

## CONCLUSION

This 4<sup>th</sup> part of the SOERW 2017 is devoted to the major sectors of activity and the pressures they exert on the environment (air, water, soil, biodiversity, etc.), through 37 fact sheets presenting socio-economic, production/consumption and environmental data, structured into six chapters (agriculture, energy, industry, transport, tertiary sector and households). The indicators presented are also closely linked, upstream, with the problems of land use management (part 2) and the availability of natural resources (part 3), and downstream, with the state of the components of the environment (part 5) and human health (part 6), as well as sectoral environmental policies and management measures (part 7).

### Eco-efficiency as a first step towards an assessment of sustainable development

An overall analysis of the environmental impacts of the various sectors of activity is a difficult exercise, given the specific characteristics of the sectors of activity and the diversity of environmental issues. An attempt is nonetheless made, based on eco-efficiency indicators which compare the evolution of specific socio-economic parameters (gross domestic product, gross value added, employment, number of private households, etc.) with that of pressures on the environment (materials, energy, air, water, etc.). Specifically, eco-efficiency indicators are presented in 9 fact sheets in this 4<sup>th</sup> part. The status and trend of these eco-efficiencies are summarised in the following illustration:



Eco-efficiency of electricity generation (ENER 5)  
 Industrial energy consumption (INDUS 1)  
 Emissions of industrial air pollutants (INDUS 2)  
 Water consumption and waste water discharges by industry (INDUS 3)  
 Generation of industrial waste (INDUS 4)



Eco-efficiency of the agricultural sector (AGRI 7)  
 Eco-efficiency of the transport sector (TRANS 6)  
 Eco-efficiency of the tertiary sector (TERT 1)  
 Eco-efficiency of the residential sector (HOUSE 5)

The analysis reveals the following:

- most of the eco-efficiency indicators linked to the activity of the industrial sector show that an improving dynamic as regards the efficiency of production methods has been underway in this sector for a number of years, and that this was accentuated by the economic crisis of 2009;
- as regards the agricultural, tertiary, residential and transport sectors, the pressure indicators do not all move in the same direction, whether at the status or trend level. In this context, it is not possible to assess the overall performance of these sectors.

The results should nonetheless be interpreted with caution. In effect, an improvement in the eco-efficiency of a sector implies a relative decrease in the environmental pressure considered in relation to the socio-economic parameter chosen, which does not necessarily imply an absolute decrease in pressure, even if it is observed in many cases. Comparing the sectors like for like is equally difficult, as the reference parameters (gross value added, employment, number of private households, etc.) and the period considered for the analysis are different. In addition, the scope for potential improvements in eco-efficiency may differ from one sector to the next, either because significant efforts have already been made or because the constraints (particularly technological) associated with the production process limit the scope for change. Finally, the indicators used here do not cover all environmental pressures and some sectors of activity are under-represented. The calculation of eco-efficiency requires temporal series of sufficiently complete and detailed data, which is not always the case.

### Problems, issues and measures: how do the Walloon sectors measure up?

For each of the 37 fact sheets, a general summary exercise was carried out. On the one hand, this aims to present the key message of each fact sheet, and on the other, to provide an assessment of the status and the trend. It does not replace reading the fact sheets for a qualified assessment of the situation.

## CONCLUSION

*The agricultural sector*

The intensive methods of agricultural production are responsible for various pressures on the environment: soil erosion and compaction, water pollution, air emissions, erosion of biodiversity, impacts on the landscape, etc. The areas affected by these methods of production are tending to increase. They include the majority of maize crops (+629 ha/year on average between 1980 and 2015) and potato crops (+753 ha/year on average between 1980 and 2015). Conversely, the areas allocated to permanent grassland, which is the activity with the smallest environmental impact, show a downward trend (-2,576 ha/year on average between 1980 and 2015).

Various measures have been put in place to mitigate these pressures: regulatory measures, such as the cross-compliance of agricultural aids, the maintenance of sensitive grasslands

(in some Natura 2000 management units) and permanent grasslands, as well as voluntary measures, including agri-environmental and climate measures (53.7% participation of farmers in 2013).

In addition, the Walloon Rural Development Programme 2014-2020 (*Programme wallon de développement rural 2014-2020*) has been revised in order to further expand agricultural production methods. As for the organic sector, in which the production methods are more environmentally friendly, the Strategic Plan for the Development of Organic Farming in Wallonia for 2020 (*Plan stratégique pour le développement de l'agriculture biologique en Wallonie à l'horizon 2020*) has set the objective of increasing the proportion of utilised agricultural area (UAA) allocated to organic farming to 14% by 2020.

<b>AGRI 1</b> <b>Farmland use and means of production</b>	In 2015, the Walloon UAA amounted to 717,527 ha and there were 12,872 farms. Between 1990 and 2015, the UAA declined by 4.7% and the number of farms declined by 55.8%.	
	?	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Assessment of trend not-relevant</b> Without information on production methods, there is no link between, on the one hand, the UAA and the number of farms, and environmental impacts on the other. An assessment of the trend is not relevant.</p>
<b>AGRI 2</b> <b>Trends in agricultural production: plant sector</b>	The main agricultural activities can be classified according to their increasing potential impact on the environment: permanent grasslands, temporary grasslands, winter cereals, rapeseed, spring cereals, flax, maize, beetroot, chicory and potatoes.	
	—	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Trend towards deterioration</b> Between 1980 and 2015, permanent grassland decreased by 23%, while temporary grassland, maize and potatoes increased by 208%, 59% and 310% respectively. However, beetroot decreased by 55%.</p>
<b>AGRI 3</b> <b>Trends in agricultural production: animal sector</b>	Between 1990 and 2015, there was a significant increase in poultry stocks, particularly broilers, as well as a fall in cattle numbers and a stabilising of pig numbers.	
	?	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Assessment of trend not-relevant</b> Given the multiplicity of factors involved, the change in livestock numbers cannot be directly interpreted in terms of environmental impacts.</p>
<b>AGRI 4</b> <b>Organic farming</b>	In recent years, the number of farms, UAA and livestock associated with organic farming has been steadily increasing.	
	+	<p><b>Favourable status</b> — Reference: Strategic Plan for the Development of Organic Farming in Wallonia by 2020 (<i>Plan stratégique pour le développement de l'agriculture biologique en Wallonie à l'horizon 2020</i>). — In 2015, the proportion of the UAA devoted to organic production methods was 8.8% in Wallonia. Although the average annual growth rate observed over the last five years is stable, the objective of the Strategic Plan for the Development of Organic Farming in Wallonia by 2020 (14% of the UAA devoted to organic farming) should be achieved by 2019.</p> <p><b>Trend towards improvement</b> Between 1990 and 2015, the number of organic farms increased by a factor of 29 and the organic UAA increased by a factor of 84.</p>

## CONCLUSION

<b>AGRI 5</b> <b>Fertiliser consumption and the nitrogen balance in agriculture</b>	Total nitrogen fertiliser inputs (mineral and organic) have decreased in Wallonia since the early 1990s. In 2014, a surplus of N <sup>1</sup> was still present in Walloon agricultural soils, but the nitrogen balance for the period 2011 - 2014 was negative.
?	<b>Assessment of status not achievable</b> — No reference — The stock of N in the root zone of agricultural soils in the form of NO <sub>3</sub> <sup>-</sup> is expected to reach 0 in the absence of surplus to crop requirements. In 2014, the surplus of N still present in agricultural soils (38.6 kg N/ha of UAA) accounted for an average of 20% of the total annual nitrogen fertiliser inputs in Wallonia.
	<b>Assessment of trend not achievable</b> The set of indicators presented (inputs of organic and mineral fertilisers, nitrate stock in the root zone, nitrogen balance, etc.) could indicate an improvement over the time periods considered (1995 - 2014, 1971 - 2014). However, the interannual variations are still too large to confirm this.
<b>AGRI 6</b> <b>Use of plant protection products</b>	The total quantity of active substances of plant protection products sold in Belgium decreased between 1995 and 2014, mainly due to the decrease in the quantities sold to non-professional users.
+	<b>Assessment of status not achievable</b> — No reference
	<b>Trend towards improvement</b> The total quantities of active substances of plant protection products sold in Belgium decreased drastically between 1995 and 2010, from 10,872 t to 5,472 t, before increasing slightly between 2010 and 2011 (6,663 t) and stabilising overall until 2014 (7,511 t).
<b>AGRI 7</b> <b>Eco-efficiency of the agricultural sector</b>	A decoupling is observed between certain production indices and various parameters illustrating the pressures and environmental impacts generated by the sector.
?	<b>Assessment of status not achievable</b> — Reference: the principle of decoupling — A single assessment of status is not feasible for plant and animal production. Although a decoupling is observed between 1995 and 2014 between plant production on the one hand and inputs and air pollutant emissions on the other, this is not the case for animal production, with the exception of pesticides and phosphorus fertilisers.
	<b>Assessment of trend not achievable</b> The evolution of the decoupling varies according to the parameters considered. As such, an assessment of the trend is not feasible.
<b>AGRI Focus 1</b> <b>Water consumption in the agricultural sector</b>	A study carried out in Wallonia (CRA-W, 2016) made it possible to assess the water consumption of a sample of farms. For the period 2011 - 2013, the water footprint (quantitative aspects) was assessed at 3.7 l H <sub>2</sub> O eq/l of milk, 41 l H <sub>2</sub> O eq/kg of carcass and 2,415 l H <sub>2</sub> O eq/ha.

*The energy sector*

Energy production, conversion and consumption are responsible for various environmental pressures, most notably air pollutant emissions. There are several encouraging developments in this area. Overall, energy consumption in Wallonia has declined in absolute terms, mainly since the early 2000s and in particular since 2008, or in relative terms compared to gross domestic product, even if the value of the indicator remains higher than that of Belgium as a whole or the EU-28. Wallonia remains dependent on nuclear energy and oil products, which accounted for more than 60% of the primary energy consumed in 2014. However, the use of solid fuels (including coal) has almost disappeared in favour of more environmentally friendly energies (gas, renewable energies). Between 2000 and 2014, the generation of energy from renewable sources more than tripled, with the creation of new sectors (solar, wind). Private and public actors also make better use of energy by using cogeneration more often. Governments and the energy sector have played

an important role in these recent developments, e.g. by encouraging renewable energy or shutting down coal-fired power stations. These trends are expected to become more marked in the coming years in order to meet the European objectives for renewable energy generation, as applied at both Belgian and Walloon levels. Wallonia will therefore be confronted with major challenges, including adapting to the new decentralised and intermittent modes of electricity generation.

<sup>[1]</sup> Nitrogen

## CONCLUSION

<b>ENER 1</b> Primary energy consumption	Primary energy consumption is an important explanatory factor for a number of environmental pressures in Wallonia, including emissions of air pollutants. Based mainly on nuclear fuel and oil products (more than 60% in 2014), it has declined overall since 2005.	
	+	<b>Assessment of status not achievable</b> — No reference
<b>Trend towards improvement</b> Between 2000 and 2014, primary energy consumption decreased by 23%. In addition, the energy mix which constituted this consumption evolved positively: growth in renewable energy sources and energy recovery, and a decline in solid fuels (excluding wood).		
<b>ENER 2</b> Regional and sectoral energy intensity	Energy intensity (EI) measures the amount of energy needed to produce a unit of wealth (or other representative socio-economic variable). It has improved significantly in Wallonia since 1995, but remains higher than that of Belgium and the EU-28. Sectoral EIs also show more pronounced declines (industry and households) or less pronounced declines (tertiary sector).	
	+	<b>Assessment of status not achievable</b> — No reference
<b>Trend towards improvement</b> Regional and sectoral EIs declined between 1995 and 2014. Walloon EI: -41%; EI of the industrial sector: -63%; EI of households: -32%; EI of the tertiary sector: -7%.		
<b>ENER 3</b> Electricity and heat from cogeneration	Cogeneration makes it possible to improve energy efficiency and make better use of primary energy sources (including renewable energies). The private sector, particularly the industrial sector, plays an important role in this highly decentralised generation.	
	+	<b>Assessment of status not achievable</b> — No reference
<b>Trend towards improvement</b> Between 1997 and 2014, the total amount of heat and electricity produced by cogeneration units increased by 74%. Renewable energy sources are playing an increasingly important role in the primary energy mix used by cogeneration units (54% in 2014 compared to 16% in 2008).		
<b>ENER 4</b> Share of renewable energy in gross final energy consumption	The share of renewable energies in gross final energy consumption increased almost constantly between 2000 and 2014, thanks to both increased production and lower energy consumption. New methods of electricity generation (photovoltaic, wind) have developed significantly.	
	+	<b>Favourable status</b> — Reference: Walloon trajectory defined in the context of the green certificates policy (preparatory documents for the Walloon Government Decree of 26/11/2015) — The target set by the Walloon Government is 13% renewable energy by 2020. With a share of renewable energy in final energy consumption of 10.7% in 2014, and with an unchanged trajectory, this target should be achieved by 2020.
<b>Trend towards improvement</b> Between 2000 and 2014, the share of renewable energy in final consumption increased from 2.8% to 10.7%. At the same time, heat production more than doubled, electricity generation increased by approximately sevenfold, and renewable energy sources linked to transport also increased.		
<b>ENER 5</b> Eco-efficiency of electricity generation	The conversion of primary energy into electricity creates environmental pressures. One of the challenges in this area is to reduce air pollutant emissions per unit of electricity produced or converted. This reduction has been observed in Wallonia in recent years.	
	+	<b>Favourable status</b> — Reference: the principle of decoupling — Between 1995 and 2014, there was a decoupling between electricity generation and air pollutant emissions and waste generation.
<b>Trend towards improvement</b> In general, over the whole period 1995-2014, the intensity of decoupling between electricity generation and pressure indicators increased.		

## CONCLUSION

*Industry*

Industry, which was historically very important in Wallonia, has been marked by major restructuring (especially in metallurgy) and a gradual shift towards higher value-added products (pharmaceuticals, biotechnology, aeronautics, etc.). However, the traditional sectors (base chemicals, cement, etc.) are still well represented. These changes, coupled with real efforts by the sector which have been encouraged by public actors, explain the eco-efficiency

gains recorded: (i) a reduction in energy consumption and air pollutant emissions, (ii) water consumption and most of the pollution loads from waste water discharges, and (iii) the quantities of waste generated. The challenge in this sector is to maintain this dynamic through the continuation of voluntary measures (environmental certificates, branch agreements) and the strengthening of environmental standards (environmental permits).

<b>INDUS 1</b> <b>Industrial energy consumption</b>	<p>Industry, even though it remained the most energy-intensive sector in Wallonia in 2014, saw its energy consumption fall sharply in the 2000s, and in particular since the economic crisis of 2009 and its impact on the decline of the Walloon steel industry.</p> <p><b>Favourable status</b>  — Reference: the principle of decoupling  — Between 1990 and 2014, a decoupling was observed between gross value added (GVA) and industrial energy consumption.</p> <p><b>Trend towards improvement</b>  Industry's energy consumption increased from 76 TWh in 1990 to 43 TWh in 2014, while at the same time GVA grew by 60%. In addition, the energy mix improved with an increase in the share of alternative energies (renewable, cogeneration, etc.).</p>
<b>INDUS 2</b> <b>Emissions of air pollutants by industry</b>	<p>Air emissions from the extractive and manufacturing industries decreased thanks to measures imposed in the sector, but also as a result of slowdowns in industrial activities and even the closure of plants (especially in the steel industry) linked to the economic crisis of 2009.</p> <p><b>Favourable status</b>  — Reference: the principle of decoupling  — Between 2000 and 2014, a decoupling was observed between GVA and air pollutant emissions (greenhouse gases, acidifying substances, ozone precursors, particulate matter and trace metals).</p> <p><b>Trend towards improvement</b>  Between 1990 and 2014, air pollutant emissions decreased by 51-85%, while GVA increased by 60%.</p>
<b>INDUS 3</b> <b>Water consumption and waste water discharges by industry</b>	<p>Water is used in most industrial manufacturing processes (as a raw material, for cooling, etc.). The water consumption of the extractive and manufacturing industries, their discharges and the pollution load they generate should therefore be monitored, even if this sector is not the most impacting from an environmental point of view.</p> <p><b>Favourable status</b>  — Reference: the principle of decoupling  — Between 2003 and 2013, a decoupling was observed between GVA on the one hand and water consumption and waste water discharges on the other.</p> <p><b>Trend towards improvement</b>  Water consumption has fallen by 60% in 10 years, while GVA has remained stable. The decoupling was therefore more accentuated. In addition, apart from phosphorus, total discharges were generally lower between 1995 and 2013.</p>
<b>INDUS 4</b> <b>Generation of industrial waste</b>	<p>The amount of industrial waste generated in Wallonia in 2013 was estimated at around 4,800 kt. Nearly 80% of the amount came from the sub-sectors of food, wood processing and metallurgy.</p> <p><b>Favourable status</b>  — Reference: the principle of decoupling  — Between 1995 and 2013, a decoupling was observed between GVA and the quantities of industrial waste generated.</p> <p><b>Trend towards improvement</b>  The quantities of industrial waste generated decreased overall between 2000 and 2013 (all sub-sectors combined). The GVA increased steadily until 2008.</p>

## CONCLUSION

*Transport*

The transport sector was the second largest emitter of greenhouse gases (GHGs) in Wallonia in 2014, behind industry. However, unlike the latter, its GHG emissions increased over the period 1990-2014. Controlling these emissions is therefore an important challenge for Wallonia. Demand for transport increased overall between 1990 and 2009, both in terms of freight transport (+50%) and passenger transport (+39%). The 2012-2030 outlook (FPB & FPS Mobility and Transport, 2015) indicates that this trend is continuing (+41% for goods and +11% for people). Road transport was the most widely used mode of transport with over 80% of the demand for passenger and freight transport.

However, in terms of energy, it is still almost exclusively dependent on oil resources, as is the growing aviation sector in Wallonia. Faced with these various challenges, Wallonia has set out a range of measures aimed at rationalising transport demand (*through* land use planning in particular), encouraging modal shifts from private cars to public transport or bicycles, and reducing emissions linked to the use of vehicles, in particular through financial incentives (premiums for purchases, vehicle taxation) and the development of infrastructure for alternative fuels.

<b>TRANS 1</b> Transport infrastructure		The road, rail and inland waterway transport networks in Wallonia are characterised by their high density and their integration into European networks. They contribute to wealth creation within the territory, but their presence and use create pressures on the environment and human health.
	?	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Assessment of trend not achievable</b> Since 2010, comprehensive data on the extent of transport networks in Wallonia is no longer available. Between 2005 and 2010, the total extent of the road network increased by less than 2%.</p>
<b>TRANS 2</b> Freight transport		Between 2008 and 2013, the demand for transport, dominated by road transport (84% modal share in 2009), showed contrasting trends, as the sector was strongly impacted by the global economic crisis. Wallonia is also characterised by the large-scale transit of foreign vehicles.
	?	<p><b>Unfavourable status</b> — Reference: the principle of decoupling — Between 1990 and 2009, gross domestic product (GDP) grew by 39%, while demand for freight transport grew by almost 50%.</p> <p><b>Assessment of trend not achievable</b> The decoupling between GDP and transport demand, which showed an increasing trend, diminished considerably following the economic crisis. The contrasting evolutions observed in recent years make it difficult to assess the trend.</p>
<b>TRANS 3</b> Passenger transport demand		Changes in lifestyles and the dispersal of housing have led to an increase in the mobility of people (by road and rail) in Wallonia. Air transport also experienced rapid growth between 2000 and 2015.
	—	<p><b>Unfavourable status</b> — Reference: the principle of decoupling — Between 1990 and 2009, the Walloon population grew by 7% while passenger transport demand (all modes) increased by 39%.</p> <p><b>Trend towards deterioration</b> Between 1990 and 2009, passenger transport demand (all modes) increased faster than population growth.</p>
<b>TRANS 4</b> Modal split of passenger transport		The modal share shows the importance of each mode of transport within the overall demand. A distinction is made between transport in private vehicles, which has a greater environmental impact and is the majority in Wallonia, and other modes of transport.
	●	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Overall stable trend</b> Although a slight decline in the modal share of the car was observed between 1990 and 2009 (from 84% to 81%), the trend since the mid-2000s has been a stabilisation at around 80% for this type of transport.</p>

## CONCLUSION

<b>TRANS 5</b> Composition of the vehicle fleet	In 2016, 77% of the Walloon vehicle fleet was made up of cars, of which just under two thirds were diesel-powered. The trend towards diesel-engined cars in the vehicle fleet has been declining since 2013 - 2014. Commercial vehicles, which are growing strongly, accounted for only 10.8% of the vehicle fleet in 2016.	
	?	<b>Assessment of status not achievable</b> — No reference
<b>Assessment of trend not achievable</b> The composition of the vehicle fleet does not make it possible to clearly ascertain the environmental impacts because they depend on the types of engines and other data not available or not used (equipment rates, age of the fleet, compliance with standards, etc.).		
<b>TRANS 6</b> Eco-efficiency of the transport sector	In 2014, transport activities accounted for 30% of final energy consumption in Wallonia. They exert pressure on the environment through emissions of air pollutants. Various measures and actions in the sector tend to reduce these emissions, with mixed results.	
	?	<b>Assessment of status not achievable</b> — Reference: the principle of decoupling — Between 1990 and 2009, a decoupling was observed between transport demand and air pollutant emissions (acidifying substances, ozone precursors, trace metals). However, this was not the case for energy consumption and GHG emissions. These contrasting evolutions mean that an unequivocal assessment of the situation cannot be made.
<b>Assessment of trend not achievable</b> As regards air emissions of acidifying substances, ozone precursors and trace metals, the trend between 1990 and 2009 was an improvement in eco-efficiency. On the other hand, as regards energy consumption and GHG emissions, the trends were more mixed.		
<b>TRANS 7</b> External costs related to passenger transport and freight transport	Certain costs caused by the use of transport are borne by society as a whole and not only by the users of the transport, which gives a competitive advantage to the modes of transport with the largest impacts (air pollution, accidents, etc.). According to a Walloon study (CIEM, 2010), road transport is the mode of transport for which the total external costs are highest.	
	?	<b>Assessment of status not achievable</b> — No reference
<b>Assessment of trend not achievable</b> The data concern only one year.		

*The tertiary sector*

The tertiary sector, which accounted for 75.7% of gross value added and 79.7% of total employment in Wallonia in 2014, is an important part of the Walloon economy. However, it has a lower overall impact than other sectors (industry, transport, etc.) in terms of energy consumption and air pollutant emissions, for example. It does, however, exert specific pressures (waste generation, water use, transport demand, etc.), which have not yet been fully studied and for which monitoring should be improved. Based on the available data, certain trends should be monitored. As such, the demand for electricity in buildings in the tertiary sector is growing

faster than the number of jobs, mainly due to the increase in the number of electrical appliances (office automation, air-conditioning). It should be noted that the tertiary sector, like the industrial and residential sectors, also exerts pressures that are not directly attributed to it: emissions of air pollutants linked to electricity consumption and transport.

<b>TERT 1</b> Eco-efficiency in the tertiary sector	Economically important, the tertiary sector accounted for 10% of final energy consumption in Wallonia in 2014. However, its electricity needs are growing rapidly. Measures are being taken to increase the energy efficiency of buildings.	
	?	<b>Assessment of status not achievable</b> — Reference: the principle of decoupling — Between 1995 and 2014, the number of jobs (+29%) was decoupled from acidifying substance emissions (-48%) but not from electricity consumption (+4.7%). Eco-efficiency is difficult to assess for fuel consumption and greenhouse gas emissions, which have experienced significant interannual variations due to climatic conditions.
<b>Assessment of trend not achievable</b> The rationale is identical to that for the assessment of the status.		
<b>TERT Focus 1</b> Tourist intensity	Tourism-related pressures are difficult to measure, but the tourist intensity (number of overnight stays/1,000 inhabitants) makes it possible to ascertain them. Some Walloon municipalities, mainly in rural areas, register a significant number of overnight stays compared to their population. The highest intensity is measured in the province of Luxembourg, where it is higher than the European average (EU-28).	

## CONCLUSION

*Informing households to raise awareness and achieve better consumption*

Like other sectors, households have a variety of environmental impacts. There are signs of improvement in energy and public drinking water consumption, plant protection products (PPPs) consumption, the construction of new homes and the energy performance of new homes. However, in other areas, improvements are slow to gain momentum, such as soil consumption for housing, the consumption of environmentally friendly products, the responsible use of PPPs or the use of more environmentally friendly modes of transport.

These contrasting performances can be explained by the many variables that come into play: socio-economic factors (household budget, cost of products, cost of housing, etc.), socio-demographic factors (age groups, number and size of households, etc.), behavioural factors (perception, consumption choices, etc.) and technological factors (energy efficiency of housing and cars, product characteristics, etc.). In view of this, the public authorities have understood the importance of combining different types of mechanisms to influence household behaviour. In recent years, the Walloon


Government has placed particular emphasis on information tools for most areas of consumption. Although, *a priori*, the role of these tools may appear to be less decisive in the short term, their long-term effectiveness in inducing a change in mentality should be significant. This willingness to "inform better to raise awareness and consume better" can be found in all the current and forthcoming major documents of the Walloon Government: The Walloon Programme to Combat Food Waste 2015 - 2025 (*Programme wallon de lutte contre les pertes et le gaspillage alimentaire 2015 - 2025*), the second Walloon Strategy for Sustainable Development (*Stratégie wallonne de développement durable*), the Air Climate Energy Plan 2016 - 2022 (*Plan air climat énergie 2016 - 2022*), the Walloon Strategy for Long Term Energy Renovation of Buildings (*Stratégie wallonne de rénovation énergétique à long terme du bâtiment*)<sup>2</sup>, the Walloon Pesticide Reduction Programme 2018 - 2022 (*Programme wallon de réduction des pesticides 2018 - 2022*), the Walloon Waste-Resources Plan (*Plan wallon des déchets-ressources*)<sup>3</sup>, etc. For other areas such as the use of PPPs, the Walloon Government has chosen to supplement the information measures with binding measures (Walloon Government Decree of 30/03/2017 banning the use of PPPs containing glyphosate).

<b>HOUSE 1</b> Soil consumption for housing		The average residential area per household has been increasing since 1990. It reached 684 m <sup>2</sup> /household in 2015. However, a slowdown in this growth has been observed since the early 2000s.
	⊖	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Trend towards deterioration</b> Between 1990 and 2015, residential land use increased by 37.4%, while the number of private households increased by only 20.6% over the same period. The average residential area per household consequently increased (+13.9%) but this growth has tended to slow down since the early 2000s.</p>
<b>HOUSE 2</b> Construction of new dwellings		In 10 years, the number of permits issued for the construction of new detached houses has decreased significantly, while the number of apartments authorised has remained stable overall.
	⊕	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Trend towards improvement</b> The total number of new buildings authorised increased from 9,012 in 2005 to 6,184 in 2015, mainly due to the reduction in the number of detached houses with a planning permit. The share of apartments and terraced and semi-detached houses in the construction of new dwellings has therefore increased. This equates to a reduction of the annual pressures exerted on the territory.</p>
<b>HOUSE 3</b> Public drinking water consumption		The consumption of domestic and non-domestic public drinking water in Wallonia in 2015 amounted to slightly more than 155 m <sup>3</sup> , representing average consumption of 119 l/(per capita per day).
	⊕	<p><b>Assessment of status not achievable</b> — No reference</p> <p><b>Trend towards improvement</b> Daily consumption of public drinking water per capita was lower over the period 2004 - 2015 (-11.6%).</p>

<sup>[2]</sup> Adopted on 20/04/2017 by the Walloon Government | <sup>[3]</sup> PWD-R: enactment by the Walloon Government on 16/06/2016



## CONCLUSION

<b>HOUSE 4</b> <b>Household water use</b>	<p>According to a 2014 survey, if an alternative resource to tap water was used, the consumption of public drinking water decreased from 69 m<sup>3</sup>/year (91 l/(per capita per year)) to 56 m<sup>3</sup>/year (71 l/ (per capita per year)) (AQUAWAL &amp; CEHD, 2015). In addition, bottled water was used by half of households as drinking water.</p>
	<p><b>Assessment of status not achievable</b>  — No reference</p> <p><b>Assessment of trend not achievable</b>  Data are not available for a sufficiently long period of time (a study in 2009 and a study in 2015).</p>
<b>HOUSE 5</b> <b>Eco-efficiency of the residential sector</b>	<p>By living in houses, travelling and consuming goods and services, households exert multiple pressures on natural environments, fossil energy resources, raw materials and water. In addition, their activities generate waste, waste water discharges, atmospheric emissions of pollutants, etc.</p> <p><b>Assessment of status not achievable</b>  — Reference: the principle of decoupling  — Between 2000 and 2014, a decoupling was observed between changes in the number of private households on the one hand and changes in energy and public drinking water consumption, atmospheric emissions of acidifying substances and greenhouse gases on the other. This is not the case with atmospheric particulate matter emissions and waste generation. These contrasting evolutions mean that an unequivocal assessment of the situation cannot be made.</p> <p><b>Assessment of trend not achievable</b>  The pressure indicators did not all move in the same direction over the period 2000-2014.</p>
<b>HOUSE Focus 1</b> <b>Residential energy consumption</b>	<p>The study of residential energy consumption by sub-region (AQUAWAL &amp; CEHD, 2015) shows that in 2014, disparities existed in Wallonia both for the average quantities of energy consumed per household (between 18,497 kWh and 29,591 kWh) and for the sources used. These disparities are largely due to access to energy resources (gas and wood).</p>
<b>HOUSE 6</b> <b>Consumption of food from organic farming</b>	<p>Demand for organic food products increased in almost all segments over the period 2011-2015, with meat substitutes, eggs and vegetables remaining in the top three.</p> <p><b>Favourable status</b>  — Reference: Strategic Plan for the Development of Organic Farming in Wallonia for 2020 (<i>Plan stratégique pour le développement de l'agriculture biologique en Wallonie à l'horizon 2020</i>)  — Expenditure by Walloon households on organic food products amounted to €238 million in 2015, representing a market share of 3.5% of total expenditure by Walloon households on food. The Plan sets the objective of a 3% market share for organic farming by 2020.</p> <p><b>Trend towards improvement</b>  Between 2008 and 2015, the market share of total Walloon household expenditure on organic food products rose from 2.0% to 3.5%.</p>
<b>HOUSE 7</b> <b>Consumption of more and less environmentally friendly products</b>	<p>According to a recent survey (GfK, 2016b), a little more than half of Walloon households (55%) said that they considered the environmental impact of products when making a purchase. Products considered more environmentally friendly, including rechargeable batteries, water bottles in returnable packaging, laundry detergents, and ecological detergents were purchased by less than 10% of households in 2015.</p> <p><b>Assessment of status not achievable</b>  — No reference</p> <p><b>Overall stable trend</b>  The percentage of Walloon households that bought a more environmentally friendly and less environmentally friendly product at least once a year was relatively stable for most of the products studied between 2008 and 2015.</p>

## CONCLUSION

<p><b>HOUSE 8</b> Use of plant protection products by households</p>	<p>A recent survey (GfK, 2016c) carried out among a panel of 2,033 Walloon households with a garden, to determine their motivations for using PPPs and/or alternative methods, and to identify their purchasing and utilisation habits.</p> <p><b>Unfavourable status</b> — Reference: Walloon Government Decree of 05/03/2008. The assessment concerns the indicator pertaining to waste management, as the other indicators are not evaluable (there is no reference). — As special household waste, PPPs (empty packaging or remaining product) require special handling in container parks. 64% of households using PPPs deposit their empty packaging or remaining product at the container park.</p> <p><b>Assessment of trend not achievable</b> Existing historical data are not comparable.</p>
<p><b>HOUSE 9</b> Generation of household and similar waste</p>	<p>In 2015, the waste bin of Walloon households was made up of 51% household refuse and 49% coarse fractions of household waste (inert, bulky and green waste).</p> <p><b>Slightly unfavourable status</b> — Reference: Walloon Waste Plan for 2010 (<i>Plan wallon des déchets 2010 - PWD 2010</i>) — The quantities of household and similar waste collected in 2015 amounted to 523 kg per capita, 15% more than the target set in PWD 2010 (445 kg per capita per year).</p> <p><b>Overall stable trend</b> Between 2000 and 2015, the quantities of household and similar waste collected were relatively stable (relative increase of about 0.4% per year on average).</p>
<p><b>HOUSE Focus 2</b> Household food wastage</p>	<p>In Wallonia, food wastage was estimated at 19 kg/(per capita per year) over the period 2009 - 2010, or 16% of the contents of the general waste bin. However, this figure is conservative as it does not take into account liquid food thrown away or food consumed and thrown away outside of the home. The Walloon Programme to Combat Food Wastage 2015-2025 (<i>Programme wallon de lutte contre les pertes et le gaspillage alimentaire 2015-2025</i>) aims to reduce food waste by 30% at all levels of the food production, distribution and consumption chain by 2025.</p>