% as compared to 2003. The share of the irrigable area in total UAA in the EU (again, excluding Germany and Estonia) was 9.8% in 2007, while the share of the irrigated area was only 6.7%. The share of irrigable area in total UAA is the largest in the Mediterranean countries, such as Greece (38.2%), Cyprus (31.4%), Malta (31.0%) and Italy (31.0%). However, the report also outlined the large variations existing between regions and countries.

⁴⁶ "The thresholds for the categories have been set in such a way that the UAA in the EU-15 is equally distributed for the first year of the analysis (1995). Farms spending less than 125 €/ha are classified as low intensity, those spending more than 295 €/ha as high intensity, and those with intermediate spending are considered to be medium-intensity farms" (Eurostat, 2010).

⁴⁷ See http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Agri-environmental_statistics#Main_statistical_findings [16.02.2011]

ANNEX 3: TRANSPORT AND ENERGY

1. Sustainable Development Indicators

In order to narrow down the present analysis on identifying unsustainable items in the EU budget, sustainability indicators are analysed in the following section.

According to the OECD, environmentally harmful subsidies are “all kinds of financial supports and regulations that are put in place to enhance the competitiveness of certain products, processes or regions, and that, together with the prevailing taxation regime, (unintentionally) discriminate against sound environmental practices” (Prettenthaler et al., 2004).

It should be noted that

“[...] this definition excludes consideration of ‘non-action’. In some cases non-action (e.g. not applying road pricing to cover costs of roads, not internalising externalities) can also lead to prices not reflecting environmental and social costs and hence create implicit subsidies” (Valsecchi et al., 2009).

On 15/16 June 2006, the European Council adopted the *Renewed EU Sustainable Development Strategy* (SDS) (European Council, 2006). It defines sustainable development as follows:

“Sustainable development means that the needs of the present generation should be met without compromising the ability of future generations to meet their own needs. [...]

To that end it promotes a dynamic economy with full employment and a high level of education, health protection, social and territorial cohesion and environmental protection in a peaceful and secure world, respecting cultural diversity.”

In his communication to the members of the commission (European Commission, 2005), Mr. Almunia, at that time Commissioner for Economic and Monetary Affairs, defined a preliminary set of sustainable development indicators (SDIs), which serve to monitor progress towards achieving the headline objectives of the Sustainable Development Strategy and the other core EU policy documents. In 2007, the European Commission provided its first progress report on SDS, with an accompanying Commission staff working document listing further SDIs to be developed (European Commission, 2007f).

These SDIs are used by Eurostat to monitor the EU Sustainable Development Strategy in a report published every two years, the latest being published in 2009. Eurostat (2009) provides a list of all SDIs including indicators to be developed based on Annex II of the Progress report on the European Union Sustainable Development Strategy (European Commission, 2007f).

“Such information will serve to inform policy-makers and the general public of the latest developments in trends concerning sustainable development” (European Commission, 2005).

The Eurostat (2009) list includes ten categories of SDIs, 34 subcategories and a total of 192 SDIs or SDIs to be developed. These SDIs will be used in the present analysis.

Table 18: Set of Sustainable Development Indicators

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
SOCIOECONOMIC DEVELOPMENT				
tsdec100	Growth rate of GDP per inhabitant	GDP growth per capita	CH1: 46, 47	(SI), (MDG), (UN-CSD), (Laeken), (OECD)
Economic development				
tsdec210	Total investment	Investment	CH1: 49	(UN-CSD), (OECD)
tsdec211	Public investment	Investment	CH1: 49	
tsdec212	Business investment	Investment	CH1: 49	SI
tsdec220	Dispersion of regional GDP per inhabitant	Regional disparities in GDP	CH1: 51	(OECD)
tsdec230	Net national income			
tsdec240	Household saving rate	Household saving	CH1: 52	(UN-CSD), (OECD)
Innovation, competitiveness and eco-efficiency				
tsdec310	Growth rate of labour productivity per hour worked	Labour productivity growth	CH1: 53	(SI), (UN-CSD), (OECD)
tsdec320	Total R&D expenditure	R&D expenditure	CH1: 54	SI, (UN-CSD), (OECD)
tsdec330	Real effective exchange rate			
tsdec340	Turnover from innovation			
tsdec350	Effects of innovation on material and energy efficiency			
tsien020	Energy intensity of the economy	Energy intensity	CH1: 55	SI, (UN-CSD), (EEA), (OECD)
tsdec370	Effects of innovation on reduced environmental impacts or improved health and safety			
Employment				
tsdec410	Employment rate	Employment	CH1: 56	(SI), (MDG), (UN-CSD), (Laeken), (OECD)
tsdec420	Employment rate, by gender	Female employment	CH1: 58	SI, (Laeken), (OECD)
tsdec430	Employment rate, by highest level of education attained	Employment	CH1: 57	(OECD)
tsdec440	Dispersion of regional employment rates, by gender	Disparities in regional employment	CH1: 59	SI, (Laeken), (OECD)
tsdec450	Unemployment rate, by gender	Unemployment	CH1: 62	SI, (Laeken), (OECD)
tsdec460	Unemployment rate, by age group	Unemployment	CH1: 62	(Laeken)
Indicators to be developed				
	Genuine savings			
	Eco-innovations			
SUSTAINABLE CONSUMPTION AND PRODUCTION				
tsdpc100	Resource productivity	Resource productivity	CH4: 124, 125	SI, (UN-CSD)
Resource use and waste				
tsdpc210	Municipal waste generated	Municipal waste	CH4: 129	SI, (UN-CSD), (EEA), (OECD)

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
tsdpc220	Components of domestic material consumption	Domestic material consumption	CH4: 127	
tsdpc230	Domestic material consumption by material	Domestic material consumption	CH4: 128	(UN-CSD)
tsdpc240	Municipal waste treatment, by type of treatment method	Recycled and composted municipal waste	CH4: 130	SI, (UN-CSD), (EEA)
tsdpc250	<i>Generation of hazardous waste, by economic activity*</i>			(UN-CSD)
tsdpc260	Emissions of acidifying substances by source sector	Atmospheric emissions	CH4: 131, 132	(EEA)
tsdpc270	Emissions of ozone precursors by source sector	Atmospheric emissions	CH4: 131, 132	(EEA)
tsdpc280	Emissions of particulate matter by source sector	Atmospheric emissions	CH4: 131, 132	(EEA)
Consumption patterns				
tsdpc310	Electricity consumption of households	Electricity consumption of households	CH4: 136	
tsdpc320	Final energy consumption, by sector	Final energy consumption	CH4: 137	(UN-CSD), (EEA)
tsdpc330	Consumption of certain foodstuffs per inhabitant			
tsdpc340	Motorisation rate	Car ownership	CH4: 138	
Production patterns				
tsdpc410	Organisations and sites with EMAS registration	Environmental management systems	CH4: 139	
tsdpc420	Eco-label awards	Eco-labels	CH4: 140	
tsdpc430	Area under agri-environmental commitment			(SEBI)
tsdpc440	Area under organic farming	Organic farming	CH4: 142	(UN-CSD), (EEA)
tsdpc450	Livestock density index	Livestock density index	CH4: 143	
Contextual indicators				
tsdpc510	Number of households (for sub-theme Consumption patterns)	Number of households	CH4: 134	
tsdpc520	Household expenditure per inhabitant, by category (for sub-theme Consumption patterns)	Household expenditure	CH4: 135	(OECD)
Indicators to be developed				
	Total material consumption			
	Green public procurement			
	Share of consumption of products with an ecolabel / Awareness of ecolabels			
	Nitrogen balance			(SEBI)
	Ethical financing			

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
	Share of industrial production from enterprises with a formal environmental management system			
	Share of production of products with an ecolabel			
	Energy and material use per unit of output, by industrial sector			

SOCIAL INCLUSION				
tsdsc100	At-risk-of-poverty rate, by gender	Risk of poverty	CH7: 200, 202	SI, (UN-CSD), (Laeken), (OECD)
Monetary poverty and living conditions				
tsdsc210	At-persistent-risk-of-poverty rate*			SI, (Laeken)
tsdsc230	At-risk-of-poverty rate, by age group	Risk of poverty	CH7: 200, 201	
tsdsc240	At-risk-of-poverty rate, by household type	Risk of poverty	CH7: 201	
tsdsc250	Relative at-risk-of-poverty gap	Intensity of poverty	CH7: 203	(MDG), Laeken, (OECD)
tsdsc260	Inequality of income distribution	Income inequalities	CH7: 204	SI, (UN-CSD), (Laeken), (OECD)
Access to labour market				
tsdsc310	People living in jobless households, by age group	Jobless households	CH7: 205	(SI), Laeken
tsdsc320	In-work poverty	Working poor	CH7: 206	(Laeken)
tsdsc330	Total long-term unemployment rate	Long-term unemployment	CH7: 207	SI, (Laeken), (OECD)
tsdsc340	Unadjusted gender pay gap	Gender pay gap	CH7: 208	SI
Education				
tsdsc410	Early school-leavers	Early school-leavers	CH7: 210	SI, Laeken
tsdsc420	At-risk-of-poverty rate, by highest level of education attained	Risk of poverty	CH7: 201	
tsdsc430	Persons with low educational attainment, by age group	Adults with low educational attainment (adults)	CH7: 211	(SI), (UN-CSD), Laeken, (OECD)
tsdsc440	Life-long learning	Lifelong learning	CH7: 212	SI, (UN-CSD)
tsdsc450	Low reading literacy performance of pupils			Laeken
tsdsc460	Individuals' level of computer skills			
tsdsc470	Individuals' level of internet skills			
Contextual indicator				
tsdsc510	Public expenditure on education (for sub-theme Education)	Public expenditure on education	CH7: 209	SI, (OECD)
Indicators to be developed				
	Child well-being			(Laeken)
	Material deprivation			(Laeken)
	Adequacy of housing conditions			(Laeken)

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
DEMOGRAPHIC CHANGES				
tsdde100	Employment rate of older workers	Employment rate of older workers	CH8: 221	SI, Laeken, (OECD)
Demography				
tsdde210	Life expectancy at age 65, by gender	Life expectancy at age 65	CH8: 223	(Laeken)
tsdde220	Total fertility rate	Fertility rate	CH8: 224	(UN-CSD), (OECD)
tsdde230	Crude rate of net migration	Migration	CH8: 225	(OECD)
Old-age income adequacy				
tsdde310	Aggregate replacement ratio	Income level of over-65s compared to before	CH8: 227	Laeken
tsdde320	At-risk-of-poverty rate of elderly people	Risk of poverty for over-65s	CH8: 228	(Laeken)
Public finance sustainability				
tsdde410	General government debt	Public debt	CH8: 229	SI, (UN-CSD), (Laeken), (OECD)
tsdde420	Average exit age from the labour market	Retirement age	CH8: 230	SI, (Laeken)
Contextual indicators				
tsdde510	Old-age-dependency ratio (for sub-theme Demographic changes)	Elderly population compared to working-age population	CH8: 226	(UN-CSD), (Laeken), (OECD)
tsdde511	Projected old-age dependency ratio (for sub-theme Demographic changes)	Elderly population compared to working-age population	CH8: 226	(Laeken)
tsdde520	Projected evolution of EU-27 age-related public spending – baseline scenario (for sub-theme Public finance sustainability)	The impact of ageing on public expenditure	CH8: 232	(Laeken), (OECD)
tsdde521	Projected evolution of theoretical income replacement ratios (for sub-theme Public finance sustainability)	The impact of ageing on public expenditure	CH8: 233	
tsdde530	Expenditure on care for the elderly (for sub-theme Public finance sustainability)	Expenditure on care for the elderly	CH8: 231	(Laeken)
Indicators to be developed				
	Health expenditure on old age			(Laeken)
PUBLIC HEALTH				
tsdph100	Healthy life years and life expectancy at birth, by gender	Healthy life years	CH6: 177	SI, (UN-CSD), (Laeken), (OECD)
Health and health inequalities				
tsdph210	Death rate due to chronic diseases, by gender	Deaths due to chronic diseases	CH6: 179	
tsdph220	Healthy life years and life expectancy at age 65, by gender	Healthy life years	CH6: 177	
tsdph240	Suicide death rate, by age group	Suicides	CH6: 180	(UN-CSD), (OECD)
tsdph250	Suicide death rate, males by age group	Suicides		

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
tsdph260	Suicide death rate, females by age group	Suicides		
tsdph270	Self reported unmet need for medical examination or treatment, by income quintile <i>Dispersion of regional death rates*</i>	Unmet needs for healthcare	CH6: 182	(Laeken), (OECD)
Determinants of health				
tsdph320	Index of production of toxic chemicals, by toxicity class	Production of toxic chemicals	CH6: 183	
tsdph370	Population exposure to air pollution by particulate matter	Exposure to air pollution by particulate matter	CH6: 185, 186	SI, (UN-CSD), (EEA)
tsdph380	Population exposure to air pollution by ozone	Exposure to air pollution by ozone	CH6: 187	SI, (UN-CSD), (EEA)
tsdph390	Population living in households considering that they suffer from noise	Annoyance by noise	CH6: 189, 190	
tsdph400	Serious accident at work	Serious accidents at work	CH6: 191	SI
Indicators to be developed				
	Incidence of chronic diseases			
	Childhood health/diseases			
	Deaths due to infectious food-borne diseases			
	Index of apparent consumption of chemicals by toxicity class			
	Dioxins and PCBs in food and feed			
	Pesticide residues in food			
	Overweight people, by age group			(Laeken), (OECD)
	Present smokers, by gender and by age group			(UN-CSD), (Laeken)
	Work with a high level of job strain/stress			
	Monetary damage of air pollution as % of GDP			

CLIMATE CHANGE AND ENERGY				
tsdcc100	Greenhouse gas emissions	Greenhouse gas emissions	CH2: 73, 74	SI, (UN-CSD), (EEA)
tsdcc110	Share of renewables in gross inland energy consumption	Consumption of renewables	CH2: 76, 77	(UN-CSD), (EEA), (OECD)
Climate change				
tsdcc210	Greenhouse gas emissions by sector	Greenhouse gas emissions by sector	CH2: 79, 80	
tsdcc220	Greenhouse gas emissions intensity of energy consumption	Greenhouse gas intensity of energy consumption	CH2: 81	(OECD)
	Projections of greenhouse gas emissions	Greenhouse gas emissions	CH2: 73	EEA
	Global surface average temperature	Global surface average temperature	CH2: 82	EEA

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
Energy				
tsdcc310	Energy dependency	Energy dependency	CH2: 83	
tsdcc320	Gross inland energy consumption, by fuel	Gross inland energy consumption	CH2: 84	(EEA), (OECD)
tsdcc330	Electricity generated from renewable sources	Electricity generation from renewable sources	CH2: 85	SI, (EEA), (OECD)
tsdcc340	Share of biofuels in fuel consumption of transport	Consumption of biofuels in transport	CH2: 86	(EEA)
tsdcc350	Combined heat and power generation	Combined heat and power	CH2: 87	SI
tsdcc360	Implicit tax rate on energy	Implicit tax rate on energy	CH2: 88	SI
Indicators to be developed				
	Radioactive waste			(UN-CSD)
	External costs of energy use			

SUSTAINABLE TRANSPORT				
tsdtr100	Energy consumption of transport	Energy consumption of transport relative to GDP	CH3: 98-100	(UN-CSD)
Transport and mobility				
tsdtr210	Modal split of passenger transport	Modal split of passenger transport	CH3: 103	(SI), (UN-CSD)
tsdtr220	Modal split of freight transport	Modal split of freight transport	CH3: 101	(SI), (UN-CSD)
tsdtr230	Volume of freight transport	Volume of freight transport relative to GDP	CH3: 105	SI, (EEA)
tsdtr240	Volume of passenger transport	Volume of passenger transport relative to GDP	CH3: 106	SI, (EEA)
	Modal share of investment in transport infrastructure	Investment in transport infrastructure	CH3: 107	
Transport impacts				
tsdtr410	Greenhouse gas emissions by transport mode	Greenhouse gas emissions from transport	CH3: 111	
tsdtr420	People killed in road accidents	People killed in road accidents	CH3: 110	(OECD)
tsdtr430	Emissions of ozone precursors from transport	Emissions of ozone precursors from transport	CH3: 114	
tsdtr440	Emissions of particulate matter from transport	Emissions of particulate matter from transport	CH3: 115	

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
tsdtr450	Average CO ₂ emissions per km from new passenger cars	Average CO ₂ emissions per km from new passenger cars	CH3: 113	
Contextual indicator				
tsdtr310	Price indices for transport (for sub-theme Transport and mobility)	Passenger transport prices	CH3: 109	
Indicators to be developed				
	Vehicle-km by road			
	Use of public transport			
	External costs of transport activities			
	Fragmentation of natural and semi-natural areas (to appear either in this theme or in Natural resources, depending on the type of indicator that is developed)			(SEBI), (UN-CSD)

NATURAL RESOURCES				
tsdnr100	Common bird index	Abundance of common birds	CH5: 155	(SI), (SEBI), (UN-CSD)
tsdnr110	Fish catches taken from stocks outside safe biological limits	Conservation of fish stocks	CH5: 156	SI, (MDG), (UN-CSD), (EEA)
Biodiversity				
tsdnr210	Sufficiency of sites designated under the EU Habitats Directive	Protected areas	CH5: 158	SI, SEBI, (MDG), (UN-CSD), (EEA)
tsdnr220	Deadwood on forest land	Deadwood on forest land	CH5: 160	(SEBI)
Freshwater resources				
tsdnr310	Surface and groundwater abstraction as a share of available resources	Water abstraction	CH5: 161, 162	(MDG), (UN-CSD), (EEA), (OECD)
tsdnr320	Population connected to urban wastewater treatment with at least secondary treatment	Wastewater treatment		(EEA)
	Biochemical oxygen demand in rivers	Water quality in rivers	CH5: 163	(SEBI), (UN-CSD), (EEA)
Marine ecosystems				
tsdnr410	<i>Concentration of mercury in fish and shellfish*</i>			
tsdnr420	Size of fishing fleet	Fishing capacity	CH5: 164	(EEA), (OECD)
Land use				
tsdnr510	Built-up areas	Change in land cover	CH5: 165, 166	(UN-CSD), (EEA)
tsdnr520	Forest increment and fellings			(SEBI)
tsdnr530	Forest trees damaged by defoliation	Forest trees damaged by defoliation	CH5: 167	(UN-CSD)
tsdnr540	<i>Percentage of total land area at risk of soil erosion*</i>			(UN-CSD)
Indicators to be developed				
	Biodiversity Index			
	Abundance and distribution of selected species			SEBI, (EEA)
	Change in status of species of European interest			

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
	Red List Index for European species			SEBI, (MDG), (UN-CSD), (EEA)
	Index of toxic chemical risk to aquatic environment / Percentage of water bodies with high or good ecological status			(UN-CSD)
	Concentration of organic matter as chemical oxygen demand of rivers			
	Effective fishing capacity and quotas			
	Structural support to fisheries and % allocated to promote environmentally friendly fishing practices			(OECD)
	Seagrasses			
	Critical load exceedance for nitrogen			SEBI

GLOBAL PARTNERSHIP				
tsdgp100	Official development assistance as share of gross national income	Official development assistance	CH9: 243	(MDG), (UN-CSD), (OECD)
Globalisation of trade				
tsdgp210	EU Imports from developing countries, by income group	Imports from developing countries	CH9: 245	(MDG), (UN-CSD)
tsdgp220	EU Imports from developing countries, by group of products			(MDG), (UN-CSD)
tsdgp230	EU Imports from least-developed countries, by group of products	Share of imports from least-developed countries	CH9: 246	(MDG), (UN-CSD)
tsdgp240	Aggregated measurement of support for agriculture	Subsidies for EU agriculture	CH9: 247	(MDG), (OECD)
Financing for sustainable development				
tsdgp310	Total EU financing for developing countries, by type	Financing for developing countries	CH9: 248	
tsdgp320	Foreign direct investment in developing countries, by income group	Share of foreign direct investment in low-income countries	CH9: 249	(SI), (UN-CSD), (OECD)
tsdgp330	Official development assistance, by income group	Share of official development assistance for low-income countries	CH9: 250	
tsdgp340	Untied official development assistance	Share of untied assistance	CH9: 251	(MDG)
tsdgp350	Bilateral official development assistance dedicated to debt	Assistance for debt relief	CH9: 252	(OECD)
tsdgp350	Bilateral official development assistance dedicated to social services	Assistance for social infrastructure and services	CH9: 253	(MDG), (OECD)
Global resources management				
tsdgp410	CO ₂ emissions per inhabitant in the EU and in developing countries	CO ₂ emissions per inhabitant	CH9: 254	(MDG)
tsdgp350	Bilateral official development assistance dedicated to water supply and sanitation	Assistance for water supply and sanitation	CH9: 255	(OECD)

Table code	Indicator (* = under development)	Issue	Page	Other indicator sets
Contextual indicators				
tsdgp510	Population living on less than 1USD a day (for sub-theme Financing for sustainable development)*			(MDG), (UN-CSD)
tsdgp520	Official development assistance per capita in donor and recipient countries (for sub-theme Financing for SD)	Official development assistance	CH9: 244	
tsdgp530	Population with sustainable access to an improved water source (for sub-theme global resource management)*			(MDG), (UN-CSD)
Indicators to be developed				
	Sales of selected fair-trade-labelled products			
	Share of global greenhouse gas emissions from countries having agreed limits on their emissions			
	Contribution of the Clean Development Mechanism to greenhouse gas emission reductions in developing countries			
	Global footprint			
GOOD GOVERNANCE				
Policy coherence and effectiveness				
tsdgo210	New infringement cases, by policy area	Infringement cases	CH10: 265	
tsdgo220	Transposition of Community law by policy area	Transposition of Community law	CH10: 267	
Openness and participation				
tsdgo310	Voter turnout in national and EU parliamentary elections	Voter turnout	CH10: 269	
tsdgo320	E-government on-line availability	E-government availability	CH10: 271	SI
tsdgo330	E-government usage by individuals	E-government usage	CH10: 272	SI
Economic instruments				
tsdgo410	Shares of environmental and labour taxes in total tax revenues	Environmental taxes compared to labour taxes	CH10: 274	
Contextual indicator				
tsdgo510	Level of citizens' confidence in EU institutions (for sub-theme Policy coherence and effectiveness)	Citizens' confidence in EU institutions	CH10: 264	
Indicators to be developed				
	Administrative cost imposed by legislation			
	Impact assessment			
	Openness and participation			
	Level of involvement of consumer groups and companies			
	Public consultations			
	Proportion of environmentally harmful subsidies			

2. Transport relevant SDIs

All transport activities have negative impacts on the environment. Thus, sustainability considerations require a priority for the avoidance of transport, followed by the use of low-impact modes of transport such as walking, bicycles, or public transport including rail.

The relevant SDIs are listed below including the Eurostat (2009) indicator code in parentheses; “structural indicators” mentioned in parenthesis refers to the structural indicators used for assessing progress towards the objectives of the EU Lisbon Strategy:

- Socio-economic development
 - Energy intensity of the economy (tsien020; structural indicator)
- Sustainable consumption and production
 - Emissions of acidifying substances by source sector (tsdpc260)
 - Emissions of ozone precursors by source sector (tsdpc270)
 - Emissions of particulate matter by source sector (tsdpc280)
 - Final energy consumption, by sector (tsdpc320)
 - Motorisation rate (tsdpc340)
- Public health
 - Population exposure to air pollution by particulate matter (tsdph370, structural indicator)
 - Population exposure to air pollution by ozone (tsdph380, structural indicator)
 - Monetary damage of air pollution as % of GDP (to be developed)
- Climate change and energy
 - Greenhouse gas emissions (tsdcc100, structural indicator)
 - Greenhouse gas emissions by sector (tsdcc210)
 - Gross inland energy consumption, by fuel (tsdcc320)
- Sustainable transport
 - Energy consumption of transport (tsdtr100)
 - Volume of freight transport (tsdtr230, structural indicator)
 - Volume of passenger transport (tsdtr240, structural indicator)
 - Modal share of investment in transport infrastructure (no indicator code)
 - Greenhouse gas emissions by transport mode (tsdtr410)
 - People killed in road accidents (tsdtr420)
 - Emissions of ozone precursors from transport (tsdtr430)
 - Emissions of particulate matter from transport (tsdtr440)
 - Vehicle-km by road (to be developed)
 - Fragmentation of natural and semi-natural areas to be developed)
- Natural Resources
 - Built-up areas (tsdnr510)
 - Forest increment and fellings (tsdnr520)

- Biodiversity Index (to be developed)
- Abundance and distribution of selected species (to be developed)
- Change in status of species of European interest (to be developed)
- Red List Index for European species (to be developed)

3. Energy relevant SDIs

The energy relevant SDIs are listed below including the (Eurostat, 2009) indicator code in parentheses; “structural indicators” mentioned in parenthesis refers to the structural indicators used for assessing progress towards the objectives of the EU Lisbon Strategy:

- Socio-economic development
 - Energy intensity of the economy (tsien020; structural indicator)
- Sustainable consumption and production
 - Emissions of acidifying substances by source sector (tsdpc260)
 - Emissions of ozone precursors by source sector (tsdpc270)
 - Emissions of particulate matter by source sector (tsdpc280)
 - Electricity consumption of households (tsdpc310)
 - Final energy consumption, by sector (tsdpc320)
 - Energy and material use per unit of output, by industrial sector (to be developed)
- Public health
 - Population exposure to air pollution by particulate matter (tsdph370, structural indicator)
 - Population exposure to air pollution by ozone (tsdph380, structural indicator)
 - Monetary damage of air pollution as % of GDP (to be developed)
- Climate change and energy
 - Greenhouse gas emissions (tsdcc100, structural indicator)
 - Share of renewables in gross inland energy consumption (tsdcc110)
 - Greenhouse gas emissions by sector (tsdcc210)
 - Greenhouse gas emissions intensity of energy consumption (tsdcc220)
 - Projections of greenhouse gas emissions (no indicator code)
 - Global surface average temperature (no indicator code)
 - Energy dependency (tsdcc310)
 - Gross inland energy consumption, by fuel (tsdcc320)
 - Electricity generated from renewable sources (tsdcc330, structural indicator)
 - Share of biofuels in fuel consumption of transport (tsdcc340)
 - Combined heat and power generation (tsdcc350, structural indicator)
 - Implicit tax rate on energy (tsdcc360, structural indicator)
 - Radioactive waste (to be developed)

- External costs of energy use (to be developed)
- Natural Resources
 - Forest increment and fellings (tsdnr520)
 - Biodiversity Index (to be developed)
 - Abundance and distribution of selected species (to be developed)
 - Change in status of species of European interest (to be developed)
 - Red List Index for European species (to be developed)

ANNEX 4: FISHERIES

Table 19: Overview of EFF contributions and core fisheries data per Member State

MS	Total catches [1]	Share of total catch [2]	Total EFF contribution for all MS	MS's Share of total EFF contribution	Number of vessels	Tonnage in GT
AT	350	0.00%	5,259,000 €	0.1%	-	-
BE	24,539	0.50%	26,262,000 €	0.6%	93	16,971
BG	8,876	0.20%	80,010,000 €	1.9%	2,199	7,407
CY	2,225	0.00%	19,724,000 €	0.5%	1,180	5,327
CZ	4,276	0.10%	27,107,000 €	0.6%	-	-
DE	248,763	4.80%	155,865,000 €	3.6%	1,785	68,780
DK	653,013	12.70%	133,675,000 €	3.1%	2,878	72,930
EE	99,447	1.90%	84,568,000 €	2.0%	946	14,486
EL	95,078	1.90%	207,832,000 €	4.8%	17,258	87,902
ES	735,926	14.30%	1,131,891,000 €	26.3%	11,215	446,671
FI	164,373	3.20%	39,449,000 €	0.9%	3,239	16,238
FR	557,862	10.90%	216,053,000 €	5.0%	7,398	189,496
HU	7,024	0.10%	34,851,000 €	0.8%	-	-
IE	227,146	4.40%	42,267,000 €	1.0%	2,089	69,986
IT	286,643	5.60%	424,343,000 €	9.9%	13,638	195,403
LT	187,496	3.70%	54,713,000 €	1.3%	201	46,032
LV	155,272	3.00%	125,016,000 €	2.9%	800	41,692
MT	1,245	0.00%	8,372,000 €	0.2%	1,147	12,083
NL	413,640	8.10%	48,578,000 €	1.1%	833	156,672
PL	144,404	2.80%	734,093,000 €	17.1%	848	40,947
PT	253,033	4.90%	246,485,000 €	5.7%	8,579	105,646
RO	6,184	0.10%	230,714,000 €	5.4%	441	1,809
SE	238,254	4.60%	54,665,000 €	1.3%	1,439	39,720
SI	1,111	0.00%	21,640,000 €	0.5%	184	994
SK	2,872	0.10%	13,689,000 €	0.3%	-	-
UK	616,487	12.00%	137,828,000 €	3.2%	6,519	207,100
Total	5,135,539	100%	4,304,949,000 €	100%	84,909	1,844,292

[1] Volume in tonnes live weight and percentage of total catch (2007).

[2] Share of MS of total catch all EU Member States.

Source: European Commission 2010n.

DIRECTORATE-GENERAL FOR INTERNAL POLICIES

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