



REPAIR

REsource Management in Peri-urban AREas: Going Beyond Urban Metabolism

D3.4 Process model of Ghent _ public version

Authors: Sue Ellen Taelman (UGent), Arianne Acke (OVAM), Cecilia Furlan (TUD), David Sanjuan Delmás (UGent), Ákos Bodor (RKI), Zoltán Grünhut (RKI), Jo Dewulf (UGent)

Contributors: Rusné Sileryté (TUD), Tom Claeys (IVAGO), Greet Steeman (City of Ghent), Bob Geldermans (TUD), Viktor Varjú (RKI)

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Acronyms and Abbreviations

AEC	Atomic Energy Commission
AG	Activity Group
AS-MFA	Activity-based Spatial Material Flow Analysis
CE	Circular Economy
CHP	Combined Heat and Power
CPA	Statistical Classification of Products by Activity
EC	European Commission
EMAS	Eco-Management and Audit Scheme
EU	European Union
EWC	European Waste Classification
FA	Focus Area
FOD	Federale Overheidsdienst
FU	Functional Unit
GDP	Gross Domestic Product
GDSE	Geodesign Decision Support Environment
HDPE	High Density Polyethylene
ISO	International Organization for Standardization
LED	Light-Emitting Diode
LHV	Lower Heating Value
MFA	Material Flow Analysis
MSW	Municipal Solid Waste
NACE	Nomenclature des Activités Économiques dans la Communauté Européenne
NSC-VFG	Non-Separately Collected VFG
OBW	Organic Biological Waste
OECD	Organisation for Economic Cooperation and Development
OW	Organic Waste
PULL	Peri-urban Living Lab
R&D	Research and Development
SC-VFG	Separately Collected VFG
SSCA	Secondary Socio-cultural Analysis

STATBEL	Belgian Statistical office
TOC	Total Organic Carbon
VFG	Vegetables Fruit Garden
WCB	Waste-conscious behaviour
WM	Waste Management
WP	Work Package

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Publishable Summary

Deliverable 3.4 describes the process model of Ghent, a follow up case study area of the REPAiR project, and focuses on waste generation and overall management. D3.4 includes two main aspects: 1) a spatial and socio-economic analysis and 2) the material flow analysis.

The spatial and socio-economic analysis covers both the national, regional and focus area level and describes, among others, the demography, labour force, geographical situation, economy, transport, waste sensitivity and wastescapes, similar to D3.3, which provided information for the pilot cases of Amsterdam and Naples. Moreover, results of the stakeholder survey are processed and included.

As introduced in D3.1 (*Introduction to methodology for integrated spatial, material flow and social analysis*), the Activity-based Spatial Material Flow Analysis (AS-MFA) methodology is followed for the Ghent case study. The local stakeholders expressed their interest regarding organic waste, and more specifically vegetables, fruit and garden (VFG) waste, during the peri-urban living lab (PULL) workshops. Therefore, D3.4 focuses on VFG waste from households and companies and follows two different approaches: bottom-up, with data from local stakeholders entailing very detailed information and less uncertainty, and top-down, with the use of generic databases for the region, which provides a broader overview but has a higher risk on including more uncertainty in the final results. It appears that both approaches are valuable, each with their own advantages and disadvantages. This report finishes with a reflection on methodology and interpretation of the results.

1. Introduction

This report – Deliverable 3.4 of WP3 – concerns an integrated analysis of the follow-up case of Ghent, from the scope of waste generation and treatment, towards the production of secondary materials. It comprises spatial, social and material flow analyses of this case study area and follows the guidelines of D3.3 (*Process model for the two pilot cases: Amsterdam, The Netherlands and Naples, Italy*).

The core objective of this deliverable is to present the process model of the case study Ghent, with its demarcated focus area (FA) Ghent and Destelbergen and the region of Flanders. The process model entails a description of the spatial and socio-economic context at country level and more in depth at region and FA level. Amongst others, the demography, waste sensitivity and labour force are described. Furthermore, this deliverable describes the quantities of waste generated (and treated) both at the FA and region levels, with a focus on organic waste coming from both from households and industrial companies. Two strategies are applied: the bottom-up method, which provides accurate and detailed data but has a more narrow focus and the top-down approach which is applied to the region, giving a broader view on organic household and company waste flows but intrinsically includes more uncertainty in the results.

However, due to confidentiality issues, section 3 is not publicly available.

2. Spatial and socio-economic analysis

2.1. Country-level: Belgium¹

2.1.1. Geographical situation and the natural environment

Belgium is situated in the west of Europe, bordered to the north by the Netherlands, to the east by Germany and the Grand Duchy of Luxembourg and to the south and the west by France. Although its surface area of 30,528 km² makes it a small country, its location has made it the economic and urban nerve centre of Europe. The geography of Belgium shows it to have three major areas: lower Belgium (up to 100m above sea level), central Belgium (between 100 and 200m above sea level) and upper Belgium (from 200 to over 500m above sea level).

2.1.2. Demography

In terms of demographic trends, the situation in Belgium is very similar to that of other European countries. According to official figures from the Belgian statistical office (STATBEL), Belgium counted 11.3 million inhabitants beginning 2018, 57.5% of which live in Flanders, 32.16% in Wallonia and 10.3% in Brussels. 10.4% of the population are foreigners, 2 out of 3 have the nationality of one of the 28 EU-member states. Belgium has a population density of 360 inhabitants/km².

¹ Apart from the federal government Belgium counts different regions (3) and communities (3), each having independent powers and competences relating to the economy, employment, agriculture, housing, transport, the environment, town and country planning, education... The data given at country level do not take into account the differences and sometimes different trends in the separate communities and regions.

Belgium has a population growth of around half a percent a year. This growth is due to a positive "natural balance", with more births than deaths and a positive net migration.

In total, 51% of the population are women and 49% are men. In 2017, life expectancy at birth in Belgium was 83.7 years for women and 79 years for men. Compared to 2016 the life expectancy at birth increased for both sexes with 0.1 year. Life expectancy at birth is higher in Flanders (82.2 years) than in Brussels (81.2 years) and in Wallonia (79.8 years).

Fertility keeps decreasing, with an average of 1.68 child per woman in 2016. The mother's mean age keeps increasing slowly, both for the first child and the others. Women who give birth are on average 30.5 years old, and 28.7 years old when they have their first child.

Belgium has an ageing population. A stable fertility and the increase in life expectancy of the baby boomer generations continue to strengthen the share of the +65 year olds. According to EUROSTAT, they represent up to 18,5% of the populations and their share is still increasing. The -19 year olds represent 22,6% of the population. While this is still above the EU average (20,9%), their share is decreasing. Population ageing will put the pension and health care systems under pressure. Ageing also affects growth via employment and spending as people tend to work less as they grow older. The old age dependency ratio (the share of those aged 65 years or above to the working age population) is expected to increase from 28% in 2015 to 40% in 2060 (OECD, 2017). It also impacts the future composition of households. Flanders and Wallonia have a growing number of households, with an increasing number of small (1 person) households. Brussels has a somewhat different development. Due to a younger population and a higher international migration, it has a less growth of single-person households. (Federaal Planbureau, 2017) In 2016, Belgium counted 4.8 million households, of which 34% were single-person households.

2.1.3. Labour force

Belgium is a service economy with 77% working in the Tertiary and Quaternary sector. The industry and construction is good for 21% of the workers and the rest is employed in agriculture. While the number of workers in the primary and secondary sectors decrease, the activities in the service sectors continue to increase (<https://statista.com>).

The Belgian labour market has a rather moderate employment rate for the total population at working age (20-64 years). With an employment rate of 68.5% (2017) it scores under the European average (72.2%). The labour market is characterised by a high employment rate in the middle age group and a strong early retirement at the end of the career. Despite the steadily rising trend since the year 2000, in 2017, only half (51.3%) of the +55 were employed. This is one of the structural weaknesses of the Belgian labour market, in all regions.

The employment rate of men is higher than that of women. In 2018, 73.8% of men aged 20 to 64 worked against 64.8% of women. However, the employment rate of women increases faster. The same trend is visible for the unemployment rate. Beginning 2018, the unemployment rate of women (5.8%) fell beyond the rate of men (6.5%).

The Belgian labour market is challenged by a considerable difference in employment between low-skilled and highly skilled employees and EU and non-EU immigrants. Youth unemployment is above the EU average and is particularly high among the low-skilled. Labour market integration of non-EU immigrants is poor. The employment rate gap between second-generation non-EU immigrants and Belgians with a non-immigrant background is among the highest in the EU.

The unemployment rate in Belgium amounts to 7.1 % of the active population. It is slightly lower than the European average (7.6). The share of long term unemployment (up to 180 days) on the total active population amounts to 3.5%, however there are considerable differences between the different regions: Flanders 1.5%, Wallonia 5.8 %, Brussels 8.3%.

The Belgian labour market is segmented between regions. Measures to influence or improve the employment rate are taken by the different regions.

2.1.4. Economy

Belgium performs well in many economic and social dimensions. Belgians enjoy high well-being, taken into account work-life balance, health, education and civic engagement. Income inequality after tax and transfers is comparatively low. Belgium has the lowest gender wage gap among the OECD countries.

A sound macroeconomic policy framework, high quality education and a combination of market-based policies and a redistributive welfare state have boosted gross domestic product (GDP) per capita to well above the OECD average. Although growth weakened since the global financial crisis, Belgium ranks among the ten most competitive countries in Europe.

The level of productivity is among the highest in the OECD, but its growth has been comparatively low in the past decade, especially since the 2008 financial crisis. The high level of productivity is related to a substantial accumulation of productive capital in the past, a highly qualified workforce, and innovative technologies introduced in the lead manufacturing sectors, including in chemicals and chemical products, and basic metal and fabricated metal products (OECD, 2017).

The European Innovation Scoreboard 2016 classifies Belgium as a 'Strong Innovator', with a normalised score of 0.6. One of the main drivers of innovation and productivity is investment in intangibles, in particular spending on research and development (R&D). Belgium's gross spending on R&D, at 2.5% of GDP in 2014, was higher than the EU averages. However, the share of business enterprise R&D in total R&D has declined over the past two decades, stabilising below 60% after the financial crisis. Business expenditure on R&D tends to be concentrated in firms that are already highly productive and want to stay at or reach the technological frontier.

Belgium's principal foreign trade partners are the EU and in particular neighbouring Germany, France and the Netherlands. The UK is Belgium's fourth export market. Up to 77% of Belgium's export goes to Europe. The top 3 products for export concern chemical products, transport equipment and machinery equipment (<https://abh-ace.be>).

2.1.5. Transport and mobility

Belgium occupies an important place in terms of transport and mobility. By its geographical situation at the crossroads of roads it connects the southern European countries with the North European and the countries of Central Europe with the western part. Moreover, the density of its road, rail and Fluvio-maritime Infrastructure network ensures that Belgium is an important transit country (Table 1). With its seaports and airports (Brussels-National, Brussels-South and Liège-Bierset), the transport activities are highly specialized.

Table 1. Transport infrastructure density, Belgium, EU28, km/1000 km²

		2000	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Motorways	B	55.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8	57.8
	EU28	12.6	14.8	15.1	15.5	16.0	16.2	16.4	16.7	17.0	17.1	17.3
Inland waterways	B	50.2	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7
	EU28	9.3	9.5	9.5	9.4	9.4	9.5	9.6	9.6	9.6	9.5	9.6
Railways	B	113.7	116.6	116.9	117.1	119.7	117.3	117.3	117.3	117.8	118.9	118.2
	EU28	50.3	49.2	49.2	49.3	49.3	49.3	49.3	49.2	50	50	49.8

B=Belgium, EU=European Union

Source : <https://plan.be/databases/data-14-nl-transportdatabanken>

For passenger transport, the car remains the most popular means of transport with 73.4 % of the distance in 2016. With 500 cars/1000 inhabitants Belgium equals the European average. Commuting is the principal reason for transport. (FOD Mobiliteit en Vervoer, 2018).

In freight transport, road transport dominates with a share of around 73%. Rail and inland waterways take on a similar share of the remaining freight transport. The logistics sector is an important sector. In 2016 the logistic sector represented more than 5% of the labour market (FOD Mobiliteit en Vervoer, 2018).

According to the OECD, additional investment in transport infrastructure is needed to reduce bottlenecks around large agglomerations. Antwerp and Brussels are among the five worst affected urban centres in Europe, with commuters on average spending 70 hours or more in traffic per year. This would also address environmental challenges (air pollution) and improve the productivity (OECD, 2017).

2.1.6. Waste sensitivity

Household waste generation in Belgium has been decreasing since 2007 and remains somewhat below the OECD average. Disposals to landfills have been entirely eliminated and a much higher share of non-landfill waste is recycled or composted than in many other countries.

2.1.6.1. Corporate level

Public engagement in pro-environmental behavior and support for pro-environmental policy are essential for achieving sustainable living (Bratanova et al., 2012). As it is described in the deliverable 3.2. of the REPAiR project, corporate environmentalism refers the recognition and integration of environmental concerns into a firm's decision-

making process, is one way that business can address environmental issues (Banerjee, 2002). Firm's pro-environmental behaviours can be twofold. One of them is 'externally' regulated (by a meta-governmental, governmental, local governmental organisation). The other one – that is more important from the point of view of environmental consciousness are self-regulatory mechanisms. The latter approach – that is also called as corporate environmentalism (Banerjee, 2002) – manifested in environmental management systems such as the EU's Eco-Management and Audit Scheme (EMAS) and the International Organization for Standardization's ISO 14001 (Hillary and Thorsenb, 1999; Neugebauer, 2012). The first version of EMAS was issued in 1993 while the first version of ISO 14001 was launched in 1996.

ISO 14001:2004's specifies the requirements for an environmental management system to enable an organization to develop and implement a policy and objectives which take into account legal (and other) requirements to which the organization subscribes, and information about significant environmental aspects. ISO 14001:2015 revised this management system including more strict regulations for firms applying for the certification. Concerning the ISO database in 2016, Belgium has 1012 ISO 14001:2004 certificates on 772 sites and 155 ISO 14001:2015 certificates on 78 sites. The trend in this certificates shows an increase in Belgium with three increasing phases (Figure 1).

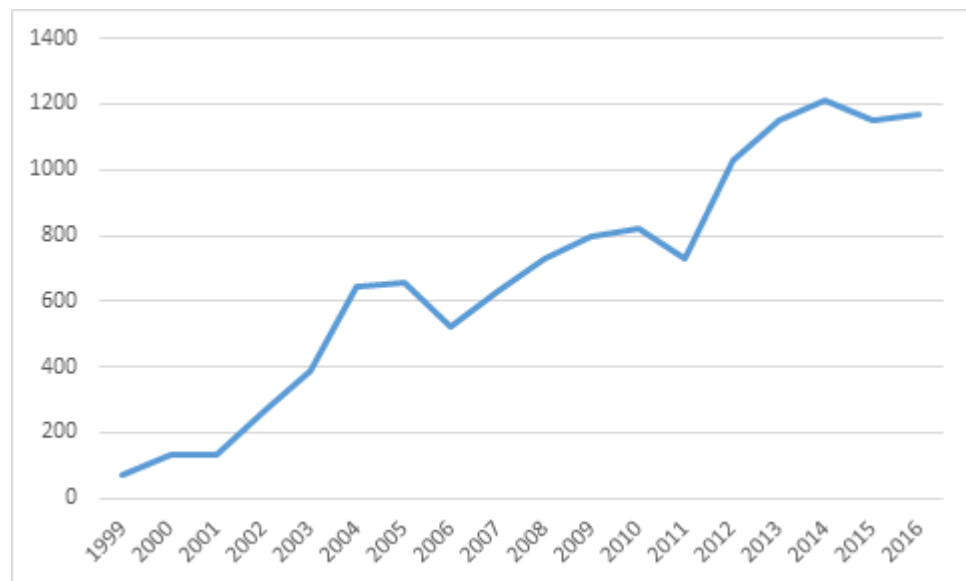


Figure 1. ISO 14001 in Belgium (1999-2016)

Source: <https://iso.org/the-iso-survey.html>

There are 1012 firms with an ISO 14001 certificate in Belgium, which represents 0.9% of all ISO 14001 certificates in Europe. It also means that one on thousand company has an ISO certificate in the country (ISO database and <https://statbel.fgov.be>).

The EMAS database reported 63 certifications in 2017 in Belgium, and 28 of them are from the capital. No EMAS certification is reported from Ghent.

2.1.6.2. Secondary Socio-cultural Analysis (SSCA-1)

In Deliverable 3.2, SSCA-1 (the first phase of the Secondary Socio-cultural Analysis) was outlined based on data obtained from Flash Eurobarometer 388. The elaborated composite index of Waste-conscious Behavior (WCB) comprised an 11-item variable about various

waste-related individual perceptions and attitudes. Accordingly, the WCB index used individual responses which later aggregated on national level (for details, please, see: Deliverable 3.2 of the REPAiR project). In the WCB-rank of the EU member states Belgium achieved a high position; just after Austria the second best mean value among the member states (7.70 from the 0–11 scale). SSCA-1 then examined the WCB mean values also on regional level in order to find out if there are relevant spatial differences. In the case of Belgium, the inquiry presented that the Flemish region – studied by REPAiR – has a higher mean value than the Brussels region and the Walloon region which two have close to similar scores (Figure 2).

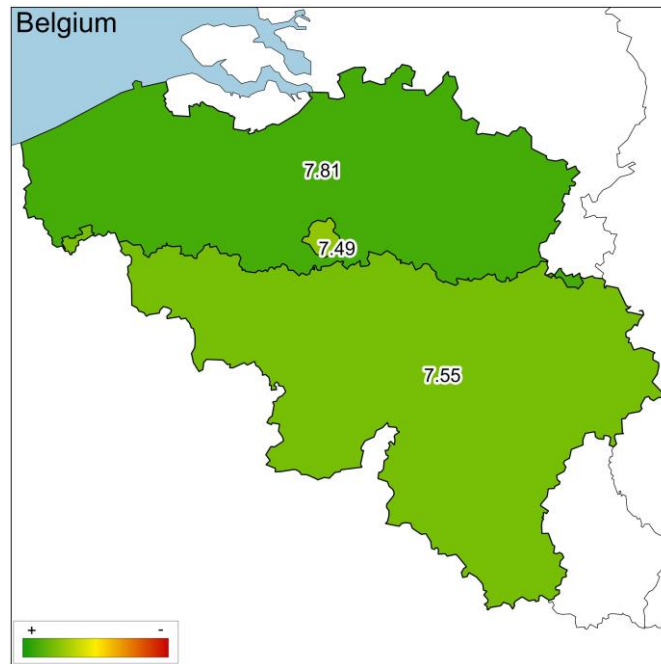


Figure 2. WCB scores in the Belgian regions

Source: Authors' own elaboration based on data obtained from Flash Eurobarometer 388

2.2. Region and FA-level: Flanders and Ghent-Destelbergen

This section presents the results of the spatial and socio-economic analysis of Flanders and Ghent. For more geographical information about the issues discussed, see Annex 1, which includes a set of geographical maps.

2.2.1. Geographical situation and the natural environment

Ghent is a municipality in Flanders and the capital city of the East Flanders province. After Antwerp and Brussels, Ghent is the third largest city of Belgium. Within an EU perspective, Ghent nowadays is part of a dense urban metropolitan region (the so-called 'Flemish Diamond'). The city grew in the 19th century, with compact workers' neighbourhoods and a tight-knit pattern of streets around the centre. Around this, a less dense 20th-century ring was formed, characterised by detached houses, a few village centres and a more rural environment. Nowadays, we can find in the centre of Ghent historic buildings, densely built, with working class districts around this inner city. South of the historic city centre is the main station from the beginning of the 20th century. This is the city's edge, which has developed along the major roads, absorbing village centres a few kilometres outside Ghent.

Thanks to its location at the merging point of the rivers 'Leie' (Lys) and 'Schelde' (Scheldt), Ghent has an important port that is linked to the Westerschelde and the North Sea via the Ghent-Terneuzen canal.

The city of Ghent is divided in 25 districts. In the centre they often correspond to historical districts and neighbourhoods. The outer districts corresponds somewhat to the former autonomous municipalities, who merged with the city during the years '64-'65 and '77. These districts are characterised by contiguous village centres, irregular web structures with loose and fragmented rural buildings around it, and in between so-called urban dwellings (villa and garden neighbourhoods or social housing estates). They are all characterized by the presence of natural or dug waterways.

The different merged municipalities can be divided into three categories: the Northern, originally very rural municipalities, by the presence of the canal Ghent-Terneuzen mainly destined for industrial areas (Desteldonk, Mendonk, Sint-Kruis-Winkel, Terdonk, Oostakker and Wondelgem). The eastern municipalities, connecting with the city, with a typical suburban character (Gentbrugge, Ledeborg, Sint-Amandsberg) and finally the more remote southern and western municipalities with rather residential character (Afsnee, Drongen, Mariakerke, Sint-Denijs-Westrem en Zwijnaarde) (inventaris.onroerenderfgoed.be, 2018).

Destelbergen is an autonomous and neighbouring municipality of Ghent. It is characterized as a municipality with a strong urbanized centre in combination with a lot of open space. It is connected with Ghent by the highly urbanized main road (Dendermondse steenweg) and public transport. The vicinity of Ghent has an important impact on its demographic evolution, mobility and spatial development. Part of its territory is considered as part of the larger 'urban region of Ghent'.

Geographically the focus area belongs to the northern Plain and covers both part of the natural landscaped regions of the so-called *Ghent Houtland*, west of the canal Ghent-Terneuzen, and of the Low Interfluvium Lys-Scheldt, southwest of Ghent, and part of the Sandy region of Lokeren, east of the canal. The landscape is characterised by a flat to undulating relief (5 to 10 m height) with some hills as remnants of boreal drifting sand heads in a marshy area and wide damp to swampy valleys of Lys, Scheldt and affluents. The natural landscape was transformed very early into an agricultural cultural landscape (inventaris.onroerenderfgoed.be, 2018).

In 2014 Ghent counted approximately 2.911 hectares of nature (including forest) or 19% of its territory. While the total surface of nature remained stable over the years, the quality has deteriorated over the last fifteen years. The surface of 'most precious nature' has fallen from 626 ha in 1999 to 582 ha in 2014. The surface of forest has increased with 71 ha, covering 6.1% of the territory. The green areas are very fragmented. More than half of the forests are less than 5 ha and are not accessible for the general public (Municipality of Ghent, 2018a).

The green areas in Ghent are being used more and more intensively. The number of requests for activities in parks is constantly increasing. Citizens are increasingly considering public greenery as their garden, recalling the many questions for vegetable gardens, plants of Christmas trees, keeping animals, etc. Inhabitants also works for more green, including the greening of school playgrounds, the construction of vegetable gardens and facade greenery (Municipality of Ghent, 2018a).

Also in Destelbergen, the green areas are fragmented and under pressure for housing or recreational purposes.

2.2.2. Demography

Beginning 2017, the Flemish region counted 6.5 million inhabitants (exactly 6.516.011). This represents 58% of the Belgian population. Between 2000 and 2017 the population increased with 10 %. More than half a million inhabitants, or 8.4% of the population are foreign of which 2 out of 3 have the nationality of one of the 28 EU-member states, 1 out of 3 comes from outside the EU (Studiedienst Vlaamse Regering, 2017).

Flanders has a relative high population density (482 inhabitants per km² on average), especially compared to the Walloon region where the density is approximately half. Therefore, Flanders belongs to the more urbanized regions in the world. Figure 3 shows the population density for each Belgian (and thus also Flemish) municipality in 2017.

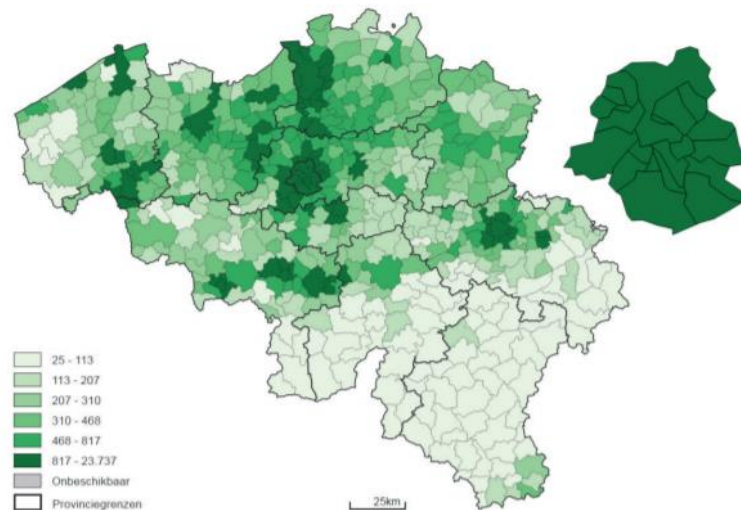


Figure 3. Belgian municipalities and their population density in 2017 (inhabitants per km²).

Source: https://statbel.fgov.be/sites/default/files/Over_Statbel_FR/NL_kerncijfers_2017_web_0.pdf

Each year, the population density increases, especially in the urban areas such as Gent, Antwerpen, Mechelen and Leuven (Figure 4). This can be explained by the increasing international migration rather than an increase in natural birth rate and internal migration.

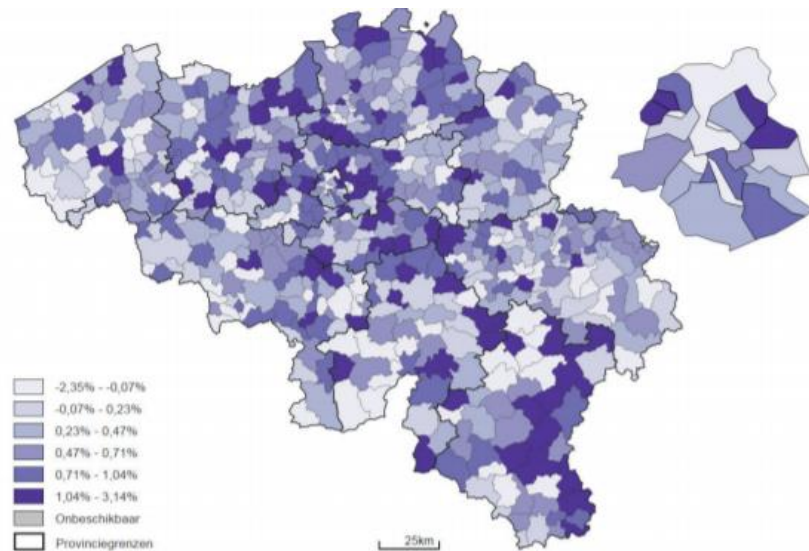


Figure 4. Belgian municipalities and their population growth in 2017 compared to 2016.

Source: https://statbel.fgov.be/sites/default/files/Over_Statbel_FR/NL_kerncijfers_2017_web_0.pdf

The focus area Ghent-Destelbergen counts in total 277.065 inhabitants. Ghent is among the most urbanised cities in Flanders, with its 259.083 inhabitants and average population density of 1.659 inhabitants/km². When looking closer at districts level, there are considerable differences between the more densely populated inner city of Ghent (up to 5.500 inh/km²), and the more remote areas such as Drongen and the canal area which may have a density lower than 60 inh/km² (<https://gent.buurtmonitor.be/>, 2018). For more details, see Figure 5. Even Destelbergen, which is considered a more rural, medium sized municipality with industrial activities, scores with its population density of 677 inhabitants/km² well above the Flemish average. The density per neighborhood is visualised in Figure 6.

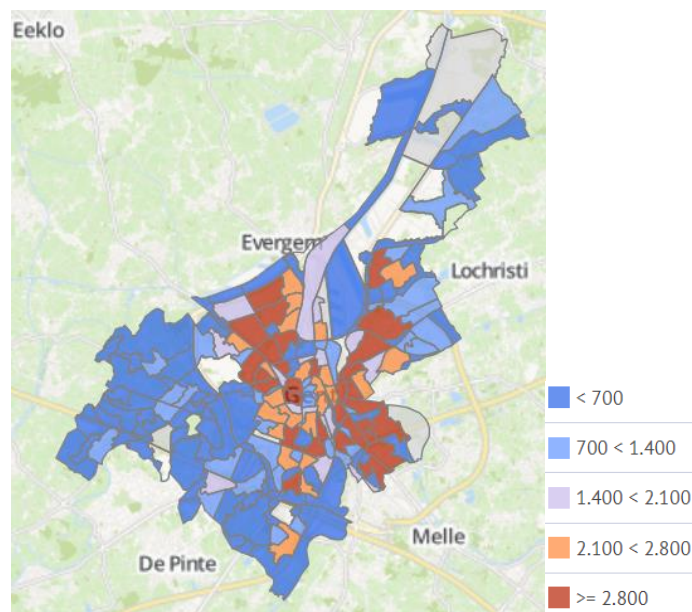


Figure 5. Population density in Ghent per district expressed in inhabitants per km².

Source: <https://gent.buurtmonitor.be/>, 2018

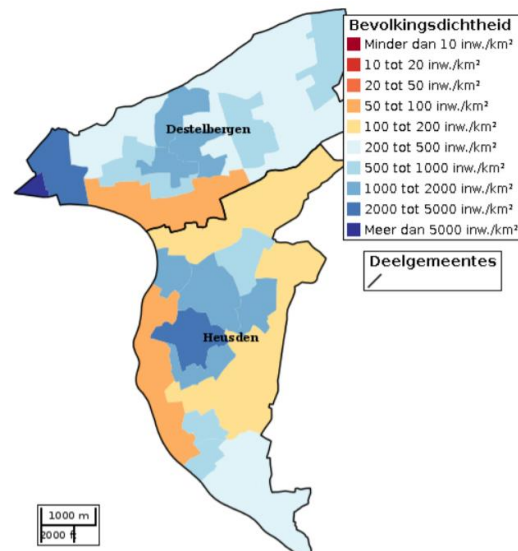


Figure 6. Population density in Destelbergen per neighbourhood expressed in inhabitants per km².

Source: Feitenfiche Destelbergen, 2014
https://detailhandelvlaanderen.be/sites/detailhandelvlaanderen.be/files/organisation/feitenfiches/feitenfiche_destelbergen_0.pdf

Up to 1997 Ghent was for decades confronted with a decrease of its population. Since, Ghent faces a large population growth with a strong increase in 2010. This growth is especially true for the younger population. About 20% of the population is under 19 years of age. Although the number of elderly people is increasing in number, their share within the total population does not increase. With a percentage of 16.2 of +65 year olds and 5.4% of +80 year olds, Ghent does better than the Flemish average. The effect of an ageing population is only expected in a few years. The population growth can be attributed to international migration rather than to a natural growth (Municipality of Ghent, 2018b).

The demographic situation in Destelbergen is characterized by an increasingly ageing population. The share of +65 year olds and +80 year olds amounts to 27% of the population. For the last years the municipality Destelbergen had a negative natural growth. The limited growth of the population is mainly attributed to migration, most frequently from and to neighbouring communities (Agentschap Binnenlands Bestuur, 2018b).

Not only the composition of the population but also that of families changes. There are newly composed families, singles sharing a house, households with single parents caring half the time for the children, intergenerational households, etc. The classic family still exists, but is no longer the main reference. This has an impact on the amount of households and their size. In Ghent as well as in Destelbergen, households are getting smaller (2.16 and 2.37 persons/household) resulting in a growing number of households. In a city as Ghent the population is also much more divers. 14% of the population has a foreign nationality. When considering their origin (nationality, nationality at birth, nationality of parents) 10.89% is of EU origin, 21.79 of non-EU origin. In Destelbergen this is less outspoken with 3.6 % foreign nationals and 5.12 % of EU origin, 5.79 % of non-EU origin (Agentschap Binnenlands Bestuur, 2018a and 2018b).

These demographic developments have important consequences for the housing market of municipalities. The challenge is to provide a sufficient and diverse offer of houses,

taking into account changing demographic evolutions. While in general there does not seem to be a shortage of houses, there is a problem of availability of affordable and adapted housing. Vulnerable groups, such as low and even middle incomes but also small households (1-2 persons) have difficulties finding suitable housing. Ghent also faces the challenge to house some 30,000 student and a growing group of ‘hidden’ inhabitants roughly estimated at several thousand individuals (Municipality of Ghent, 2018a). The house market in Destelbergen focuses on a more expensive market sector, creating tension on the social housing market (Municipality of Destelbergen, 2016a).

2.2.3. Labour force

In 2015 Flanders counted approximate 2,8 million workers, of which 84% were employed, the remaining 16% worked as self-employed or helper. Flanders is a service economy with 47% working in the Tertiary sector and 32% in the Quaternary sector. The industry and construction is good for 19% of the workers and the rest is employed in agriculture. While the number of workers in the primary and secondary sectors decrease, the activities in the service sectors continue to increase.

Analyses by the Centre of Expertise for Labour Monitoring (*‘Steunpunt Werk’* in Dutch) indicate that Flanders takes an average position among EU regions when looking at employment and unemployment rates. The Flemish labour market has a rather moderate employment rate for the total population at working age (20-64 years). However, it is characterised by a very high employment rate in the middle age group, a late entry at the beginning of the career and a strong early retirement at the end of the career (Studiedienst Vlaamse Regering, 2017: 118).

The employment in the focus area follows the evolution at Flemish level. Just as for the entire region, the employment rate for Ghent and Destelbergen increases. The employment rate in Destelbergen is higher than the Flemish average (75.9 vs. 72.6), in Ghent it is lower than the average (68.8). This is similar to the trend in other main cities and their neighbouring municipalities. Unemployment has fallen in both Ghent and Destelbergen. The unemployment rate in Ghent is considerably higher than the Flemish average (12.9% compared to 7.8%), for Destelbergen this is considerable less (5.6%). Low-skilled, long-term unemployed minus 25-year-olds and persons with a disability benefit less from the declining unemployment (Agentschap Binnenlands Bestuur, 2018a and 2018b).

Considering the job ratio (number of jobs/active people), we notice that the municipality of Destelbergen scores low (53.8). Ghent scores high above the Flemish average (117.7 vs 75.9). This means that the inhabitants of Destelbergen mostly commute to other cities for their work.

In 2015, the primary sector (agriculture) was good for 0.46% of the jobs in Ghent. The secondary sector (industry) still represents 18.29%. The industrial activities in the area around the canal Ghent-Terneuzen are important for job creation. The tertiary sector 42.49% and the quaternary sector (mainly care, government and education) represents 38.76% (Municipality of Ghent, 2018b). In Destelbergen most people are employed in services related to buildings and landscape care (Municipality of Destelbergen, 2016b).

3.2.4. Economy

In 2017, the Flemish Region represents 59.6% of the Belgian GDP and 57.5% of the Belgian population. According to Flanders Statistics the GDP per capita can be estimated

at €35.800 PPPs in 2017. This is 21% above the average in the EU-28. Although this advantage is less outspoken than in 2000, the financial and economic crisis had a comparatively less severe impact on Flanders' economy. A relatively large number of people living in Flanders commute to the Brussels-Capital Region. With a correction for this commuting effect, the Flemish GDP per capita increased to approximately €38,300 PPPs in 2017, which is 29% higher than in the EU-28 (Department of Public Governance and the Chancellery, 2018).

In 2018 the economy in Ghent has a solid growth and a resilient corporate fabric. The city can rely on a relatively diversified economic structure with an important share of industry, reputed knowledge and educational institutions, a skilled labour pool, an attractive and demanding local consumer market and a well-disclosed and high-performance port.

Ghent has a labour-intensive economy: a relatively large amount of work is needed to create a euro-added value. This is related to the sectors situated in Ghent: textiles and clothing, food, metal and automotive. Ghent is less specialised in intensive sectors such as chemicals, pharma and the manufacture of IT products (Municipality of Ghent, 2018a).

The importance of the primary sector (agriculture) in Ghent is steadily decreasing. This is in line with the Flemish trend. In 2000, Ghent counted 282 farms, in 2012 their number sank to 154, of which 94 in occupational agriculture (61%) and 60 in the Hobby agriculture (39%). In spite of the decline in the number of agricultural holdings, the average area of cultivation increases per farm: from approximately 11 ha in 2000, to 13 ha in 2005, to 18 ha in 2012 (Municipality of Ghent, 2018a). Ghent has some 3309 ha land in agricultural use. However this is not evenly distributed across its territory. The city center does not have agricultural parcels, whereas in Drongen and the villages along the canal the agricultural sector occupies almost half of the land. The main crop types are maize and grassland. Recently, a lot of innovative projects have been launched in and around the city that have food production as main or ancillary activity. Although not similar to the professional organisations, they are mainly about growing products (Municipality of Ghent, 2018a).

Specific for Ghent's economy is the relative importance of the industry. This secondary sector provides 18% of the jobs in Ghent. Together with Antwerp, Ghent is responsible for almost half of the industrial employment in the Flemish cities. The industrial activity in Ghent can be linked directly to the presence of the port which is good for approximately 7.9 billion euro value added, of which 3,8 billion euro direct value added and 4.1 billion euro the indirect value added. The port is also responsible for 64,457 jobs, of which 27,809 direct jobs and 36,648 indirect jobs. The industry is obviously closely intertwined with other sectors and thus has a relatively large multiplier effect: an increase in industrial activity leads to a more than proportional increase in the overall economy (Municipality of Ghent, 2018a).

Ghent's economy has a healthy business dynamic. There is a robust growth in number of business locations with staff. In 2016 there were 7,582 locations in Ghent, an increase of approximately 10% compared to 2005. The survival rate after five years of starting enterprises follows the average of comparable cities in Flanders and remained stable since 2013. All this indicates a dynamic and resilient business fabric in Ghent (Municipality of Ghent, 2018a).

2.2.5. Transport and mobility

Flanders has a central location in Europe. It has a very dense network of transport infrastructure. The Flemish railway network is the closest of the European Union. Its inland waterway network comes second after the flat and water-rich Netherlands. Its roads network also has a top position in Europe.

For passenger transport, the car remains the most popular means of transport with 80.3%. In 2015, Flanders counted 519 cars per 1000 inhabitants. This is above the European average with 498 cars in 2015. Commuting is the principal reason for transport. In freight transport, road transport dominates with a share of around 84%. Rail and inland waterways take on a similar share of the remaining freight transport.

Ghent is located north of the junction of the European roads E40 and E17 and the roundabout of Zwijnaarde. As such Ghent is easily accessible from the axis Ostend/Bruges - Brussels (E40) and from the axis Antwerp — Kortrijk/Lille (E17). There are two ring roads: the R40, the so-called small ring around the city centre, and the R4, which runs further out, disclosing the surrounding municipalities. The city is linked to the surrounding region by a broad multi-modal mobility network: different train stations, a growing cycling, tram and bus network, and an extensive river and canal network.

The E17 also crosses the municipality of Destelbergen from east to west. This forms a clear physical separation between the north and the south of the town. The R4 crosses the municipality from north to southwest and forms a connection with the A14/E17. Along the R4 there are about 5 ramps in and around Destelbergen.

In Ghent, 81% of the households has at least 1 car, 10% has a motor or motorcycle. In Destelbergen 94% of the households has at least 1 car, 13% a motor or motorcycle. A remarkable evolution in Ghent is that 5 % of the inhabitants participate in a car-sharing initiatives. This is well above the Flemish average (2,2%) (Municipality of Ghent, 2018b). While the car is still the most favoured means of transport for commuting, in Ghent this is closely followed by bike (39 to 32%) and by public transport (22%). In Destelbergen this is less outspoken: car 61%, bike 20%, public transport 15% (Agentschap Binnenlands Bestuur, 2018a and 2018b). For short distances (< 5km) the bike gains more and more importance.

The immediate pressure from the city region is a very important mobility challenge: in absolute terms, car traffic from neighbouring municipalities is still increasing, as the city region itself is growing strongly (housing and economy). Public transport and safe and direct bicycle connections from/to the neighbouring municipalities are still inadequate, so people are more dependent on the car and traffic on the roads continues to increase. Recently we also see structural traffic jams on the major road network/ring structures and the main roads to and from Ghent. That leads to more rat-run traffic which endangers the viability of fragile networks (Municipality of Ghent, 2018b).

However, in 2016-2017 a mobility plan was approved, falling apart in a parking plan and a circulation plan. The circulation plan extensively extends the pedestrian zone and divides the inner city in seven separate sectors: the ongoing traffic is made impossible and cars are diverted to the ring way (R40) if they want to change sector. Consequently, a large part of the inner city centre became car-free (except for inhabitants).

The railway station Gent-Sint-Pieters is one of the busiest railway stations in Belgium. In addition, there are several smaller stations in Ghent: Gent-Dampoort, Gentbrugge, Drongen and Wondelgem. The railway line (Ghent – Antwerp) crosses Destelbergen in the north. The railway station Destelbergen has been closed since 1984. Travellers need to go to the station of Ghent-Dampoort.

Together with the Flemish Waterway, the City of Ghent wants to investigate the possibilities of transport over water, more specific for the logistics of building materials and waste. The morphology of the waterway network in the city makes it possible to organise this transport over water. There is no location in the city of Ghent who lies more than 600 metres from a waterway.

2.2.6. Wastescapes of the region and focus area

According to REPAiR Deliverable 5.1 and Deliverable 3.3 Wastescapes are : “patches of landscape related to wastecycles both by functional relations and because they are ‘wasted-lands’: anomalous areas inconsistent with the peri-urban metabolism that become neglected spaces”².

In order to understand and visualise the territorial dimension of wastescapes, we followed the methodology adopted for the two pilot cases of Naples and Amsterdam and the process developed and described in REPAiR Deliverable 3.3. This approach consists in systematic mapping and exploration of the spatial characteristic of the Flemish region and the Ghent focus area and to portray the spatial dimension of waste. Moreover the selected method makes explicit what is normally invisible and often overlooked in official cartographies and land use blueprints, going beyond the official way of representing them, in which waste are merely associated as contaminated sites. According to CABERNET report (2006), the Flemish regional legislation³ defines as contaminated sites: “Abandoned or under used industrial sites with an active potential for redevelopment or expansion but where redevelopment or expansion is complicated by a real or perceived environmental contamination”. However, the previous observations on the pilot cases allowed us to comprehend the potential broadness of the spatial dimension of waste, without this being necessarily associated with contamination.

The research has mapped wastescapes according to the observed categories of:

- 1) *Degraded land (contaminated and potential contaminated land)*
- 2) *Settlement in crisis (abandoned underused unauthorized ones)*
- 3) *Settlement in crisis: Area without current destination*
- 4) *Drosscape: underused area alongside the infrastructure*
- 5) *Operational Infrastructure of waste (all)*
- 6) *Degraded water (polluted basins and linked areas)*

On a territorial scale, the resulting image of wastescapes (Figure 7) for the focus area appears as a fragmented molecular landscape made up of scattered, small elements and without any large prominent figures.

In crossing the region according to a hypothetical north-south trajectory or cross-section, the study firstly identifies a pattern of infrastructure waste and underused spaces,

² For a more detailed description of each category composing wastescapes see Deliverable 3.3 Process model for the two pilot cases: Amsterdam, the Netherlands & Naples, Italy. pag 12-20

³ Openbare Vlaamse Afvalstoffenmaatschappij (OVAM)

especially green spaces located in the port area of Ghent. Due to recent renovation processes and current urbanisation pressure of which the city of Ghent is exposed to, within the core of the focus area the wastescape elements are becoming very rarely.

Lastly, the few linear wastescapes features available are located along specific transect of large road and rail infrastructures.

Mapping wastescapes means understanding the territory through the active action of drawing a map. *“Even if maps are a description of a present condition, they represent the moment of transition of the land: from a perceived, often negative status towards a constructive promotion of a possible alternative future“* (Furlan 2017).

TASK 3.1 SPATIAL ANALYSIS
SCALE FOCUS

PILOT GHENT

GFH18.1. Wastescape. Analytical description.



LEGEND

- gfh 8.4 Degraded land (contaminated and potential contaminated land)
- gfh31. Settlement in crisis (abandoned and underused building- industries)
- gfh33. Settlement in crisis: Area without current destination
- gfh3.2.9 Drosscape: underused area along side the infrastructure
- gfh1.13. Operational Infrastructure of waste (landfill, incenerator, biodigestor, recycling facility)
- gfh13.6. Degraded water (polluted basins and linked areas)
- gfh3.11.6. As background the plot division structure

0 5 10Km

Figure 7. Wastescapes territorial representation.

2.2.7. Development strategy and waste sensitivity towards circularity

In 2006 the Public Waste Agency of Flanders (OVAM) initiated a working group to make its waste and materials management more sustainable. This initiative gave rise to 'Flanders' Materials Programme' whose projects can be seen as a first step towards a circular economy (CE) in Flanders. In 2016, with the adoption of 'Vision 2050, a long term strategy for Flanders', the Flemish government made a clear commitment for 2050: Flanders must become a social, open, resilient and international region that creates prosperity and welfare in a smart, innovative and sustainable way, and where every individual counts. It reinforces and broadens the concept of CE where materials, water, energy, land and food are seen as an integral part of the CE approach.

In Ghent, the city Council approved already in January 2015 an action plan to achieve the objective 'Ghent climate neutral city by 2050'. While the plan focuses on climate and environment combined with a social policy, it also includes actions facilitating the transition to a circular economy. Although many initiatives have been launched, an integrated policy plan on the transition to circular economy is still being developed.

Some of the ongoing initiatives:

- Within a broader region, the 'Oost Vlaamse Kerngebied', connecting Ghent with 28 surrounding communities, a corporation is established moving towards following strategic objectives:
 - ❖ Promote cross-border labour and entrepreneurship in the new Economy.
 - ❖ Achieve sustainable mobility, climate neutrality and adequate housing facilities.
 - ❖ Facilitate the reinforcement of the village cores through more diversified facilities in the villages.
 - ❖ Stimulate short-chain agriculture, circular, make and social economy.
 - ❖ Intensified administrative cooperation, Vision Development (including space, climate, economics) and the creation of a recognizable identity for the Region.
- Together with significant stakeholders Ghent incorporates its actions in a cleantech cluster. The idea is proactive: to stimulate development and implementation of cleantech in the urban structure and to provide an impulse for new initiatives or by establishing operations and business models based on clean technologies within existing companies.
- Circular economy brings together companies, institutions, governments and citizens on the way to sustainability. A first step was taken recently by launching the mapping of waste streams and recycling opportunities in the region. One of the projects is the Carbstone project: conversion of CO₂ and slag into bricks.
- ZAWENT-project: 350 new homes recuperate energy from their kitchen waste and wastewater. The remaining demand for heating is fulfilled with waste heat from a neighbouring company. This company will receive the treated wastewater from the site.
- Thursdays veggie day, launched in 2009. Numerous promotions were developed for the Ghent schools, catering industry, the Ghent population and the municipal staff, such as educational work and veggie meals as standard on Thursdays in schools and for city workers, the development of a veggie route, recipe competitions, cookery workshops, etc. In 2013, Ghent broadened the scope and

developed the Ghent food strategy ‘Gent En Garde’ which focuses on shorter food supply chain, reduced meat consumption, more seasonal foods, and eliminating food waste. Consumers and local producers are brought together to develop innovative pilot projects.

2.2.8. Stakeholder survey – The case of Ghent

One of the main tasks of ‘WP3.3 – Social Analysis’ is to develop a Primer Socio-cultural Analysis (PSCA) in order to inquire the possible impacts of socio-cultural context on waste and resource management. As all policies, among them waste and resource management related policies, are embedded into a complex social and cultural environment [as these policy mechanisms are targeting and addressing certain smaller or more comprehensive groups of people, while these policies are also implemented by individuals (among them decision makers, stakeholders, beneficiaries, etc.)], then it would be a mistake to neglect that the socio-cultural context might influence the sustainability (efficiency, progressivity, innovativeness, etc.) of waste and resource management activities. SSCA-1 (the first phase of Secondary Socio-cultural Analysis) of WP3.3 actually found out that – on a macro social level – there are relevant differences among the EU member states respective to waste-conscious behavior of individual subjects (see: Deliverable 3.2). While SSCA-2 in Deliverable 3.8 will examine if these differences are due to certain values, norms, customs, and conventions, based on the hypothesis that a socio-cultural environment which – through its collective patterns – promotes universalism (solidarity, togetherness, openness, justice, trusting atmosphere, willingness for participation and collective action, etc.) could facilitate also environmental awareness (both in micro – individual – and macro – social – sense) more easily, the task of PSCA aims to map out relevant stakeholders’ perceptions about the institutional conditions (financial, regulation-, infrastructure-, policy-, strategy-related aspects) and socio-cultural fundamentals of sustainable waste and resource management. The assumption behind this inquiry of PSCA is that the stakeholders’ perceptions will represent, especially respective to the socio-cultural factors, the very same differences that SSCA-1 already found out, i.e. in those member states (societies and case areas) where different forms of waste-consciousness and environmental awareness are more accepted and respected on individual/social level, there the interviewed stakeholders will understand the relevance of the socio-cultural context to waste and resource management as more important. Although the comparative PSCA investigation will be published in Deliverable 3.8, it is interesting to draw up the first results of the stakeholder surveys by each cases. In the following, the case of Ghent is summarized briefly. Some basic methodological information: the relevant stakeholders were identified by the Belgian consortium partner; they were interviewed in their first language via online by a closed, structured survey.

The institutional block of the Ghent stakeholder survey

The first block of the survey has 5 thematic scopes: financial issues, regulation and laws, implementation, infrastructure and technologies, and learning/ knowledge-transfer. The general question posed to the interviewees was the following: “*On a 0 to 10 scale, where 0 is ‘absolutely not important’ and 10 is ‘absolutely important’, how would you perceive the relevance of the following factors for a sustainable waste/resource management?*” The results can be found in Tables 2-6.

Table 2. ‘Institutional block – Financial issues section’ of the Ghent stakeholder survey

Financial issues	Mean v.	N=
Stable financial background of the responsible provider to secure EU standard quality waste services for every customer	8.2	17
To continuously aim for additional financial resources (e.g. private investments, government subsidies, etc.) for waste sector	6.2	16
To reduce the loss-making waste services and improve the profitable ones even if this intervention has social costs/potentially negative impacts	3.2	17
To reduce the loss-making waste services and improve the profitable ones even if this intervention has environmental costs/potentially negative impacts	2.5	17
To provide the same quality services for every customer even if securing accessibility is reducing profitability	7.3	17

Source: Authors' own elaboration based on primer survey data

Table 3. 'Institutional block – Regulation and laws section' of the Ghent stakeholder survey

Regulations and laws	Mean v.	N=
Comprehensive and executable regulations on waste/resource management	8.6	18
To explicitly formalize in different (national, regional, local, organizational, etc.) level regulations all the waste/resource management-related issues and practices	7.8	16
To leave room for implementation based on the local context	8.3	18

Source: Authors' own elaboration based on primer survey data

Table 4. 'Institutional block – Implementation section' of the Ghent stakeholder survey

Implementation	Mean v.	N=
To benchmark by a multi-level monitoring system waste/resource management service providers according to outputs/costs indicators	7.1	15
Strict fines on violating customers	7.7	18
To leave grace period before fines on violating customers become due	3.4	18
Promotion campaigns to encourage participation in and acceptance of waste/resource management	8.1	18

Source: Authors' own elaboration based on primer survey data

Table 5. 'Institutional block – Infrastructure and technologies section' of the Ghent stakeholder survey

Infrastructure and technologies	Mean v.	N=
Using eco-innovative and smart technologies to improve waste/resource management even if these developments are increasing the costs of services	7.6	18
Using eco-innovative and smart technologies to improve waste/resource management even if these developments are challenging the acceptability of services	5.5	15
Using eco-innovative and smart technologies to improve waste/resource management even if these developments are challenging the equal accessibility of services	5.8	16

Source: Authors' own elaboration based on primer survey data

Table 6. 'Institutional block – Learning/knowledge-transfer section' of the Ghent stakeholder survey

Learning/knowledge-transfer	Mean v.	N=
Waste/resource management service providers should continuously study best practices	8.1	18
Waste/resource management service providers should continuously learn from webinars (online presentations about best practices and innovative solutions)	5.3	16
Instead of developing local innovations, waste/resource management service providers should adapt an existing model of best practices if it seems a cheaper solution	6.1	18
Waste/resource management service providers should cooperate in developing and sharing eco-innovative solutions	8.9	17

Source: Authors' own elaboration based on primer survey data

In line with the data of the institutional block of the survey, it is noteworthy to emphasize that the interviewed stakeholders stress the importance to secure stable financial background for waste and resource management, yet they consider as irrelevant (or rather flawed) to make the sector profitable even on the costs of social and/or environmental burdens. Regarding to the regulations and implementation the interviewees generally agree that comprehensive, formalized legal frameworks, multi-level monitoring system, strict fines on violators, and campaigns that encourage participation in/acceptance of waste and resource management are relevant conditions of sustainability. The usage of eco-innovative and smart technologies in waste and resource management are appreciated by the stakeholders, even if these innovations make the services more expensive, yet if the customers do not accept these developments or equal accessibility to these innovations

is not feasible, then the interviewees do not favor anymore eco-innovative and smart solutions. The stakeholders find it important that waste and resource management service providers should continuously study and share new best practices among each other.

The socio-cultural block of the Ghent stakeholder survey

The second block of the questionnaire aimed to inquire how the stakeholders perceive the relevancy of certain social and cultural features to waste and resource management. The question posed to the respondents was the following one: *“As some research highlights, the social and cultural milieu of a collective entity (society or smaller community, social group) – through the generally accepted and respected social values, norms and attitudes – could influence the effectiveness of public policies. Based on this argument, we are now interested in how you perceive the relevance of the following social and cultural features and attitudes for a sustainable waste/resource management? The scale refers to the same values: 0 to 10, where 0 is ‘absolutely not important’ and 10 is ‘absolutely important’.”* The results can be found in Table 7.

Table 7. 'Socio-cultural block' of the Ghent stakeholder survey

Social and cultural environment	Mean v.	N
A collective feeling of unity arising from common responsibilities, interests and objectives	7.6	16
A bond of social togetherness based on an informal agreement that everybody should have the same opportunities	7.5	14
Social cohesion based on commonly respected principles that everybody is entitled to basic individual rights and needs	7.3	16
Social unitedness founded on the idea of advancing public interests	7.5	16
Willingness for doing, making, undertaking something by one's own accord in the name of collective goals	7.9	16
Acting on behalf of the community without force or coercion to promote public interests	7.1	15
Supporting others by free choice	7.1	15
Willingness to make changes in one's own life and lifestyle	8.4	16
Openness for new challenges	8.4	16
Searching for new opportunities	8.3	16
Ability to cope with individual failures	6.8	16
Being critical on one's own customs and habits	8.4	16
Confidence in the possibility that things could be better	7.6	16
Faith in the achievability of progressive reforms	8.0	16
Optimistic beliefs that wrongs are repairable	7.2	16
To believe that generally people are honest in dealing with others	6.3	16
To believe that generally people are helpful	6.2	16
To believe that generally people are taking into consideration common norms before they doing actions or making decisions	6.3	16
Willingness to participate in activities promoting public interests	7.3	15
Joining civil organizations and/or social movements	6.4	16
Protesting against things (decisions, actions, outcomes) that are contradicting or preventing the facilitation of public interests	7.1	15
To respect the individual opinion and approach of others	8.3	15
Being open for discussion with everybody	8.5	16

Source: Authors' own elaboration based on primer survey data

Regarding to the data of the socio-cultural block of the survey, it seems that the stakeholders generally find it important from the perspective of creating a sustainable

waste and resource management to have a supporting social and cultural environment for these policy goals and activities. The interviewees consider reflexive and critical agency, non-routinized actorness, openness for social dialogue, willingness for participation, optimism respective to progressive reforms, and generally relationalism (togetherness) and benevolence as fundamental conditions. It is interesting to note that the stakeholders favor individual agency to collective responsibilities and actions.

Pairwise comparison block of the Ghent stakeholder survey

The last block of the questionnaire (Table 8) used the method of pairwise comparison in order to find out from two theoretically interlinked options which one is preferred by the stakeholders from the perspective of relevancy to waste and resource management. The question posed to the respondents was the following: *“Finally, we are interested in how you perceive the relevance of the following factors compare to each other for a sustainable waste/resource management? 1 means you completely agree with the statement on the left; and 10 means you completely agree with the statement on the right. If your answer would fall between 1 and 10, pick up the number that rightly reflects on your perception.”*

Table 8. 'Pairwise comparison block' of the Ghent stakeholder survey

Pairwise Comparison	Scale v.	Mean v.	N
1a) Waste/resource management should be funded by private financial resources	1-5	5.5	12
1b) Waste/resource management should be funded by public financial resources	6-10		
2a) Waste/resource management should be regulated by local level regulations	1-5	7.9	14
2b) Waste/resource management should be regulated by national level regulations	6-10		
3a) Waste/resource management should be regulated by local level regulations	1-5	7.4	14
3b) Waste/resource management should be regulated by EU level regulations	6-10		
4a) Waste/resource management should be regulated by national level regulations	1-5	7.5	15
4b) Waste/resource management should be regulated by EU level regulations	6-10		
5a) Multi-level strategies on waste/resource management should be formulated in bottom-up sense	1-5	5.4	12
5b) Multi-level strategies on waste/resource management should be formulated in top-down sense	6-10		
6a) In waste/resource management related decision makings, political actors should take the lead	1-5	4.7	14
6b) In waste/resource management related decision makings, non-political actors should take the lead	6-10		
7a) Waste/resource management related strategies and policies should be discussed by a narrow coalition of actors	1-5	7.4	14
7b) Waste/resource management related strategies and policies should be discussed by a wide coalition of actors	6-10		
8a) Waste/resource management related strategies and policies should be developed by a narrow coalition of decision makers	1-5	6.4	14
8b) Waste/resource management related strategies and policies should be developed by a wide coalition of decision makers	6-10		
9a) Waste/resource management policies should offer solutions to imminent challenges	1-5	8.3	13

9b) Waste/resource management policies should aim for long-term solutions	6-10		
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Source: Authors' own elaboration based on primer survey data

According to the last block of the Ghent stakeholder survey, interviewees strongly favor EU level standardized legal frameworks for waste and resource management compare to national or local regulations. They are also in favor of the idea that waste and resource management related strategies and policies should be discussed by a wide coalition of actors, while these plans and policies should strive for long-term solutions.

3. Material Flow Analysis

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4. Enabling contexts

The methodology for enabling contexts consists on the integrated analysis of different maps and the identification of potential points for the development of EIS. Since this methodology was not intended to be included in this deliverable, only the approach of the analysis is briefly discussed here for the Gent case study, although it will be developed later on.

In comparison to the Amsterdam and Naples case studies, the availability of the data available for Gent has a different resolution standing mostly at the municipality level, not neighbourhoods. However, the location of specific areas for the potential application of EIS is still possible. Future steps within the research will address this topic and utilise the geographic information to identify the potential of implementation of EIS within the FA under assessment.

5. Conclusion and next steps

A short conclusion of both the spatial and socio-economic analysis of the case of Ghent and the material flow analysis is provided in the following sections, presenting some reflections on the methodology used and results obtained.

5.1. Spatial and socio-economic analysis

The socio-economic context of the city of Ghent corresponds to comparable major cities in Flanders with similar trends and challenges concerning population, housing, employment, mobility, etc. Neighbouring Destelbergen is a medium size municipality with a mixed profile: an urbanised area connecting to Ghent and a more rural residential area. Both areas are considerably interconnected within a broader region. While both areas have autonomous political decision making, i.e. they make their policies independently, their decisions regarding mobility, labour or housing often impact a larger (neighbouring) area, including certain each other's zones. As far as the municipal waste management policy is concerned, both municipalities delegate its implementation to the inter-municipal organisation IVAGO.

While the city of Ghent is governed by a single decision making body, the socio-economic analysis clearly demonstrates considerable differences at district level. This offers opportunities to consider Eco-innovative solutions at district level. Some of the more residential area of the city of Ghent are very similar to the municipality Destelbergen. Testing Eco-innovative solutions in the enabling context can give an interesting insight in the transferability of these solutions from major to medium size municipality and the role of different political actors in the process.

The spatial analysis presented in this deliverable shows, along with the pilot cases, how waste takes place in space namely wastescape. Wastescape elements are rather rare in the focus area. They are often scattered and small. This is because the urbanisation pressure and recent renovation processes focus more and more on less obvious unused, abandoned and underused areas. Therefore, wastescape are areas in becoming, representing simultaneously present and future spatial conditions, and being waste only in a temporal sense. In light of this temporality, wastescape can physically host Eco-Innovative

Solutions and that can find new values and uses if overlapped with other physical social and economical systems

In Belgium and in particular in Flanders, waste sensitivity is amongst the highest in Europe. Since municipal waste policies are often part of a broader environmental and climate policy, due consideration is given to climate aspects. The obligation for municipalities to provide a waste management service accessible for all, necessitates a constant balancing between environmental, social and economic (financial viable) aspects while drafting waste management and CE projects.

5.2. Material flow analysis

A linear economy, in which waste is generated, has multiple negative effects on the environment. Although less waste production would be favourable, it keeps increasing in many countries by an increasing waste production per capita and an increasing population. Since the population increase is concentrated more and more in urban regions, studying the environmental impact of waste treatment in urban (and peri-urban) regions is very valuable to uncover the opportunities to reduce the impact related to waste management. A first starting point is to analyse the current situation of waste management, through material flow analysis. This deliverable focuses on the quantification and tracing of organic waste, and more in particular VFG waste, from both households and companies, in the focus area (Ghent and Destelbergen) and region (Flanders). This was a key waste flow considered by the local stakeholders (cfr. the PULLs, WP5) having high potential to be improved in terms of better collection and valorization routing.

There were two approaches used to understand the waste management system of VFG in the focus area and beyond. The first approach is based on the collection of bottom-up data, from local actors (companies, public institutions, local government, etc.) entailing high accuracy and low uncertainty. The focus of this approach was of the collection and treatment of VFG from households (and similar actors) in the focus area, and to trace where the waste is treated. On top, a full inventory was carried out, meaning that the auxiliaries, energy and material needs, land occupation, emission patterns, etc. were quantified to understand better the flows involved and related to this particular waste management system (which can form the basis for the sustainability assessment later on, cfr. WP4). On top, it became clear how much secondary products (e.g. electricity, compost, ash residues for road filling, etc.) could be produced from the treatment of VFG. Important conclusions are to improve the sorting efficiency at the household level, to develop improved sorting technology to remove residues before the SC-VFG stream enters the treatment facility, to decrease the impact of transporting SC-VFG to the treatment facility in Yper, to better valorize NSC-VFG (instead of incineration).

Also a more top-down approach was applied, based on the use of data from, among others, Flemish databases. In light of looking to eco-innovative solutions in a later stage, it seemed interesting to analyse what happens to VFG waste from households in all Flemish municipalities and to understand who collects this waste and where it is treated and how. The cities in Flanders are categorized in different zones: there are green regions, VFG regions and a few combined regions. The municipalities in the green regions do not collect VFG separately, while this is the case for VFG regions. In municipalities in the combined regions, VFG can be collected separately, but e.g. not for the entire municipality, i.e. only

for a few neighbourhoods. It is important to both analyse the flow of separately collected VFG waste and the fraction of VFG in residual household waste. Results of VFG waste flows in tonnes/year are presented on the map of Flanders with the use of a Sankey diagram.

On top, we wanted to analyse VFG-alike waste of companies in the focus area, and also understand who collects that type of waste and where it goes for treatment in the region. This analysis could be beneficial to develop eco-innovative solutions in terms of urban and industrial symbiosis, where we can identify opportunities to exchange material/waste between cities and companies that are closely located geographically. Based on data collected by OVAM (a sample of companies), we were able to analyze the organic waste generation from 47 commercial actors in the focus area and to identify the collectors and treatment companies connected to it. It was not possible to identify all industrial actors in the focus area that generate VFG-alike waste due to a lack of data, however, this sample gives already insights in industrial waste management mechanisms. Similar to the top-down approach applied to household waste, Sankey flow diagrams are presented on the map of Flanders.

The top-down approach did not allow us to identify more flows than the waste stream itself (e.g. electricity use, land occupation, etc. was not quantified). Also the quantification of the production of secondary products out of organic waste could not be analyzed because of data deficiency. This approach gives overall a broad view on the waste management situation for Ghent and Flanders but lacks details and has therefore a higher uncertainty on the results.

This deliverable provides a solid basis for the further analysis of the sustainability impacts associated to the current situation regarding VFG waste generation in the case study of Ghent (cfr. WP4). It also evokes the development of eco-innovative solutions as we are now able to understand the underlying mechanisms of the system (cfr. WP5).

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Annexes

Annex 1 - Task 3.1. List of informative layers and posters

All the maps are available clicking [here](#).

REGIONAL SCALE

CRP1. Physical Morphology and Hydrography

crp1. Digital Terrain Model

crp3.1. Inland water

crp3.2. Wetlands

crp3.3. Marine waters

crp3.4. Rivers & canals

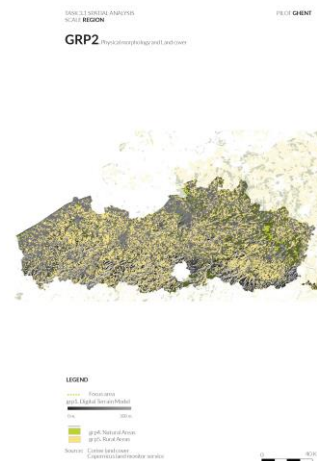


CRP2. Natural Environment

crp2. Level curves

crp4. Natural Areas

crh9. Rural Areas



CRH1. Built Environment

crh1. Urbanized areas

crh2. Road network

crh3. Railway network

crh4. Airports

crh5. Port areas

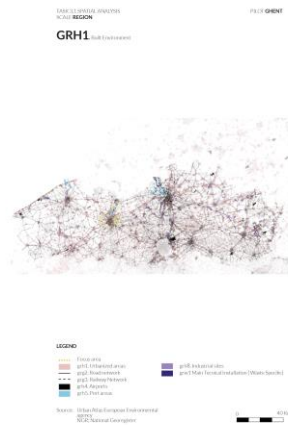
crh6. Power lines and Power plants

crh7.1. Aqueducts

crh7.2. Gas pipelines

crh7.3. Oil pipelines

crh8. Productive sites (industrial sites, main commercial malls, wholesale trade facilities, logistic platforms, etc.)

**CRH2. Administrative, demographic and planning issues**

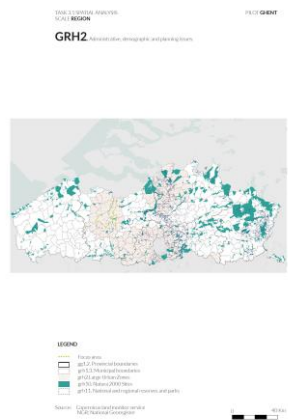
cg1.2 Provincial boundaries

cg1.3 Municipal boundaries

cg2. Large Urban Zones

crh10. Natura 2000 sites

crh11. National and Regional Nature Reserves and Parks

**CRH2. Waste Geography**

crh2. Road network

crh3. Railway network

crw1.1. Incinerators

crw1.3. Storage facilities

crw1.4. Dump sites

crw2. Infrastructures of waste: concentration of values



FOCUS-AREA SCALE

CFP1. Physical Morphology and Hydrography

cfp1. Digital Terrain Model

cfp3.1. Rivers and canals

cfp3.3. Marine waters

cfp4. Natural areas

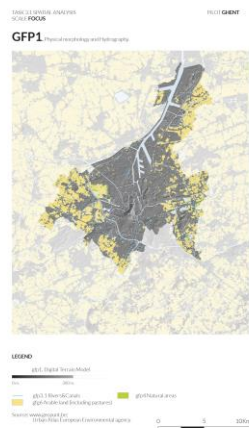
cfp5.1. Green linear elements

cfp5.2. Actual riparian zones

cfp5.3. Observable riparian zones extent

cfp5.4. Potential riparian zones

cfh6. Arable land



CFP3. Hydraulic vulnerability

cfp3.1. Rivers and canals

cfh27.1. Floodable areas from rivers and canals

cfh27.2. Floodable areas from Schelde polders



CFH1. Built Environment

cfh1.1. Urbanized areas - blocks

cfh1.2. Port areas

cfh2. Productive sites (industrial, commercial, business districts)

cfh3.1. Road network

cfh3.2. Railway network

cfw1. Operational infrastructures of waste



CFH2. Administrative, demographic and planning issues

cg1.1. Regional boundaries

cg1.2. Provincial/Metropolitan boundaries

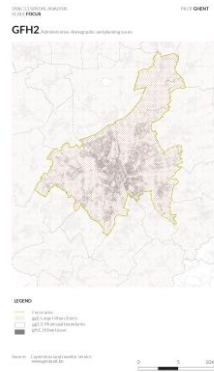
cg1.3. Municipal boundaries

cg3. Focus area

cg6. Optimal territorial area

cg7- Urban centre (50.000>inh.>500.000 inh)

cg8 - Main city (>500.000 inh)



CFH3. Degraded land

cfh1.7. Land without current use

cfh8.1. Contaminated sites- Brownfields

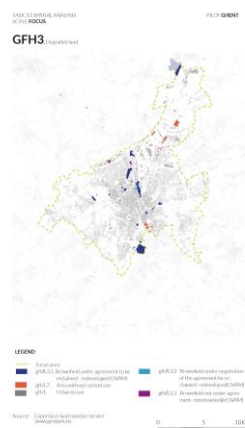
gfh8.3.1. Brownfield under agreement to be reclaimed - redeveloped (OVAM)

gfh8.3.2 Brownfield under negotiation of the agreement be reclaimed- redeveloped (OVAM)

gfh8.3.3. Brownfield not under agreement- onontvankelijk (OVAM)

gfh1.7. Area without current use

gfh1. Urban tissue



CFH4. Plot division

cfh11.1. Plot size (cadastral map): 0-500 sqm

cfh11.2. Plot size (cadastral map): 500-2000 sqm

cfh11.3. Plot size (cadastral map): 2000-5000 sqm

cfh11.4. Plot size (cadastral map): 5000-20000 sqm

cfh11.5. Plot size (cadastral map): >20000 sqm



CFH5. Air specific (5.1), Noise (5.2), Light (5.3) and Odour Pollution (5.4)

These maps concern the condition of air pollution, intended both as traditional air quality and presence of noise, light and odour. Although the process model has been completely defined, given the difficulty to get a complete set of data, the results should be intended as draft maps, to be completed and improved in the next months.



CFH6. In the fields

- gfh1. Urbanised areas
- gfh6.5 Green urban areas
- gfh6.1 Perennial cereal
- gfh6.7 Perennial vegetables (potatoes)
- gfh6.2 Annual vegetables
- gfh6.8 Grassland
- gfh6.3 Forest
- gfh6.9 Area without destination
- gfh6.4 Field with fruit trees
- gfh7.0 Tree nursery



CFH8. Water specific

Water infrastructures (8.1)

afh1. Urbanised areas

afh8.1.1 Main waste water pipe

afh8.1.2. Municipal waste water pipes

afh8.1.3 Artificial collector rain water

afh8.1.4. Wastewater treatment plant

afh8.1.5 point with surface water

afh8.1.6. Waste water collector

afh8.1.7 Ground water pump



Water in crisis (8.2)

cfp3.1. Rivers and canals

afh13.1. Polluted waters (presence of heavy metals)

afh13.6 High vulnerability of aquifer to pollution

afh13.7. Mediocre vulnerability of aquifer to pollution

afh13.8 Low vulnerability of aquifer to pollution

afh13.5. Possible presence of heavy metals in the water above the limit



CFH9. Settlements in crisis

cfh1.11. Abandoned areas in urban context

cfh 2.3. Abandoned productive site

cfh7. Peri-urban areas (Territories in Between)

cfh6.9 Area without destination



CFH10. Historic settlements and elements

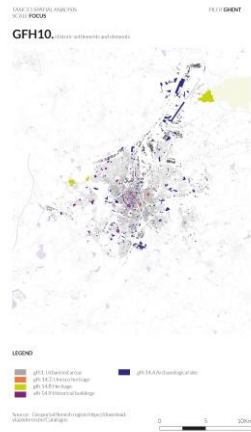
cfh14.1. Historical tracks

cfh14.2. Historical roman tracks

cfh14.4. Archeological sites

cfh14.5. Rural historical assets

cfh14.6. Historic Centres (1936-1945)



CFH11. Transport infrastructures

- cfh1.2. Port areas*
- cfh1.7. Fast transit roads and associated land*
- cfh1.8. (road network)*
- cfh3.2. Railway network*
- cfh3.2.3. Local railways*
- cfh3.2.4. Freight transport railways*
- cfh3.3. Railway station*
- cfh3.4. Waterways*



CFH12. Energy infrastructures

- cfh30.2. Wind turbines*
- cfh30.3. Energy power plants*
- cfh30.4. Solar installations*



CFH13. Infrastructure of waste

cfw1.1. Waste incinerators

cfw1.2. Landfills

cfw1.3. Storage facilities

cfw1.4. Waste recovery

cfw1.5. Sorting

cfw1.6. Communication

cfw1.7. Mobile facilities

cfw1.8. Soil Remediation facilities

cfw1.9. Digestor- Composter of organic waste

cfw1.10. Incinerators

cfw1.11. Vehicle dismantling

cfw1.12. Other waste -recycling facility

cfw1.13 Waste collection services

cfh2. Infrastructures of waste: concentration of values

cfh2.2. Mineral extraction and dump site



CFH14. Infrastructures in crisis

cfh3.1.6. Buffer zones



CFH15. Protect Natural areas

cfh10.1. National park

cfh10.2. Regional park

cfh10.6. Other regional natural protection areas

cfh23.1. Riparian buffer conservation zone

cfh23.2. Archaeological protection area

cfh24.1. Planned Metropolitan parks

cfh24.2. Planned Metropolitan Ecological network

cfh14.6. Unesco world heritage -Historic Centres

cfh9. Natura 2000



CFH16. Future vision already planned

cfh22.1. Urban expansion zones

cfh22.5. Green urban areas, urban parks and buffer zones (Urban atlas)

cfh22.7. Archaeological zones

cfh24.1. Planned Metropolitan parks- Planned protected natural areas

cfh22.9 Protected monument area

cfh22.10 Unesco core element

cfh22.11 Heritage natural area

gfh 22.12 Protected natural area



CFH17. Urban suffering

CFH17.1. Unemployment rate

- cfh15.1.* >50%
- cfh15.2.* 30-50%
- cfh15.3.* 10-30%
- cfh15.4.* 1-10%
- cfh15.5.* 10%

CFH17.2. Old-age dependency rate

- cfh16.1.* >50%
- cfh16.2.* 20-50%
- cfh16.3.* 10-20%
- cfh16.4.* 0-10%

CFH17.3. Overcrowding rate

- cfh17.1.* >400%
- cfh17.2.* 300-400%
- cfh17.3.* 250-300%
- cfh17.4.* 250-200%
- cfh17.5.* 200-150%
- cfh17.6.* 150-100%
- cfh17.7.* 100-0%

CFH17.4. Lower secondary education rate

- cfh18.1.* <20%
- cfh18.2.* 20-30%
- cfh18.3.* 30-40%
- cfh18.4.* 40-70%
- cfh18.5.* 70-100%



CFH18. Wastescape

CFH18.1. Wastescape. Analytical description

cfh8.4. Degraded land (contaminated and potential contaminated land)

cfh.31. Settlement in crisis (abandoned underused unauthorized ones)

cfh.33. Settlement in crisis : Area without current destination

cfh3.2.9. Drosscape: underused area alongside the infrastructure

cfw1.13. Operational Infrastructure of waste (all)

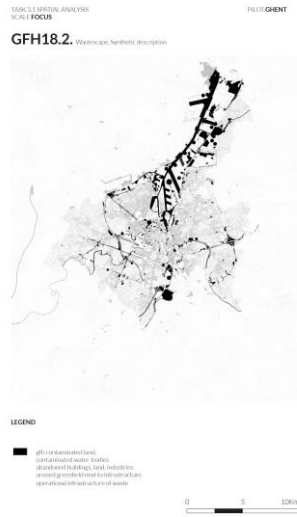
afh13.6. Degraded water (polluted basins and linked areas)

cfh3.6. Safety and noise area of transport infrastructure



CDH18.2. Wastescape. Synthetic description

All wastescapes in a white & black map



Annex 2 - Classification of municipalities in Flanders related to waste management

MUNICIPALITY	POSTAL CODE	Urban/rural	Green/VFG
<i>AALST</i>	<i>9300</i>	<i>urban</i>	<i>VFG</i>
<i>AALTER</i>	<i>9880</i>	<i>rural</i>	<i>green</i>
<i>AARSCHOT</i>	<i>3200</i>	<i>urban</i>	<i>VFG</i>
<i>AARTSELAAR</i>	<i>2630</i>	<i>urban</i>	<i>VFG</i>
<i>AFFLIGEM</i>	<i>1790</i>	<i>rural</i>	<i>VFG</i>
<i>ALKEN</i>	<i>3570</i>	<i>rural</i>	<i>VFG</i>
<i>ALVERINGEM</i>	<i>8690</i>	<i>rural</i>	<i>VFG</i>
<i>ANTWERPEN</i>	<i>2000</i>	<i>urban</i>	<i>VFG</i>
<i>ANZEGEM</i>	<i>8570</i>	<i>rural</i>	<i>green</i>
<i>ARDOOIE</i>	<i>8850</i>	<i>rural</i>	<i>green</i>
<i>ARENDONK</i>	<i>2370</i>	<i>rural</i>	<i>VFG</i>
<i>AS</i>	<i>3665</i>	<i>rural</i>	<i>VFG</i>
<i>ASSE</i>	<i>1730</i>	<i>urban</i>	<i>VFG</i>
<i>ASSENEDE</i>	<i>9960</i>	<i>rural</i>	<i>green</i>
<i>AVELGEM</i>	<i>8580</i>	<i>rural</i>	<i>green</i>
<i>BAARLE-HERTOG</i>	<i>2387</i>	<i>rural</i>	<i>VFG</i>
<i>BALEN</i>	<i>2490</i>	<i>rural</i>	<i>VFG</i>
<i>BEERNEM</i>	<i>8730</i>	<i>rural</i>	<i>green</i>
<i>BEERSE</i>	<i>2340</i>	<i>rural</i>	<i>VFG</i>
<i>BEERSEL</i>	<i>1652</i>	<i>urban</i>	<i>VFG</i>
<i>BEGIJNENDIJK</i>	<i>3130</i>	<i>rural</i>	<i>VFG</i>
<i>BEKKEVOORT</i>	<i>3460</i>	<i>rural</i>	<i>VFG</i>
<i>BERINGEN</i>	<i>3580</i>	<i>urban</i>	<i>green</i>
<i>BERLAAR</i>	<i>2590</i>	<i>rural</i>	<i>green</i>
<i>BERLARE</i>	<i>9290</i>	<i>rural</i>	<i>VFG</i>
<i>BERTEM</i>	<i>3060</i>	<i>rural</i>	<i>VFG</i>
<i>BEVER</i>	<i>1547</i>	<i>rural</i>	<i>VFG</i>
<i>BEVEREN</i>	<i>9120</i>	<i>urban</i>	<i>VFG</i>
<i>BIERBEEK</i>	<i>3360</i>	<i>rural</i>	<i>VFG</i>
<i>BILZEN</i>	<i>3740</i>	<i>rural</i>	<i>VFG</i>
<i>BLANKENBERGE</i>	<i>8370</i>	<i>urban</i>	<i>green</i>

<i>BOCHOLT</i>	3950	<i>rural</i>	<i>VFG</i>
<i>BOECHOUT</i>	2530	<i>rural</i>	<i>VFG</i>
<i>BONHEIDEN</i>	2820	<i>rural</i>	<i>green</i>
<i>BOOM</i>	2850	<i>urban</i>	<i>VFG</i>
<i>BOORTMEERBEEK</i>	3190	<i>rural</i>	<i>VFG</i>
<i>BORGLOON</i>	3840	<i>rural</i>	<i>VFG</i>
<i>BORNEM</i>	2880	<i>urban</i>	<i>green</i>
<i>BORSBEEK</i>	2150	<i>urban</i>	<i>VFG</i>
<i>BOUTERSEM</i>	3370	<i>rural</i>	<i>VFG</i>
<i>BRAKEL</i>	9660	<i>rural</i>	<i>green</i>
<i>BRASSCHAAT</i>	2930	<i>urban</i>	<i>VFG</i>
<i>BRECHT</i>	2960	<i>rural</i>	<i>VFG</i>
<i>BREDENE</i>	8450	<i>urban</i>	<i>green</i>
<i>BREE</i>	3960	<i>rural</i>	<i>VFG</i>
<i>BRUGGE</i>	8000	<i>urban</i>	<i>green</i>
<i>BUGGENHOUT</i>	9255	<i>rural</i>	<i>VFG</i>
<i>DAMME</i>	8340	<i>rural</i>	<i>green</i>
<i>DE HAAN</i>	8420	<i>urban</i>	<i>green</i>
<i>DE PANNE</i>	8660	<i>urban</i>	<i>VFG</i>
<i>DE PINTE</i>	9840	<i>urban</i>	<i>green + VFG coll.</i>
<i>DEERLIJK</i>	8540	<i>rural</i>	<i>green</i>
<i>DEINZE</i>	9800	<i>rural</i>	<i>green</i>
<i>DENDERLEEUEW</i>	9470	<i>rural</i>	<i>VFG</i>
<i>DENDERMONDE</i>	9200	<i>urban</i>	<i>VFG</i>
<i>DENTERGEM</i>	8720	<i>rural</i>	<i>green</i>
<i>DESSEL</i>	2480	<i>rural</i>	<i>VFG</i>
<i>DESTELBERGEN</i>	9070	<i>rural</i>	<i>VFG</i>
<i>DIEPENBEEK</i>	3590	<i>rural</i>	<i>VFG</i>
<i>DIEST</i>	3290	<i>urban</i>	<i>green</i>
<i>DIKSMUIDE</i>	8600	<i>urban</i>	<i>VFG</i>
<i>DILBEEK</i>	1700	<i>urban</i>	<i>green</i>
<i>DILSEN-STOKKEM</i>	3650	<i>rural</i>	<i>VFG</i>
<i>DROGENBOS</i>	1620	<i>urban</i>	<i>VFG</i>
<i>DUFFEL</i>	2570	<i>urban</i>	<i>green</i>

<i>EDEGEM</i>	2650	<i>urban</i>	<i>VFG</i>
<i>EKLO</i>	9900	<i>rural</i>	<i>green</i>
<i>ERPE-MERE</i>	9420	<i>rural</i>	<i>VFG</i>
<i>ESSEN</i>	2910	<i>rural</i>	<i>VFG</i>
<i>EVERGEM</i>	9940	<i>urban</i>	<i>green</i>
<i>GALMAARDEN</i>	1570	<i>rural</i>	<i>VFG</i>
<i>GAVERE</i>	9890	<i>rural</i>	<i>green</i>
<i>GEEL</i>	2440	<i>urban</i>	<i>VFG</i>
<i>GEETBETS</i>	3450	<i>rural</i>	<i>VFG</i>
<i>GENK</i>	3600	<i>urban</i>	<i>VFG</i>
<i>GENT</i>	9000	<i>urban</i>	<i>VFG</i>
<i>GERAARDSBERGEN</i>	9500	<i>urban</i>	<i>VFG</i>
<i>GINGELOM</i>	3890	<i>rural</i>	<i>VFG</i>
<i>GISTEL</i>	8470	<i>rural</i>	<i>green</i>
<i>GLABBEEK</i>	3380	<i>rural</i>	<i>VFG</i>
<i>GOOIK</i>	1755	<i>rural</i>	<i>VFG</i>
<i>GRIMBERGEN</i>	1850	<i>urban</i>	<i>VFG</i>
<i>GROBBENDONK</i>	2280	<i>rural</i>	<i>VFG</i>
<i>HAACHT</i>	3150	<i>rural</i>	<i>VFG</i>
<i>HAALTERT</i>	9450	<i>rural</i>	<i>VFG</i>
<i>HALEN</i>	3545	<i>rural</i>	<i>green</i>
<i>HALLE</i>	1500	<i>urban</i>	<i>VFG</i>
<i>HAM</i>	3945	<i>rural</i>	<i>green</i>
<i>HAMME</i>	9220	<i>urban</i>	<i>VFG</i>
<i>HAMONT-ACHEL</i>	3930	<i>rural</i>	<i>green</i>
<i>HARELBEKE</i>	8530	<i>urban</i>	<i>green</i>
<i>HASSELT</i>	3500	<i>urban</i>	<i>VFG</i>
<i>HECHTEL-EKSEL</i>	3940	<i>rural</i>	<i>green</i>
<i>HEERS</i>	3870	<i>rural</i>	<i>VFG</i>
<i>HEIST-OP-DEN-BERG</i>	2220	<i>urban</i>	<i>VFG</i>
<i>HEMIKSEM</i>	2620	<i>urban</i>	<i>VFG</i>
<i>HERENT</i>	3020	<i>rural</i>	<i>VFG</i>
<i>HERENTALS</i>	2200	<i>urban</i>	<i>VFG</i>
<i>HERENTHOUT</i>	2270	<i>rural</i>	<i>VFG</i>

<i>HERK-DE-STAD</i>	3540	<i>rural</i>	<i>green</i>
<i>HERNE</i>	1540	<i>rural</i>	<i>VFG</i>
<i>HERSELT</i>	2230	<i>rural</i>	<i>VFG</i>
<i>HERSTAPPE</i>	3717	<i>rural</i>	<i>VFG</i>
<i>HERZELE</i>	9550	<i>rural</i>	<i>VFG</i>
<i>HEUSDEN-ZOLDER</i>	3550	<i>urban</i>	<i>green</i>
<i>HEUVELLAND</i>	8956	<i>rural</i>	<i>VFG</i>
<i>HOEGAARDEN</i>	3320	<i>rural</i>	<i>VFG</i>
<i>HOEILAART</i>	1560	<i>urban</i>	<i>VFG</i>
<i>HOESELT</i>	3730	<i>rural</i>	<i>VFG</i>
<i>HOLSBEEK</i>	3220	<i>rural</i>	<i>VFG</i>
<i>HOOGLEDE</i>	8830	<i>rural</i>	<i>green</i>
<i>HOOGSTRATEN</i>	2320	<i>rural</i>	<i>VFG</i>
<i>HOREBEKE</i>	9667	<i>rural</i>	<i>green</i>
<i>HOUTHALEN-HELCHTEREN</i>	3530	<i>urban</i>	<i>green</i>
<i>HOUTHULST</i>	8650	<i>rural</i>	<i>green</i>
<i>HOVE</i>	2540	<i>urban</i>	<i>VFG</i>
<i>HULDENBERG</i>	3040	<i>rural</i>	<i>VFG</i>
<i>HULSHOUT</i>	2235	<i>rural</i>	<i>VFG</i>
<i>ICHTEGEM</i>	8480	<i>rural</i>	<i>green</i>
<i>IEPER</i>	8900	<i>urban</i>	<i>VFG</i>
<i>INGELMUNSTER</i>	8770	<i>rural</i>	<i>green</i>
<i>IZEGEM</i>	8870	<i>urban</i>	<i>green</i>
<i>JABBEKE</i>	8490	<i>rural</i>	<i>green</i>
<i>KALMTHOUT</i>	2920	<i>rural</i>	<i>VFG</i>
<i>KAMPENHOUT</i>	1910	<i>rural</i>	<i>VFG</i>
<i>KAPELLEN</i>	2950	<i>urban</i>	<i>VFG</i>
<i>KAPELLE-OP-DEN-BOS</i>	1880	<i>rural</i>	<i>VFG</i>
<i>KAPRIJKE</i>	9970	<i>rural</i>	<i>green</i>
<i>KASTERLEE</i>	2460	<i>rural</i>	<i>VFG</i>
<i>KEERBERGEN</i>	3140	<i>rural</i>	<i>VFG</i>
<i>KINROOI</i>	3640	<i>rural</i>	<i>VFG</i>
<i>KLUISBERGEN</i>	9690	<i>rural</i>	<i>VFG</i>
<i>KNESSELARE</i>	9910	<i>rural</i>	<i>green</i>

<i>KNOKKE-HEIST</i>	8300	<i>urban</i>	<i>green</i>
<i>KOEKELARE</i>	8680	<i>rural</i>	<i>green</i>
<i>KOKSIJDE</i>	8670	<i>urban</i>	<i>VFG</i>
<i>KONTICH</i>	2550	<i>urban</i>	<i>VFG</i>
<i>KORTEMARK</i>	8610	<i>rural</i>	<i>green</i>
<i>KORTENAKEN</i>	3470	<i>rural</i>	<i>VFG</i>
<i>KORTENBERG</i>	3070	<i>rural</i>	<i>VFG</i>
<i>KORTESSEM</i>	3720	<i>rural</i>	<i>VFG</i>
<i>KORTRIJK</i>	8500	<i>urban</i>	<i>green</i>
<i>KRAAINEM</i>	1950	<i>urban</i>	<i>VFG</i>
<i>KRUIBEKE</i>	9150	<i>rural</i>	<i>VFG</i>
<i>KRUISSHOUTEM</i>	9770	<i>rural</i>	<i>green</i>
<i>KUURNE</i>	8520	<i>urban</i>	<i>green</i>
<i>LAAKDAL</i>	2430	<i>rural</i>	<i>VFG</i>
<i>LAARNE</i>	9270	<i>rural</i>	<i>VFG</i>
<i>LANAKEN</i>	3620	<i>rural</i>	<i>VFG</i>
<i>LANDEN</i>	3400	<i>rural</i>	<i>VFG</i>
<i>LANGEMARK-POELKAPELLE</i>	8920	<i>rural</i>	<i>green</i>
<i>LEBBEKE</i>	9280	<i>rural</i>	<i>VFG</i>
<i>LEDE</i>	9340	<i>rural</i>	<i>VFG</i>
<i>LEDEGEM</i>	8880	<i>rural</i>	<i>green</i>
<i>LENDELEDE</i>	8860	<i>rural</i>	<i>green</i>
<i>LENNIK</i>	1750	<i>rural</i>	<i>VFG</i>
<i>LEOPOLDSBURG</i>	3970	<i>urban</i>	<i>green</i>
<i>LEUVEN</i>	3000	<i>urban</i>	<i>VFG</i>
<i>LICHTERVELDE</i>	8810	<i>rural</i>	<i>green</i>
<i>LIEDEKERKE</i>	1770	<i>rural</i>	<i>VFG</i>
<i>LIER</i>	2500	<i>urban</i>	<i>green</i>
<i>LIERDE</i>	9570	<i>rural</i>	<i>green</i>
<i>LILLE</i>	2275	<i>rural</i>	<i>VFG</i>
<i>LINKEBEEK</i>	1630	<i>urban</i>	<i>VFG</i>
<i>LINT</i>	2547	<i>rural</i>	<i>VFG</i>
<i>LINTER</i>	3350	<i>rural</i>	<i>VFG</i>
<i>LOCHRISTI</i>	9080	<i>rural</i>	<i>VFG</i>

<i>LOKEREN</i>	9160	<i>urban</i>	<i>VFG</i>
<i>LOMMEL</i>	3920	<i>rural</i>	<i>green</i>
<i>LONDERZEEL</i>	1840	<i>rural</i>	<i>VFG</i>
<i>LO-RENINGE</i>	8647	<i>rural</i>	<i>VFG</i>
<i>LOVENDEGEM</i>	9920	<i>rural</i>	<i>green</i>
<i>LUBBEEK</i>	3210	<i>rural</i>	<i>VFG</i>
<i>LUMMEN</i>	3560	<i>rural</i>	<i>green</i>
<i>MAARKEDAL</i>	9680	<i>rural</i>	<i>green</i>
<i>MAASEIK</i>	3680	<i>rural</i>	<i>VFG</i>
<i>MAASMECHELEN</i>	3630	<i>urban</i>	<i>VFG</i>
<i>MACHELEN</i>	1830	<i>urban</i>	<i>VFG</i>
<i>MALDEGEM</i>	9990	<i>rural</i>	<i>green</i>
<i>MALLE</i>	2390	<i>rural</i>	<i>VFG</i>
<i>MECHELEN</i>	2800	<i>urban</i>	<i>green</i>
<i>MEERHOUT</i>	2450	<i>rural</i>	<i>VFG</i>
<i>MEEUWEN-GRUITRODE</i>	3670	<i>rural</i>	<i>VFG</i>
<i>MEISE</i>	1861	<i>rural</i>	<i>VFG</i>
<i>MELLE</i>	9090	<i>rural</i>	<i>VFG</i>
<i>MENEN</i>	8930	<i>urban</i>	<i>green</i>
<i>MERCHTEM</i>	1785	<i>rural</i>	<i>VFG</i>
<i>MERELBEKE</i>	9820	<i>rural</i>	<i>green + VFG coll.</i>
<i>MERKSPLAS</i>	2330	<i>rural</i>	<i>VFG</i>
<i>MESEN</i>	8957	<i>rural</i>	<i>VFG</i>
<i>MEULEBEKE</i>	8760	<i>rural</i>	<i>green</i>
<i>MIDDELKERKE</i>	8430	<i>urban</i>	<i>green</i>
<i>MOERBEKE</i>	9180	<i>rural</i>	<i>VFG</i>
<i>MOL</i>	2400	<i>urban</i>	<i>VFG</i>
<i>MOORSLEDE</i>	8890	<i>rural</i>	<i>green</i>
<i>MORTSEL</i>	2640	<i>urban</i>	<i>VFG</i>
<i>NAZARETH</i>	9810	<i>rural</i>	<i>green + VFG coll.</i>
<i>NEERPELT</i>	3910	<i>rural</i>	<i>green</i>
<i>NEVELE</i>	9850	<i>rural</i>	<i>green</i>
<i>NIEL</i>	2845	<i>urban</i>	<i>VFG</i>
<i>NIEUWERKERKEN</i>	3850	<i>rural</i>	<i>VFG</i>

<i>NIEUWPOORT</i>	8620	<i>urban</i>	<i>VFG</i>
<i>NIJLEN</i>	2560	<i>rural</i>	<i>VFG</i>
<i>NINOVE</i>	9400	<i>urban</i>	<i>VFG</i>
<i>OLEN</i>	2250	<i>rural</i>	<i>VFG</i>
<i>OOSTENDE</i>	8400	<i>urban</i>	<i>green</i>
<i>OOSTERZELE</i>	9860	<i>rural</i>	<i>VFG</i>
<i>OOSTKAMP</i>	8020	<i>rural</i>	<i>green</i>
<i>OOSTROZEBEKE</i>	8780	<i>rural</i>	<i>green</i>
<i>OPGLABBEEK</i>	3660	<i>rural</i>	<i>VFG</i>
<i>OPWIJK</i>	1745	<i>rural</i>	<i>VFG</i>
<i>OUDENAARDE</i>	9700	<i>urban</i>	<i>green</i>
<i>OUDENBURG</i>	8460	<i>rural</i>	<i>green</i>
<i>OUD-HEVERLEE</i>	3054	<i>rural</i>	<i>VFG</i>
<i>OUD-TURNHOUT</i>	2360	<i>rural</i>	<i>VFG</i>
<i>OVERIJSE</i>	3090	<i>urban</i>	<i>VFG</i>
<i>OVERPELT</i>	3900	<i>rural</i>	<i>green</i>
<i>PEER</i>	3990	<i>rural</i>	<i>green</i>
<i>PEPINGEN</i>	1670	<i>rural</i>	<i>VFG</i>
<i>PITTEM</i>	8740	<i>rural</i>	<i>green</i>
<i>POPERINGE</i>	8970	<i>urban</i>	<i>VFG</i>
<i>PUTTE</i>	2580	<i>rural</i>	<i>green</i>
<i>PUURS</i>	2870	<i>urban</i>	<i>green</i>
<i>RANST</i>	2520	<i>rural</i>	<i>VFG</i>
<i>RAVELS</i>	2381	<i>rural</i>	<i>VFG</i>
<i>RETIE</i>	2470	<i>rural</i>	<i>VFG</i>
<i>RIEMST</i>	3770	<i>rural</i>	<i>VFG</i>
<i>RIJKEVORSEL</i>	2310	<i>rural</i>	<i>VFG</i>
<i>ROESELARE</i>	8800	<i>urban</i>	<i>green</i>
<i>RONSE</i>	9600	<i>urban</i>	<i>green</i>
<i>ROOSDAAL</i>	1760	<i>rural</i>	<i>VFG</i>
<i>ROTSELAAR</i>	3110	<i>rural</i>	<i>VFG</i>
<i>RUISELEDE</i>	8755	<i>rural</i>	<i>green</i>
<i>RUMST</i>	2840	<i>rural</i>	<i>VFG</i>
<i>SCHELLE</i>	2627	<i>urban</i>	<i>VFG</i>

<i>SCHERPENHEUVEL-ZICHEM</i>	3270	<i>rural</i>	<i>VFG</i>
<i>SCHILDE</i>	2970	<i>urban</i>	<i>VFG</i>
<i>SCHOTEN</i>	2900	<i>urban</i>	<i>VFG</i>
<i>SINT-AMANDS</i>	2890	<i>rural</i>	<i>green</i>
<i>SINT-GENESIUS-RODE</i>	1640	<i>urban</i>	<i>VFG</i>
<i>SINT-GILLIS-WAAS</i>	9170	<i>rural</i>	<i>VFG</i>
<i>SINT-KATELIJNE-WAVER</i>	2860	<i>rural</i>	<i>green</i>
<i>SINT-LAUREINS</i>	9980	<i>rural</i>	<i>green</i>
<i>SINT-LIEVENS-HOUTEM</i>	9520	<i>rural</i>	<i>VFG</i>
<i>SINT-MARTENS-LATEM</i>	9830	<i>urban</i>	<i>green</i>
<i>SINT-NIKLAAS</i>	9100	<i>urban</i>	<i>VFG</i>
<i>SINT-PIETERS-LEEUEW</i>	1600	<i>urban</i>	<i>VFG</i>
<i>SINT-TRUIDEN</i>	3800	<i>urban</i>	<i>VFG</i>
<i>SPIERE-HELKIJN</i>	8587	<i>rural</i>	<i>green</i>
<i>STABROEK</i>	2940	<i>rural</i>	<i>VFG</i>
<i>STADEN</i>	8840	<i>rural</i>	<i>green</i>
<i>STEENOKKERZEEL</i>	1820	<i>rural</i>	<i>VFG</i>
<i>STEKENE</i>	9190	<i>rural</i>	<i>VFG</i>
<i>TEMSE</i>	9140	<i>urban</i>	<i>VFG</i>
<i>TERNAT</i>	1740	<i>urban</i>	<i>VFG</i>
<i>TERVUREN</i>	3080	<i>urban</i>	<i>VFG</i>
<i>TESSENDERLO</i>	3980	<i>rural</i>	<i>green</i>
<i>TIELT</i>	8700	<i>urban</i>	<i>green</i>
<i>TIELT-WINGE</i>	3390	<i>rural</i>	<i>VFG</i>
<i>TIENEN</i>	3300	<i>urban</i>	<i>VFG</i>
<i>TONGEREN</i>	3700	<i>urban</i>	<i>VFG</i>
<i>TORHOUT</i>	8820	<i>urban</i>	<i>green</i>
<i>TREMELO</i>	3120	<i>rural</i>	<i>VFG</i>
<i>TURNHOUT</i>	2300	<i>urban</i>	<i>VFG</i>
<i>VEURNE</i>	8630	<i>urban</i>	<i>VFG</i>
<i>VILVOORDE</i>	1800	<i>urban</i>	<i>VFG</i>
<i>VLETEREN</i>	8640	<i>rural</i>	<i>VFG</i>
<i>VOEREN</i>	3798	<i>rural</i>	<i>green</i>
<i>VORSELAAR</i>	2290	<i>rural</i>	<i>VFG</i>

<i>VOSELAAR</i>	2350	<i>rural</i>	<i>VFG</i>
<i>WAARSCHOOT</i>	9950	<i>rural</i>	<i>green</i>
<i>WAASMUNSTER</i>	9250	<i>rural</i>	<i>VFG</i>
<i>WACHTEBEKE</i>	9185	<i>rural</i>	<i>VFG</i>
<i>WAREGEM</i>	8790	<i>urban</i>	<i>green</i>
<i>WELLEN</i>	3830	<i>rural</i>	<i>VFG</i>
<i>WEMMEL</i>	1780	<i>urban</i>	<i>VFG</i>
<i>WERVIK</i>	8940	<i>urban</i>	<i>green</i>
<i>WESTERLO</i>	2260	<i>rural</i>	<i>VFG</i>
<i>WETTEREN</i>	9230	<i>urban</i>	<i>VFG</i>
<i>WEVELGEM</i>	8560	<i>urban</i>	<i>green</i>
<i>WEZEMBEEK-OPPEM</i>	1970	<i>urban</i>	<i>VFG</i>
<i>WICHELEN</i>	9260	<i>rural</i>	<i>VFG</i>
<i>WIELSBEKE</i>	8710	<i>rural</i>	<i>green</i>
<i>WIJNEGEM</i>	2110	<i>urban</i>	<i>VFG</i>
<i>WILLEBROEK</i>	2830	<i>urban</i>	<i>green</i>
<i>WINGENE</i>	8750	<i>rural</i>	<i>green</i>
<i>WOMMELGEM</i>	2160	<i>urban</i>	<i>VFG</i>
<i>WORTEGEM-PETEGEM</i>	9790	<i>rural</i>	<i>green</i>
<i>WUUSTWEZEL</i>	2990	<i>rural</i>	<i>VFG</i>
<i>ZANDHOVEN</i>	2240	<i>rural</i>	<i>VFG</i>
<i>ZAVENTEM</i>	1930	<i>urban</i>	<i>VFG</i>
<i>ZEDELGEM</i>	8210	<i>rural</i>	<i>green</i>
<i>ZELE</i>	9240	<i>urban</i>	<i>VFG</i>
<i>ZELZATE</i>	9060	<i>urban</i>	<i>VFG</i>
<i>ZEMST</i>	1980	<i>rural</i>	<i>VFG</i>
<i>ZINGEM</i>	9750	<i>rural</i>	<i>green</i>
<i>ZOERSEL</i>	2980	<i>rural</i>	<i>VFG</i>
<i>ZOMERGEM</i>	9930	<i>rural</i>	<i>green</i>
<i>ZONHOVEN</i>	3520	<i>rural</i>	<i>green</i>
<i>ZONNEBEKE</i>	8980	<i>rural</i>	<i>green</i>
<i>ZOTTEGEM</i>	9620	<i>urban</i>	<i>VFG</i>
<i>ZOUTLEEuw</i>	3440	<i>rural</i>	<i>VFG</i>
<i>ZUIENKERKE</i>	8377	<i>rural</i>	<i>green</i>

<i>ZULTE</i>	<i>9870</i>	<i>rural</i>	<i>green + VFG coll.</i>
<i>ZUTENDAAL</i>	<i>3690</i>	<i>rural</i>	<i>VFG</i>
<i>ZWALM</i>	<i>9630</i>	<i>rural</i>	<i>green</i>
<i>ZWEVEGEM</i>	<i>8550</i>	<i>rural</i>	<i>green</i>
<i>ZWIJNDRECHT</i>	<i>2070</i>	<i>urban</i>	<i>VFG</i>

Annex 3 - NACE codes assigned to the different companies in the focus area

Activity code	Activity Name	Count	EWC codes				
			02 01 03	03 01 05	20 01 08	20 01 38	20 02 01
A-0111	Growing of cereals (except rice), leguminous crops and oil seeds	61	√	/	√	/	√
A-0113	Growing of vegetables and melons, roots and tubers	17	√	/	√	/	√
A-0119	Growing of other non-perennial crops	56	√	/	√	/	√
A-0121	Growing of grapes	3	√	/	√	/	√
A-0123	Growing of citrus fruits	1	√	/	√	/	√
A-0124	Growing of pome fruits and stone fruits	2	√	/	√	/	√
A-0125	Growing of other tree and bush fruits and nuts	1	√	/	√	/	√
A-0128	Growing of spices, aromatic, drug and pharmaceutical crops	2	√	/	√	/	√
A-0129	Growing of other perennial crops	1	√	/	√	/	√
A-0130	Plant propagation	19	√	/	√	/	√
A-0141	Raising of dairy cattle	22	√	/	√	/	√
A-0142	Raising of other cattle and buffaloes	2	√	/	√	/	√
A-0143	Raising of horses and other equines	11	√	/	√	/	√
A-0145	Raising of sheep and goats	12	√	/	√	/	√
A-0146	Raising of swine/pigs	4	√	/	√	/	√
A-0147	Raising of poultry	4	√	/	√	/	√
A-0149	Raising of other animals	13	√	/	√	/	√
A-0150	Mixed farming	98	√	/	√	/	√
A-0161	Support activities for crop production	71	√	/	√	/	√
A-0162	Support activities for animal production	23	√	/	√	/	√
A-0163	Post-harvest crop activities	3	√	/	√	/	√
A-0170	Hunting, trapping and related service activities	1	√	/	√	/	√
A-0210	Silviculture and other forestry activities	8	√	/	√	/	√
A-0220	Logging	4	√	/	√	/	√
A-0230	Gathering of wild growing non-wood products	2	√	/	√	/	√
A-0240	Support services to forestry	6	√	/	√	/	√
A-0311	Marine fishing	2	√	/	√	/	√
A-0322	Freshwater aquaculture	2	√	/	√	/	√
C-1011	Processing and preserving of meat	84	/	/	√	/	/

C-1012	<i>Processing and preserving of poultry meat</i>	6	/	/	√	/	/
C-1013	<i>Production of meat and poultry meat products</i>	22	/	/	√	/	/
C-1020	<i>Processing and preserving of fish, crustaceans and molluscs</i>	2	/	/	√	/	/
C-1031	<i>Processing and preserving of potatoes</i>	1	√	/	/	/	√
C-1032	<i>Manufacture of fruit and vegetable juice</i>	9	√	/	/	/	√
C-1039	<i>Other processing and preserving of fruit and vegetables</i>	7	√	/	/	/	√
C-1041	<i>Manufacture of oils and fats</i>	8	√	/	/	/	√
C-1042	<i>Manufacture of margarine and similar edible fats</i>	1	√	/	/	/	√
C-1051	<i>Operation of dairies and cheese making</i>	6	√	/	√	/	√
C-1052	<i>Manufacture of ice cream</i>	12	√	/	√	/	√
C-1061	<i>Manufacture of grain mill products</i>	4	√	/	/	/	√
C-1062	<i>Manufacture of starches and starch products</i>	3	√	/	/	/	√
C-1071	<i>Manufacture of bread; manufacture of fresh pastry goods and cakes</i>	157	√	/	/	/	√
C-1072	<i>Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes</i>	13	√	/	/	/	√
C-1073	<i>Manufacture of macaroni, noodles, couscous and similar farinaceous products</i>	1	√	/	/	/	√
C-1082	<i>Manufacture of cocoa, chocolate and sugar confectionery</i>	20	√	/	/	/	√
C-1083	<i>Processing of tea and coffee</i>	16	√	/	/	/	√
C-1084	<i>Manufacture of condiments and seasonings</i>	7	√	/	/	/	√
C-1085	<i>Manufacture of prepared meals and dishes</i>	38	√	/	√	/	√
C-1086	<i>Manufacture of homogenised food preparations and dietetic food</i>	10	√	/	/	/	√
C-1089	<i>Manufacture of other food products n.e.c.</i>	25	√	/	/	/	√
C-1091	<i>Manufacture of prepared feeds for farm animals</i>	4	/	/	/	/	/
C-1092	<i>Manufacture of prepared pet foods</i>	1	/	/	/	/	/
C-1101	<i>Distilling, rectifying and blending of spirits</i>	4	√	/	/	/	√
C-1102	<i>Manufacture of wine from grape</i>	4	√	/	/	/	√
C-1104	<i>Manufacture of other non-distilled fermented beverages</i>	4	√	/	/	/	√
C-1105	<i>Manufacture of beer</i>	17	√	/	/	/	√
C-1107	<i>Manufacture of soft drinks; production of mineral waters and other bottled waters</i>	5	√	/	/	/	√
C-1310	<i>Preparation and spinning of textile fibres</i>	17	/	/	/	/	/
C-1320	<i>Weaving of textiles</i>	8	/	/	/	/	/
C-1330	<i>Finishing of textiles</i>	39	/	/	/	/	/

C-1391	<i>Manufacture of knitted and crocheted fabrics</i>	2	/	/	/	/	/
C-1392	<i>Manufacture of made-up textile articles, except apparel</i>	33	/	/	/	/	/
C-1393	<i>Manufacture of carpets and rugs</i>	1	/	/	/	/	/
C-1395	<i>Manufacture of non-wovens and articles made from non-wovens, except apparel</i>	3	/	/	/	/	/
C-1396	<i>Manufacture of other technical and industrial textiles</i>	6	/	/	/	/	/
C-1399	<i>Manufacture of other textiles n.e.c.</i>	11	/	/	/	/	/
C-1610	<i>Sawmilling and planing of wood</i>	29	/	√	/	/	/
C-1621	<i>Manufacture of veneer sheets and wood-based panels</i>	6	/	√	/	/	/
C-1622	<i>Manufacture of assembled parquet floors</i>	1	/	√	/	/	/
C-1623	<i>Manufacture of other builders' carpentry and joinery</i>	75	/	√	/	/	/
C-1624	<i>Manufacture of wooden containers</i>	4	/	√	/	/	/
C-1629	<i>Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials</i>	18	/	√	/	/	/
C-1711	<i>Manufacture of pulp</i>	2	/	√	/	/	/
C-1712	<i>Manufacture of paper and paperboard</i>	7	/	√	/	/	/
C-1721	<i>Manufacture of corrugated paper and paperboard and of containers of paper and paperboard</i>	8	/	/	/	/	/
C-1722	<i>Manufacture of household and sanitary goods and of toilet requisites</i>	1	/	/	/	/	/
C-1723	<i>Manufacture of paper stationery</i>	2	/	/	/	/	/
C-1724	<i>Manufacture of wallpaper</i>	0	/	/	/	/	/
C-1729	<i>Manufacture of other articles of paper and paperboard</i>	4	/	/	/	/	/
C-1920	<i>Manufacture of refined petroleum products</i>	1	/	/	/	/	/
C-2011	<i>Manufacture of industrial gases</i>	5	/	/	/	/	/
C-2012	<i>Manufacture of dyes and pigments</i>	1	/	/	/	/	/
C-2013	<i>Manufacture of other inorganic basic chemicals</i>	6	/	/	/	/	/
C-2014	<i>Manufacture of other organic basic chemicals</i>	9	/	/	/	/	/
C-2015	<i>Manufacture of fertilisers and nitrogen compounds</i>	7	/	/	/	/	/
C-2016	<i>Manufacture of plastics in primary forms</i>	3	/	/	/	/	/
C-2020	<i>Manufacture of pesticides and other agrochemical products</i>	2	/	/	/	/	/
C-2030	<i>Manufacture of paints, varnishes and similar coatings, printing ink and mastics</i>	7	/	/	/	/	/
C-2041	<i>Manufacture of soap and detergents, cleaning and polishing preparations</i>	4	/	/	/	/	/
C-2042	<i>Manufacture of perfumes and toilet preparations</i>	7	/	/	/	/	/
C-2051	<i>Manufacture of explosives</i>	1	/	/	/	/	/

C-2052	<i>Manufacture of glues</i>	4	/	/	/	/	/
C-2053	<i>Manufacture of essential oils</i>	0	/	/	/	/	/
C-2059	<i>Manufacture of other chemical products n.e.c.</i>	20	/	/	/	/	/
C-2060	<i>Manufacture of man-made fibres</i>	2	/	/	/	/	/
C-2221	<i>Manufacture of plastic plates, sheets, tubes and profiles</i>	11	/	/	/	/	/
C-2222	<i>Manufacture of plastic packing goods</i>	5	/	/	/	/	/
C-2223	<i>Manufacture of builders' ware of plastic</i>	10	/	/	/	/	/
C-2229	<i>Manufacture of other plastic products</i>	19	/	/	/	/	/
E-3811	<i>Collection of non-hazardous waste</i>	9	√	√	√	√	√
E-3812	<i>Collection of hazardous waste</i>	3	√	√	√	√	√
E-3821	<i>Treatment and disposal of non-hazardous waste</i>	15	/	/	/	/	/
E-3822	<i>Treatment and disposal of hazardous waste</i>	1	/	/	/	/	/
E-3831	<i>Dismantling of wrecks</i>	5	/	√	/	√	/
E-3832	<i>Recovery of sorted materials</i>	25	/	√	/	√	/
E-3900	<i>Remediation activities and other waste management services</i>	5	/	/	/	/	/
G-4711	<i>Retail sale in non-specialised stores with food, beverages or tobacco predominating</i>	539	/	/	/	/	/
G-4719	<i>Other retail sale in non-specialised stores</i>	41	/	/	/	/	/
G-4721	<i>Retail sale of fruit and vegetables in specialised stores</i>	61	/	/	/	/	/
G-4722	<i>Retail sale of meat and meat products in specialised stores</i>	138	/	/	/	/	/
G-4723	<i>Retail sale of fish, crustaceans and molluscs in specialised stores</i>	20	/	/	/	/	/
G-4724	<i>Retail sale of bread, cakes, flour confectionery and sugar confectionery in specialised stores</i>	157	/	/	/	/	/
G-4725	<i>Retail sale of beverages in specialised stores</i>	95	/	/	/	/	/
G-4729	<i>Other retail sale of food in specialised stores</i>	141	/	/	/	/	/
I-5610	<i>Restaurants and mobile food service activities</i>	1926	/	/	/	/	/
I-5621	<i>Event catering activities</i>	233	/	/	/	/	/
I-5629	<i>Other food service activities</i>	81	/	/	/	/	/
I-5630	<i>Beverage serving activities</i>	978	/	/	/	/	/
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