EXECUTIVE SUMMARY

This study supports the "Environmentally harmful subsidies and potentially environmentally progressive public instruments" project of the "Policy Preparation and Evaluation of the Environment" unit within the Nature and Energy Department of the Flemish Government. The project has been set up against the background of the European Commission's Roadmap for a Resource Efficient Europe. The study by VITO and IEEP aims to support this broader process with a screening of potential environmentally harmful subsidies established in different policy areas as well as subsidies with a positive or neutral impact on the environment.

The ultimate aim of this process is to help achieve the following objectives of the Flemish Environmental Policy Plan 2011-2015:

- To spend the budget resources as efficiently as possible in times of budget austerity.
- To prevent the subsidies from the Flemish government from counteracting their environmental objectives.

The issue of environmentally harmful subsidies has been on the agenda of international and supranational organisations such as the OECD and the EU for many years. The European Commission's objective of phasing out environmentally harmful subsidies by 2020 is a critical step in this process.

The general methodology underpinning the study can be summarised as follows:

- It is not possible to establish a generally practical definition of a "subsidy". Therefore it is better to use a list of working definitions and to indicate which working definition is referred to in each instance. This study uses the typology set out in the tender specifications (see table below).
- Reforming a subsidy requires a clear understanding of the potential winners and losers of the reform. It may be useful to change the modalities of the subsidy in order to mitigate its environmental impacts, rather than abolishing the subsidy.
- In order to be relevant, one should follow the "second best" approach. This implies suggesting reforms which eliminate bottlenecks within the general institutional framework with due attention for compensatory measures given the societal role of existing subsidies.
- Subsidies have both substitution and scale effects. The emphasis in the current analysis is on the substitution effects[1]. Potential scale effects[2] have only been discussed explicitly if we expect problems due to the nature of the subsidy.

[1] These are incentives given by subsidies for the use of more (or less) polluting means of production.
[2] These are incentives given by subsidies for expanding or reducing general economic activity within a sector.

	Economic type		Subsidy type	Examples
			On-budget	
1	**Direct transfer of funds**	a	Direct transfer of funds	Grants and subsidies to fossil fuels
		b	Potential direct transfers of funds	Nuclear energy producers face partial/limited liability for accidents
2	**Provision of goods or services – including specific infrastructure**	c	Government provides goods or services other than general infrastructure	Public transport for remote areas
		d	Provision by other entities headed by the government	Idem.
			Off-budget	
3	**Income or price support**	e	Income or price support	Price support for agricultural products
4	**Foregone government revenues**	f	Government revenues due are foregone or not collected	Tax credits and tax deferrals
		g	Tax exemptions and rebates	VAT-exemption for kerosene
5	**Preferential treatment**	h	Preferential market access	Regulated market access for taxis
		i	Regulatory support mechanisms	Feed-in tariffs and price premiums for electricity from waste incineration and/or landfill gas
		j	Selective exemptions from government standards	GHG emissions from landfill and incineration not included in EU ETS
6	**Provision of general infrastructure**	k	Implicit subsidies from the provision of general infrastructure	Road infrastructure provided by the government used by multiple users and not (fully) paid by vehicle users
7	**Lack of full cost pricing**	l	Implicit income transfers resulting from a lack of full cost pricing for goods and services	Under-pricing leading to incomplete coverage of drinking water costs (abstraction, treatment, distribution costs etc.)
		m	Lack of resource pricing / resource rent for foregone natural resources	Under-pricing of water as a result of not taking into account water scarcity
		n	Implicit income transfers resulting from non-internalisation of externalities	Lack of or partial liability for oil spills, damage to ecosystems (e.g. nitrate run-off and eutrophication).

The client requested that the project team look into subsidies with a specific impact on urban sprawl as well as subsidies with an impact on other sectors. In developing an inventory of subsidies with an impact on urban sprawl, the project team began with a broader definition of 'subsidy' than the definition used for subsidies in other sectors.

In both cases, the team started from a **long list of subsidies with a potential impact on the environment** (the "**urban sprawl long list**" and the "**other sectors long list**"). A limited number of these were examined in more detail in case studies. **A subsidy featuring in the long list is not necessarily an "environmentally harmful" subsidy**, as subsidies with a neutral or positive impact were also included in the long list.

Based on an expert assessment, an initial evaluation of the potential environmental impacts of each subsidy was carried out. This evaluation is not as thorough or comprehensive as a

fully-fledged case study. The evaluation of the subsidies in the long list was conducted primarily to determine whether a more detailed case study would be useful. **It is not intended to be a final statement on the environmental harmfulness of the subsidy**. When carrying out the more detailed case studies it was necessary to adjust, fine-tune or nuance some elements of the initial assessment.

Long list of subsidies with an impact on urban sprawl

Urban sprawl is a major focus area of the study as it contributes to a series of environmental problems (such as biodiversity loss, soil pollution, reduced carbon storage capacity of soil, increased air pollution and energy consumption in the transport sector, and increased risks of flooding and water scarcity) and to the overexploitation of natural resources. It is also a major theme in the Green Paper on Flemish Land Use Policy.

From the literature, it is clear that the subsidies under scrutiny in this study contribute to urban sprawl, although increasing income is also a major driving force of urban sprawl. The lack of full cost pricing for infrastructure and externalities are important in this respect. Looking at the "urban sprawl long list of subsidies", it is clear that many subsidies have an impact on urban sprawl, however this impact is often indirect. In some cases (e.g. sewage subsidies) the direct substitution effects may even benefit the environment.

In case of a positive direct substitution effect, the effect is relatively easy to quantify. It is much more difficult to quantify indirect effects. **If there is a potential negative effect on urban sprawl one cannot automatically draw the conclusion that the subsidy as a whole needs to be abolished.** The aim is rather **to look for similar instruments that would have the same positive substitution effects for the environment without contributing as much to urban sprawl**, if at all. This however can only be examined in a fully-fledged case study.

Finally, we note that the amounts per beneficiary are not always high. For most households it is unlikely that the existence of one of the subsidies examined in this study were crucial in their choice of residence. For some households though one can imagine that the absence of this subsidy would have led to choosing another more centrally located residence.

On the basis of the information gathered for drafting the long list, the team concludes that it would be **unlikely for the subsidies to have been a driving force behind urban sprawl**. **The combined effect of these subsidies however may strengthen the existing autonomous trends towards urban sprawl**.

Long list of subsidies with an impact on other sectors

As for the **subsidies with an impact on other sectors,** the project team applied a more strict definition of a subsidy and focussed only on direct transfers (see table above). A distinction was made between subsidies with and without clear substitution effects based on an initial assessment.

A more detailed analysis of the subsidies in the long list, however, revealed that subsidies with unequivocal substitution effects are rather exceptional. As mentioned above, some subsidies have for instance a clear positive direct environmental effect but an indirect negative impact on urban sprawl – the latter being difficult to quantify and probably rather

small. Other subsidies (such as those for public transport) are clearly harmful to the environment if one only takes into account the direct impacts. However, if one also considers the environmental performance of the alternatives (i.e. private transport) these subsidies are clearly much less environmentally harmful and may even bring benefits for the environment if well designed. Other subsidies have a series of preconditions which mitigate negative environmental impacts.

It was concluded that **only a few examples exist of subsidies with clear, unambiguous and significant negative substitution effects (such as the private transport subsidies)**. Information for comparing impacts was not readily available, which made the analysis more difficult.

For the **more detailed case studies**, the following themes were selected in consultation with the steering group:

- Combined heat and power certificates
- Green certificates for the energetic valorisation of biomass
- Private road transport
- Public road transport
- Property tax

For each of the subsidies, the following issues or questions were dealt with:

- Brief description of the subsidy
- What is the subsidy's economic type?
- Which authorities are responsible for the subsidy?
- Are there any other EU Member States where the subsidy exists?
- What is the nature and unit size of the subsidy?
- What is the legal basis for the subsidy and how has this evolved over the years?
- What is the relevant counterfactual to understand the subsidy's effects?
- What are the subsidy's original objectives? Does the subsidy fulfil its objectives? Is the rationale for the subsidy still valid?
- Are there any key problems with the design of the subsidy?
- Does the subsidy represent an infringement of existing EU legislation?
- Who are the intended recipients/beneficiaries? Does the subsidy reach them? What are the unintended social effects, if any?
- What are the subsidy's major impacts on the environment? Are there any policy filters which mitigate these negative impacts?
- What is the estimated size of the subsidy per year and who bears the cost? What are the unintended economic impacts if any?
- Based on the above, should this subsidy be considered for inclusion in a roadmap for reform? What are the main arguments for reform? What are the main barriers to reform?

The main conclusions of each case study are set out below:

Combined heat and power certificates
A combined heat and power (CHP) plant or cogeneration plant receives CHP certificates for the primary energy it saves through the cogeneration of heat and electricity compared to the separate generation of the two. Cogeneration plants which generate heat and electricity on the basis of renewable fuels such as biomass may receive both CHP certificates as green certificates (see case study below).

From the analysis it can be concluded that a level playing field between the different modes of generation of electricity and heat is important. This implies that for the generation of heat, a stable support mechanism needs to be introduced for the recovery and utilization of heat waste. Other options such as geothermic and green heat need to be considered seriously. Furthermore, the CHP support system needs to be adapted to non-traditional heat and electricity generation methods. The specific environmental impacts of certain CHP technologies need to be dealt with. A possible approach would be to adapt the size of the CHP support to the magnitude and number of environmental criteria that are fulfilled.

Green certificates for the energetic valorisation of biomass
The Flemish Government encourages the generation of electricity from renewable energy through a system of green certificates. The Flemish green certificates system is a hybrid system in the sense that it consists of a combination of a trading mechanism and a feed-in system (minimum support for green energy producers).

In order to promote an environmentally sustainable bio-energy supply chain, it is recommended to adjust the certificates system in such a way that it provides more support for the energetic valorization of those types of biomass with the biggest environmental benefits. In this respect one may apply a feedstock sustainability hierarchy. The level of support would not only be derived from the economic costs of the technology, but also from the potential environmental impacts of the various feedstock according to this feedstock hierarchy. This assumes that the operators of biomass plants report the nature of the raw materials in detail. Such information about the utilized raw materials may be used as one of several inputs for a monitoring system. To the extent that objectives on waste recycling and objectives on green energy still conflict in this situation, it needs to be considered whether such recycling objectives should be reviewed and revised.

Private road transport
Like most countries, subsidies for private transport in Belgium and Flanders exist in many forms:

- Transport is subject to various fixed and variable taxes. There is however no direct link between the tax base and the external costs generated by private transport.
- Transport infrastructure is generally provided for free to its users.
- Under certain conditions, transport costs are fiscally deductible, both within the framework of the personal income tax as within the framework of the corporate income tax.
- The benefits in kind derived from the private use of company cars is not taxed according to the same tax base as other kinds of labour income.

The analysis shows that the existing traffic tax fails to take into account the environmental characteristics and that the planned road pricing system for lorries would have substantially less environmental benefits than a road pricing system for all transport modes. As a result there is potential to reform the annual traffic tax as well as the planned road pricing system, assuming that the European and federal context are addressed.

Firstly, the annual traffic tax should take into account the environmental characteristics of the car which it currently does not. This should provide a financial incentive for getting rid of old, polluting cars. A potentially thorny issue would be whether the environmental impact of the production of new cars should be taken into consideration.

Secondly, a road pricing system needs to be introduced for private cars on the whole traffic network, with differentiation according to the car's unit emissions and to the time and location of the trip. The enforcement of such a system is, technically speaking, feasible. Recent studies clearly show the potential benefits of a generalized road pricing system. However, the steering effect of the planned system is almost non-existent if one takes into account the induced traffic of vans.

The acceptability of such a reform depends largely on how revenues from the road toll will be spent. Even a complete abolishment of the circulation tax and the annual road tax will not be sufficient to compensate road users for the introduction of the road toll. A budget neutral reform requires a reduction of excise duties. This is however a federal competence, not a regional one. An alternative option would be to lower the very high taxes on labour.

Public road transport

In Flanders, various subsidies for public road transport are in place. The most important is the annual operating grant which the Flemish Transport Company "De Lijn" receives from the Flemish Government. The Government also invests in infrastructure that supports public transportation. Finally, the budget of the Flemish Government provides for smaller amounts in favour of public transport (bus, tram and metro) such as covenants, basic mobility projects, "premetro Antwerpen" and reduced tariffs for students.

The direct environmental impact of public transport is more limited compared to the impacts of private car transport as long as the occupancy rate is sufficiently high. The occupancy rate of public transport is crucial. In order to increase the occupancy rate further, it would be better to invest more in high quality urban and inter-urban public transport and less in public transport in the countryside. From the perspective of land-use planning, it would be good to reform subsidies in this way. However, one needs to take into consideration potential negative social impacts such as a potential increase of "transport poverty" in more rural areas.

Property tax

Homeowners pay an annual property tax which is calculated based on the deemed rental income from the real estate concerned, assessed by the Belgian tax authorities at a given reference date (1 January 1975). In principle the property tax is levied on the whole value of the property: i.e. both on the value of the land as on the value of the dwelling. The problem, however, is that the property tax lags behind the real value and it is very high in urban

areas. Furthermore, the costs of many collective public services – especially recurrent costs – are not financed by the land tax system (property tax). In most cases those costs are delegated in the same way to all consumers, irrespective of where they live. This is for instance the case with public water supply whereby tariffs are not adapted to the location of the dwelling (in an urban or suburban area). This implies a hidden subsidy for living in sub-urban areas at the expense of densely populated urban areas. In addition, this tax is regressive.

One potential reform option would be to implement a new re-scaling of the deemed rental income; however this is a federal competence in Belgium. However since 1989, the Regions have the possibility to replace the deemed rental income by another tax base. Another option would therefore be to reform the property tax by calculating it on the basis of another parameter rather than the deemed rental income. An option would be to incorporate the property tax into a general land tax (whereby only the value of the land would be taken as the tax base).

It would also be opportune to make, in addition to the property tax, other fiscal instruments (such as the "*woonkorting*" and the fiscal deduction of mortgage costs) conditional on the location, energy efficiency and the surface of the dwelling.

Methodological commentary

The report ends with two chapters on methodological issues. The first puts forward a proposal to adjust the "subsidy reform tool" as developed by the Institute for European Environmental Policy (IEEP) for DEFRA which sought to identify, evaluate and reform subsidies with a negative impact on the environment biodiversity. This report presents a tool which is applicable to all environmentally harmful subsidies.

The second contains the main lessons learned on methodological issues from this project:

- Even a concept such as "direct transfer of funds" which at first seems clearly defined, seemed rather ambiguous. For instance, do we need to label all government expenditure with clearly identifiable recipients as "subsidies"? Whether government expenditure is to be considered as "subsidies" remains after all a value judgment. Therefore we would like to suggest defining this concept more precisely in future calls for tenders.
- A second issue concerns the quality and the relevance of publicly available information. For the inventory of potential subsidies, the team started with information provided by the Government itself to potential recipients. This approach turned out to be effective in identifying subsidies but not to identify elements within the subsidy design which might strengthen (or mitigate) the environmental impacts.
- All in all, there were hardly any unequivocal examples to be found of subsidies having clear, unambiguous and significant negative environmental impacts. This implied that the analysis of the long list rather required a level of detail and nuance as in the case studies, especially because information required for this level of analysis was not directly available.