Palladio Zannini Industrie Grafiche Cartotecniche s.p.a.

Environmental Sustainability Report

2013

1. Object and corporate information

The purpose of this document is reporting the main environmental impacts of Palladio Group's production activities, in particular through the calculation, the verification of activities and the outcome of some key indicators, such as the carbon footprint and the performance indicators of the industrial processes.

The scope of this report on Environmental Sustainability covers:

- The Italian factories of Palladio Zannini Industrie Grafiche Cartotecniche spa
- The Irish plant of Zannini Ireland ltd
- The Serbian plant of Zannini East doo

The Group is composed of:

• three Italian factories:
- plant in Dueville (VI), registered office of the Company Palladio Zannini;
- plant in Thiene (VI)
- plant in Pontedera (PI),

• two foreign factories incorporated as autonomous entities which are fully owned by Palladio Zannini:

- plant of Zannini Ireland, Tullamore (Ireland)
- plant of Zannini East, Vrsac (Serbia)

Our target market is the pharmaceutical market and our core business is the production of cases. In this context, our organisation is constantly committed to develop process innovation.
It should be noted that in recent years several investments have been made in equipment and machineries - aiming in particular at supplying micro-batches of cases, modernising equipment and machineries for the production of leaflets and improving the text control and product compliance sector (Eye C).
Furthermore, other major success factors that led Palladio Zannini IGC to be a market leader are the continuous service to customers - with a focus on customer care - and the commitment to lean production.

The goal of Palladio Zannini is to supply products, services and expertise in compliance with the requirements and at the same time to anticipate and meet the customers' needs.

The object of the activities of all plants (Group) can be summed up in the design and production of folding cases, partitions, blister cards, patient information leaflets, illustrated catalogues, labels and aluminium tapes for the pharmaceutical and cosmetics industries.

The production cycle consists of the following macrophases common to all sites:

• Polymers pre-printing (all the activities that starting from a paper or digital artwork lead to achieve/develop polymers for printing).
• Printing (all the activities that via special machines, printing plates and inks/paints, allow to get printed media in one or more colours (in this case sheets of paper or cardboard or laminated plastic).
• Post-printing (all the activities that starting from printed material and using special machines, glue, auxiliary materials and packs, lead to manufacturing finished products through the steps of cutting/punching, folding, gluing and packaging).

Production supporting activities can be classified as follows:

• Computerization of management processes and production planning
• Supply and transformation of energy
• Supply of utilities (gas, water, etc..).
• Procurement/storage and use of raw materials, packaging materials and auxiliary materials (chemicals, films, aluminium plates, etc.)
• Maintaining equipment and facilities
• Shipping and Delivery
• Controlled management of waste produced by/at the sites (temporary storage and handling)
• Administration and Sales
• Training of staff
• Prevention and protection of human resources and the environment.

2. Conversion factors used

The data in this report refer to the last 2-year period and are given per production unit as well as at Group level. Some data have been revised against previous years due to changes in the coefficients, basic errors and reporting errors.
The coefficients used in the two year-period are as follows:

CONVERSION FACTORS						
	ADOPTED CRITERIA	REF.	M.U.	CONVERSION FACTOR		SOURCES
				2011	2012	
GAS OIL	What is described below is used to determine CO_2 emissions resulting from the combustion of gas oil in the reference period (calendar year). The amount of fuel used is expressed in terms of energy content (TJ) and therefore the basic formula for the calculation is: Ton/CO_2 = (t of gas oil x LCV x Emission factor x Oxidation factor) x 0.000001. Where: the quantity of gas oil is given by the purchase invoices. The other data are retrieved from the table of national benchmarks communicated by EPA (Environmental Protection Agency)	DENSITY	KG/L	0.82	0.82	http://www.epa.ie/downloads/pubs/air/airemissions/Emission_Factors_2012_16102012.pdf
		LCV	TJ/KT	43.31	43.31	
		EMISSION FACTOR	TCO_2/TJ	73.30	73.30	
		OXIDATION FACTOR	COEFF.	1.000	1.000	
METHANE	What is described below is used to determine CO_2 emissions resulting from the combustion of methane in the reference period (calendar year). The amount of fuel used is expressed in terms of energy content (TJ) and therefore the basic formula for the calculation is: Ton/CO_2 = (Sm3 of gas x LCV x Emission factor x Oxidation factor) x 0.000001. Where: The amount of gas used is derived from the invoice data. The other data are retrieved from the table of national benchmarks communicated by the Ministry of the Environment (Emissions Trading Directive)	LCV	GJ/ 1000SM3	35	35	http://www.minambiente.it/export/sites/default/archivio/allegati/emission_trading/Tabella_coefficienti_standard_nazionali_2011-2012_v4.pdf
			MCAL/ STDM3	8	8	
		EMISSION FACTOR	TCO_2/TJ	56.00	56.00	
			TCO_2/ 1000 STDM3	1.96	1.96	
		OXIDATION FACTOR	COEFF.	0.995	0.995	
ELECTRIC POWER	Determining the volume of CO_2 related to electricity purchased regardless of the type of usage. We have to determine the specific quantity of CO_2 grams related to 1 kW/h (as provided by the grid or by recognized standards). Through these benchmarks the amount of CO_2 produced from electricity is determined. The formula will then be: (amount of purchased energy in kWh x conversion factor) x 0.000001.	CONVERSION COEFFICIENT	GCO_2/ KWH	458	458	Publication by IEA (International Energy Agency) identifying for each country the emission coefficient (the updating of these coefficients is delayed by two years, even though they are a good approximation). http://www.iea.org/media/freepublications/2012/CO2Highlights2012.xls
TRANSPORTS	Transformation from km to gCO_2	FROM KM TO GCO_2	GCO2/ KM	712	712	Publication by ANPA (National Agency for Environment Protection) on CO_2 emissions from road transport: 712 gCO_2/covered km
STICKERS	Transformation from sqm to kg	COEFF.	KG/SQM	0.234	0.234	Specific weight
RAW MATERIALS		CONVERSION COEFFICIENT	TCO_2/ Paper tons	cardboard 0.616	cardboard 0.656	ETS data provided by the suppliers or maximum value indicated
				paper 0.571	paper 0.571	
				adhesive 0.936	adhesive 0.936	

3. Environmental Sustainability

Palladio Zannini, consistently with its role as a Socially Responsible Company, confirms its commitment to promote new development opportunities by ensuring the protection and compatible and ethical use of natural and human resources.

In setting the contents of this Report, the organisation was inspired by the principles of materiality, stakeholder inclusiveness, sustainability context and completeness, in order to ensure the quality of information and the adequacy of the presentation modes with the principles of balance, clarity, accuracy, timeliness, comparability and reliability.

The reporting activities and the drawing of the final document involved all functions of all the Italian plants and have been centrally coordinated by the Quality, Safety and Environment Management function.

In line with the commitments made and pursued over the years, the company will make of sustainability a core element of all business processes that contribute to the making of the products for the market in which it operates.

The vision of our company to this respect can be summed up in the belief that sustainable development is the only form of society's development that does not jeopardise the ability of future generations to continue to develop, while preserving the quality and quantity of natural assets and reserves.
The objective of the whole Palladio Zannini group is to maintain an economic development compatible with social equity and ecosystems, operating under the rules of the environmental balance.
This means that the economic, social and environmental issues are closely interrelated and each planning intervention will inevitably have to take into account their mutual interrelationships.

This report will be published on the website Global Compact (as an attachment to the Communication on Progress and on the company website www.palladiozannini.it.)

3.1 Life Cycle Assessment

The LCA systematically evaluates the environmental aspects and impacts of a product system or multiple product systems, from the extraction of raw materials and resources to their final disposal, in accordance with the objectives and the scope defined.

The LCA was carried out on each of the Group's plants.
The following environmental aspects were identified and taken into account:

1) Greenhouse gas emissions due to the transportation of raw materials, products and waste (indirect emissions);

2) Greenhouse gas emissions due to the processing of raw materials getting into to the production cycle (indirect emissions);

3) Greenhouse gas emissions from the combustion of natural gas in the plants (direct and controllable emissions);

4) Greenhouse gas emissions from the production of electricity needed in the plants (direct and controllable emissions);

5) Water consumption;

6) Waste and scrap generated from raw materials (paper, cardboard and derivatives). This aspect, albeit indirectly, influences the consumption of raw material;

7) Production of liquid waste.

3.2 Life Cycle Inventory

In this phase data relating to the period 2011/2012 were collected for each plant included in the system scope. All data, whether they were measured, calculated or estimated, were used to quantify the incoming elements in the perimeter chosen for reporting.

Greenhouse gas emissions from the transport of raw materials, products and wastes
The material available includes:
• List of incoming trips (for the supply of paper and cardboard as raw materials) and outgoing trips from the factory in Pontedera;
• List of all incoming trips (for the supply of paper and cardboard as raw materials) and outgoing trips from the two plants in Vicenza (Dueville and Thiene);
• List of incoming trips (for the supply of paper and cardboard as raw materials) and outgoing trips from the factory in Vrsac;
• List of incoming trips (for the supply of paper and cardboard as raw materials) and outgoing trips from the factory in Tullamore;

Greenhouse gas emissions from the processing of incoming materials (paper, cardboard and their derivatives)
Data for the last two years with the quantities of incoming raw material to each plant were given. In detail, the following incoming materials were identified:
• Cardboard for making cases;
• Paper for patient information leaflets;
• Self-adhesive labels for stickers;

Greenhouse gas emissions from the consumption of natural gas for heating the premises
For each plant the natural gas consumption (invoices) for the last two years was supplied.

Greenhouse gas emissions from the consumption of electricity
The company provided data on energy consumption (invoices) of plants for the past two years.

Water consumption
The company provided data on water consumption (invoices) for the last two years.

Waste and scrap generated from raw materials (paper, cardboard and derivatives)
Data for the last two years were provided on the quantities of raw materials (paper, cardboard and derivatives) getting into to the plants and the production of waste and scrap of paper and paperboard products in each plant (Environmental Declaration Form and/or by-product packing list).

Production of liquid waste

The quantities of liquid waste produced at each plant in the last two years were given (the annual production of waste eg. Environmental Declaration Form for the Italian plants).
The following types of waste were considered:

- EWC 08 01 11: waste paint and varnish containing organic solvents
- EWC 08 01 12: waste paint and varnish other than those mentioned in 080111
- EWC 08 03 13: waste ink;
- EWC 08 03 14*: ink sludges containing dangerous substances;
- EWC 08 04 16: aqueous liquid waste containing adhesives or sealants;
- EWC 08 01 20: aqueous suspensions;
- EWC 08 01 21: waste paint or varnish remover
- EWC 09 01 01*: water-based developer and activator solutions
- EWC 09 01 02: offset plate developer solutions
- EWC 09 01 04: fixer solutions
- EWC 14 06 03*: other solvents and solvent mixes;
- EWC 16 10 02: water-based washing solutions

3.3 Life Cycle Impact Assessment

The results from the life cycle inventory were correlated with specific environmental categories through the use of indicators of impact categories, which represent the relevant categories in a quantifiable manner.
Once the impact categories and the relevant indicators were selected, the LCI results were converted using the characterization factors, thus getting the results of the different category indicators.

The sum of the contributions relating to each category allows to obtain the LCIA's profile, which has the purpose of providing information with regard to environmental factors associated with the incoming and outgoing flows of the system chosen.

Selection of impact categories

Here below the environmental categories are given as proposed by the Society of Environmental Toxicology and Chemistry (SETAC Europe) in its "Working Group on LCIA"

• *Extraction of abiotic resources*: These resources include three different types of natural elements:
◦ Non-renewable resources (fossil fuels and minerals);
◦ Resources (groundwater, sand and gravel);
◦ Renewable resources (surface water, solar energy, wind energy, etc. ..).

• *Extraction of biotic resources*: including biomass harvested in sustainable manners as well as in unsustainable ways (deforestation).

• *Land use*: reduction of animal and plant species in a given area.

• *Global Warming (Greenhouse Effect)*: increase in temperature in the lower atmosphere as a result of the presence of greenhouse gases that trap infrared radiation

• *Depletion of the ozone layer*: a consequent increase in the incidence of ultraviolet rays, which are harmful to humans and to all ecosystems in general.

• *Eco-toxicity*: impacts on species and ecosystems due to direct emissions or subsequent degradation of the products.

• *Human toxicity*: due to the presence of chemical or biological substances released into the environment.

• *Photochemical smog*: due to the formation of tropospheric ozone as a result of reactions of volatile organic compounds in the presence of light and NOX.

• *Acidification*: release of protons (H^+) in aquatic and terrestrial ecosystems.

• *Eutrophication*: due to an excess of nitrates, phosphates, organic substances and nutrients.

Classification

Once the effects and potential damage of emissions on human health and the environment are known, the results from the inventory phase of the life cycle can be associated with one or more impact categories.

Characterization

In this phase, the impact generated is quantified. The data of the inventory are transformed into numeric indicators, thereby determining the relative contribution of each individual substance or resource used.

Application to Palladio Group

With reference to the findings of the inventory phase of the life cycle, here below the relevant impact categories are listed:

• greenhouse gas emissions were associated with the GLOBAL WARMING category;
• water consumption was associated with the EXTRACTION OF ABIOTIC RESOURCES category;
• the production of waste and therefore, albeit indirectly, the consumption of paper and cardboard, were associated with the EXTRACTION OF BIOTIC RESOURCES category;
• the production of liquid waste was associated with the ECOTOXICITY category.

GLOBAL WARMING

Following the classification, this impact category has been associated with the greenhouse gas emissions resulting from:

• Transportation of raw materials, products and wastes;
• Processing of incoming paper material;
• Consumption of natural gas;
• Consumption of electricity.
• Consumption of heating gas oil.

CO_2 emissions from the transportation of raw materials and finished products

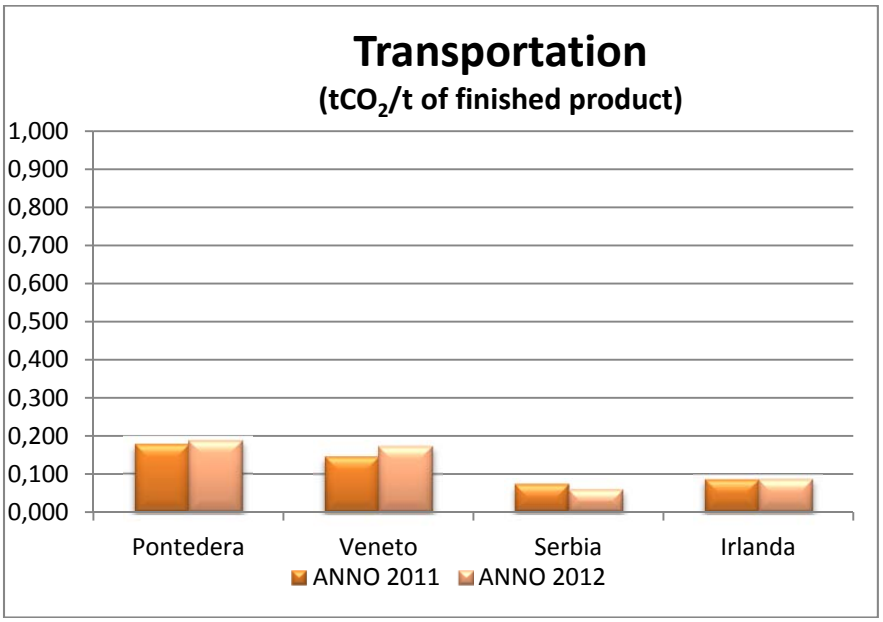

Figure 1 - tCO_2 emissions from the transportation

The amount of CO_2 released per kilometre travelled was calculated using the values provided by ANPA (National Agency for Environmental Protection).

Incoming and outgoing trips from the plant

With regard to inbound trips, distances covered over the two-year period were calculated taking into account the recordings (transport documents) regarding the arrivals of raw materials to the factories, individually for the plants in Pontedera, Tullamore and Vrsac and collectively for the two plants in Vicenza.

For outbound trips, on the basis of the number of trips and their routes, the kilometres travelled during the year 2012 were thus calculated: individually for the plants in Pontedera, Tullamore and Vrsac and collectively for the two plants in Vicenza.

It was therefore possible to determine the greenhouse gas emissions of the plants in Pontedera, Tullamore, Vrsac and the two plants in Vicenza.

During the data evaluation for the calculation on the CO_2 emissions related to transport (raw materials and finished products), CO_2 tons out of tons of finished product were considered.
Table 3 shows the total emission tons and the Carbon Footprint, calculated for each factory, with the variations in the two years.

Table 1 below shows the breakdown of the purchases by type of raw material in the various sites, while in Table 3 inbound and outbound transports are reported.

		2011	2012
CARDBOARD USAGE			
Dueville	Total pickup in Kg	**3,982,718**	**3,746,428**
Thiene	Total pickup in Kg	**2,968,590**	**2,743,266**
Pontedera	Total pickup in Kg	**4,662,764**	**4,448,362**
Vršac	Total pickup in Kg	**2,731,356**	**4,091,659**
Tullamore	Total pickup in Kg	**593,190**	**596,710**
PAPER USAGE			
Dueville	Total pickup in Kg	**747,170**	**763,347**
Pontedera	Total pickup in Kg	**821,871**	**981,453**
Vršac	Total pickup in Kg	**135,705**	**340,286**
STICKERS			
Pontedera	Total pickup in Kg (conversion factor from sqm = 0.234)	**157,771**	**136,623**
Vršac	Total pickup in Kg (conversion factor from sqm = 0,234)	**44,783**	**39,712**

Table 1 – Breakdown of raw material purchases

TRANSPORTS FROM	2011				2012			
	INBOUND		OUTBOUND		INBOUND		OUTBOUND	
	No. of TRIPS	KM	No. of TRIPS	KM	No. of TRIPS	KM	No. of TRIPS	KM
VENETO	341	473191	1076	496535	275	459759	1315	613059
TUSCANY	253	444092	933	539826	303	451868	1324	522927
SERBIA	148	100620	161	129520	187	122550	190	151050
IRELAND	29	2668	98	43848	30	2760	96	42967

Table 2 – Inbound and outbound transports

	Total CO_2 from inbound and outbound transports [tons]		2-year period variation		Carbon Footprint (tCO_2/t of finished product)		variation
Plant	2011	2012	%	tCO2	2011	2012	%
VENETO	690.44	763.85	10.63	73.40	0.148	0.175	18.27
TUSCANY	700.55	694.05	-0.93	-6.50	0.179	0.188	5.18
SERBIA	163.86	194.80	18.88	30.94	0.075	0.061	-19.09
IRELAND	33.12	32.56	-1.70	-0.56	0.088	0.089	0.97%

Table 3 - tCO_2 emissions and Carbon Footprint from transports

CO_2 emissions from the processing of raw materials (paper, cardboard and other paper material) getting into the process

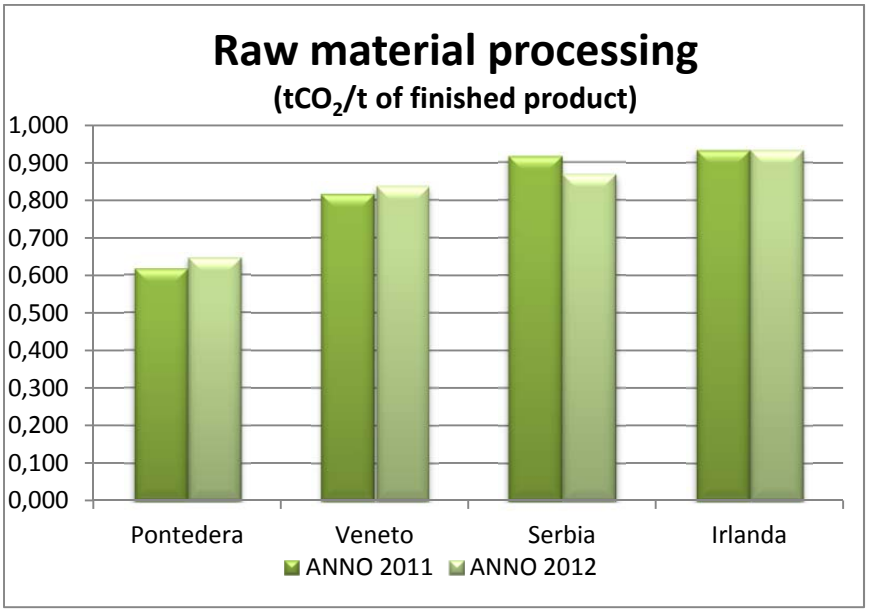

Figure 2 –tCO_2 emissions from the processing of raw materials

For the calculation of greenhouse gas emissions from the processing of paper-based materials used at the factories of Palladio Zannini, the value of CO_2 emissions per ton of raw material produced was considered, as per quantities sent by the various paper mills. In particular the emission of CO_2 was weighed according to the quantity of material taken. Where the supplier did not send/provide the value of CO_2 per ton, we applied the highest value available.
It should be noted that CO_2 emissions considered and referred to as "CO2 from processing" are derived from the result of the conversion index provided by the paper mills and weighed against the quantity of raw material purchased and the difference between the purchased material and the production waste.
Table 4 shows the values of CO_2 emissions per each plant.

	CO_2 from raw material processing [tons]		2-year period variation		Carbon Footprint		variation
Plant	2011	2012	%	tCO2	2011	2012	%
VENETO	3,820.12	3,664.18	-4.08	-155.94	0.818	0.839	2.54
TUSCANY	2,421.12	2,386.90	-1.41	-34.22	0.619	0.648	4.66
SERBIA	2,010.72	2,800.03	39.25	789.30	0.919	0.871	-5.22
IRELAND	353.49	344.15	-2.64%	-9.34	0.936	0.936	0.00%

Table 4 – Emissions from the processing of raw materials

CO_2 emissions from the consumption of natural gas and heating gas oil

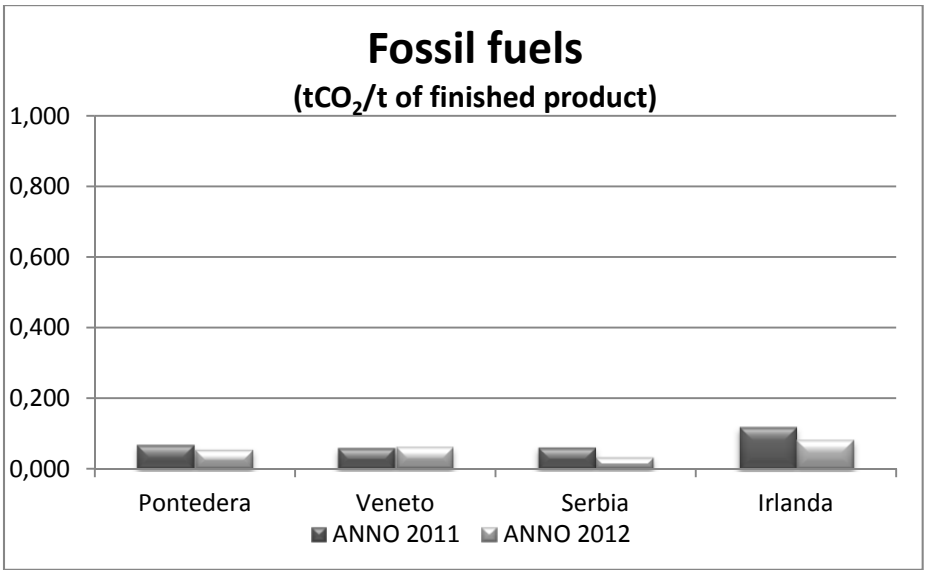

Figure 3 –tCO_2 emissions from fossil fuels

As above stated, natural gas is consumed for heating the premises of the Italian and Serbian plants, while the Irish factory uses gas oil for the same purpose. Based on the data from the invoices relating to the consumption of each plant, emissions of individual production units were calculated.

The following are the quantities of CO_2 released by each production unit.

	CO_2 from consumption of fossil fuels [tons]		2-year period variation		Carbon Footprint		variation
Plant	2011	2012	%	tCO2	2011	2012	%
VENETO	281.93	277.78	-1.47	-4.15	0.060	0.064	5.33
TUSCANY	272.45	206.16	-24.33	-66.28	0.070	0.056	-19.66
SERBIA	134.34	111.93	-16.68	-22.41	0.061	0.035	-43.29
IRELAND	45.47	31.14	-31.51	-14.33	0.120	0.085	-29.65

Table 5 - CO_2 emissions from the consumption of natural gas/heating gas oil *

CO_2 emissions from the consumption of electricity

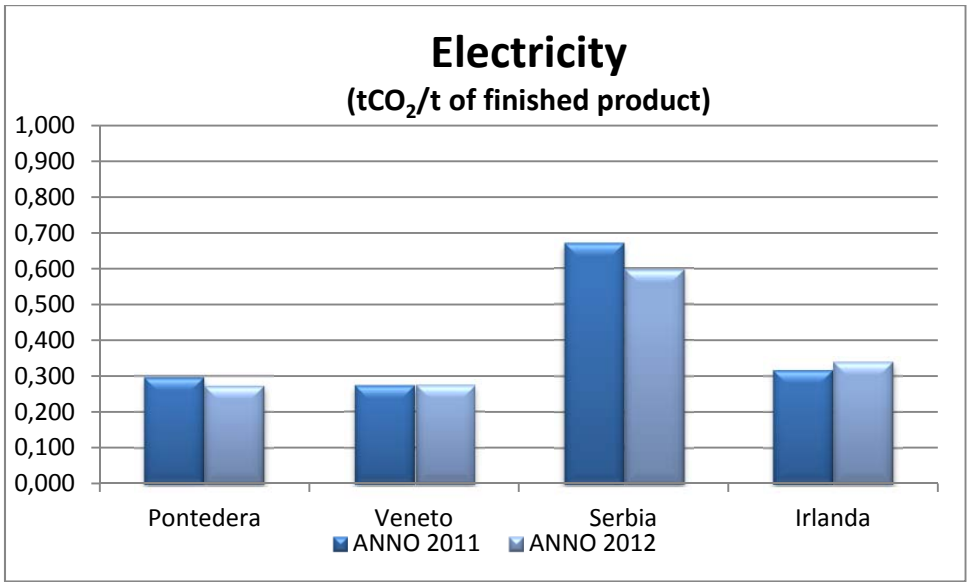

Figure 4 –tCO_2 emissions from electricity

The data show the general consumption of each plant.

The amount of CO_2 released into the environment was determined through the transformation of consumption (expressed in kWh) in Equivalent Tons of CO_2 via the application of a conversion factor specific to the country, recommended by the IEA (International Energy Agency, Report on "CO_2 Emissions from Fuel Combustion -2012 Edition ")

	CO2 from consumption of electricity [tons]		2-year period variation		Carbon Footprint		variation
Plant	2011	2012	%	tCO2	2011	2012	%
VENETO	1,285.69	1,208.12	-6.03	-77.57	0.275	0.277	0.46
TUSCANY	1,167.88	1,013.70	-13.20	-154.18	0.298	0.275	-7.85
SERBIA	1,472.03	1,928.19	30.99	456.16	0.673	0.600	-10.85
IRELAND	120.30	125.68	4.47	5.37	0.319	0.342	7.30

Table 6 - CO_2 emissions from the consumption of electricity

GLOBAL WARMING – COMPARISON OF PLANTS

The following figures compare the total emissions from each plant and the percentage breakdown of emissions according to the different sources

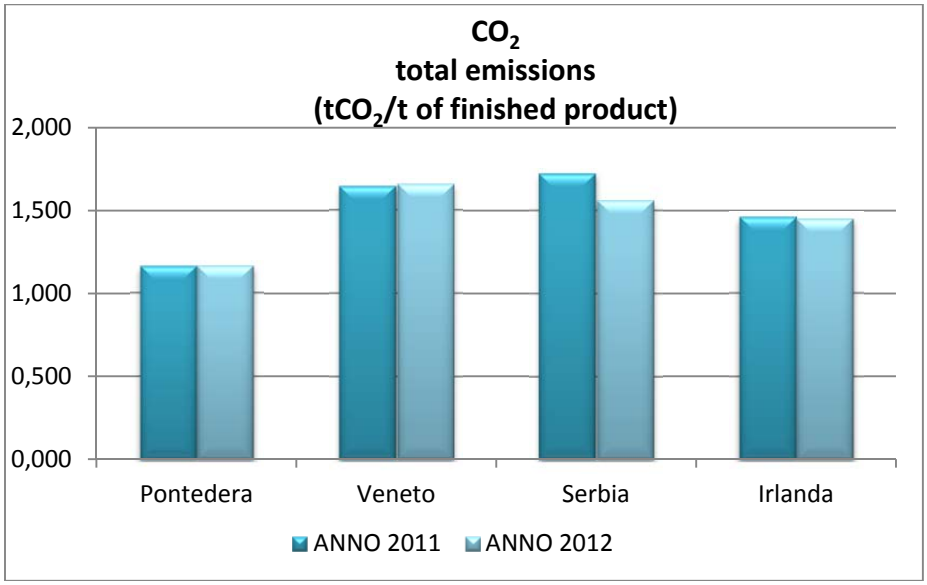

Figure 5 – Overall emissions of CO_2 for various plants

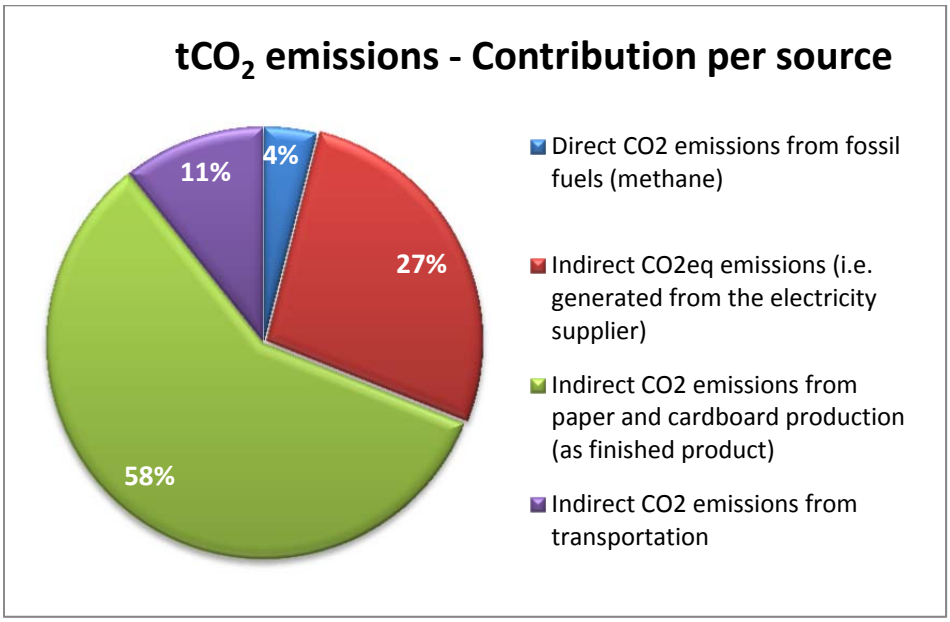

Figure 6 – Total emissions of CO_2 – assessment of the contributions of the various sources

EXTRACTION OF ABIOTIC RESOURCES: Water consumption

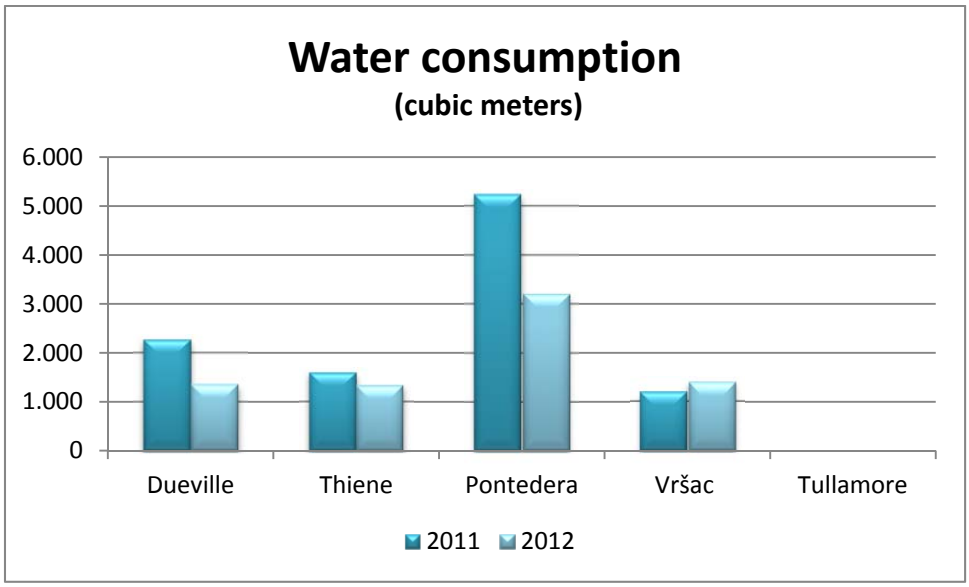

Figure 7 – Water consumption

Here below the water consumption of each plant is given

Year	Dueville [m^3]	Thiene [m^3]	Pontedera [m^3]	Vršac [m^3]	Tullamore [m^3]
2011	2,283	1,610	5,259	1,213	n.a.
2012	1,375	1,351	3,223	1,406	n.a.

Table 1 – Water consumption of plants

EXTRACTION OF BIOTIC RESOURCES: Production of waste and scrap from raw materials (paper, cardboard and derivatives)

Figure 8 – Total waste production

LIQUID WASTE

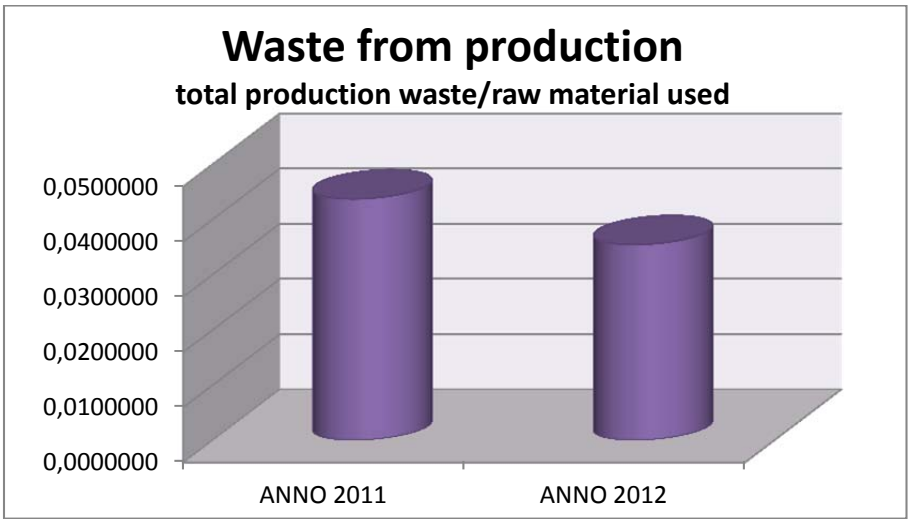

Figure 9 – Waste from production

The quantities of liquid waste produced at each plant in the last two years were given. The following types of waste were considered:

- EWC 08 01 11: waste paint and varnish containing organic solvents
- EWC 08 01 12: waste paint and varnish other than those mentioned in 080111
- EWC 08 03 13: waste ink;
- EWC 08 03 14: ink sludges containing dangerous substances;
- EWC 08 04 16: aqueous liquid waste containing adhesives or sealants;
- EWC 08 01 20: Aqueous suspensions;
- EWC 08 01 21: Waste paint or varnish remover
- EWC 09 01 01: water-based developer and activator solutions
- EWC 09 01 02: offset plate developer solutions
- EWC 09 01 04: fixer solutions
- EWC 14 06 03: other solvents and solvent mixes;
- EWC 16 10 02: water-based washing solutions.

HARMFUL WASTE

Figure 10 – Production of harmful waste