Environmental Footprint Top 10 for the average French consumer

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CE Delft
Committed to the Environment

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Content

1 Introduction and summary

In 2016, Babette Porcelijn wrote a book that informs Dutch consumers about the direct and indirect environmental impacts of daily life. As background information for this book, CE Delft calculated the top 10 environmental impact of the annual consumption pattern of an average Dutch person.

This book is being translated in French for the French market. Therefore, CE Delft was asked to translate the earlier made indication to a top 10 which reflects the consumption pattern of the average French consumer.

We take into account the 'visible' impact (like electricity use and food consumption) as well as the hidden impact (like energy use for the production and transport of goods). We calculate the impact of activities the consumer can influence (like the quantity of holiday transport) as well as aspects the consumer cannot influence directly (like the building of houses and road infrastructure).

The interesting result of this study is that the purchase of products (Babette calls this 'stuff' in her book) and the consumption of meat clearly have a higher environmental impact than the other categories.

This result could be a surprise for most people. Our experience is that when most people hear 'environmental impact', they think of energy use, transport and sometimes waste and packaging. The high impact of food (especially meat), products and materials (for example for our homes and roads) and clothing is quite unknown.

In this report, we elaborate on the method used and the calculations made to reach these conclusions.

2 Method and scope

2.1 Life cycle impacts

CE Delft and Studio Porcelijn first mapped out the activities of the average consumer. In a desk study questions were answered such as: How much does an average consumer travel per year by car, aircraft and public transport? How much does an average consumer eat? And how much energy is consumed?

With that information CE Delft has made a LCA quick scan to determine the total environmental impact of this consumption pattern.

We took into account the whole production chain, including the hidden effects that are not visible to consumers, such as the energy use for production and the transport of products.

First, we calculated the environmental impact per consumer activity. We then grouped these separate elements into ten categories. For example, the category 'car' is made up of the three separate elements: fuel consumption by car traffic (1); the production of the car (2) and infrastructure required for passenger transport (3).

2.2 Method

We calculated the environmental impact with the ReCiPe method version 2008 and present the results in single score environmental points (Pt). This indicator is based on the weighted environmental score of damage to the following categories:

- effects on human health (climate change, ozone depletion, human toxicity, photochemical oxidant formation, particulate matter formation and ionizing radiation);
- the effects on ecosystems (climate change, terrestrial acidification, freshwater eutrophication, terrestrial ecotoxicity, freshwater ecotoxicity, marine ecotoxicity, agricultural land occupation, urban land occupation, land transformation;
- the effects of depletion of raw materials (minerals depletion and fossil depletion).

The environmental impact of consumers is dominated by the effect on climate change and land use. Therefore, we present these two effect categories separately in the top 10. For a clear presentation we have grouped the effects into four categories:

1. **Direct climate impact**: the emissions, including CO_2, and fuel consumption, which are directly visible to the consumer. For example, electricity and gas use in house or the gasoline use for the car have a direct climate impact.
2. **Indirect climate impact**: the emissions, including CO_2, out of the consumer's sight. For example, emissions during mining, production, transport and scrapping have an indirect climate impact.
3. **Land use and deforestation**: agricultural land use, urban land use and land transformation, all of which causes damage to ecosystem.
4. **Other**: including all other types of environmental pollution calculated by the ReCiPe method: ozone depletion, human toxicity, photochemical oxidant formation, particulate matter formation, ionizing radiation, terrestrial acidification, freshwater eutrophication, terrestrial ecotoxicity, freshwater ecotoxicity, marine ecotoxicity, minerals depletion and fossil depletion.

2.3 Data

Annex A describes the assumptions and sources used. Because of the limited size of this project we make use of available data. As a result, data for the various categories are based on different years. The base years range from 2007 to 2017. There is no reason to assume categories differ substantially between these years, or substantially enough to influence the order of the categories.

2.4 Scope

The ReCiPe method is a comprehensive method for determining environmental impact. However, there are environmental impacts that cannot be calculated by this method. For example the effects of water use, water depletion, nuclear waste, litter and plastic soup cannot be quantified using this method and therefore cannot be added to the other effects. We advise Babette Porcelijn to show these effects in a different way. CE Delft has written a separate note for Babette Porcelijn, in which we give an indication of the plastic pollution per product group. In Annex C an indication of the nuclear waste per product group is given.

Because of the limited scope of this study, services (think of the hairdresser, dentist, advisory services, etc.) have not been investigated. Although the top 10 is not complete and it is an indication with uncertainty in the results, it does give a good impression of the relative magnitude of the impact of the different activities an average French consumer performs in a year.

3 Top 10 environmental impacts of the average French consumer

3.1 Consumption pattern of the average French consumer

Based on different sources, the average consumption pattern of a French consumer was mapped. In Annex A we give an explanation of the assumptions on which this study is based and of the sources used in this study. All information about consumption behavior is quantified per person. That is to say, for example, the information that is known per household (energy use households) is divided by the average number of people per household.

Table 1 shows the overview of the average consumption pattern.

Table 1 - Average consumption pattern of a French consumer per year

Activity	Quantity	Unit
Air traffic	5,500	km
Car	12,524	km
Train, métros, RER	1,569	km
Autobus, autocar	831	km
Housing - gas	212	m^3
Housing - electricity	2,278	kWh
Housing - water	54	m^3
Food: meat	87	kg
Food: dairy & eggs	77	kg
Food: vegetable food, fish & drink	1,104	kg
Clothes & textile	18	kg

For the determination of the environmental impact related to stuff (products), construction of buildings and civil infrastructure we base our calculation on the total annual consumption in France. This total is divided by the total population of France.

3.2 Configuration of categories

For this study, Babette Porcelijn first mapped the environmental impact of a consumer's activities (e.g. driving 12.524 km with a car) and all the elements that have a hidden contribution to the consumer's environmental impact (e.g. car production). The environmental impact of all individual elements is shown in Annex B.

These elements contain both activities that the consumer can influence (like the distance travelled) as well as aspects the consumer cannot influence directly (like food wastage in the upstream production chain, the building of houses and road infrastructure).

CE Delft then grouped these separate elements into ten categories. For example, the category 'car' is made up of the three separate elements: fuel consumption by car traffic (1); the production of the car (2) and infrastructure required for passenger transport (3).

Table 2 indicates the elements that are combined in one category:

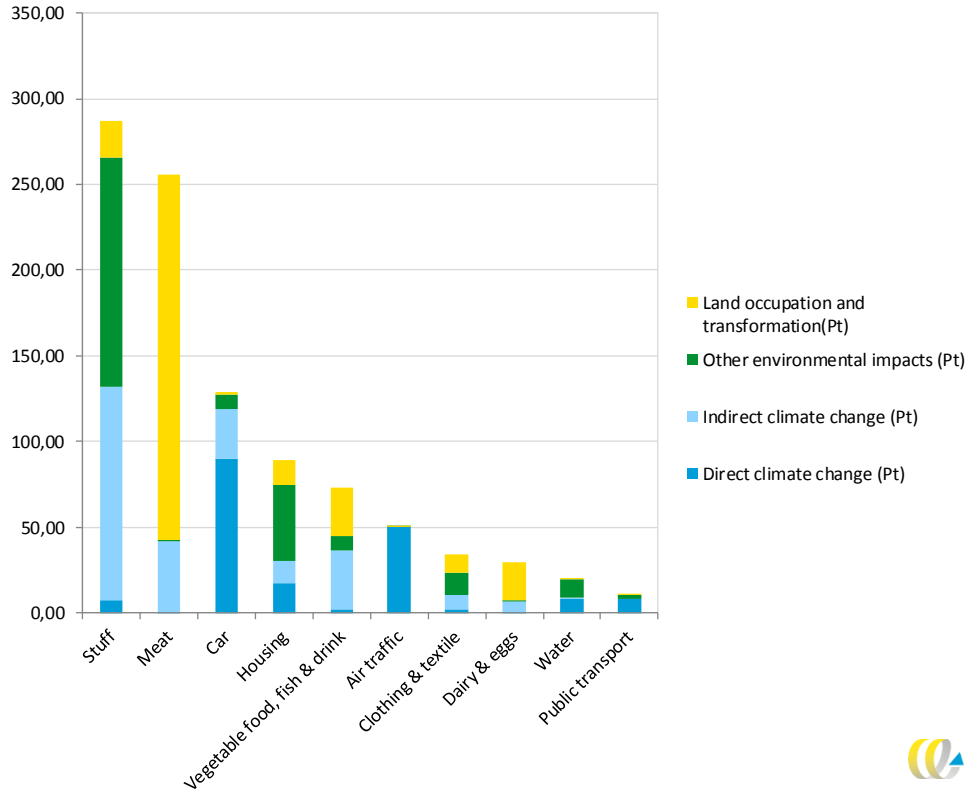
Table 2 - Categories, with the corresponding elements

Category	Description of the elements for which the environmental impact is taken into account
Stuff	– Annual consumption of consumer goods. The environmental impact of 'stuff' is estimated based on the Dutch calculation, because most 'stuff' comes from the international market. In order to avoid duplication with the other categories, the following sectors have not been included: food industries, agriculture, energy supply, traffic and transport, clothing industry, construction industry, petroleum industry, water companies and waste management, quarrying, automotive industry. – The use of electricity for in-house appliances, like TV, multimedia, computer, vacuum cleaner and other appliances. – The use of electricity for datacenters and telecom. – The civil engineering works for the transport of goods (such as roads, bridges, etc.). – Construction works for buildings that have a commercial purpose (such as shops, recreation, etc.).
Meat	– Meat consumption. – Gas use for cooking (weight percentage meat/total food) (see for explanation Annex A3). – Electricity use for cooling, freezing and cooking in the kitchen (think of the refrigerator, freezer, furnace fan, dishwasher, electric oven, microwave oven, etc.) (weight percentage meat/total food). – The civil engineering works for the transport of food (weight percentage meat/total food). – Construction works for buildings that have a commercial purpose (weight percentage meat/total food).
Housing	– Gas use for space heating. – Electricity use for heating, ventilation and lights (indoor and outdoor). – The production of materials, used for building houses. – The civil engineering works for the building of houses (like highways and streets, sewage and waste disposal, water supply, conservation and development). – Construction works for buildings that are used for lodging and power. – Transport of building materials.
Car	– Fuel consumption by cars. – The production of the car. – Infrastructure required for passenger transport. – Construction works for buildings that are used for passenger transport (like petrol stations).
Vegetable food, fish & drink	– All food other than meat and dairy/eggs, including drinks (drinks cover 55% of the volume of this category). – Gas for cooking (weight percentage 'other food'/total food). – Electricity use for cooling, freezing and cooking in the kitchen (think of the refrigerator, freezer, furnace fan, dishwasher, electric oven, microwave oven, etc.) (weight percentage 'other food'/total food). – The civil engineering works for transport of food (weight percentage 'other food'/total food). – Construction works for buildings that have a commercial purpose (weight percentage for 'other food'/total food).
Air traffic	– Fuel consumption by air traffic.
Dairy & eggs	– The consumption of dairy and eggs. – Gas for cooking (weight percentage dairy & eggs/total food). – Electricity use for cooling, freezing and cooking in the kitchen (think of the refrigerator, freezer, furnace fan, dishwasher, electric oven, microwave oven, etc.) (weight percentage dairy & eggs/total food). – The civil engineering works for transport of dairy & eggs (weight percentage dairy & eggs/total food). – Construction works for buildings that have a commercial purpose (weight percentage dairy & eggs/total food).
Clothing & textile	– Annual consumption of clothing, work wear, interior and household textiles. – Electricity use for clothes washer and dryer.
Bathroom	– Water use. – Gas for water heating. – Use of bathroom articles.
Public transport	– Energy use by Train, Métro, RER, Autobus, Autocar. – The civil engineering works for public transport (weight percentage for public transport/total). – Construction works for buildings that are used for transportation and power (weight percentage for public transport/total).

3.3 Top 10 environmental impact average French consumer

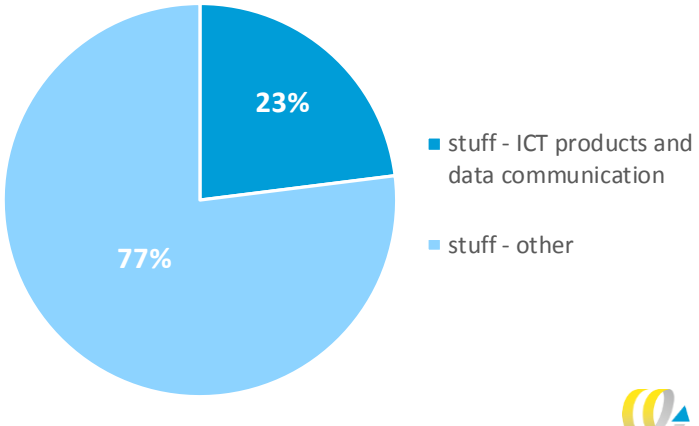
The top 10 in Figure 1 shows the environmental impact of the average annual consumption of a French consumer.

Figure 1 - The environmental impact of the average annual consumption of a French consumer



ICT-products and data communication account for 23% of the total environmental impact of the category 'stuff', as shown in Figure 2.

Figure 2 - Contribution to 'Stuff' of ICT-products and data communication



Conclusion

The acquisition and use of stuff clearly have a higher impact than the other categories, this is mainly due to the use of raw materials and energy for production in the supply chain.
This is followed by the consumption of meat, car use, housing and the consumption of vegetable food, fish and drink. The other five categories have a lower impact.

It is important to realize this top 10 is based on the average consumption pattern. An individual consumer may differ from the average.

The category air traffic is now in sixth place. That is based on an average flight distance of 5,500 kilometers per year. For example, this is a return flight from Paris to Antalya (Turkey). If a consumer makes a flight twice as far, the environmental impact doubles.

The category 'meat' is in second place. For vegetarians, of course, the contribution of this category is nil, but for vegetarians the categories other food & drink and dairy & eggs may be slightly higher.

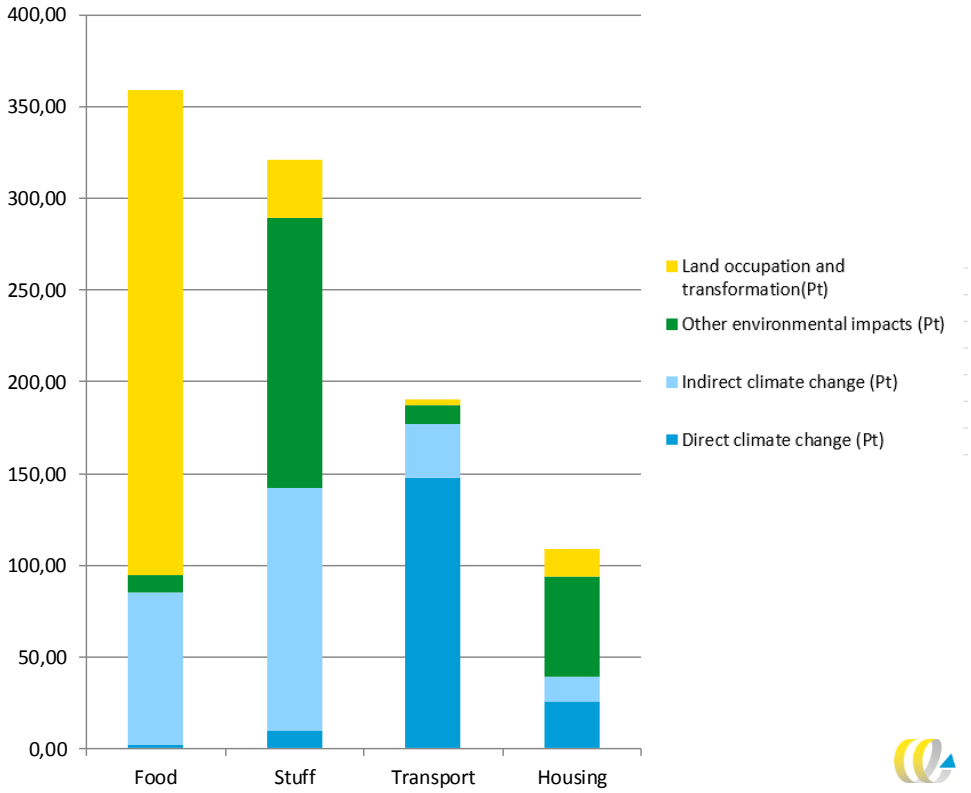
3.4 Environmental impact per sector

We have aggregated the categories into four sectors: stuff, food, transport and housing.

Table 3 - Sectors and corresponding categories

Sector	Categories
Food	– Meat – Dairy & eggs – Vegetable food, fish & drink
Stuff	– Stuff – Clothing & textile
Transport	– Car – Air traffic – Public transport
Housing	– Housing – Water

Figure 3 - The environmental impact of the average consumption of a French consumer per year, grouped into the sectors food, stuff, transport and housing



Conclusion

After grouping the ten categories into the four sectors: food, stuff, transport and housing, we see that stuff and food still have a clearly higher environmental impact than transport and housing. It can be an insight for many consumers that especially these two categories have a large environmental impact.

This study has shown that materials (in products, but also in homes and roads) and food (especially meat) have a higher impact than water- and electricity use.

Learn More

Do you have questions on this study or do you want to know more?
Then you can contact Lonneke de Graaff from CE Delft, via +31(0)15-2150 106 or graaff@ce.nl.

More extensive analyses of various products and production chains can be found at www.cedelft.eu.

A Sources and assumptions

In this annex, we give a brief explanation of the sources and assumptions the calculation is based on.

A.1 Transport

Quantity of transport

The assumptions and sources for determining the consumption pattern of transport are:

- Source for air traffic: L'avion: des voyages toujours plus nombreux et plus Lointains (Bouffard-Savary, 2010). Graphic 8 gives an average trip distance of 2,500 km. Two other sources give the amount of passengers per year.
- Overview of EU-28 air passenger transport by Member States in 2015 (Eurostat, 2015).
- Chiffres clés du transport: Édition 2016, France (Service de l'observation et des statistiques, 2016).
- We calculated a total distance per Frenchman, based on the sources mentioned and 65 million French inhabitants. The average distance is approximately 5,500 km.
- Source for car: Passenger transport: Road, Million passenger-kilometres, 1998-2016 (OECD, 2018). The total amount of passenger kilometers is divided by the total French inhabitants. This gives the amount in km per average French consumer.
- Source for public transport: Chiffres clés du transport: Édition 2016, France (Service de l'observation et des statistiques, 2016). The total amount of passenger kilometers by Train, Métro, RER, Autobus and Autocar divided by the total French inhabitants gives the amount in kilometers per average French consumer.

Environmental impact of transport

The assumptions and sources for determining the environmental impact of transport are:

- For air traffic both business and holiday flights are included.
- The environmental impact factor for air traffic is calculated per passenger kilometer, which means that the capacity utilization of the vehicle is taken into account. The environmental impact factor that we use corrects for the effect of 'empty seats'.
- For determination of the environmental impact of transport we take into account the emissions generated by burning fuel while using the vehicle. We also included the emissions from the extraction, transport and refining process of fuels and from the production and transport of electricity.
- Particulate matter is caused by combustion and abrasion (by friction of brakes, abrasion of rubber tires and pavement). Both have been taken into account.
- Source for air traffic, public transport and car: STREAM Passenger Transport 2014 (CE Delft, 2014). The environmental impacts CO_2, NO_x, PM_{10} SO_2 and VOC are based on (CE Delft, 2014). Land occupation is based on (Ecoinvent, 2013).
- Source for the production of the car: Smart E-mobility: A view on the electric car part 2 (Smart E-mobility, 2015).

A.2 Housing and Building

Quantity of Electricity-, Gas- and Water use

The assumptions and sources for determining the consumption pattern of housing are:

- Source for consumption of gas and electricity: Energy balance sheets 2014 data (Eurostat, 2016).The figures for natural gas use are converted from ktoe to MJ and m^3, using Unit Converter (IEA, 2018) and Conversion Factors for Units of Energy (Volker Quaschning , 2015). The total gas consumption is divided by the total French inhabitants (based on: The National Institute of Statistics and Economic Studies (Insee), 2018).

The gas and electricity consumption is allocated to the product group where it was used for. Table 3 gives an overview of the allocation of gas consumption over the product groups and Table 4 gives the allocation of electricity consumption. The source for allocation of gas is Consommation moyenne en gaz d'une maison (Selectra, 2018) and the source for allocation of electricity is Réduire sa facture d'électricité: limiter la consommation de ses équipements, au quotidien (ADEME, 2017).

- Source for consumption of water is The water footprint of France : Value of water (Ercin, et al., 2012).

The gas consumption of households is allocated to the different product groups as indicated in Table 4.

Table 4 - Contribution of gas consumption per product group

	Share	Water	Housing	Food
Space Heating	65%		65%	
Water Heating	30%	30%		
Cooking	5%			5%

The electricity consumption of households is allocated to the different product groups as indicated in Table 5.

Table 5 - Contribution of electricity consumption per product group

	Share	Water	Housing	Food	Clothes & Textile	Stuff
Lighting	6%		6%			
TV, multimedia, computer	14%					14%
Cooling & freezing & cooking; kitchen	8%			8%		
Ventilation	2%		2%			
Heating	28%		28%			
Washing machine 'froid et lavage'	19%				19%	
Vacuum cleaner, other appliances	12%					12%
Warm water	13%	13%				
Total	**100%**	**13%**	**36%**	**8%**	**19%**	**26%**

Environmental impact of electricity, gas and water use

The assumptions and sources for determining the environmental impact of housing are:

- Source for the CO_2 emissions of natural gas combustion: Publication Staatscourant standard emissionfactor natural gas 2015; The emission factor of gas is 56,5 kg CO_2/GJ. The emission of 1 m^3 gas (= 31,65 MJ) = 56,5*31.65/1.000 = 1,78 kg CO_2 (Koninkrijk der Nederlanden, 2015).
- Source for the NO_x emissions of natural gas combustion: Gas-, hout- en oliegestookte ketels (Translated: Gas, wood and oil fired boilers) (Roeterdink & Kroon, 2010).
- Source for other environmental characterization factors for natural gas (extraction/production): EcoInvent (Ecoinvent, 2013).
- Source for environmental characterization factors for electricity (production): Database CE Delft, 2015; CE generic data, with CO_2 emission factor of www.emissiefactoren.nl. (CE Delft, 2014a).
- Source for environmental characterization factors for tabwater (extraction/production): EcoInvent: 1 kg Tap water {Europe without Switzerland}| market for | Alloc Rec, S) (Ecoinvent, 2013).

Explanation calculation building sector

The annual value of construction put in place in 2010 is 172,876 million of euros, (FFB, 2017).
The contribution of each type of construction is given in Table 6.

Table 6 - French annual value of construction put in place per type of construction

Total annual value of construction put in place (million euro)	**172,876**	**Share**
Residential	77,000	45%
Nonresidential - construction works	49,000	28%
Nonresidential - civil engineering works	46,876	27%

Table 7 gives the contribution of the different types of buildings for nonresidential construction works.

Table 7 - Contribution nonresidential - construction works

Type of buildings	**Share**	**Food**	**Stuff**	**Not commercial**
Hangars & warehouses	31%		15.5%	15.5%
Office	13%			13%
Sheds & barns	26%	26%		
Shops	14%		14%	
Rest	16%		8%	8%
Total	**100%**	**6%**	**11%**	**50%**

In the Netherlands the costs for civil engineering works are 27%, relative to all construction costs.
We assumed that this is also the case in France. Table 8 gives the contribution of the different types of constructions for nonresidential civil engineering works.

Table 8 - Contribution non-residential - civil engineering works

Construction	Share	Food	Stuff	Stuff-ICT	Not commercial	Housing	Public transport	Car
Highway and street	25%		5%	5%				14%
Sewage and waste disposal	17%	1%	2%	2%	5%		6%	
Civil concrete building	16%		4%	4%				9%
Rail building	8%					8%		
Cables and piping	15%	1%	2%	2%	5%		5%	
Dredging work	5%	0%	1%	1%	2%		2%	
Coastal and shore work	3%	0%	0%	0%	1%		1%	
Street work	11%		2%	2%				6%
Total	**100%**	**2%**	**17%**	**17%**	**13%**	**8%**	**13%**	**29%**

For civil engineering works we have divided the environmental impact into passenger transport and freight transport based on (CE Delft ; Free University Amsterdam, 2014) as follows:
- 56% of the total environmental impact by civil engineering works is attributed to passenger transport and is included in the category public transport and car;
- 44% of the total environmental impact by civil engineering works is attributed to freight transport and is included in the categories food, stuff, housing and non-commercial.

The source used for the environmental impact for the building sector is:
- Meten is weten in de Nederlandse bouw (measuring is knowing in the Dutch building sector) (CE Delft, 2015).

A.3 Food

Meat and Dairy & eggs are calculated as two separate categories.

In the category other food and beverage the following parts are included:
- grain;
- fruit;
- processed fruit;
- vegetables;
- processed vegetables;
- fish and seafood;
- nuts;
- added sugar and sweeteners;
- fats and oils.

Quantity of food

The assumptions and sources for determining the consumption pattern of food are:
- Food Supply - Livestock and Fish Primary Equivalent (FAO, 2017).
- French Agency for Food, Environmental and Occupational Health & Safety : Alphabetical Index (ANSES, 2018).

Environmental impact of food

The assumptions and sources for determining the environmental impact of food are:
- The environmental impact of other food is based on the same sources as used in the Dutch study 'Top 10 environmental impact of the average Dutch consumer' (CE Delft, 2017). We did use the specific French proportions for the amounts of chicken/beef/pig/sheep etc.
- The following 'extra impact' is included in the environmental impact of food:
  - gas for cooking;
  - electricity use for cooking, dishwasher, refrigerator, freezer and kitchen appliances;
  - civil infrastructure (transport of foodstuffs);
  - construction of buildings (greenhouses/barns and stables).

This 'extra environmental impact' is allocated to the different categories, based on weight, according to Table 9.

Table 9 - Allocation of environmental impact of gas, electricity and construction to the food categories

Category	Weight	Unit	Percentage
Meat	87	kg	6.9%
Dairy and eggs	77	kg	6.1%
Other food and drink	1,104	kg	87.0%

A.4 Clothing & textile

In the category 'clothing & textile' is included: clothing, work wear and interior and household textiles.

Quantity of clothes & textile

The assumptions and sources for determining the consumption pattern of textile are:
- Amount: The environmental analysis of textile (CE Delft, 2010).

Environmental impact of clothes & textile

The assumptions and sources for determining the environmental impact of textile are:
- Source of the environmental impact of textile: The environmental analysis of textile (CE Delft, 2010) and Environmental information of textile from CE Delft (CE Delft, 2015b).

A.5 Stuff

The category 'stuff' is the most difficult category for which to express its environmental impact in an exact value. Therefore we give a global indication in this study.

To determine the environmental impact of stuff in the Dutch top 10, we used a study on the environmental impact of industry and business sectors that we did in 2015 (CE Delft, 2014b). Based on that study we estimated the impact of 'stuff'. Because products are sold on a world-wide market we assumed that the environmental impact of products is comparable between developed countries. The amount of consumption makes the difference: if you buy twice as much stuff, your impact is twice as high.

The environmental impact of a lot of different sectors contribute to the impact of stuff, for example: the chemical industry, wood industry, metal industry, plastics and building materials-industry, paper industry, electronics industry, etc.

In order to avoid double counting between the category 'stuff' and other categories, we have excluded some sectors. The sectors that have not been included (as they fall within the other categories of the top 10) are:
- food industry;
- agriculture;
- energy supply;
- traffic and transport;
- clothing industry;
- construction industry;
- petroleum industry;
- water companies and waste management;
- mineral extraction;
- automotive industry.

To determine the impact of an average French consumer we compared the expenses of consumers for the products within the category 'stuff'. In the Netherlands the average consumer spends 1,980 euro on products in the category 'stuff' each year. In France the average consumer spends 2,123 euro on stuff each year. This is based on The National Institute of Statistics and Economic Studies (Insee), 2018b.

Quantity of stuff

The assumptions and sources for determining the consumption pattern of stuff are:
- Source for consumption of stuff: The National Institute of Statistics and Economic Studies (Insee), 2018b.

Environmental impact of stuff

The assumptions and sources for determining the environmental impact of stuff are:
- Source of the environmental impact of stuff: the same sources as used in the Dutch study 'Top 10 environmental impact of the average Dutch consumer' (CE Delft, 2017).
- The impact of the ICT products is based on the sectors:
  - electronics industry;
  - energy supply;
  - information and communication.

B Environmental impact per item

Table 10 gives the environmental impact per item in ReCiPe single score environmental points (Pt).

Table 10 - Environmental impact per item (Pt)

Item	Category	Climate effect (Pt)	Other (Pt)	Land use & deforestation (Pt)	Total (Pt)
Food: meat	Meat	41.3	0.01	213.1	254.4
Stuff: other stuff	Stuff-other	86.1	102.7	14.1	202.9
Transport: fuel consumption by cars	Car	89.6	4.2	1.8	95.5
Food: other (including drinks)	Vegetable food. fish & drink	31.6		25.1	56.7
Air traffic	Air traffic	49.8	0.4	0.9	51.1
Housing: Building of the house	Housing	11.2	21.7	14.3	47.2
Stuff-ICT	Stuff-ICT	23.5	13.5	0.2	37.2
Clothing & textile	Clothing & textile	8.7	9.2	10.9	28.8
Food: Dairy & eggs	Dairy & eggs	6.6	0.0	21.8	28.4
Housing: Gas use for space heating	Housing	13.7	14.5	0.2	28.4
Transport: production of the car	Car	26.1	0.3		26.3
Food: Construction works buildings	Food-divided over meat (8.0%). dairy (8.3%) and other (83.7%)	3.3	6.5	4.3	14.2
Water: Gas for water heating	Bathroom	6.3	6.7	0.1	13.1
Datacentres and Telecom	Stuff-ICT	10.6			10.6
Housing: electricity	Housing	3.9	6.1	0.1	10.1
Stuff: Construction works buildings- other stuff	Stuff-other	2.4	4.6	3.1	10.1
Stuff: Construction works buildings - ICT	Stuff-ICT	2.4	4.6	3.1	10.1
Car: Infrastructure construction works	Car	3.4	3.6	0.2	7.2
Autobus	Public Transport	4.7	0.5	0.2	5.4
Clothing: Electricity washing/drying	Clothing & textile	2.1	3.2	0.1	5.4
Stuff: Infrastructure construction works other stuff	Stuff-other	2.0	2.1	0.1	4.3
Stuff: Infrastructure construction works ICT-stuff	Stuff-ICT	2.0	2.1	0.1	4.3
Stuff: Electricity ICT	Stuff-ICT	1.5	2.4	0.1	3.9
Water use: Electricity for water heating	Bathroom	1.4	2.2	0.05	3.7
Stuff: Electricity other	Stuff-other	1.3	2.1	0.05	3.5
Housing: construction works buildings	Housing	1.6	1.6	0.1	3.3
Train	Public Transport	2.8	0.2	0.1	3.1

Item	Category	Climate effect (Pt)	Other (Pt)	Land use & deforestation (Pt)	Total (Pt)
Food: electricity	Food-divided over meat (6.9%). Dairy (6.1%) and other (87%)	0.9	1.4	0.03	2.3
Food: gas for cooking	Food-divided over meat (6.9%). Dairy (6.1%) and other (87%)	1.1	1.1	0.01	2.2
Water use	Bathroom	0.88	1.15	0.06	2.1
Public Transport: Infrastructure construction works	Public Transport	0.9	1.0	0.1	2.0
Use of Bathroom articles	Bathroom	0.2	0.6	0.2	1.1
Food: Infrastructure construction works	Food-divided over meat (6.9%). Dairy (6.1%) and other (87%)	0.3	0.3	0.02	0.6
Housing: House - building-Transport of materials	Housing	0.01	0.00	0.00	0.01
Total		**444.0**	**220.8**	**314.4**	**719.3**

All effects are given in ReCiPe single score environmental points (Pt). All the individual scores per environmental impact (midpoints) are converted with the characterization factors used in the ReCiPe Method (ReCiPe, 2008). For example, for the climate effect, the score in kg CO_2 equivalents is converted by the factor 0.04526 Pt/kg CO_2 eq. And for land use and deforestation, the score in m^2 land use is converted by 0.04358 Pt/m^2.

Table 10 shows two categories that are not included in the top 10. These are 'non-commercial-Buildings' and 'non-commercial - Civil'. It involves the construction of buildings and civil infrastructure (ground, road and water construction) for non-commercial purposes (schools, hospitals, etc.).
The impact of these two categories is in total lower than the impact of the lowest category (public transport). That is why we kept this category outside the top 10. Moreover, this is a group that consumers cannot influence.

C Indication of the nuclear waste per product group

The effects of nuclear waste cannot be quantified using the ReCiPe method and therefore cannot be added to the other effects quantified in this study. We advise Babette Porcelijn to show these effects in a different way. In this annex we give an indication of the nuclear waste per product group.

The indication is based on the principle that product groups which use much French electricity get more indications for nuclear waste than product groups that use less or no French electricity.

Product group	 **Indication Nuclear Waste**
Stuff	3
Housing	3
Clothing & textile (washing/drying)	2
Water/bathroom	2
Meat	1
Car	1
Vegetable food, fish & drink	1
Air traffic	1
Dairy & eggs	1
Public transport	1

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