Tax on fluorinated greenhouse gases in Spain[i]

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Brief summary of the case

The tax on fluorinated greenhouse gases (F-gases) was established in 2014 to address the limited efficiency of previous charges applied on F-gases in industrial processes which generated significant emissions of these gases.

The design and implementation of the tax was led by the Ministry of Agriculture, Food and Environment. It largely followed a top down process with some limited negotiations with the main economic agents (i.e. producers, distributors, installers). Although the tax did not have the support of the industrial sector, several aspects of the design of the tax suggest that industry inputs were taken into account to some extent.

Tax rates are set on a weight basis (per kg of gas) so that they are proportional to the global warming potential of each gas between 150 and 4300[1]. For F-gases with a warming potential above 4300, a constant tax rate of €100 per kg is applied. This approach implies that the emissions of the most harmful gases are proportionally cheaper.

The high costs of Spain's GHG emissions and pressures from EU and domestic stakeholders for a green tax reform contributing to budget consolidation were relevant windows of opportunity supporting the adoption of the tax.

1 Description of the design, scope and effectiveness of the instrument

1.1 Design of the instrument

F-gases are mostly used for refrigeration systems and while they represent a low share of total GHG emitted, their global warming potential is significantly higher than other GHGs (Jain et al, 2000). At the EU level, a new regulation to reduce F-gases - Regulation EU No 517/2014 of the European Parliament and of the Council came into effect in January 2015, repealing Regulation (EC) No 842/2006. In 2013, several individual Member States (i.e. Denmark and Slovenia) already applied specific taxes on F-gases while others were considering the implementation of similar measures[2].

The Spanish tax on F-gases is regulated through the Law 16/2013, of 29 October which sets out certain environmental taxes and other fiscal and financial measures[3]. This law, made up

[1] The Global Warming Potential (GWP) is used within the Kyoto Protocol to the United Nations Framework Convention on Climate Change as a metric for weighing the climatic impact of emissions of different greenhouse gases. The GWP is the time-integrated radiative forcing due to a pulse emission of a given gas, over some given time period (or horizon) relative to a pulse emission of carbon dioxide. The most updated values of GWP can be found in IPCC reports published on their website: https://www.ipcc.ch/

[2] http://www.eea.europa.eu/themes/climate/ghg-country-profiles

[3] https://www.boe.es/boe/dias/2013/10/30/pdfs/BOE-A-2013-11331.pdf

of ten articles, includes amendments to energy regulation and several taxes (e.g. corporation tax, income taxes, excise duties, etc.) including the tax on fluorinated gases (Article 5) which entered into force in January 2014. It was later amended by Law 28/2014 of 27 November. Details of the application of the Law were developed in the Royal Decree 1042/2013 of 27 December[4].

The tax on F-gases is an indirect tax levied on the consumption of certain F-gases according to their global warming potential. The tax is levied on the "final consumer" which in practice is the economic agent acquiring F-gases for use in production processes that do not permit the management of waste gases, plus activities of charging, recharging and repairing equipment and devices. The tax only applies to companies which install or repair equipment for refrigeration using less than 3kg of F-gases and companies installing air conditioning in vehicles. The tax can only be levied once along the value chain. The main features of the tax[5] are shown in Table 1 and a schematic view of the application of task can be found in Figure 1.Taxes on F-gases are based on the "polluter pays" principle which in Spain is aligned with the general Constitutional framework on taxes and the general right of access to an adequate environment.

Table 1. Main features of the tax on fluorinated greenhouse gases in Spain

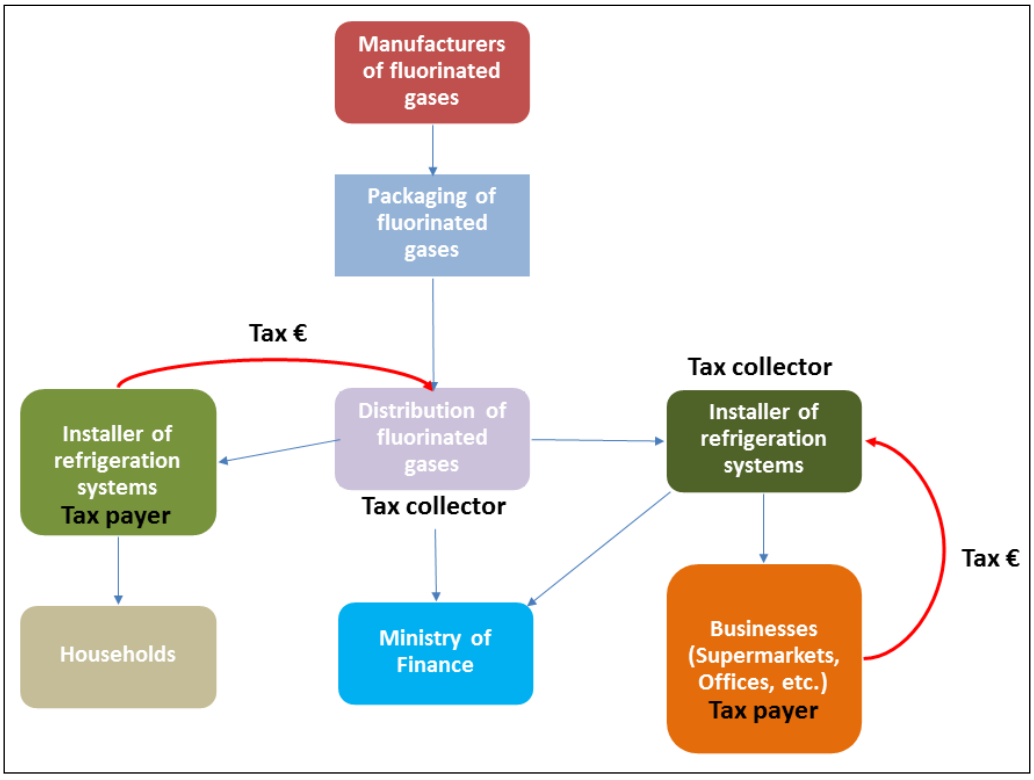
Feature	Comment
Types of F-gases subject to tax	Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and preparations containing these substances, including regenerated and recycled gases and excluding those substances in Regulation (EC) No 1005/2009 of the European Parliament and of the Council, of 16 September 2009, on substances that deplete the ozone layer
Taxable event	The first sale or delivery of F-gases after production, import or intra-Community acquisition (including re-sales between companies)
	The use of F-gases by producers, importers and intra Community acquirers
Not subject to the tax	Exports from Spain
	F-gases with a warming potential equal or below 150
Exemptions	The first sale or delivery of F-gases by economic agents devoted to resale only (not using F-gases in their productive processes)
	The first sale or delivery of F-gases devoted to exports
	The first sale or delivery of F-gases devoted to chemical transformations where its composition is altered
	The first sale or delivery of F-gases devoted to be incorporated for the first time into new equipment and devices

[4] Royal Decree 1042/2013, of 27 December, approving the Regulation of Tax on Fluorinated Greenhouse Gases.
[5] For a detailed analytical approach on the Law, see Duran (2015)

Feature	Comment
	The first sale or delivery of F-gases devoted to the production of medical aerosols for inhalation
	The first sale or delivery of F-gases imported or acquired in new equipment and devices
	The first sale or delivery of F-gases imported or acquired in medical aerosols for inhalation
	90% exemption for the first sale or delivery of F-gases with a warming potential under 3500 devoted to fire extinguishing equipment
Chargeability	The tax is levied at the time of release of the products subject to the tax available to acquirers or, where appropriate, in their own consumption
Tax base	The tax base is constituted by the weight of the products, measured in kilograms
Reductions	Tax payers may deduct the tax paid on F-gases given to waste managers recognized by competent public authorities, for destruction, recycling or reclamation in accordance with the controls and documentation required by sectoral waste legislation

Source: Law 16/2013, of 29 October, laying down certain measures on environmental taxation and adopting other fiscal and financial measures, Article 5

Figure 1. Schematic view of the tax on fluorinated greenhouse gases



Source: Own elaboration

Tax rates are shown in Table 2. A transitory regime was established so that tax rates were reduced by 77% during 2014 and by 44% in 2015, with the full rate applied from 2016

onwards. For example, in the case of sulphur hexafluoride the rate applied was EUR 33 per kilo in 2014, EUR 66 per kilo in 2015, and EUR 100 per kilo from 2016 onwards. For gases devoted to polyurethane production or imported in polyurethane already produced, reductions of 95% in 2014 (i.e. they paid 5% of the rate), 90% (i.e. they paid 10% of the rate) in 2015 and 80% (i.e. they pay 20% of the rate) in 2016 were applied. Tax rates can be modified yearly through the Annual Budget Law.

Table 2. Rates of the tax on fluorinated greenhouse gases in Spain

Epigraph	Type of gas	Warming potential	Rate (€/Kg)
1.1	Sulphur hexafluoride	22,200	100
1.2	HFC - 23	12,000	100
1.3	HFC - 32	550	11
1.4	HFC - 41	97	–
1.5	HFC - 43-10mee	1,500	30
1.6	HFC - 125	3,400	68
1.7	HFC - 134	1,100	22
1.8	HFC - 134a	1,300	26
1.9	HFC - 152a	120	–
1.10	HFC - 143	330	6.6
1.11	HFC - 143a	4,300	86
1.12	HFC - 227ea	3,500	70
1.13	HFC - 236cb	1,300	26
1.14	HFC - 236ea	1,200	24
1.15	HFC - 236fa	9,400	100
1.16	HFC - 245ca	640	12.8
1.17	HFC - 245fa	950	19
1.18	HFC - 365mfc	890	17.8
1.19	Perfluoromethane	5,700	100
1.20	Perfluoroethane	11,900	100
1.21	Perfluropropane	8,600	100
1.22	Perfluorobutane	8,600	100
1.23	Perfluoropentane	8,900	100
1.24	Perfluorohexane	9,000	100
1.25	Perfluoro Cyclobutane	10,000	100

Source: Law 16/2013, of 29 October, laying down certain measures on environmental taxation and adopting other fiscal and financial measures, Article 5.11

1.2 Drivers and barriers of the instrument

In general, Spain has a limited number of economic and fiscal instruments for environmental protection compared to other EU Member States as noted in the 2015 OECD environmental performance review of Spain[6]. Revenues from environmentally related taxes in Spain have fallen steadily since 2007. In 2015, the EU recommended the development of environmental taxation within Spain's country specific recommendation under the European Semester[7].

[6] http://www.oecd.org/spain/launch-of-oecd-2015-environmental-performance-review-of-spain.htm
[7] http://ec.europa.eu/europe2020/pdf/csr2015/cr2015_spain_en.pdf

Furthermore a 2014 report by independent tax experts commissioned by the Ministry of Finance[8] suggested the need for a green tax reform.

With respect to F-gases, in principle Autonomous Communities have the competency to monitor facilities using F-gases and sanction leakage of these gases into the atmosphere. However, according to Duran (2015) two issues have prevented regional implementation and enforcement of stricter environmental regulation on F-gases. First, implementing a hypothetical tax on F-gases at the regional level could possibly infringe interregional trade laws. Second, the monitoring of plants has high costs.

At the same time, Spain's central government was paying significant amounts of money for Certified Emission Reductions (CERs) to cover their emissions of GHGs, including fluorinated gases, in the context on international climate change agreements. Consequently, leadership for implementing the tax was taken at the national level. According to the Ministry of Finance the main actor in favour of the tax on F-gases was the Spanish Office of Climate Change under the Ministry of Agriculture, Food and Environment which is in charge of monitoring and assessing GHG emissions.

1.3 Revenue collection and use

The revenues raised by the tax are shown in Table 3. These revenues do not finance a specific activity and go to the general budget. The tax is paid by the "final consumer" (see above) to the provider of fluorinated gases, which collects the revenues and pays the tax annually to the Ministry of Finance.

Table 3. Revenues from the tax on fluorinated greenhouse gases

	2014	2015
Net revenues (million €)	31	66

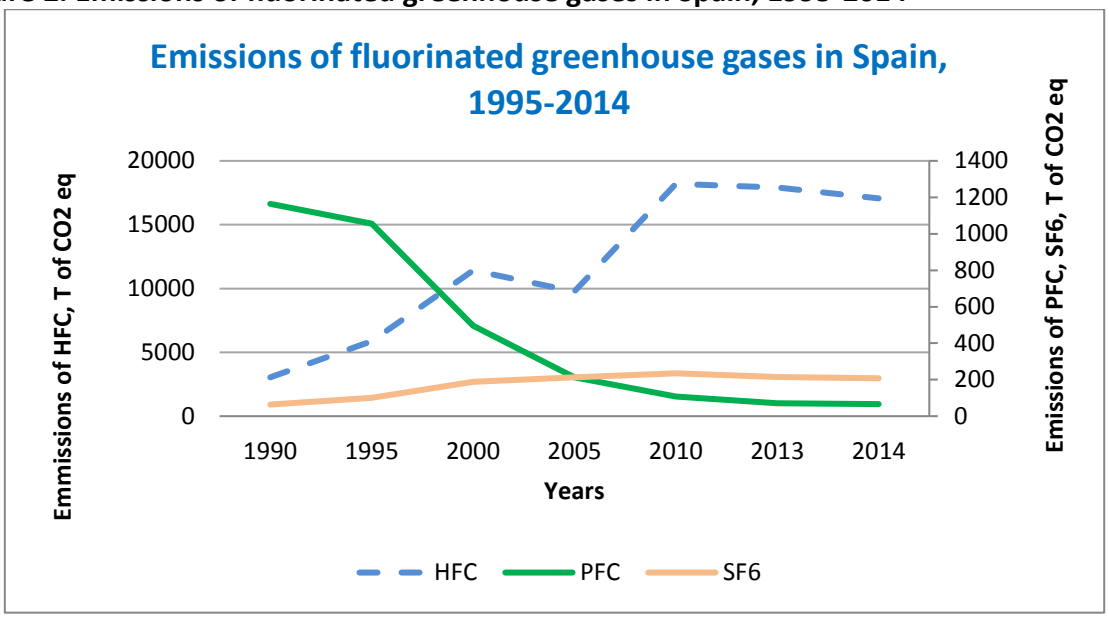
Source: Ministry of Finance, Revenue Annual Report 2014 and 2015.

1.4 Environmental impacts and effectiveness

The tax was put in place in 2014 and is currently in a transitory phase with a number of reduced tax rates applied. Thus the impact of the tax on emissions of F-gases is difficult to assess and isolate from other factors. There has been a downward trend in emissions of HFC and SF6 between 2012 and 2014. Emissions of PFC have declined steadily since 1990, there was a slight increase in emissions in 2012 which was reversed in 2014 (Figure 2). It is assumed that the introduction of the tax may have contributed to consolidating the existing trends, however further analysis is required to assess the impacts of the tax.

[8] http://www.abc.es/gestordocumental/uploads/economia/fe007a24af859ec8ce790387ba6b7755.pdf

Figure 2. Emissions of fluorinated greenhouse gases in Spain, 1995-2014



Source: Ministry of Agriculture, Food and Environment[9].

1.5 Other impacts

The industrial sector forecasted a loss in the competitiveness of their products with the introduction of the tax, however there are no quantitative studies supporting this statement.

No other impacts have been reported to date.

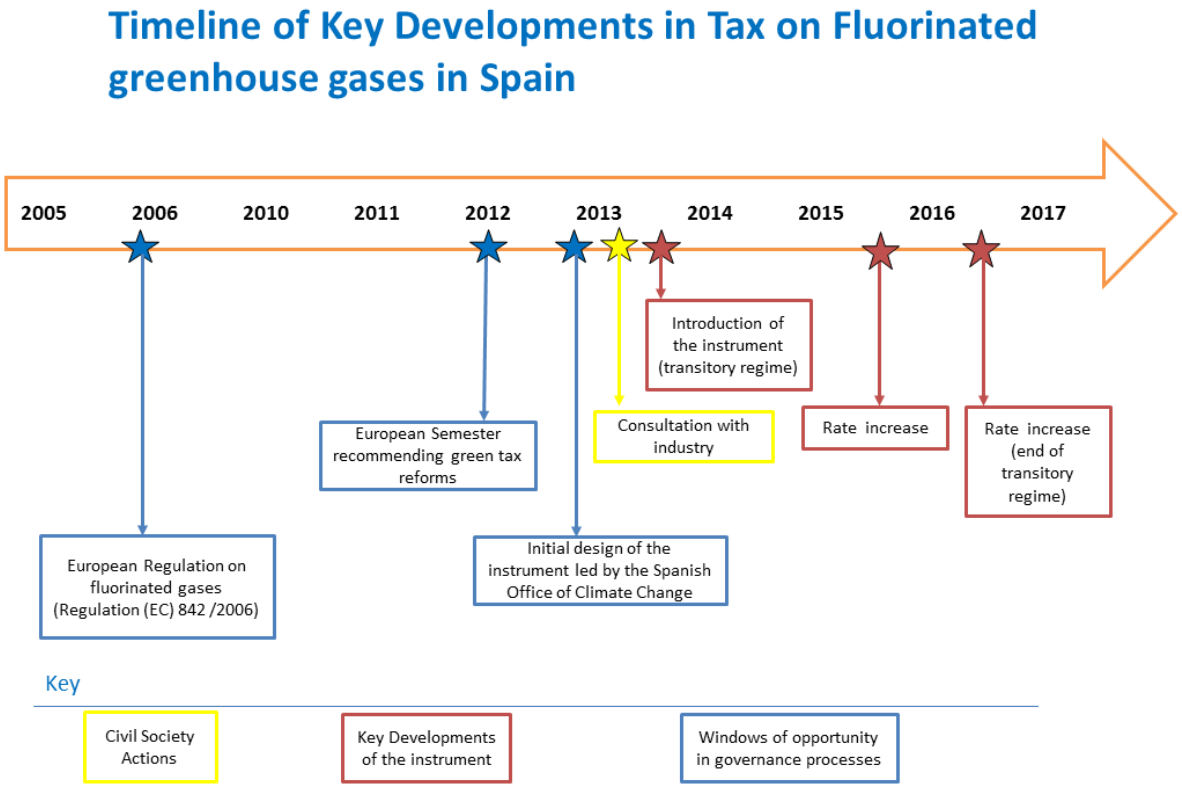
2 Stakeholder engagement

According to the Ministry of Finance, The Spanish Office of Climate Change at the Ministry of Agriculture, Food and Environment led the design and implementation of the tax along with the Ministry of Finance. The existence of an EU Regulation on the issue and European recommendations to develop environmental taxes in Spain may have helped create a favourable environment for the introduction of the tax.

During the design of the tax, some meetings and consultations were held with manufacturers, retailers and installers of F-gases. The contents of these meetings are confidential, according to the Ministry of Finance[10]. The industrial sector opposed the introduction of the tax, however as reported by the Ministry of Finance, there were specific elements in the design of the tax, such as xxx, which indicate the influence of industry. In general terms the process to design the tax is considered top-down with some consultations and negotiations with the sector on tax rates towards the end of the process. Figure 3 shows a timeline of key events in the development of the tax.

[9] http://www.magrama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/emisiones.aspx
[10] Personal communication by email on September 13 2016.

Figure 3. Timeline of key developments in the tax on fluorinated greenhouse gases in Spain

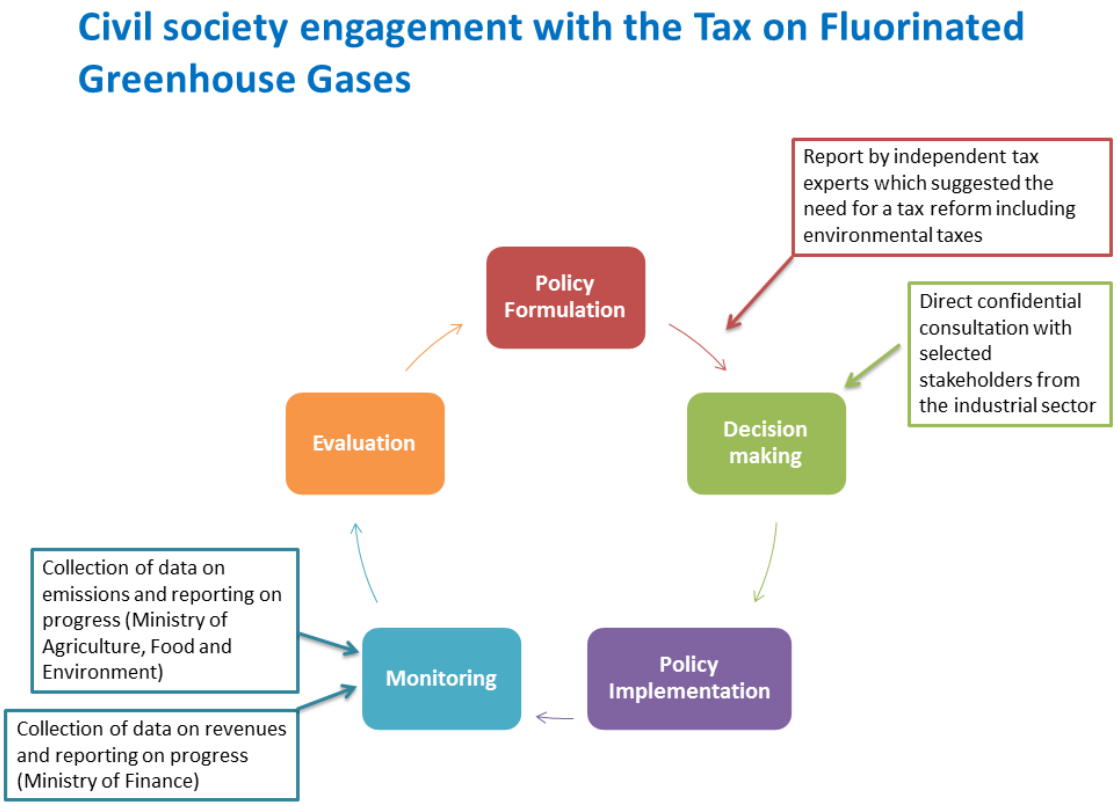


Source: Own elaboration

3 Windows of opportunity

The process was led predominantly by the Ministry of Agriculture, Food and Environment, accompanied by the Ministry of Finance. Key windows of opportunity were the existing European legislative framework and an economic context in which support for implementing environmental tax measures was pushed domestically and at the EU level for fiscal consolidation purposes. Furthermore the high and increasing costs of Spanish GHG emissions also supported action on this issue. Figure 4 shows a schematic overview of these factors.

Figure 4. Schematic overview of windows of opportunity throughout the policy cycle of the tax on fluorinated greenhouse gases in Spain



Source: Own elaboration

4 Insights into future potential/reform

No reforms are currently planned, according to the Ministry of Finance.

4.1 Suggestions for future reforms – instrument design and civil society engagement

Durán (2015) suggests that, in general, the tax could be reformed addressing several points, inter alia:

- The tax should more clearly state what is understood as "final consumer" as it is not aligned with the common definition found in other taxes
- There is a lack of regulation on online sales
- There is a lack of regulation on how some types of gas losses (i.e. accidental losses, fires) should be treated, as compared to the design of other taxes
- The upper limit in tax rates (€100 per kg) restricts the impact of the tax on prices, particularly on the most harmful gases (i.e. those having higher warming potentials).

Moreover interviewees suggested that the design and consultation with stakeholders could have been carried out more carefully.

4.2 Suggestions for replicability

Strong industry opposition together with limited public concern to address the issue can lead to a situation where policy instruments are implemented in a top down approach led by a relevant Public Authority (e.g. Ministry of Environment). Although the process was mainly driven by National Authorities, the process of negotiation with industry stakeholder seems to have facilitated the final stages of legal development of the tax.

Certain aspects are crucial for the design of a tax and have to be carefully taken into account, notably the definition of tax payers. This requires a solid understanding of economic agents involved in the value chain for the use of F-gases. From a theoretical point of view, Durán (2015) suggests that a design closer to those of excise duties and other production taxes may facilitate application of the tax.

References

Durán, M. L. (2015). El impuesto sobre gases fluorados de efecto invernadero: reflexiones a los dos años de su aprobación. *Documentos-Instituto de Estudios Fiscales*, (16), 1-52.

Jain, A. K., Briegleb, B. P., Minschwaner, K., & Wuebbles, D. J. (2000). Radiative forcings and global warming potentials of 39 greenhouse gases. *Journal of Geophysical Research: Atmospheres*, *105*(D16), 20773-20790.

[i] This case study was prepared as part of the study 'Capacity building, programmatic development and communication in the field of environmental taxation and budgetary reform', carried out for DG Environment of the European Commission during 2016-2017 (European Commission Service Contract No 07.027729/2015/718767/SER/ENV.F.1) and led by the Institute for European Environmental Policy (www.ieep.eu). This manuscript was completed in December 2016.