UNIONE NAZIONALE INDUSTRIA CONCIARIA

Environmental Report

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INTRODUCTION

The Italian tanning industry transforms a waste product produced by the food industry into a high added value product, known worldwide for its quality and style, and strategic for fashion. UNIC is the entrepreneurial Trade Association and represents the Italian tanning industry.

The Italian tanneries are international leaders and export approximately two thirds of the 3.8 billion Euros turnover, producing 68% of the European production and more than 17% of world production.

The UNIC “group” of companies includes trade fairs, innovation, fashion, standardisation, credit and publishing.

The Report prepared this year represents the seventh edition since 2003 and illustrates the data of the surveys performed in the companies, and describes the general environmental and social situation.

The scenario reflects a category that is firmly rooted in the territory, and with the continuous investments made, has achieved an excellent environmental impact that is evolving and unparalleled.

This is combined with a deep sense of social responsibility towards the workers, communities and administrations.

The Italian tanning industry is comprised of small and medium-size enterprises, and addresses the cyclic periods of difficulty, like the present period, with determination, without foregoing the production of wealth and progress.

Quality, innovation and sustainability, these represent the values which have always guided the Italian tanning industry’s growth.

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part
ONE

ITALIAN TANNING INDUSTRY

trend in 2009

The Italian tanning industry comprised 1,385 companies at the end of 2009 and employed 16,994 persons, overall. The decrease corresponded to approximately 3% for both indicators compared to the previous year, whereas, the variation is greater if the full period of the economic crisis is considered (between -5% and -7%).

With reference to production, the loss recorded last year was substantial: -11.9% in terms of the volume of sq.m. (-17.2% tons of sole leather) and -16.1% referred to the overall value. Reference is made to 126 million square metres of finished hides and 32 thousand tons of sole leather, corresponding to a total of 3.8 billion Euros, in absolute terms.

The trend over the 12 month period reflected seasonal downturns in turnover which were constant, on average during the first three quarters of the year (estimated at around 20%) and reflected a marked improvement in the loss during the last quarter (approximately -4%).

Therefore, the sector survived the economic crisis during the 2008-2009 two-year period with a significant negative result in terms of production (-28% in value, -25% in sq.m. -32% sole leather), substantially uniform between the domestic and international market (-27% referred to exports, -33% referred to apparent domestic sales), but significantly lower with regard to employment (-7%). This different level emphasises the significant efforts made by the tanneries to maintain the workforce in the sector and the level of professionalism achieved.

regional data

More than 90% of Italian tanning is grouped into districts and each district has special features in terms of production and industrial characteristics (Fig. 1).

The most important tanning centre in terms of turnover and employment (50% of the national total) is located in Veneto, in 'valle del Chiampo' in the Province of Vicenza, where medium-small size enterprises co-exist with large industrial groups; the main production specialisation involves large bovine hides intended to be used in padded furnishing, footwear and leather goods.

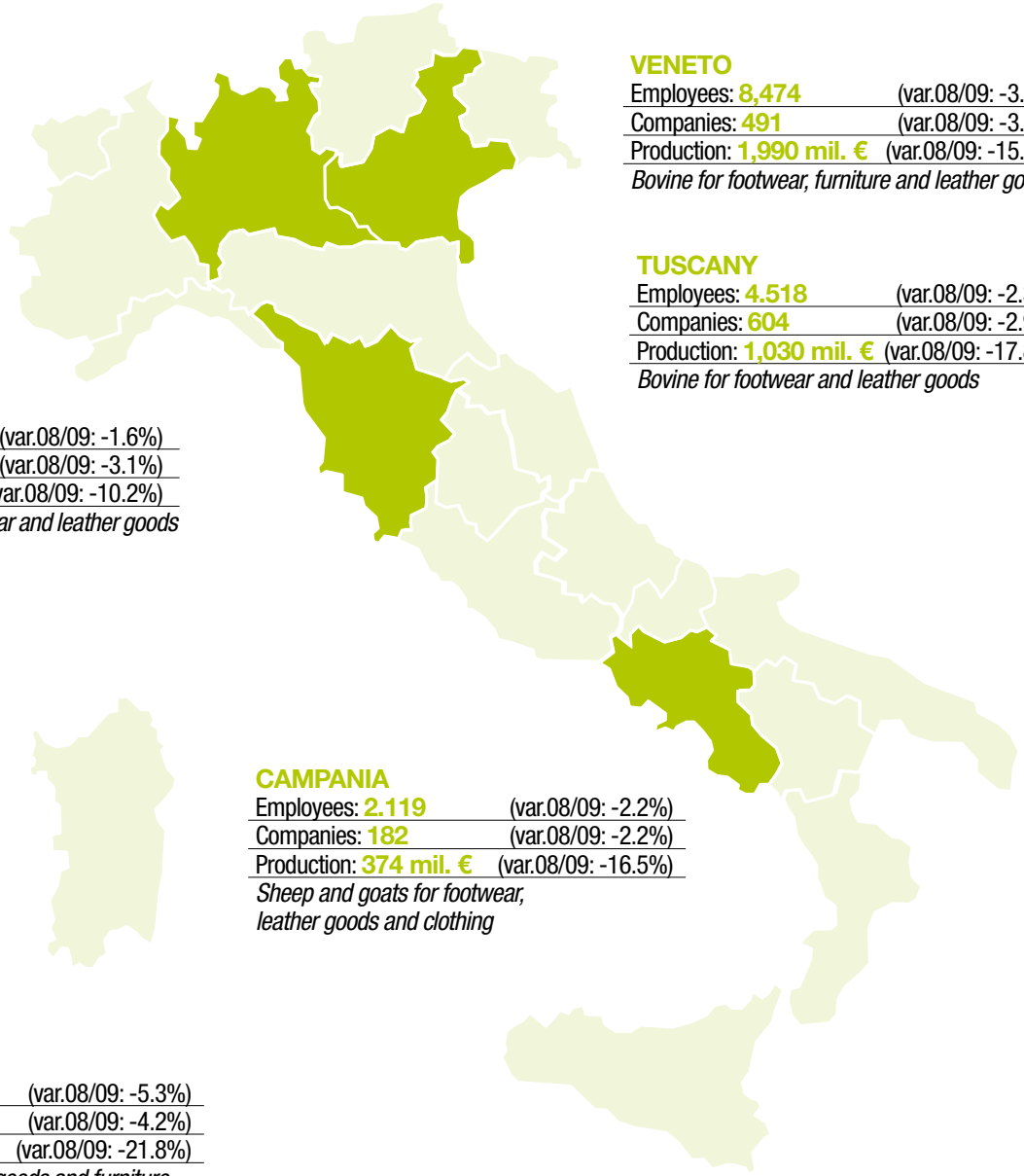
Whereas, the area that has the largest number of tanning companies is in Tuscany in the S. Croce sull'Arno, Ponte ad Egola and Fucecchio area (Provinces of Pisa and Florence). Large bovine hides and small-size hides (calves) are mainly processed in this context, characterised by a high degree of craftsmanship and flexibility, intended to be used in the fashion industry, and corresponding to an annual turnover

table 1 - **Production by Italian tanning industry - volume and value (2008 - 2009)**

	2009		% Variation 2008/2009	
	Volume	Value (Euros/million)	Volume	Value
Tanning industry production ('000 sq.m.)	126,215	3,631.3	-11.9%	-16.0%
Sole leather (tons)	32,522	198.6	-17.2%	-18.2%
TOTAL PRODUCTION	**n.c.**	**3,829.9**	**n.c.**	**-16.1%**

Source: UNIC 2009

figure 1 - **Italian tanning industry - data by Region (2009)**



VENETO
Employees: **8,474** (var.08/09: -3.5%)
Companies: **491** (var.08/09: -3.0%)
Production: **1,990 mil. €** (var.08/09: -15.0%)
Bovine for footwear, furniture and leather goods

TUSCANY
Employees: **4.518** (var.08/09: -2.3%)
Companies: **604** (var.08/09: -2.9%)
Production: **1,030 mil. €** (var.08/09: -17.8%)
Bovine for footwear and leather goods

LOMBARDY
Employees: **907** (var.08/09: -1.6%)
Companies: **62** (var.08/09: -3.1%)
Production: **206 mil. €** (var.08/09: -10.2%)
Sheep and goats for footwear and leather goods

CAMPANIA
Employees: **2.119** (var.08/09: -2.2%)
Companies: **182** (var.08/09: -2.2%)
Production: **374 mil. €** (var.08/09: -16.5%)
Sheep and goats for footwear, leather goods and clothing

OTHER REGIONS
Employees: **976** (var.08/09: -5.3%)
Companies: **46** (var.08/09: -4.2%)
Production: **229 mil. €** (var.08/09: -21.8%)
Hides for footwear, leather goods and furniture.

that amounts to 27% of the total for Italy. The district also includes the domestic production segment of sole leather.

Whereas, the other two districts are specialised, above all, in tanning small sheep and goat hides: the Campania Region (mainly in the Solofra area, near Avellino), with a value of production that corresponds to 10% of the national total, and Lombardy (in the Magenta area), with 5%. The typical intended uses of the hides produced in these two Regions concern footwear, leather goods and clothing.

The negative economic situation did not spare any of the districts even in 2009 just as in the previous year.

The Veneto Region recorded downturns for the third consecutive year and the regional turnover decreased by almost one third compared to the last favourable economic year (2006). Just as padded furnishing generated the strong growth achieved by the tanning centre of Chiampo twenty years earlier, padded furnishing was also the main culprit of the recent downturn, and the crisis experienced in demand and consumption (particularly in the medium-economic product range) has redrawn the district's economic and industrial configuration. In fact, the downturn experienced by the Arzignano enterprises appeared to be less economic and more structural in nature (also by virtue of the less cyclic aspect of furnishing compared to fashion), despite the circumstance that Tuscany and Campania also reflected similar losses compared to the Veneto Region over the last two years of the economic crisis. There is the feeling, however, that the end of this downsizing phase has now been reached, in a situation of productive flexibility which should enable the discontinuities typical of the sector to be addressed more readily.

The Tuscany district reflected the most substantial downturn in turnover in 2009 (-17.8%); more in detail, the results achieved with domestic customers were slightly less unfavourable compared to exports, since regional exports decreased by approximately 20%.

The scenario reflects the opposite trend for the Campania region where a 16.5% drop in turnover was recorded, compared to a less substantial downturn (-9.3%) in relation to exports (that however only represent 30% of the overall turnover).

The Lombardy tanneries recorded a relatively smaller reduction, in overall terms, among all the principal domestic tanning regions for the second consecutive year (-10.2%). The trends recorded by the individual companies, however, were significantly different from each other.

production by tipe of animal and intended use

The tanning industry transforms a slaughterhouse by-product into a valuable and versatile material. By virtue of the close link with the food industry, the principal type of animal processed (Figure 2) corresponds to the large bovine that traditionally represents more than two thirds of the overall production. Followed by small hides, namely, sheep (13.5% in 2009) and goats (9.3%) and young and small bovine sizes, namely, calves (7.4%) in relation to the incidence on the total. Lastly, less than 1% of Italian hides refer to other breeds (namely pigs and reptiles).

All of the 2008/2009 variations indicate a two figure drop, even in this difficult situation, with the sole exception of the volumes of production for the residual category referred to "other animals" (remaining stable).

If the variations in volume and value do not appear to be excessively different for goats and sheep (all lying between -14% and -16%), the drop in terms of Euro (-16/18%) in the case of young and adult bovine was undoubtedly more substantial compared to the sq.m. (-10/11%), highlighting a greater fall in the average selling price compared to sheep and goats.

There is no exception to the negative trend even in the analysis of the 2009 production according to intended use.

If the contraction concerning uppers, confirmed to be the main form of use and representing 48% of the total (Figure 3), recorded a downturn that was substantially in line with the overall data, the other primary fashion-related intended use, namely, leather goods, after seven positive years, closed reflecting the largest negative variation (-16.1%), understandable, precisely in view of the previous levels of growth.

The smaller loss concerning furnishing hides (-8.2%, after -40% in the previous two year period) places this intended use in second place among the major manufacturing uses (18.7%). If the volumes have practically decreased by 50%, in overall terms, compared to 2006 (the last year a favourable economic situation was recorded), the falling trend would finally appear to be about to be interrupted.

The downturn for the other padded segment (-10.6%), car upholstery, was slightly more substantial and experienced a year that was marked by significant upswings and downturns, whereas, clothing was the form of use that lost the least (-6.9%), above all, thanks to the weather conditions and fashion trends which were slightly more rewarding compared to previous years. The incidence of both customers, however, is very limited (5/6%).

export markets

The importance of the export markets in terms of the sector's turnover has increased enormously over the last twenty years and is currently equal to two thirds of the total (an incidence that was achieved ten years ago and has remained substantially unchanged since then).

The value of Italian exports of tanned hides in 2009 (excluding the types with hair) sold to 116 countries corresponded to 2.7 billion Euros, reflecting a (-18.5%) decrease for the second consecutive year.

50% of this flow was exported to the European Union, of which the 15 traditional member countries (Italy excluded, naturally) represent no less than 30.5% of total exports (a percentage that increases to 50% if the remaining member countries are considered). The other main macro-export areas include the Far East that absorbs 27%, the Russian-Balkan region and the Africa and Middle East region absorb approximately 7% each, and the Nafta area absorbs 5%. We can say that the markets in the Euro area represent 60% of our exports in economic terms, compared to 40% for the dollar area.

The 2009 scenario was substantially negative, also in terms of this analysis. The most significant loss was reported for the Nafta countries agglomerate (-37.6%) for the third consecutive year, followed by the Russia-Balkan area: as is known, the USA demand and consumption paid the highest price for the 2008-2009 two year economic crisis, whereas, Russia benefited from the extremely low level of the prices for raw materials and energy (the country's primary economic resource). The main customers, Europe and the Far East decreased in a substantially uniform way (-16.6% and -14.5%, respectively).

Moreover, the details referred to the individual country of destination shows that six of the first ten of our tanning export countries, which together represent 2/3 of total exports, decreased in a similar way to the overall variation in exports (-18.5%), while the positive exception to this trend was represented by Portugal (+8.8%) and South Korea (+11.1%). The USA represented the negative exception (falling by more than 40%).

The China area (namely, continental China plus Hong Kong) continues to be the main foreign destination, with an incidence on the total of slightly more than 20%.

procurement markets for raw materials

Managing the procurement of raw and semi-processed hides which are the sector's most important raw material represents one of the key factors in international tanning competition. The respective requirement of the Italian industry is only covered to a minimum extent (5%) by domestic slaughtering and the remaining part must necessarily originate from imports.

49% of the imported raw materials originated from the European Union that historically represents the most important purchase area for Italian tanneries, followed by Latin America with 16%. A less significant role in this difficult situation is covered by the oceanic countries (10%), by the Russian-Balkan area (9%), by Africa/Middle East (8%) and by the Nafta area (5%).

The volumes procured from all the principal macro-areas cited decreased in 2009, with the sole exceptions of Oceania (increased by 5%) and Latin America (substantially stable). Imports from the European Union and from the African-Middle East area dropped by more than 20%. In addition to the fall in domestic tanning demand, a major contribution to these dynamics was made by the Chinese buying activities in the two areas, for example, Chinese buying in Europe doubled compared to the previous year. In overall terms, the sector imported raw materials from 116 countries.

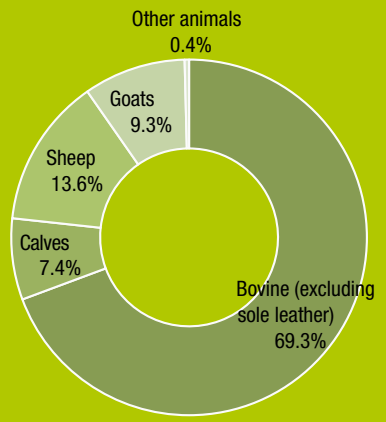
The 2008/2009 variations concerning the volumes imported were all negative, with regard to the analysis referred to single types, even if less substantial in the case of raw hides (-11%) compared to the semi-processed goods (wet blue -17%, crust -40%). The losses in value all exceeded 30%.

international leadership

The Italian tanning industry maintains an undisputed international leadership position and not only from the technological development, stylistic and qualitative aspect in general. In fact, the leadership position is also confirmed by the figures.

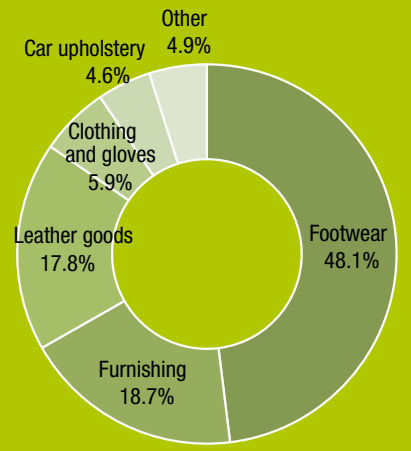
In fact, the value of domestic production has an incidence that corresponds to 68% of the European total and corresponds to 17% of the world total (Figure 11), despite the decrease due to the economic situation and the unfair structural competition by non-EU competitors which profit by engaging in dumping activities (social, environmental and financial) and protectionism concerning raw materials (50% of the world's crude oil is subtracted from free trade). Whereas, in commercial terms, it is estimated that almost one hide in three exchanged between international players is an Italian hide as regards exports of finished hides, whereas, in terms of imported raw materials, we absorb 11% of raw hides and 27% of semi-processed hides on a global level.

figure 2 - **Production by type of animal % incidence by volume (2009 m²)**

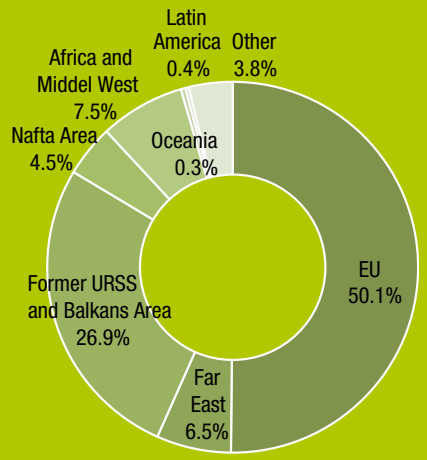


Source: UNIC 2009

figure 3 - **Production by sectors of intended use % incidence in terms of volume (2009 m²)**

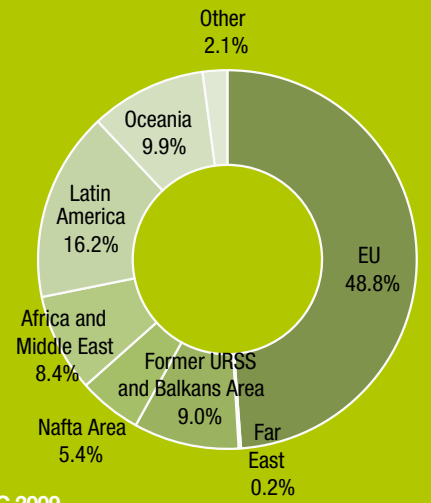


Source: UNIC 2009



Source: UNIC 2009

figure 4 - **Tanned hide exports by macro area of destination % incidence in terms of value (2009)**



Source: UNIC 2009

figure 5 - **Raw material imports by macro-area of origin % incidence by volume (2009)**

WEIGHT OF ITALIAN TANNING SECTOR ON A GLOBAL LEVEL (2009)

17,4%
Quota over value
of world production

32,4 %
Quota over value
of world exports
of finished hides

11,5 %
Quota over volume
of world imports of raw hides

27,3 %
Quota over value
of world imports
of semi-processed hides

part
TWO

THE TANNERY

Hides / Skins

Chemicals

Energy

Water

Beamhouse

Tanning (vegetable, sole leather)

Tanning
(chrome, other metals)

production process and environmental aspects

Air emissions

Dyeing

Finishing

Wastewater

Waste

Finished products








Italian tanning production has now adopted industrial characteristics, although maintaining a number of traditional aspects of handicraft processing which ensure the product's high quality: more and more efficient tanning materials and machines, automation of complete operational sequences, rationalisation of the production process and environmental protection, represent an integral part of the activities of every tannery.

An approach referred to as the 'black box' can be adopted in order to identify the environmental aspects of a tannery's processes, in the same way as the other industrial production processes. In particular, tannery production can be considered to be a process to transform raw materials and energy into finished products.

This transformation is achieved with the input of water, energy and chemical products. The environmental interactions associated with the process are mainly represented by water discharges, waste materials and atmospheric emissions. Therefore, the consumption of resources or emission is considered to represent an environmental aspect and as such is managed in the tannery.

The tannery's production cycle comprises a series of chemical and mechanical treatments which enable decaying organic matter (raw hides and skins) to be transformed into a high value added product for footwear, furnishing, clothing and leather goods.

A description of the various phases which comprise the tannery operations is provided below, with information concerning the main related environmental aspects and regarding the principal actions adopted to prevent and to mitigate them.

curing

The raw hides and skins which arrive in the tannery have been subjected to a curing process to slow down their possible decomposition, maintaining the hides/skins in the best condition up to the production operations. The following methods are used most frequently:

► **chilling**: the hides/skins are preserved at temperatures which prevent the activities of bacteria, also with the help of suitable products. This method is only valid for short periods and entails the constant use of means of transport and refrigerated warehousing;

► **salting**: after flaying, the hides/skins are saturated with salt (sodium chloride, NaCl) that prevents the development of bacteria and therefore the decomposition reactions;

► **drying**: the hides/skins are dried so that the humidity content is fairly low to prevent the bacteria from living and to prevent decaying enzyme reactions.

A curing process performed incorrectly can cause free ammonia to develop and bad odours, which do not represent a hazard to human health and to the eco-system in general, as such, but influence the quality of life of the inhabitants living in the surrounding areas. To avoid the formation of ammonia and unpleasant odours, the raw hides/skins are not exposed to weathering, which speeds up the decaying processes, but are stored in the tannery, inside cold rooms at temperatures slightly above a 0°C.

beamhouse operations

The beamhouse operations are performed to remove from the hides/skins all the components which are no longer useful to the production process (for example: preservation salt, hair, portions of subcutaneous tissue), to relax the collagen structure and favour the penetration of the various tanning agents. The first beamhouse operations (soaking, liming/unhairing) are performed in the drums; these are large cylindrical containers which are similar to industrial washing machines, where the hides/skins are treated with water, normally added with chemical products or enzymes which favour washing and unhairing the hides/skins. The hides/skins are then treated with machinery that eliminate the subcutaneous tissue (fleshing) and in some cases are cut lengthwise, obtaining two or more layers (splitting) before passing on to the next processing operations. At this point, the cycle continues again inside the drums where the hides/skins are washed to remove the residues of the chemical products used in the liming and to achieve optimum tanning conditions.

The quantities of water consumed during the beamhouse operations are proportional to the weight of the hides/skins treated. The water discharged is laden with dissolved substances which influence the quality of the water; the beamhouse operations mainly influence the parameters of the water discharges, for example: the chemical oxygen demand (COD), suspended solids, chlorides, sulphides and organic Nitrogen. The water is treated (possibly differentiated for some baths) to reduce the pollutants to values which do not represent risks to the environment. The hair can be recovered in special grids to be subsequently reused as felt. Some innovative technologies enable the hair to be removed with enzymes and to recycle the unhairing baths, with a decrease in the water consumption and pollutant emissions. The fleshing operation produces fleshings that must be treated like a solid residue in the same way as the waste produced by trimming. All the various types of waste products are collected separately in the tannery to enable the waste products concerned to be transferred to the correct destination. The fleshings, the hair and the trimmings are transferred for re-use with various destinations in the industrial sector and in the agricultural and livestock sectors.

tanning

The hides/skins are subjected to the actual tanning phase after having been subjected to the treatments designed to eliminate the excess substances, change the pH values and prepare the collagen fibres. Tanning is performed by using substances which fix themselves irreversibly to the hide/skin fibres and prevent decomposition, rendering the fibres stable and long-lasting, without changing their natural properties. Various types of tanning exist and their respective phases are very different depending on the processes and the product's intended use: mineral tanning (mainly performed using chrome salts), vegetable tanning and organic and mixed tanning. The most widespread tanning is chrome tanning performed in tanning drums with the tanning product in a bath that has an acid pH.

The vegetable tanning system used most frequently for sole leather foresees immersing the hides/skins in a series of successive pits containing solutions of tannin extracts at increasing concentrations. The process time can even correspond to 30 days. The production of sole leather in Italy uses mainly a mixture of chestnut, mimosa and quebracho tannins. Vegetable tanning is characterised by a diffusion process from a solution (tanning bath) to the solid phase (hides/skins) that is maintained until a balance is reached and that treats the hide/skin's entire thickness. The treatment is performed in pits with the hides/skins flowing counter current: when the hides/skins enter the

processing cycle, they come into contact with baths which are almost exhausted and then progressively with solutions which become more and more fresh.

At the end of the tanning phase inside the bath, the hides/skins then pass to the tanning phase in the tanning drum, for which the same vegetable extracts are almost always used.

After the tanning operations, the leather is subjected to mechanical treatments which are designed to define and standardise the thickness of the leather, in relation to the intended use of the product concerned; this operation is referred to as shaving and is performed on all the types of leather.

The tanning operations consume quantities of water in proportion to the weight of the hides/skins processed, they produce a polluting load in the waste water comprising chemical oxygen demand (COD), surface active agents, chlorides, sulphates, ammoniacal Nitrogen and chrome III. Also in this case, the water discharged from the tanning drums and from the tanning pits is transferred through specific sewer lines to the water treatment facility both inside and outside the tannery. Today, various technologies are available to minimise the quantity of chrome III carried in the discharged water; the exhausted tanning baths can be recovered and then reused, or high-exhaustion tanning products can be used, which in many cases guarantee the same effect with lower dosages. Ultra-filtration techniques have been experimented in the tanning baths as far as vegetable tanning is concerned to produce sole leather and other types of leather, enabling recovery of the tannins which have not become fixed to the leather, and preventing them from being transferred into the water discharges and enabling the tannins to be partly reused.

The by-products from the shaving phase are collected separately in the tannery and transferred for re-use that, for example, leads to the production of leather fibre board , glues and fertilisers.

dyeing operations

The leather originating from the different tanning processes must be subjected to further treatments in water baths. These treatments are grouped together and are defined as dyeing operations and are designed to give the leather specific organoleptic properties: fullness, consistency, touch and hand characteristics, and naturally, the desired colour. The actual dyeing can only involve the external surfaces or the full cross-section of the leather. First of all the leather is retanned using natural and/or synthetic products, like various types of tannins and resins and is subsequently dyed with colouring agents of different kinds. The dyeing operation is performed in drums which are made to rotate at a high speed until the colouring agent is absorbed completely by the leather. Dyeing or retanning operations are also performed in the case of sole leather, when special products are required, for example: coloured soles or soles characterised by particular softness and elasticity. The leather is polished in the retanning phase and the colour is lightened by eliminating the oxidised tannins and the access, unfixed tanning agent from the external surfaces. Fatliquoring is then performed that influences the leather's softness, giving the leather water repellent and antioxidant properties.

The wastewater originating from the dyeing operations, which is less than the wastewater originating from the previous phases per unit product processed, is discharged with different values of temperature, COD, ammoniacal Nitrogen, phenol compounds and fats. The colouring agents used are for the most part exhausted in the dyeing bath concerned, therefore, the water is not discharged with substantial differences in colour, especially after mixing with the other tannery discharges. Also in this case all the wastewater is transferred to the water treatment facility through specific sewer pipes installed in the department.

finishing: conferring the final external appearance

The dyed leather is suitably dried during setting-out operations, when the excess water is removed and drying is achieved mainly by suspending the leather in air.

The leather is then lightly moistened and subjected to mechanical operations designed to soften it, stretch it and standardise the surface area. Furthermore, in some cases it is subjected to surface buffing, to produce a velvet finish surface with "nap" that varies in length. This operation can also be performed on dry leather which has only been tanned and is then subsequently dyed. The actual finishing consists of applying a surface film that has a varying thickness and transparency, made using chemical substances of various kinds, depending on the article to be produced. The various application technologies for the finishing include the technology that is used most frequently and corresponds to the spray system using compressed air. The leather is positioned on a mobile conveyor that has an adjustable speed, the leather receives the necessary quantity of covering mixtures through spray guns which generally move in a circular motion during the transition.

The last operation, involves trimming the finished leather before delivery to the customer, to eliminate all the parts which have flaws and the parts which cannot be used. As regards the sole leather the soles can be cut using special shears at the customer's request.

The finishing operations, and in particular the surface application of products by spraying using compressed air influence the quality of the atmospheric emissions, in particular, with reference to dusts and volatile organic compounds (VOC). All the emissions originating from buffing and from the spray cabins on the finishing lines are transferred to filters and scrubbers of various kinds which ensure compliance with the legal limits. In some cases the scrubbers use water as a purifying agent: in this case the water is replaced periodically and transferred to the water treatment facility to maintain the plant's efficiency. Furthermore, in recent years, many solvent-based finishing products have been gradually replaced with equivalent water-based products and this solution has contributed significantly to improving the quality of the atmospheric emissions. Lastly, the leather trimmings which are created in the final control and selection phase are collected separately and reused to produce other smaller leather goods or leather fibre board.

ENVIRONMENTAL BALANCE

This year the Environmental Balance reports the data referring to a historical series of eight years. Therefore, the environmental results and performance of the companies which contributed reflect the combination of virtuous behaviour, but also the investments made over time in clean technologies and environmental infrastructures.

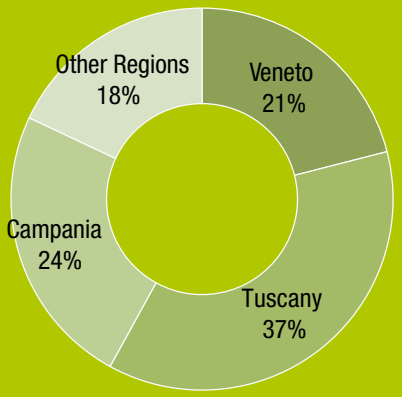
Reference has been made to the Eurostat definition in compliance with accepted practices adopted to quantify environmental expenditure: ***"expense sustained to perform an activity for which the main aim (direct or indirect) is to manage and protect the environment, namely, activities designed intentionally and mainly to prevent, reduce or eliminate environmental deterioration caused by production and consumption activities".***

the sample

The tanneries which gave their contribution to the preparation of this seventh edition of the Environmental Report are mainly located in the various Italian production districts. The selection criteria used to identify the companies in the sample have tried to follow the structure of the sector on a national level, in terms of the geographical distribution, value of production and the number of employees.

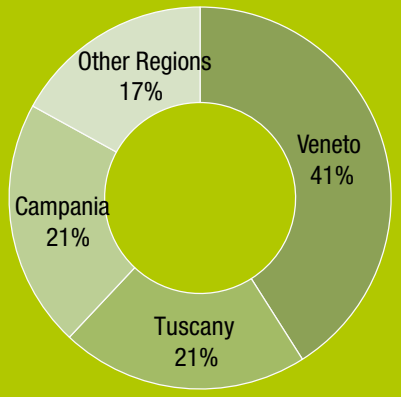
Figures 1, 2 and 3 describe the breakdown of the sample compared to the total number of companies and employees and in relation to the turnover. An increase in the number of companies located outside the district can be noted for this year (mainly in Lombardy) representing 17% of the total number of employees in the sample and 10% of the value of production.

figure 1 - **Sample structure: percentage compared to the number of companies**



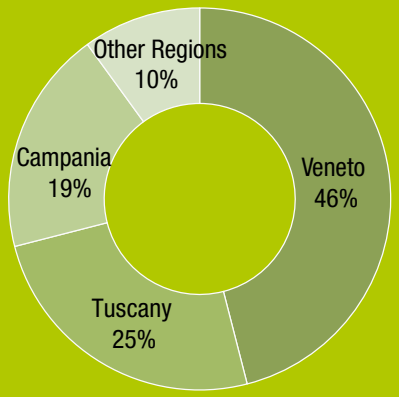
Source: UNIC 2009

figure 2 - **Sample structure: percentage compared to the number of employees**



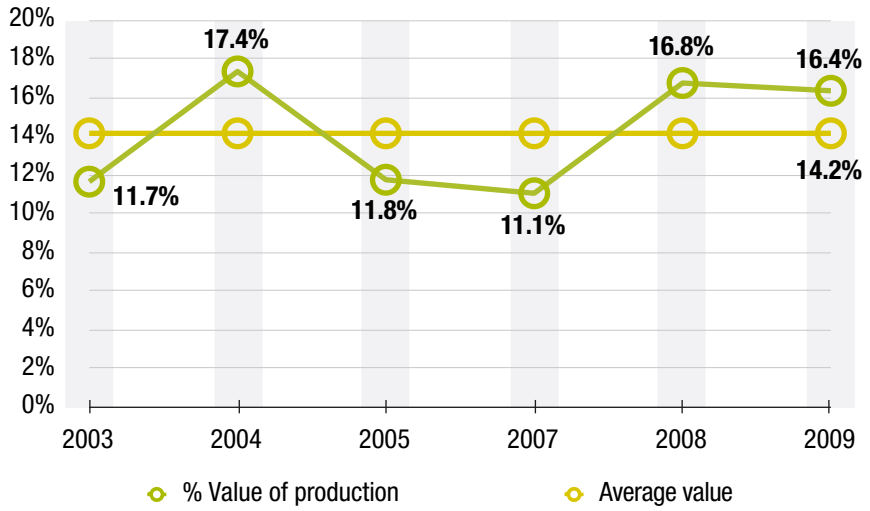
Source: UNIC 2009

figure 3 - **Sample structure: percentage compared to the value of production**



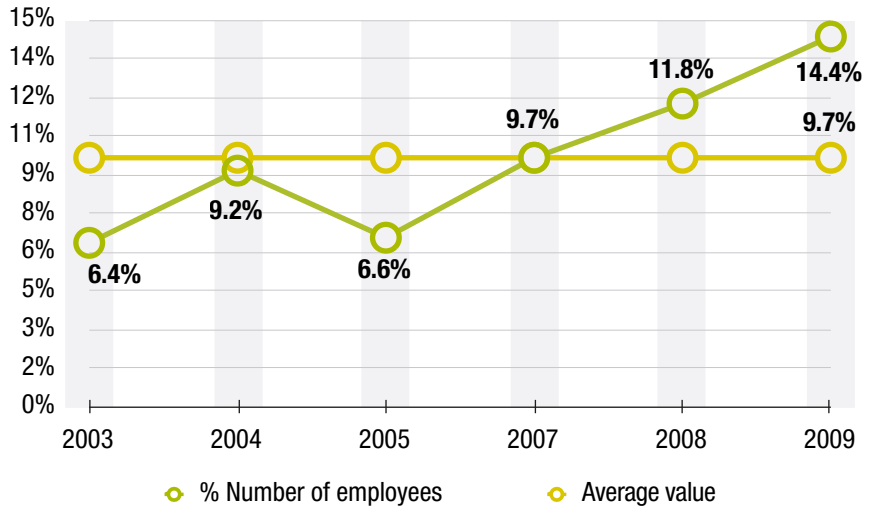
Source: UNIC 2009

figure 4 - **Sample representativeness compared to the value of production: 2003 - 2009**



Source: UNIC 2009

figure 5 - **Sample representativeness compared to the number of employees: 2003 - 2009**



Source: UNIC 2009

table 1 - **Sample representativeness**

	VALUE OF PRODUCTION SAMPLE	TOTAL	%
Veneto	287,063,289	1,990,003,000	14.4%
Tuscany	156,552,155	1,030,542,000	15.2%
Campania	122,451,918	374,069,000	32.7%
Other Regions	63,804,076	435,328,000	14.7%
Totale	**629,871,438**	**3,829,942,000**	**16.4%**

	EMPLOYEES SAMPLE	TOTAL	%
Veneto	1.005	8,474	11.9%
Tuscany	511	4,518	11.3%
Campania	525	2,119	24.8%
Other Regions	406	1883	21.6%
Totale	**2,447**	**16,994**	**14.4%**

Source: UNIC 2009

As illustrated in Table 1, the 33 tanneries which collaborated represent 16.4% of the National value of production in 2008, with an incidence at the local level that varies from 14.4% referred to Veneto to 32.7% referred to Campania. With regard to the number of employees, the sample represents 14.4% of the employees at a national level.

Figures 4 and 5 illustrate the trend of the Sample representativeness referred to the Environmental Report in terms of the value of production and the number of employees in the various editions of the Report.

The figures indicate how the representativeness referred to 2009 in relation to the first factor is slightly lower than last year's edition (16.4% compared to 16.8% reported in last year's edition), whereas with reference to the number of employees the 14.4% measured this year represents the maximum value found in the seven editions of the report.

chemical products consumption

The structure of the raw hides needs to be modified in order to be transformed into finished leather, so that the structure is no longer putrescible, giving the leathers concerned the mechanical and aesthetic properties desired. This requires an intense activity to be performed on the dermis macro-molecules, achieved by the use of specific chemical products, transported in water or applied over the surface. A wide variety of chemical products are used in the tannery and the range of products is evolving continuously. For the third year the survey included in the Report analyses the subject of the consumption of chemical products based on specific investigations. This year the survey was supplemented with an analysis of the uses and the contexts of use of the chemical products designed to provide useful information concerning the assessment for the applicability in the tannery of the provisions set out in regulation 1907/2006 EC, known as REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) and which came into force on 1st June 2008.

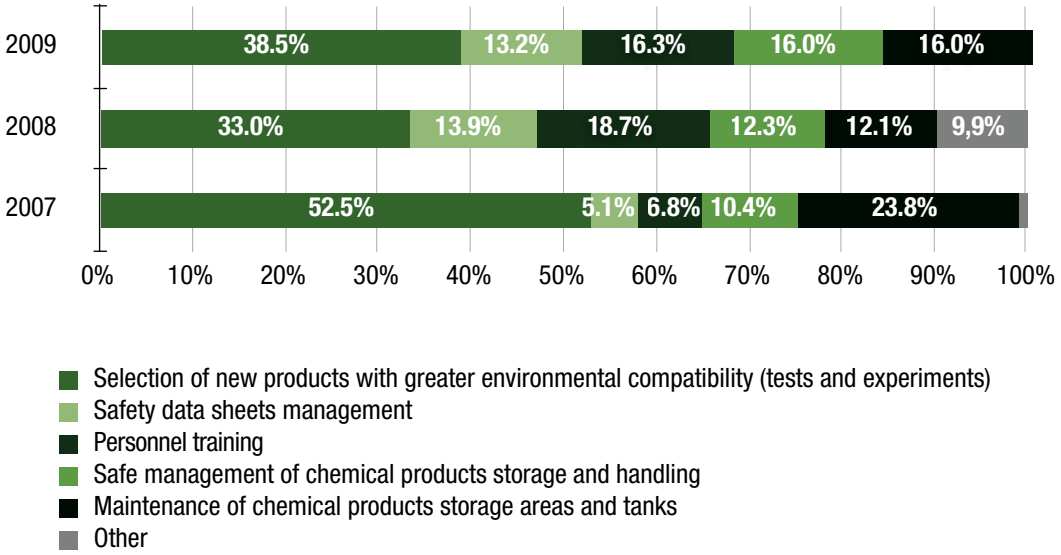
The results show that the production of one m^2 of finished leather requires the use (on average) of approximately 2.25 kg of chemical products (1.97 kg/m^2 in the last edition of the Report).

The European legislation (DIR 67/548 EEC) duly adopted at a national level classifies a number of preparations as hazardous when handled and used in production. 31% of the products used in the tanneries in the sample are included in this category (36% in 2008, 33% in the last edition). It is important to specify that this classification does not imply the hazardous nature of the leather product as such, but that the tanning operators need to take precautions during the handling and storage of the products concerned.

As highlighted in Figure 6, the tanneries have organised themselves to achieve the objective of ensuring the greatest environmental compatibility of the chemical products used. The main activities designed to achieve this aim includes the selection of products which pollute less, the experimentation and industrialisation of processes with a lower impact, the management of safety information relating to the chemical products used, training the personnel, the correct management during handling and maintenance of the storage areas.

In this latter survey it appears evident that the selection of new products which are more compatible, based on tests and experiments performed in the tannery, represents the most important activity to reduce the consumption of chemicals.

figure 6 - **Chemical products management: characteristic activities 2007-2009**



Source: UNIC 2009

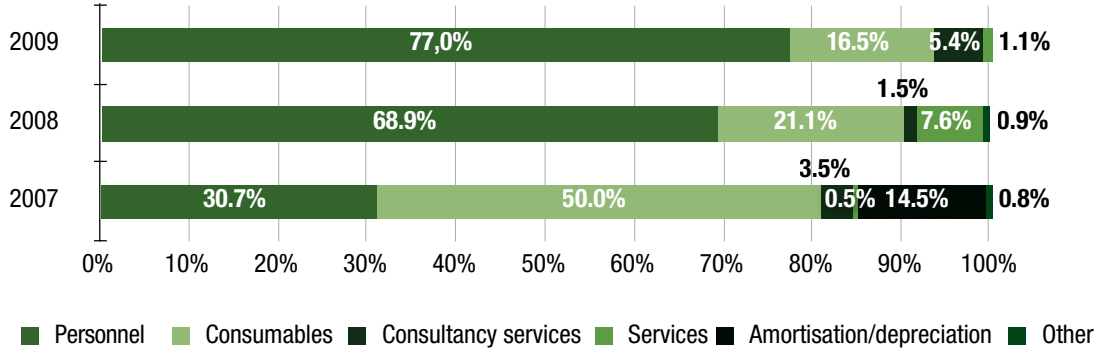
The characteristic activities highlighted in the survey are performed mainly by the technical staff in the tannery (77.0% of the total expenditure), in collaboration with the suppliers. In fact, using an innovative product in the production stage means the product has been tested thoroughly based on experiments, and sometimes may entail the use of dedicated equipment and machinery. The structure of the costs of the specific activities is illustrated in Figure 7.

table 2 - **Chemical products: summary data**

INDICATOR	2007	2008	2009
Total chemical products consumed/year (kg)	39,933,154	47,385,877	50,355,922
Total chemical products consumed/year (kg/tannery)	1,479,006	1,692,353	1,525,937
Products containing substances classified as hazardous (%)	36%	33%	31%
Chemical products per product unit (kg/m^2)	1.84	1.97	2.25
Costs to reduce chemical products/turnover (%)	0.14%	0.13%	0.08%
Costs to reduce chemical products/unit product (€/m^2)	0.04	0.05	0.02

Source: UNIC 2009

figure 7 - **Chemical products management: costs structure 2007 - 2009**



Source: UNIC 2009

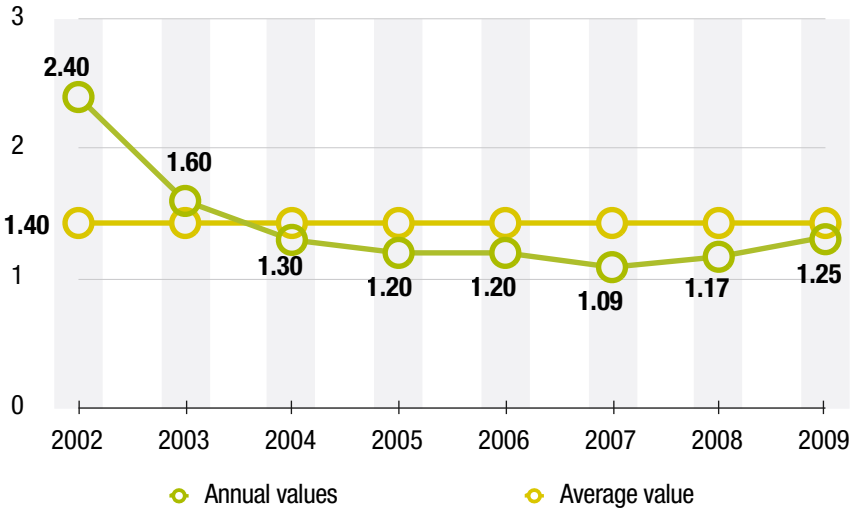
energy consumption

The tanneries use mainly electric energy and heat. The electric power is used to operate the machinery and plants, while the heat serves to reach the process temperatures in some phases of the processing, to heat the process water and the work environments. While the electric power supplies are very diverse, with a generation mix of suppliers that is equally variable, the heat energy is obtained mainly by burning methane gas or other fossil fuels. However, the tannery is not a high energy intensive industry.

Specific conversion factors enable the energy contributions of each different source to be summed. It has been decided to express the values measured in Tonnes of Oil Equivalent per 1,000 square metres of leather produced (TOE/1,000 m^2) in order to calculate the average overall consumption per unit produced.

Figure 8 shows that the energy consumption per product unit over the eight years surveyed has changed significantly, varying from a maximum value of approximately 2.4 TOE/1,000 m^2 (measured in 2002) to a minimum value of 1.09 TOE/1,000 m^2 (measured in 2007). Slightly higher figures were measured over the last two year period, with the value referred to 2008 corresponding to 1.17 TOE/1,000 m^2 and the value referred to 2009 corresponding to 1.25 TOE/1,000 m^2. The variation in the unit energy consumption is mainly due to the energy requirements of the production processes, but it is also influenced by the development of processes having a lower energy consumption and by the variable mix of raw materials processed and the increased efficiency of the machinery and plants.

figure 8 - **Energy consumption per product unit 2002 - 2009 (TOE/1.000m^2)**



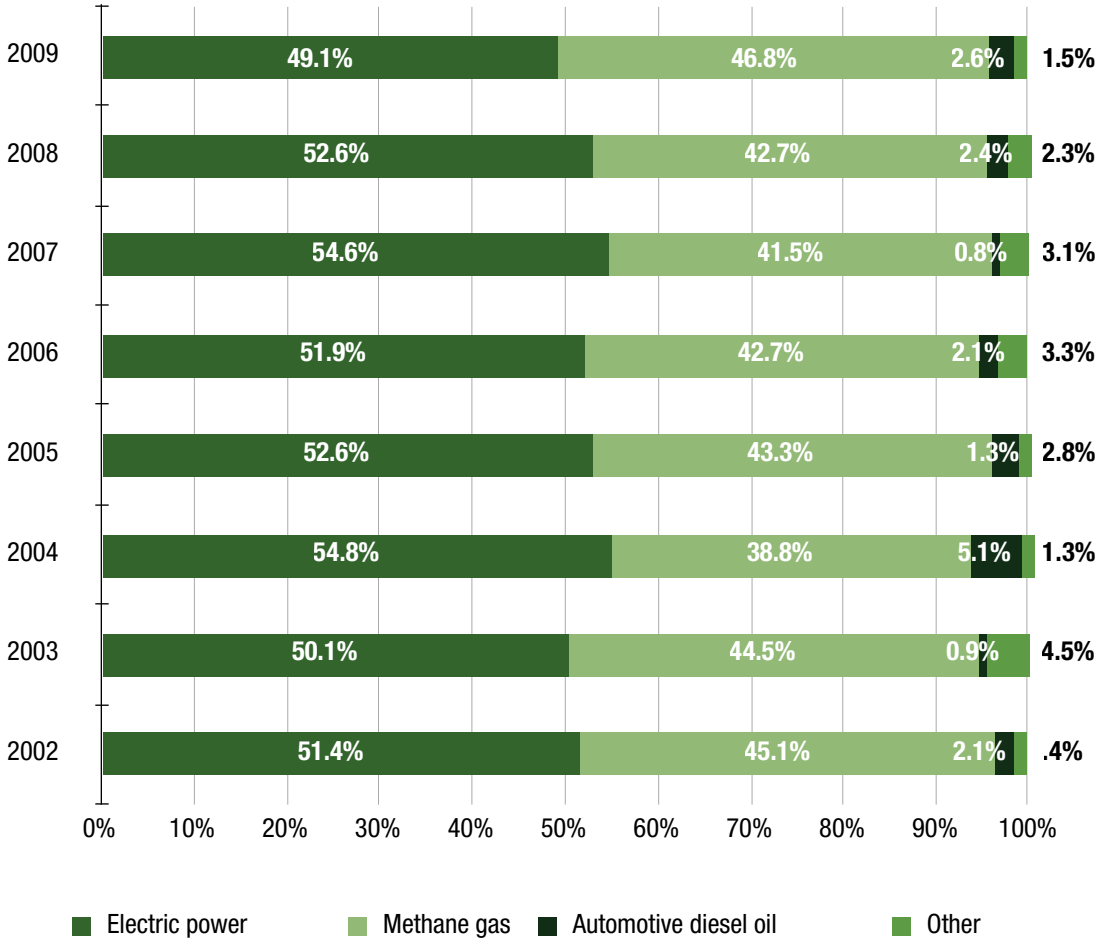
Source: UNIC 2009

The structure of the energy consumption has remained virtually constant during the seven years surveyed, as illustrated in Figure 9. Electric power and methane gas always represent more than 95% of the total requirements, with low-sulphur content oil, LPG and automotive Diesel Oil covering the remaining portion.

In the 2009 survey, the main activities performed in the tannery to reduce the energy consumption (Figure 10) are represented by the development of processes which achieve a energy saving (49.7% of total expenditure) and by the selection/purchase of high-efficiency machinery and plants (39.5%). Consistently, the main cost items are represented by personnel and depreciation (respectively, corresponding to 68.2% and 15.1% of the total).

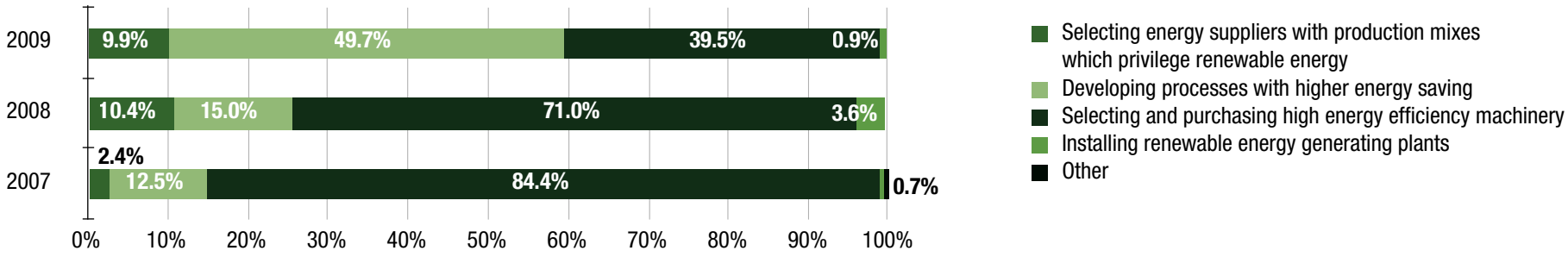
Furthermore, as can be noted in the Table 3, the incidence over turnover of the costs to reduce energy consumptions has remained virtually constant over the 2007-2009 three-year period, representing an overall value between 0.03% and 0.04%.

figure 9 - **Breakdown of energy consumption: comparison 2002 - 2009**



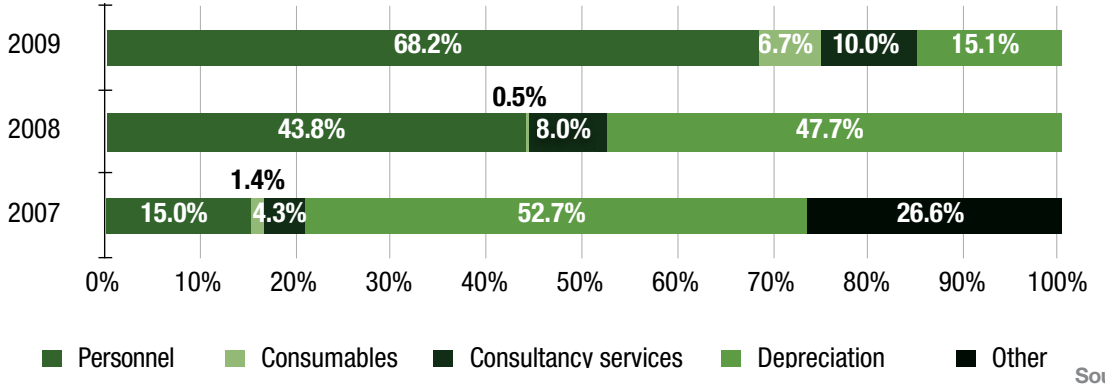
Source: UNIC 2009

figure 10 - **Reduced energy consumption: characteristic activities 2007 - 2009**



Source: UNIC 2009

figure 11 - **Reduced energy consumption: cost structure 2007 - 2009**



Source: UNIC 2009

table 3 - **Energy consumption, summary data**

INDICATOR	2002	2003	2004	2005	2006	2007	2008	2009
Energy consumption per unit product (TEP/1.000m²)	2.40	1.60	1.30	1.20	1.20	1.09	1.17	1.25
Electric Power over total consumed (%)	51.4%	50.1%	54.8%	52.6%	51.9%	54.6%	52.6%	49.1%
Methane gas over total consumed (%)	45.1%	44.5%	38.8%	43.3%	42.7%	41.5%	42.7%	46.8%
Costs to reduce energy consumptions/turnover (%)	-	-	-	-	-	0.04%	0.20%	0.10%
Costs to reduce energy Consumptions/unit product (€/m²)	-	-	-	-	-	0.01	0.06	0.01

Source: UNIC 2009

water supplies and discharges

Water is used in the tannery mainly as a mean to achieve the chemical transformation of hides/skins through the use of products carried in solution. In fact, processing raw hides/skins is developed via a series of phases performed in an aqueous environment. Therefore, water consumption and water treatment represent the most important environmental aspects in tanning.

The companies have adopted various water supply systems in order to meet the water needs, for example, these systems include artesian wells and connections to industrial and civil plants. At the same time, consortium facilities have been created in the main districts to treat the water discharges.

As is illustrated clearly in Figure 12, the specific consumption per product unit, expressed in litres consumed per m^2 of leather produced is aligned over the eight years surveyed on an average value that is slightly higher than 118 l/m^2. The minimum value was recorded in 2007 (108.57 l/m^2) and the maximum value was recorded in 2002 (136.0 l/m^2). The value referred to 2009 (118.36 l/m^2) is very close to the average (118.38 l/m^2).

The data was measured by the companies included in the sample by reading the meters of the internal wells and/or of the industrial aqueducts and therefore represents a precise value.

Various activities are performed in the tannery to reduce the water consumption.

The most significant of these activities are represented by the development of processes which entail the reduced use of water resources and selecting/purchasing high-efficiency machinery. The costs associated with these two activities (Figure 13) represent approximately 90% of the expenditure for the characteristic activity based on the structure represented in Figure 14.

Approximately 95% of the water consumed in the tannery is transferred to the water treatment facility. The residual portion remains as humidity in the leather, evaporates or is contained in the waste materials transferred to the treatment process.

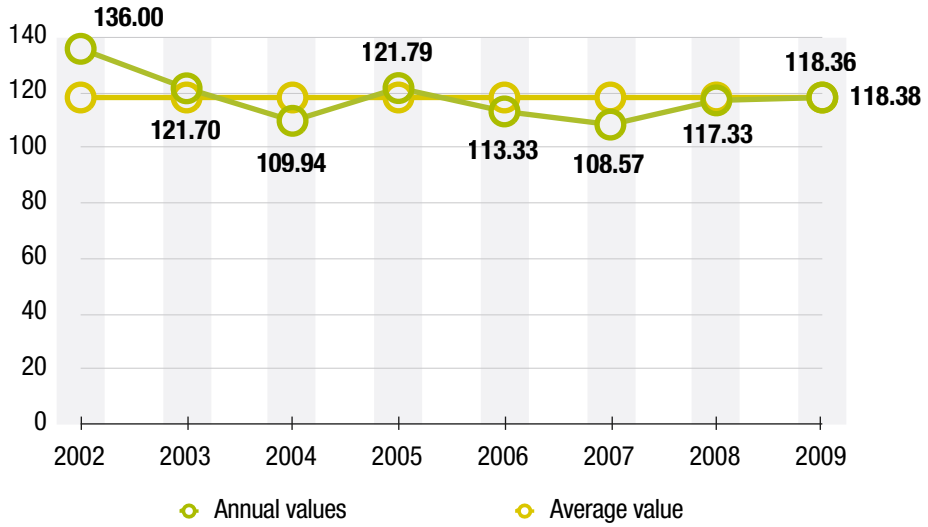
The majority of the water discharged by Italian tanneries is treated in centralised and consortium water treatment facilities, developed specifically for the needs of the tannery waste products. A quota of less than 10% of the national tanneries manage the water treatment activity directly, since not located in production districts, mainly discharging into the public sewer system.

The companies which are connected to centralised water treatment facilities, however, pre-treat the water in the plant, in order to remove the large residues and perform an initial separation of the pollutants.

Therefore, the analysis of the sector's water treatment activity becomes more complete with the direct involvement of the centralised water treatment facilities. This edition of the Report illustrates the data referred to the main centralised water treatment facilities for the sixth time (2004–2009).

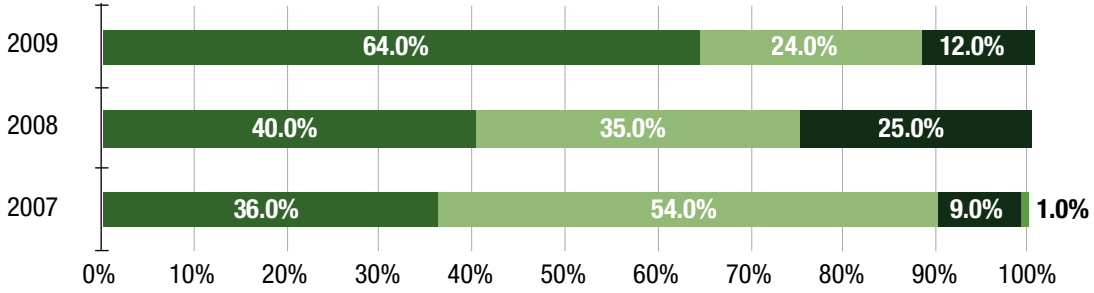
The water treatment facilities involved in the 2009 survey treated the water of 739 tanneries distributed among the Veneto, Tuscany and Campania Regions.

figure 12 - Water consumption per product unit 2002 - 2009 (l/m^2)



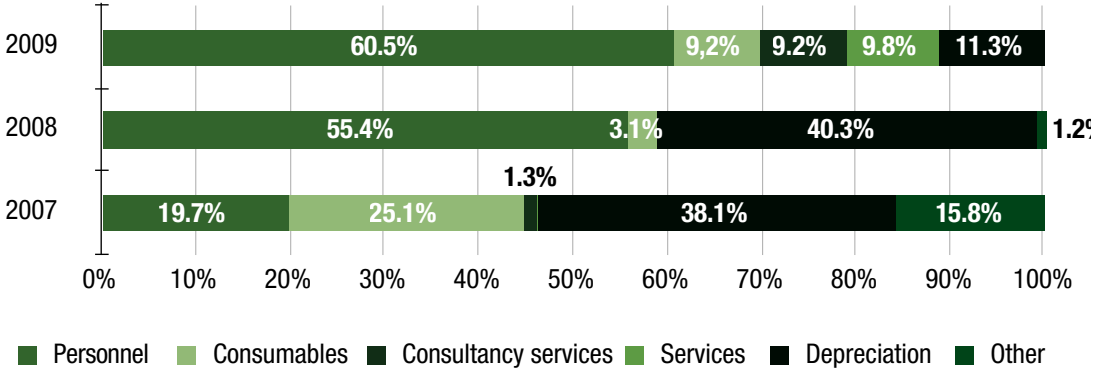
Source: UNIC 2009

figure 13 - **Reduced water consumptions: characteristic activities 2007 - 2009**



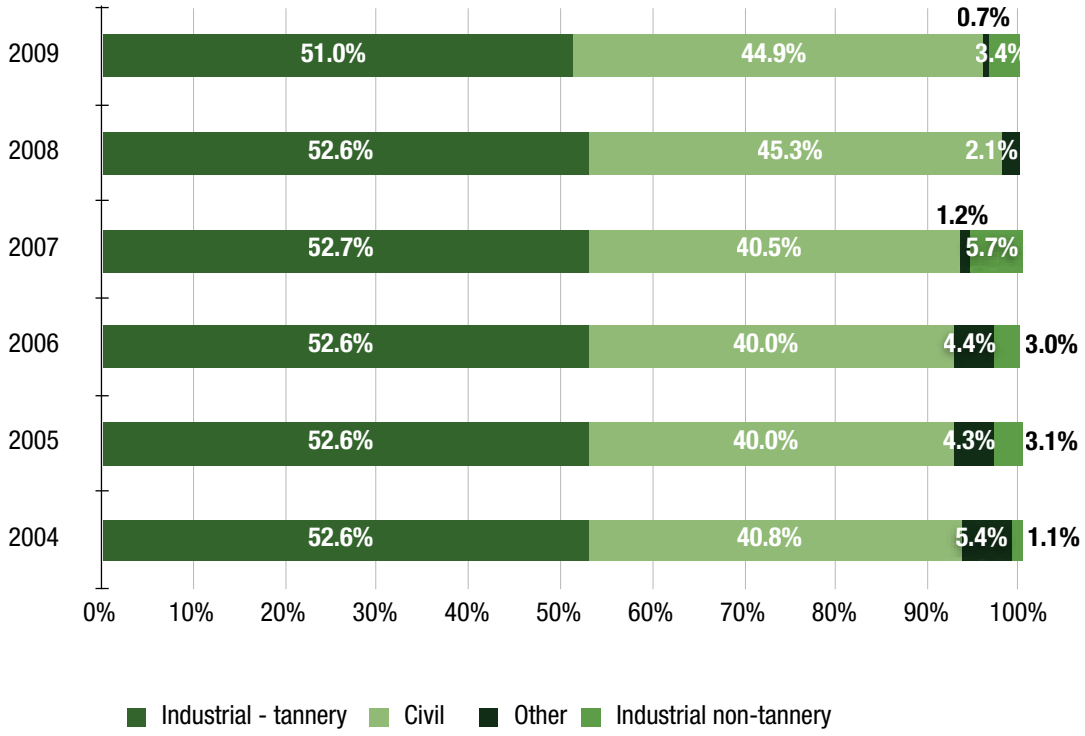
Source: UNIC 2009

figure 14 - **Reduced water consumptions: costs structure 2007 - 2009**



Source: UNIC 2009

figure 15 - **Water entering the water treatment facilities 2004 - 2009**



Source: UNIC 2009

Figure 15 illustrates how the water entering the tannery water treatment facilities during the six years surveyed is also represented by civil water that corresponds to values close to 40%. This fact confirms how the facilities which were constructed for industrial requirements by private initiatives have acquired a significant public utility over time.

In addition to civil water, the consortium water treatment facilities treated mainly tannery water during the 2004–2009 period (always exceeding 50% of the input over the entire period considered) and smaller quotas of other waste materials or industrial waste in the liquid state which were transported by road.

Furthermore, the concentrations for the following main parameters were considered in the waste materials at the entry point and at the discharge point of the facilities in order to provide precise data concerning the efficiency of the water treatment processes:

- ***Suspended Solids***
- ***Chemical Oxygen Demand (COD)***
- ***Chlorides***
- ***Sulphates***
- ***Total nitrogen***
- ***Ammonia***
- ***Chrome III***
- ***Sulphides***

► *SUSPENDED SOLIDS*
(TSS - Total Suspended Solids)

This parameter indicates the quantity of undissolved solids, normally measured in milligrams/litre (mg/l) which can be separated by filtration from a liquid sample. Tannery waste products are mainly due to undissolved chemical products or decay residues of hides/skins during the wet operations. These solids can be removed from the waste products (with a positive effect also on the COD) by means of chemical and physical treatments.

► *COD (Chemical Oxygen Demand)*

The value is expressed in milligrams of oxygen per litre (mgO_2/l), and represents the quantity of oxygen required for the complete oxidation of the organic and inorganic compounds contained in the waste products. Therefore, this represents an index that measures the pollution level of the water due to the organic residues of hides/skins (hair and dermis) and chemical products not depleted in the process baths (for example: ammonia, surface active agents, sulphides, organic acids, organic solvents, tannins, resins, aldehydes, colouring agents, fats, etc.). The COD is controlled in the water treatment by combining physical actions (for example: filtering/screening, etc.) with chemical and biological processes.

► *SULPHATE ($SO_4^=$)*

The presence of high concentrations of sulphates can cause various problems, first of all, a reduced self-purifying capacity of the receiving body of water. Sulphates have an oxidising action that subtracts oxygen from the decomposition processes of the other pollutants. In addition, sulphates are responsible for increasing the water's salinity and the consequent increase of the osmotic potential that represents a fundamental parameter for aquatic life. Sulphates are contained in a vast range of chemical products in the tannery and decreasing their respective content can also be achieved by substituting traditional chemicals with alternative products.

► *NITROGEN*

This represents one of the key parameters when assessing the pollutant load because Nitrogen exercises its action at both the chemical and biological level, by intervening directly on the metabolism of the living organisms. Nitrogen is generally expressed in terms of TKN: Total Kjeldhal Nitrogen, namely, the concentration of total organic Nitrogen deriving from the breakdown of proteins and urea. Due consideration must also be taken of the portion of Nitrogen that derives from ammonia (NH_3) and from ammonium salts (NH_4^+) which are used in the processes in addition to the TKN, in order to determine the total Nitrogen content in the waste products.

The water treatment activity mainly entails biological processes acting on the nitrification/denitrification balance.

► *CHLORIDES (Cl-)*

The chlorides contained in the tannery discharges are entirely of mineral origin and are referable to the refresh phase that dissolves the preserving salt, the ammonium chloride that may be used in the decalcination/maceration process and the use of sodium chloride and hydrochloric acid in the pickle and in tanning.

Their presence is not considered to cause particular concern, except for the influence that a high salt load can cause on the water's osmotic potential, on the water's organoleptic characteristics and possible corrosion phenomena on the pipes, associated with the water's higher electric conductivity.

► *CHROME (III)*

Basic chrome sulphate ($CrOHSO_4$) is a tanning agent that is able to fix itself irreversibly to the collagen fibres, preventing the fibres from decaying without changing their softness, flexibility and the original fibrous structure and it is very widely used in the tanning industry for this reason. The chrome does not have particular toxic characteristics in its trivalent state of oxidation.

The technologies available to the sector enable a significant portion of the chrome contained in the depleted tanning baths to be recovered using chemical and physical treatments, reducing the concentrations entering the water treatment systems, which complete their removal.

► *SULPHIDES ($S^=$)*

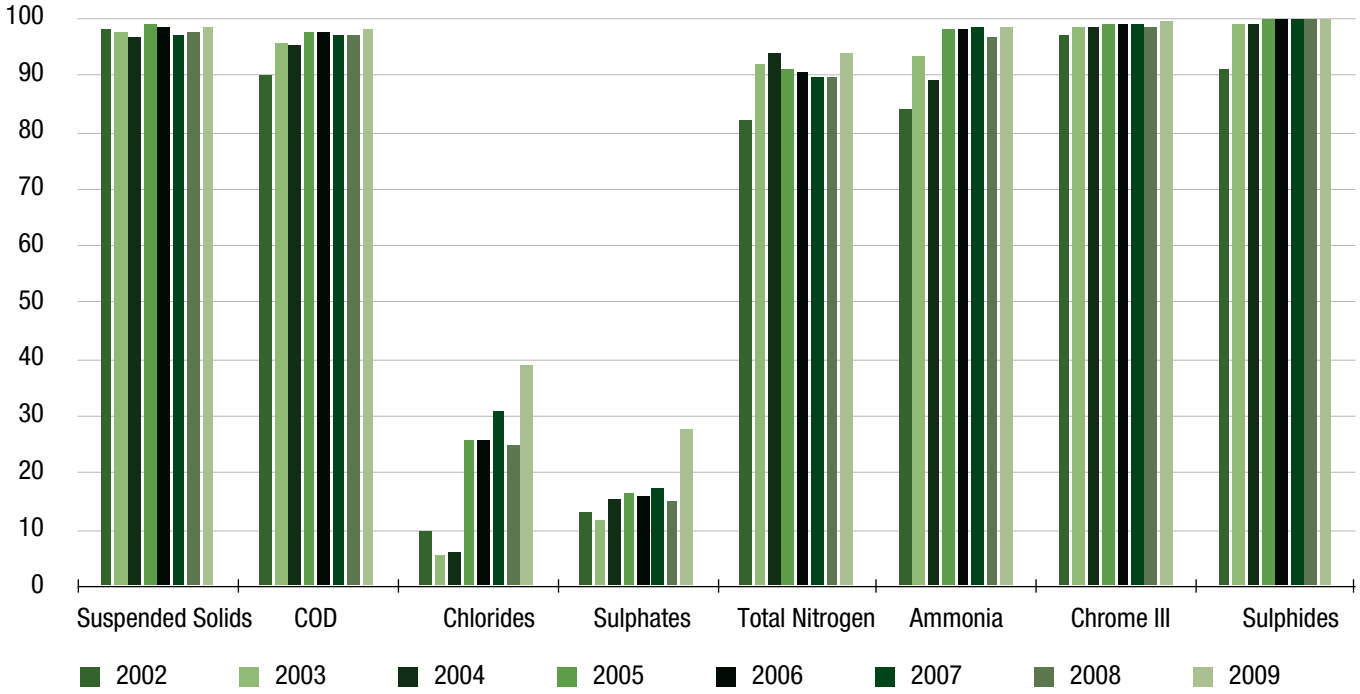
Sodium sulphide (Na_2S) is used in the initial processing phases, in particular, to remove hair from hides/skins which have hair. The environmental impact is mainly due to its potential toxicity in certain environmental conditions, to its contribution to the COD value and, less impacting but more evident, the characteristic bad odour transferred to the water.

The sulphides are largely eliminated (more than 99%) using traditional chemical, physical and biological treatment systems. A further possibility of removing sulphides is represented by intervening on the process by adopting, for example, enzyme unhairing processes to achieve the total or partial substitution of the sulphide and replenishing the depleted baths and reusing them.

Once again, the data referred to 2009 confirm the trends highlighted throughout the period surveyed. The water treatment processes developed are confirmed to be extremely efficient for the majority of the pollutants.

In fact, as is clearly illustrated in Figure 16, the reduction levels are near to or exceed 90% for all the parameters, except for chlorides and sulphates, which still represent treatment problems which have not been completely solved at an international level.

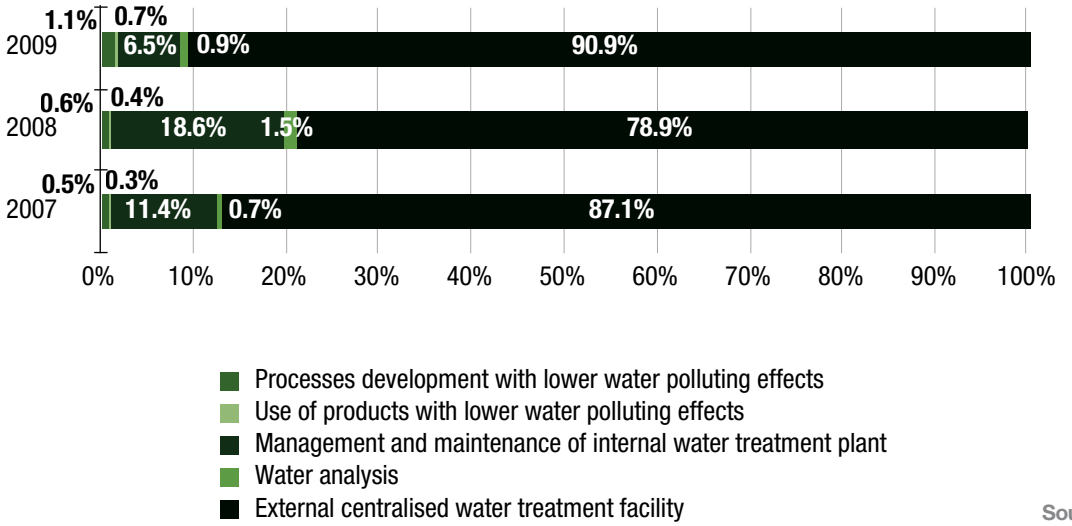
figure 16 - **Removal level of water pollutants 2002 - 2009**



	2002	2003	2004	2005	2006	2007	2008	2009
Suspended Solids	98.0%	97.8%	96.5%	99.1%	98.7%	97.0%	97.8%	98.8%
COD	90.0%	95.8%	95.1%	97.6%	97.5%	97.0%	97.4%	98 %
Chlorides	10.0%	5.4%	6.2%	25.7%	25.9%	31.0%	24.9%	39.1 %
Sulphates	13.0%	11.7%	15.3%	16.5%	16.0%	17.2%	15.2%	27.9 %
Total Nitrogen	82.0%	91.9%	94.0%	90.9%	90.7%	89.5%	89.5%	94 %
Ammonia	84.0%	93.3%	89.4%	98.3%	98.1%	98.5%	96.7%	98.7 %
Chrome III	97.0%	98.8%	98.5%	99.1%	99.1%	99.0%	98.6%	99.3 %
Sulphides	91.0%	99.0%	99.0%	99.9%	99.9%	99.9%	99.9%	99.8 %

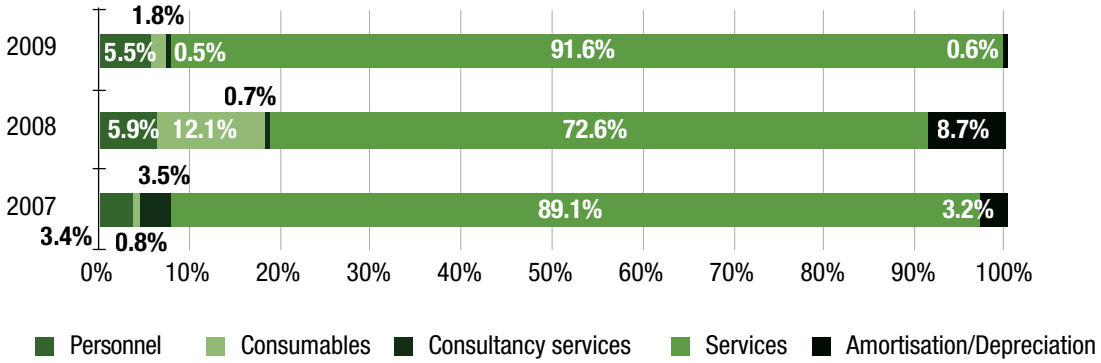
Source: UNIC 2009

figure 17 - **Improvement of water discharges: characteristic activities 2007 - 2009**



Source: UNIC 2009

figure 18 - **Improvement of water discharges: costs structure 2007 - 2009**



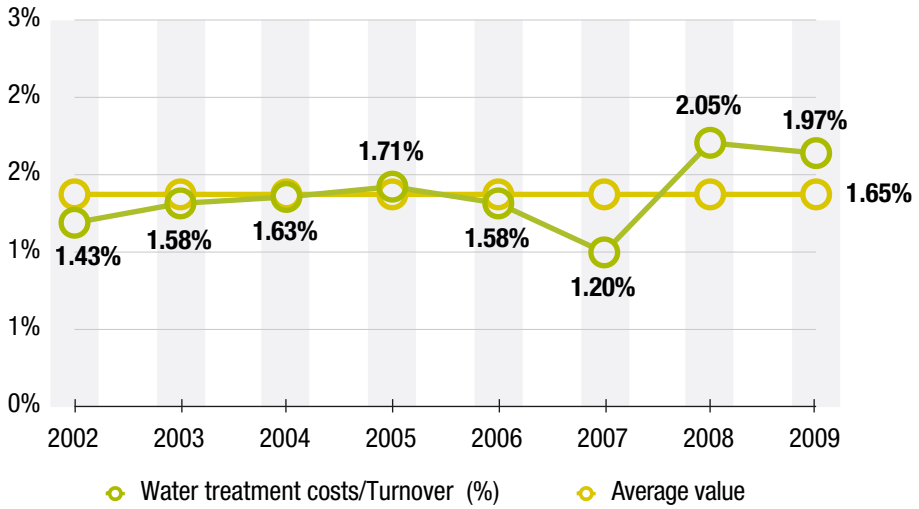
Source: UNIC 2009

water treatment cost

The surveys performed over the 2007-2009 three-year period have enabled the internal costs of the tanneries to be measured (sustained for water treatment and to improve the discharges) and to analyse the expenditure of the consortium structures.

Almost all of the environmental costs associated with the water discharges sustained by the tanneries are represented by the management of the water treatment facility. In fact, the external water treatment and the management/maintenance of the water treatment facilities within the plant represent the largest portion of the specific costs (Figure 17) and during the period considered the water treatment services absorb quotas which are close to 90% (Figure 18).

figure 19 - **Water management costs/turnover 2002 - 2009**



Source: UNIC 2009

table 4 - **Water: summary data**

INDICATOR	2002	2003	2004	2005	2006	2007	2008	2009
Water consumed per product unit (l/m²)	136.0	121.7	109.9	121.8	113.3	108.6	117.3	118.4
Water management costs/turnover (%)	1.43%	1.58%	1.63%	1.71%	1.58%	1.54%	2.05%	1.97%
Water management costs/product unit (€/m²)	0.61	0.52	0.56	0.59	0.54	0.41	0.61	0.46

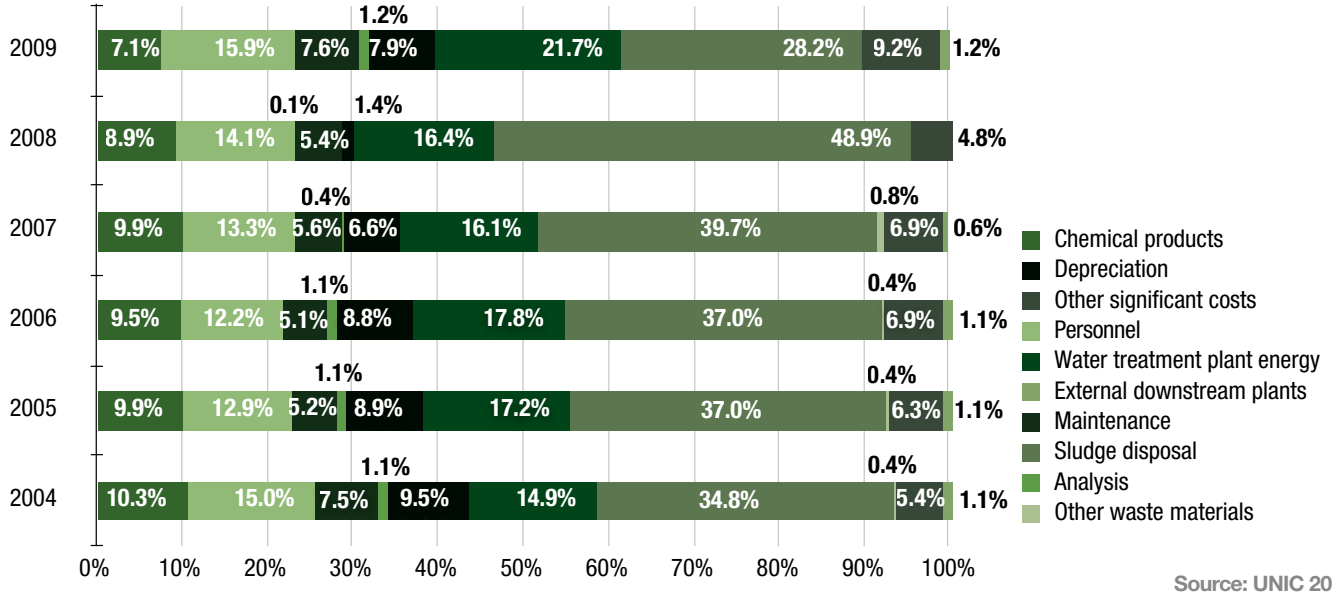
Source: UNIC 2009

The incidence of the water management costs over turnover increased significantly during the last two year period. In fact, the values referred to 2008 and 2009 (2.05% and 1.97% of turnover, respectively) correspond to levels which are distinctly higher than the period average (1.65%), reflecting increases which exceed 40% of the value referred to 2002 (1.43%).

Furthermore, by considering the values illustrated in Table 4 it can be noted that even if the trends during the 2002-2009 period reflect a marked decrease in the unit water consumption, there was a corresponding progressive increase in the incidence of water management costs over turnover; this trend was only inverted in 2009, albeit to a limited extent.

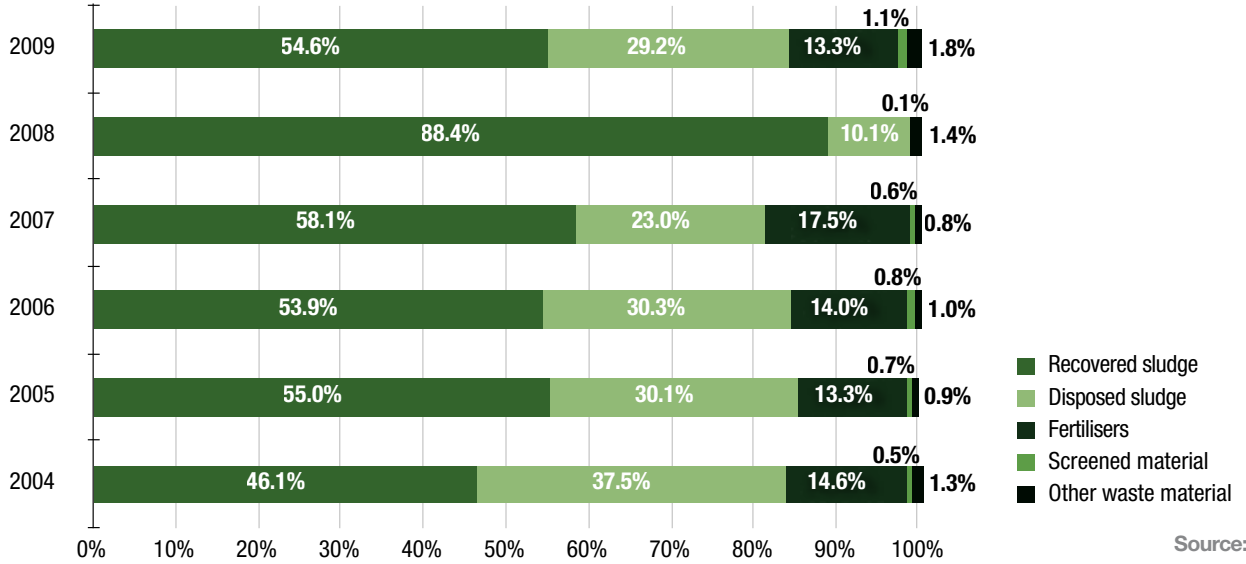
Approximately 90% of the turnover generated by the centralised water treatment plants is spent on the operating costs of the various water treatment processes. The analysis of the cost breakdown referred to the centralised water treatment facilities over the 2004–2009 period (Figure 20) confirms that the disposal and transfer of sludge and waste materials produced by the water treatment processes to authorised plants represents the main expenditure factor. In fact, percentages varying from 34.8% to 48.9% of the turnover are allocated to this item. Energy represents the second expenditure item for the consortium water treatment facilities with quotas which vary between 14.9% and 21.7% of total costs.

figure 20 - **Cost breakdown of centralised water treatment plants 2004 - 2009**



Source: UNIC 2009

figure 21 - **Composition of waste materials produced by centralised water treatment plants 2004 - 2009**



Source: UNIC 2009

WATER TREATMENT PLANTS WHICH COLLABORATED:

CONSORZIO AQUARNO SPA
S. Croce sull'arno (PI)
www.depuratoreaquarno.it

ACQUE DEL CHIAMPO SPA
Arzignano (VI)
www.acquedelchiampospa.it

CONSORZIO CONCIATORI DI FUCECCHIO
Ponte a Cappiano (FI)
www.ofnelson.it/ccf/ita.htm

CONSORZIO CUOIODEPUR
Ponte a Egola (PI)
www.cuoiodepur.it

MEDIO CHIAMPO SPA
Montebello Vicentino (VI)
www.mediochiampo.it

Impianto di depurazione di Solofra
COGEI Srl – Solofra (AV)

waste production and managment

The waste generated in the tannery originates mainly from the hides which enter raw or semi-processed and which must be stripped of all the solid components which are not required in the finished product. Therefore, the tannery processes designed to achieve this objective generate waste materials which are collected in a solid form, or are contained in the wastewater and generate sludge in the water treatment phase.

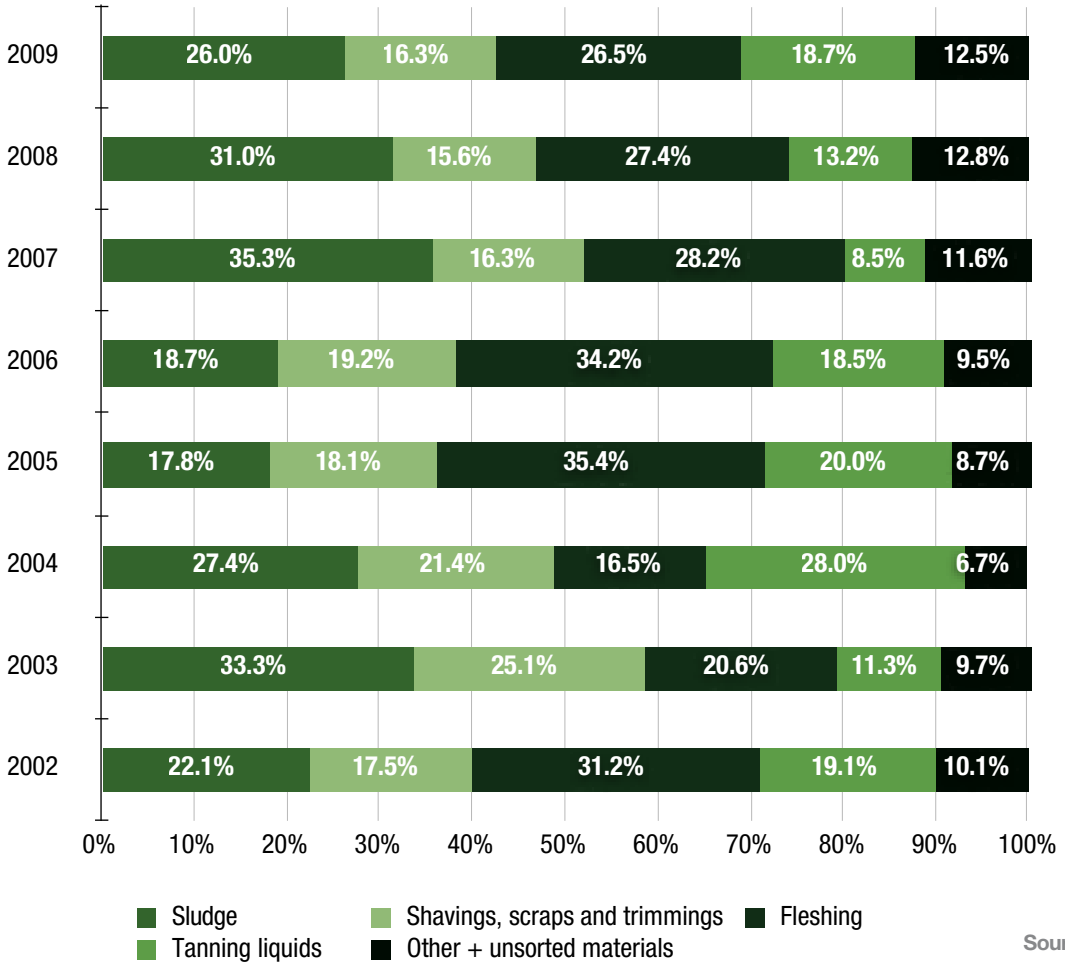
Therefore, the waste materials which are generated by the tannery vary in nature depending on the production phase from which they originate and therefore can have different final uses.

As illustrated in Figure 22 the shavings, scraps and trimmings together with the fleshing (Classified as an Animal By-product, in accordance with the applicable legislation disciplining the subject), represent more than 40% of the waste materials produced throughout the period surveyed. In addition to these, the majority of the waste originates from the sludge (from approximately 18% to 26% of the total).

The tanneries which deliver the wastewater to centralised water treatment facilities also transfer to these facilities the portions of dissolved waste products which generate the sludge. The production of sludge by the water treatment plants is illustrated in Figure 21 above.

The tanning liquids containing Chrome are transferred to centralised recovery facilities by tanks (and are therefore covered by the national legislation that disciplines waste management). The recovered Chrome obtained is mixed with other Chrome purchased "fresh" and re-used in the production process. This process has been improved over the years and is now commonly used in many tanneries, thanks to the availability of a centralised facility. Other tanneries use an internal process to recover the Chrome.

figure 22 - **Breakdown of typical waste materials produced by tanning activity 2002 - 2009**



Source: UNIC 2009

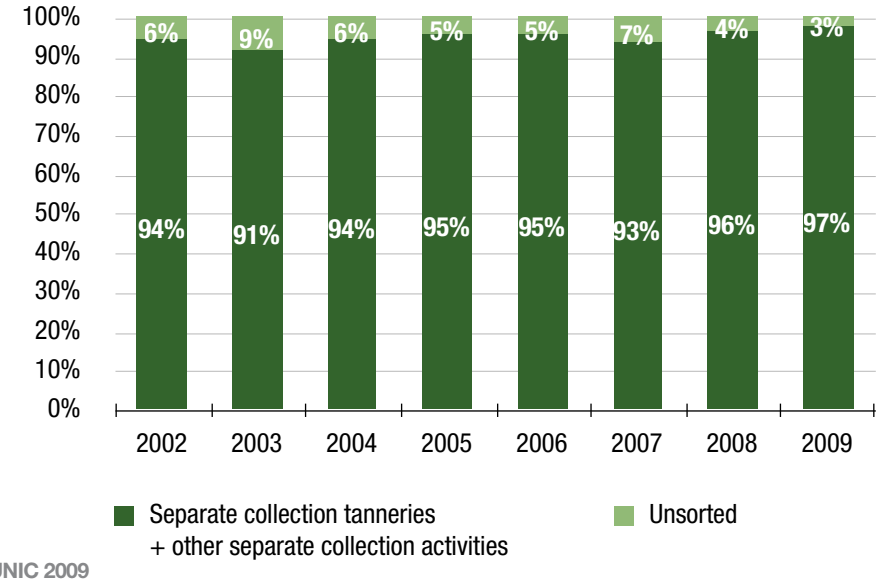
A comparison of the data referring to the 2002-2009 period highlights how the breakdown of the waste produced can vary significantly over the years. The respective weight of the individual categories of waste depends, above all, on the types of raw material processed.

The tannery must implement internal separate collection and storage procedures in order to permit the re-use and recovery of the waste materials produced, avoiding mixing among the different types of waste materials which would render the materials unusable by the specialised companies which operate downstream.

As illustrated in Figure 23, the value identified during 2009 represents a historical maximum with 97% of the waste collected in a separate form; however, it is important to note how these percentages have never dropped below 91% of the waste produced. In addition to the types of waste materials described previously, a remaining quota comprises packing (wood, plastic or other materials) and ferrous materials which are, however, reusable and other mixed waste materials originating from different processing phases and from the maintenance process. The unsorted material is of various kinds depending on the companies and on the types of organisation and production.

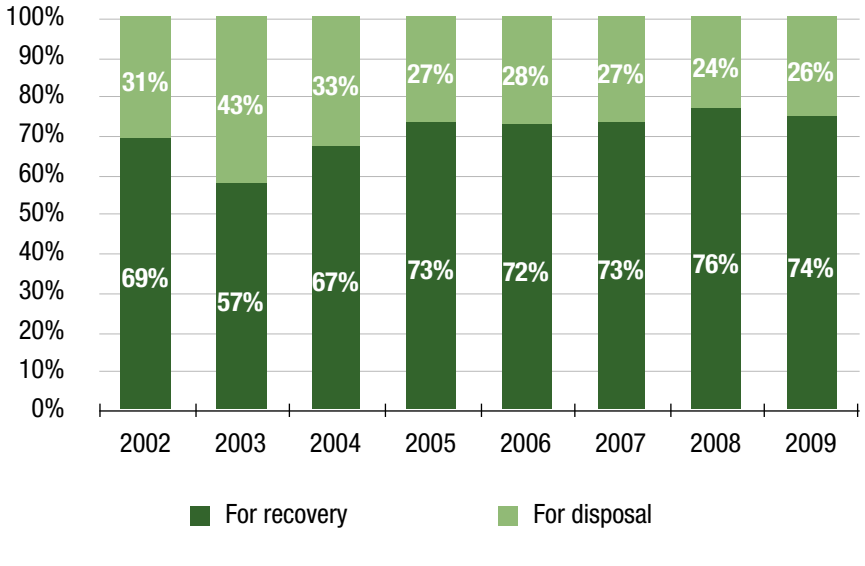
74% of the waste produced was subsequently reused/recycled during 2009 (Figure 24). Considering the entire period surveyed it can be noted that the percentages of re-use only dropped below 70% in the surveys referred to 2003 and to 2004. This environmental performance is guaranteed by the joint organisation of the tanneries and the water treatment facilities downstream that enables significant quantities of waste to be recycled and recovered, also through the development of highly specialised, specific technologies.

figure 23 - **Separate collection: comparison referred to 2002 - 2009**



Source: UNIC 2009

figure 24 - **Final use of waste materials 2002 - 2009**



Source: UNIC 2009

The survey found that 2.1 kg of waste was generated to produce one square metre of finished leather in 2009, this value has increased slightly compared to the findings referred to the previous two year period and is slightly higher than the average for the entire period surveyed (1.96 kg/m^2).

ANIMAL BY-PRODUCTS

This refers to legislation that originates from a European regulation (1774/2002/EC), substituted at the end of 2009 by Regulation No. 1069/2009. The new text, even though in force, will be applied from March 2011.

The regulation concerns:

► animal by-products (ABP) not for human consumption

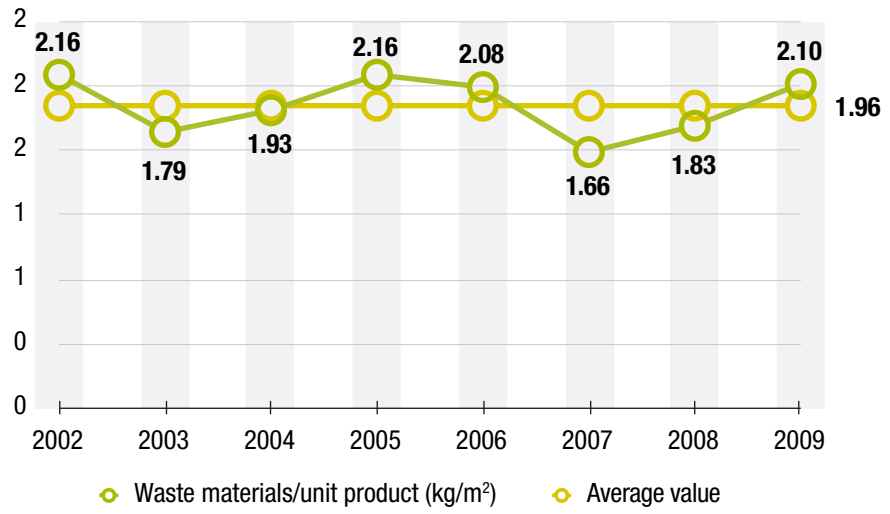
► products intended for purposes other than human consumption, including raw materials to produce products of animal origin.

The new definition of animal by-products is applied to "whole bodies and animal parts, products of animal origin or other products obtained from animals, not intended for human consumption". Derivative products refer to products "obtained through one or more treatments, transformations or processing phases of animal by-products". The products of animal origin to which the regulation refers concern foodstuffs of animal origin. Raw hides are identifiable as being included in "animal parts".

The use of raw hides (category 3 animal by-products) is permitted to produce: feed materials for animal breeding, for furs, household pets; for organic fertilisers or conditioners, raw feed materials for household pets, compost or biogas, cosmetic, veterinary and medicinal products.

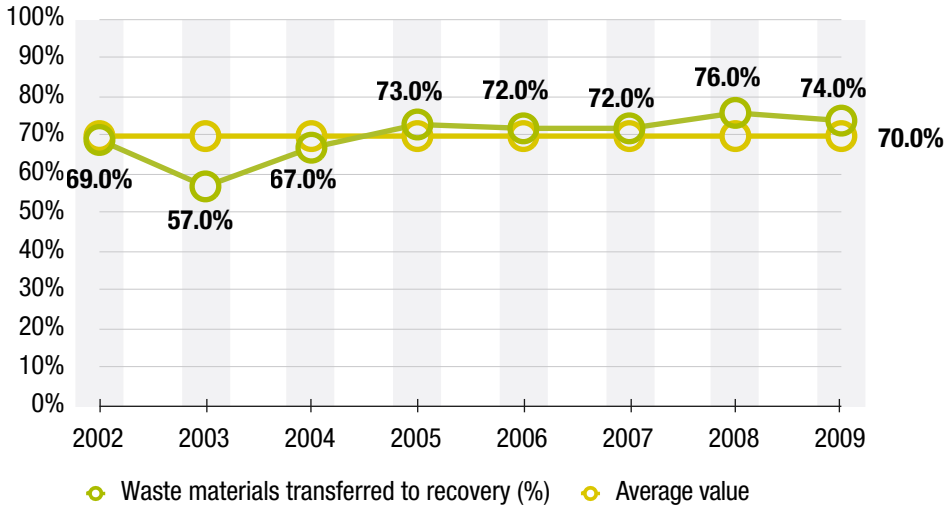
The companies are subject to the following obligation: to accompany the batches of animal by-products with commercial documents or health certificates (currently being reviewed), to be acknowledged by the competent authority and to implement appropriate internal controls and written procedures. The acknowledgements already issued by the competent authorities are deemed to be valid to all effects and purposes.

figure 25 - **Waste production per product unit 2002 - 2009 (kg/m^2)**



Source: UNIC 2009

figure 26 - **Waste materials transferred to recovery 2002 - 2009**



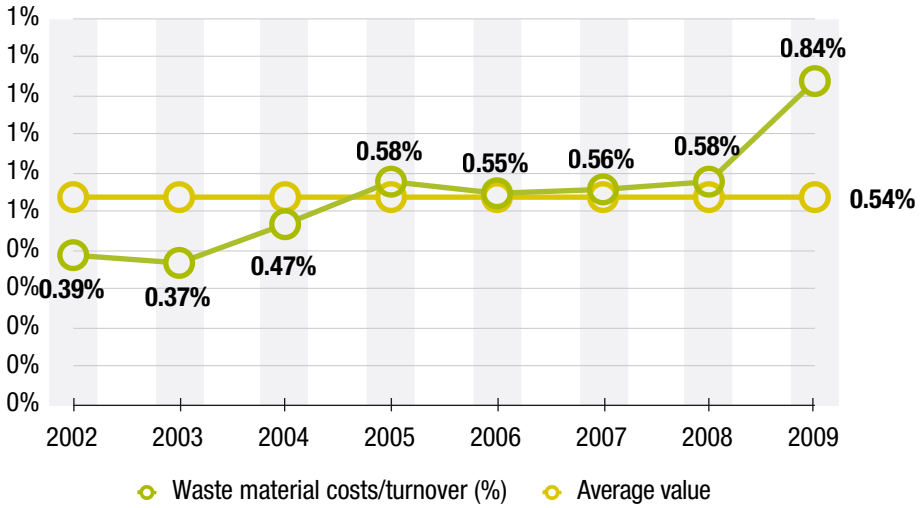
Source: UNIC 2009

waste: management cost

The waste management costs per square metre of leather produced reflected a historical maximum in 2009 corresponding to an incidence of 0.84% of turnover and approximately Euro 0.2 per product unit.

The increase appears to be related to the parallel increase in the unit production of waste materials per square metre of leather produced. Therefore, it would appear that no substantial action was taken on the unitary tariffs concerning waste management in 2009.

figure 27 - Waste management costs/Turnover 2002 - 2009



Source: UNIC 2009

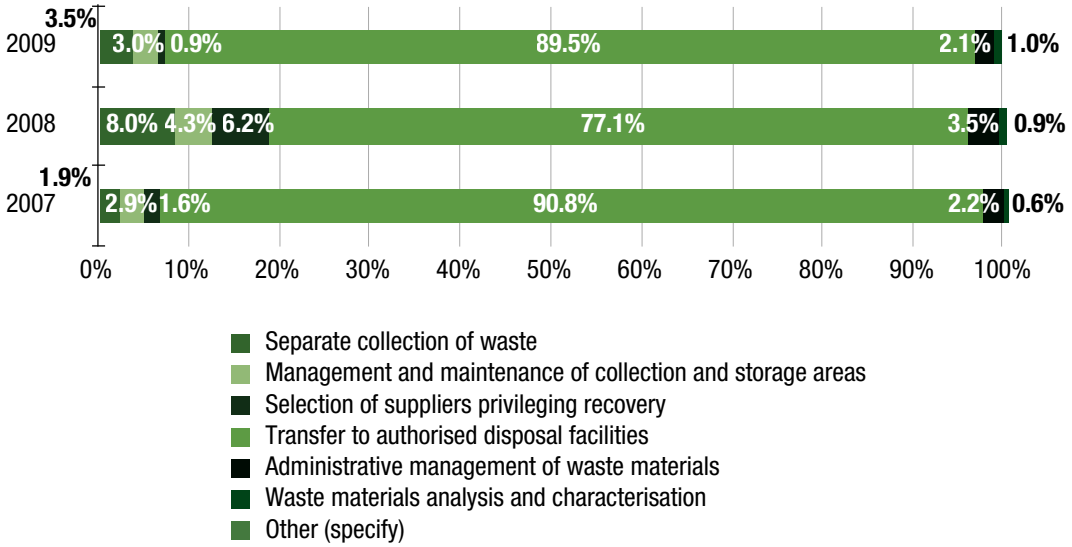
table 5 - Waste materials: summary data

INDICATOR	2002	2003	2004	2005	2006	2007	2008	2009
Waste materials/product unit (kg/m²)	2.16	1.79	1.93	2.16	2.08	1.66	1.83	2.10
Separate collection (%)	94%	91%	94%	95%	95%	93%	96%	97%
Waste transferred to recovery (%)	69%	57%	67%	73%	72%	72%	76%	74%
Costs of waste turnover (%)	0.39%	0.37%	0.47%	0.58%	0.55%	0.56%	0.58%	0.84%
Costs of waste product unit (€/m²)	0.120	0.100	0.110	0.174	0.166	0.150	0.172	0.198

Source: UNIC 2009

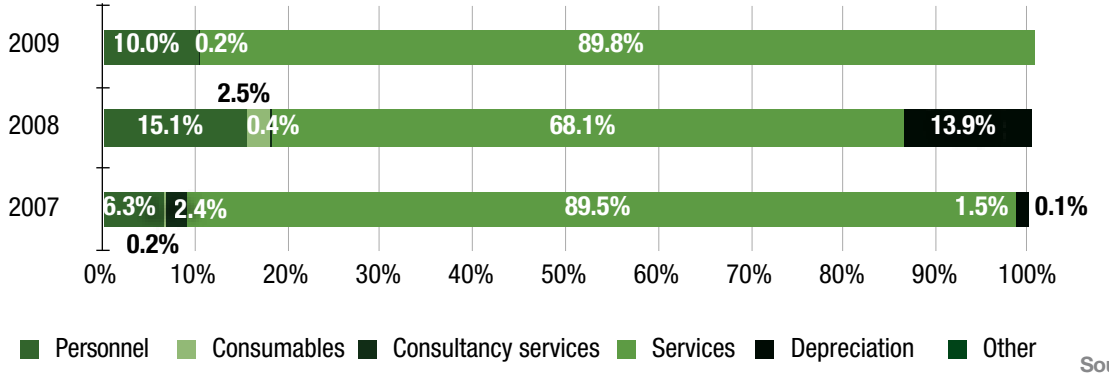
Figure 28 and Figure 29 illustrate the subdivision of the costs for the characteristic waste management activities and their structure. The expenditure sustained to transfer the waste to authorised external facilities represents the largest relative portion of costs for the characteristic activity, also referred to 2009, confirming the trends over the entire period surveyed, involving the activities concerning separate collection and the selection of suppliers. As confirmation of this, the external waste disposal services represent 90% of the total expenditure associated with waste management.

figure 28 - **Waste management: characteristic activities 2007 - 2009**



Source: UNIC 2009

figure 29 - **Waste management: costs structure 2007 - 2009**



Source: UNIC 2009

atmospheric emission

The main parameters which influence the quality of the air originating from the tannery are represented by Volatile Organic Compounds (VOC), Dusts and Hydrogen Sulphide. The atmospheric emissions transferred outside the tannery using specific extraction plants are generated in different phases of the process, both in the tanning drum and during the surface treatments of leather concerned.

In addition, heating plants are used to produce heat which emit Nitrogen Oxides (NOx) and Sulphur (SOx), in addition to Carbon Dioxide (CO^2), naturally, during the combustion.

► *VOC*
VOLATILE ORGANIC COMPOUNDS
Substances emitted during the spray finishing process of leather in limited concentrations and in large volumes of air which are then transferred to scrubbers (lamella filters and scrubbers). The technological solutions to reduce the pollution caused by VOC focus on substituting solvent-based products with equivalent water-based products, in order to reduce the source of pollution.

► *DUSTS*
Substances produced by a number of mechanical operations, for example, shaving and grinding, connected to specific extractor/removal devices to reduce the concentration; the dust is produced in the form of particles of coloured pigments contained in the products, also in the finishing spray cabins.

► *H_2S - HYDROGEN SULPHIDE*
A gas with a characteristic smell of rotten eggs. The gas originates mainly from the calcination waste materials and originates in the decalcination drums due to the change in the values of pH. These drums are connected to the extractor systems to limit the emission of the gas in the environment, the extractor systems use caustic soda solutions which combine with the H2S and remove more than 95% of the gases emitted.

► *NOx E SOx*
NITROGEN OXIDES AND SULPHUR
Combustion by-products in the heating plants. Their concentration in the emissions depends on the oxidation of the Nitrogen present in the air and the quantity of Sulphur in the fuels used. The heating plants which use traditional fuels (diesel oil and low sulphur content oil) are now gradually being converted to cleaner solutions (methane gas).

Figure 30 illustrates the characteristic values for a number of atmospheric pollutants expressed in g/m2 and calculated according to the following formula:

POLLUTANT PER PRODUCT UNIT
(g/m^2) = CA (Kg/year)/P * 1,000

where:

AL = annual loads
P = production in m^2

The polluting loads were calculated as follows:
CA [Kg/y] = C [mg/Nm^3] * F[Nm^3/h] * h [hours worked/y]/10^6

where:

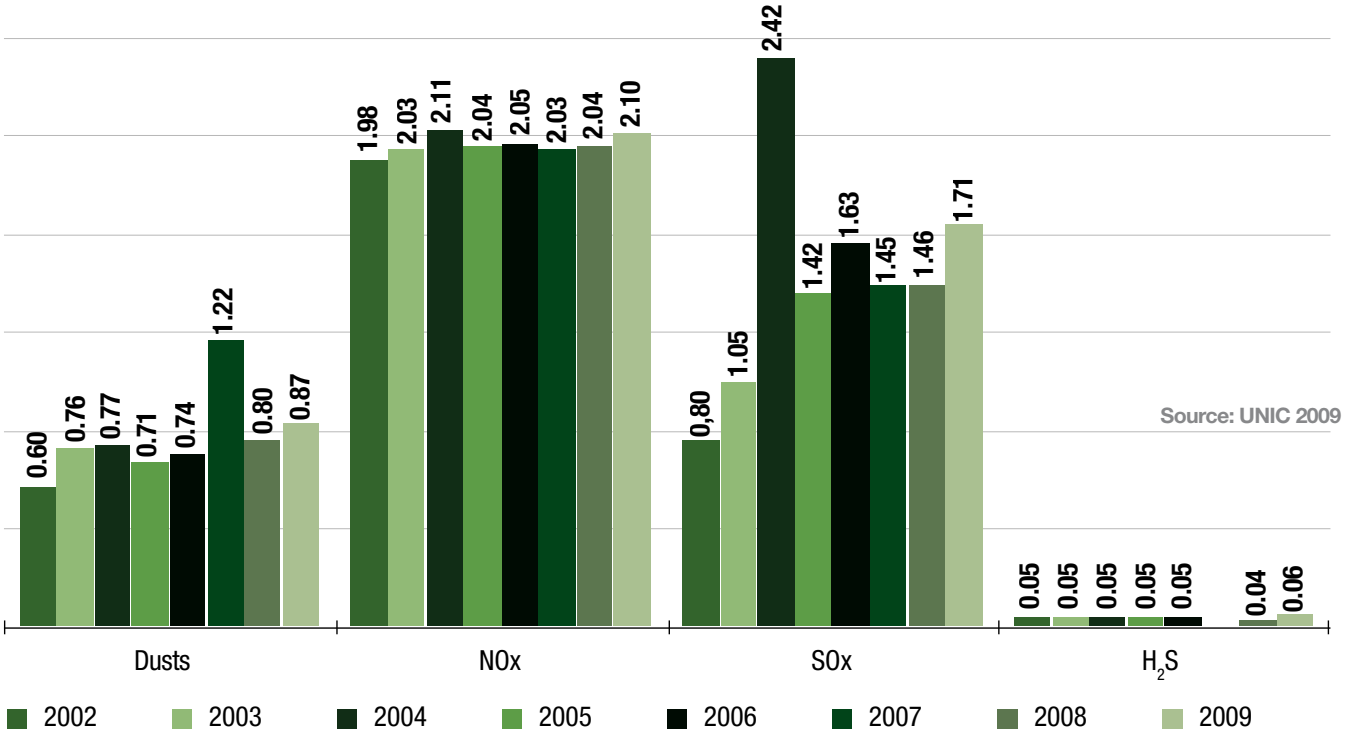
C = concentration at the stack
F = overall flow rate of plants which emit the pollutant
h = sum of the hours worked in one year

The emissions were found to be virtually constant during the period surveyed.

It was also possible to monitor the consumption of solvents per unit product referred to 2009, since the tanneries included in the sample implemented a specific physical accounting system. In this way it was possible to calculate an "average emission factor", expressed in grams of VOC consumed per unit product (g/m^2). The resultant value is slightly greater than 50 g/m^2, a value that confirms the measurements made in previous years.

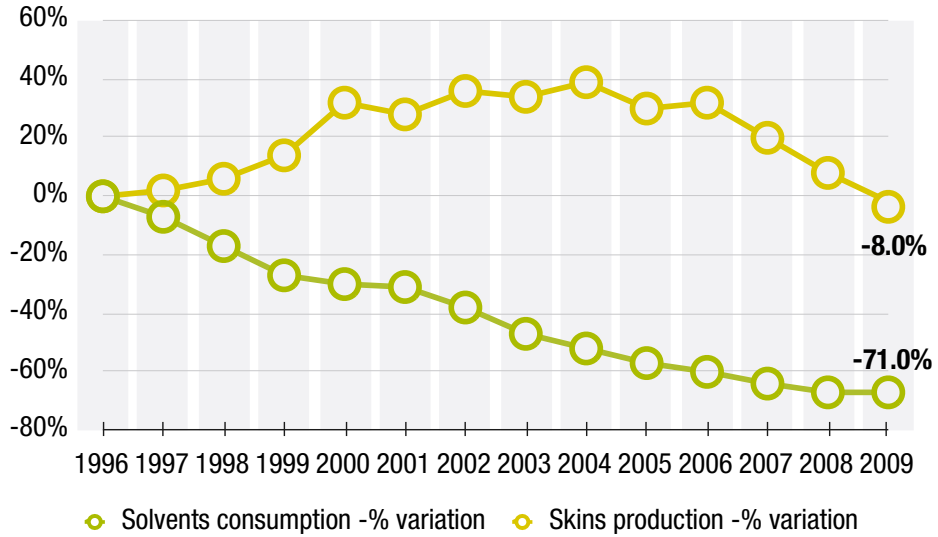
In addition, the data collected by the Province of Vicenza is also shown (Table 5, Figure 31), refers to the Veneto tanning centre: the figures reflect the trend for the consumption of solvents during the 1996/2009 period, compared to the production of the same district expressed in m^2. The trend for the consumption of solvents decreased (-71%) from 1996 to 2008, compared to the trend of production illustrated in the figure.

figure 30 - **Atmospheric parameters per unit product 2002 - 2009 (g/m^2)**



Source: UNIC 2009

figure 31 - **Production/solvents consumption ratio 1996 - 2009, Arzignano district**



Source: Provincia di Vicenza

table 6 - **Production/solvents consumption ratio 1996 - 2008, Arzignano district**

	Solvents consumption		Leather production	
	Value in kg	Viar. %	Value in m2	Viar. %
1996	18.439.000	0	125.326.000	0
1997	17.128.000	-7%	128.350.000	2%
1998	15.295.000	-17%	132.856.000	6%
1999	13.489.000	-27%	143.422.000	14%
2000	12.852.000	-30%	165.221.000	32%
2001	12.756.000	-31%	160.766.000	28%
2002	11.467.000	-38%	170.983.000	36%
2003	9.751.000	-47%	167.902.000	34%
2004	8.795.000	-52%	174.391.000	39%
2005	7.987.000	-57%	162.676.000	30%
2006	7.344.000	-60%	165.514.000	32%
2007	6.648.000	-64%	150.858.000	20%
2008	6.132.000	-67%	135.021.000	8%
2009	5.300.000	-71%	115.000.000	-8%

Source: UNIC 2009

atmospheric emission: costs

The activities associated with managing and reducing the atmospheric emissions are illustrated in Figure 32 referred to the 2007–2009 three-year period. The reduction of emissions in the tannery is achieved thanks to the selection and purchase of efficient machinery, the development of processes with a reduced impact, as well as maintaining the removal plants and the analyses.

The structure of the associated costs concerns the following activities with the related importance that was greater in 2009:

- ***Processes developed with lower atmospheric pollution***
- ***Use of products causing lower atmospheric pollution***
- ***Selection and purchase of high-efficiency machinery in relation to atmospheric emissions***
- ***Management and maintenance of scrubbers***
- ***Analysis of atmospheric emissions***

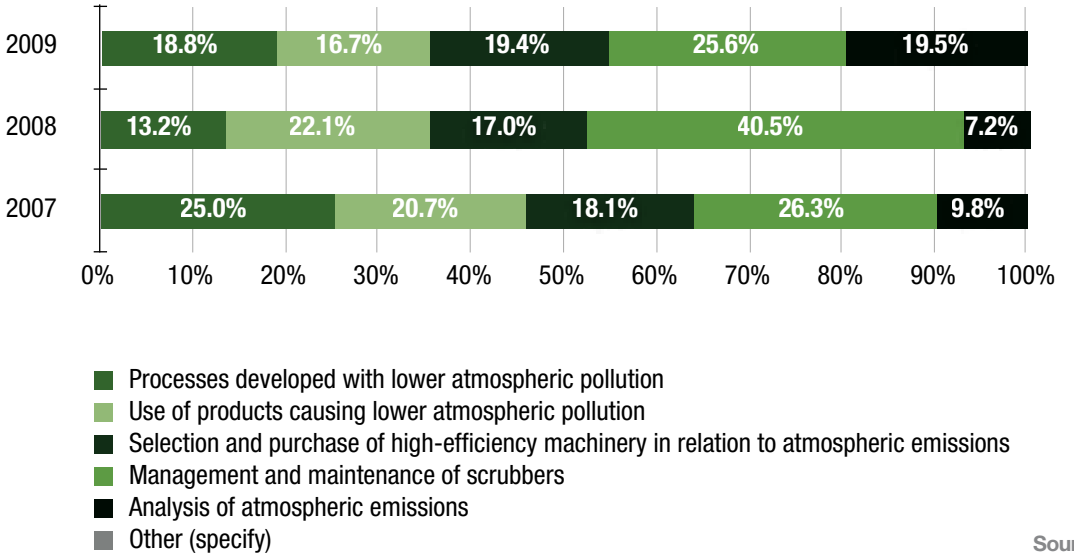
Personnel, consumables, and amortisation/depreciation represent the expenditure categories with a relatively greater importance during the survey period.

table 7 - **Atmospheric emissions: summary data**

INDICATOR	2002	2003	2004	2005	2006	2007	2008	2009
Dusts (g/m^2)	0.60	0.76	0.77	0.71	0.74	1.22	0.80	0.87
NOx (g/m^2)	1.98	2.03	2.11	2.04	2.05	2.03	2.04	2.10
SOx (g/m^2)	0.80	1.05	2.42	1.42	1.63	1.45	1.46	1.71
H_2S (g/m^2)	0.05	0.05	0.05	0.05	0.05	0.004	0.04	0.06
Emission costs/turnover (%)	0.1%	0.10%	0.10%	0.10%	0.12%	0.11%	0.11%	0.08%
Emission costs/ unit product (€/m^2)	0.049	0.042	0.030	0.038	0.035	0.028	0.034	0.019

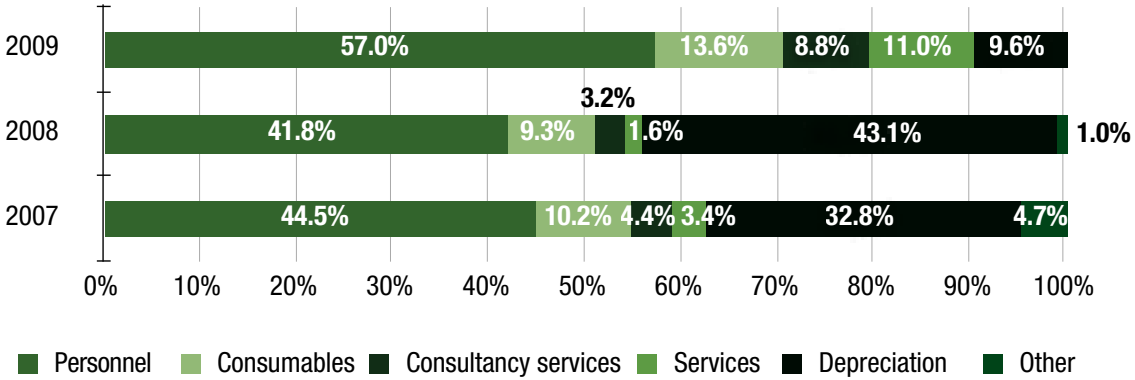
Source: UNIC 2009

figure 32 - **Improved atmospheric emissions: characteristic activities 2007 - 2009**



Source: UNIC 2009

figure 33 - **Improved atmospheric emissions: costs structure 2007 - 2009**



Source: UNIC 2009

enviromental managment system

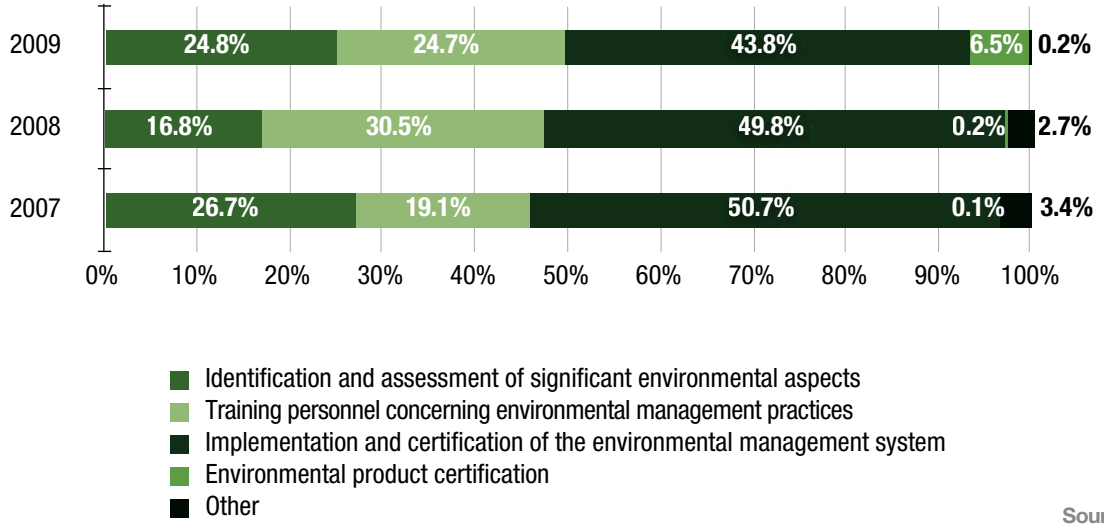
Environmental Management is more and more integrated with the tannery's overall management; the Environmental Management activities are performed in the Company and the main aim is to prevent pollution and improve the Company's environment, but does not include the direct management of the main environmental aspects. The main environmental management activities defined above include the following:

- ***Identification and assessment of the significant environmental aspects***
- ***Training personnel concerning Environmental Management practices***
- ***Implementation and certification of the Environmental Management System***
- ***Environmental product certification***

The adoption of Environmental Management Systems in the tannery which are more and more precise and advanced forms the basis for a constant growth of the Company's performance, corresponding to the performance monitored in recent years. A number of the tanneries included in the sample are certified UNI EN ISO 14001 and other tanneries comply with the EMAS regulation. In both cases the tanneries have implemented an Environmental Management System and the corresponding compliance has been verified by a third-party body. An Environmental Management System envisages that the tannery complies fully with the legislation as the starting point for its actions designed to achieve the on-going improvement of its performance. Furthermore, it is important to note that the typical activities of an Environmental Management System are also performed in tanneries which are not certified, as an integral part of their own overall management system. In addition, Environmental Product Certificates have recently started to be distributed, developed specifically to meet the needs of tanneries and their customers (Refer to information box).

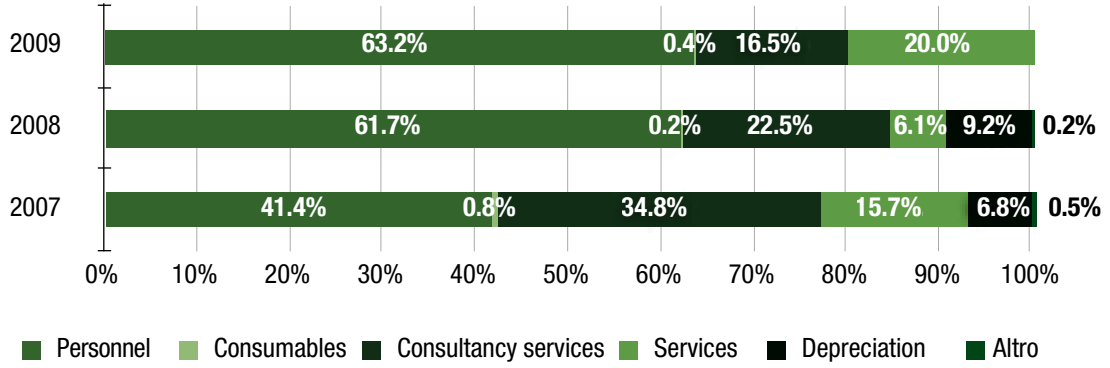
The characteristic activities of an Environmental Management System, limited to the planning and control phase, are presented in Figure 34, below. In addition, as can be inferred in Figure 35, personnel, consultancy services and services represent the most significant portion of the costs associated with this specific activity.

figure 34 - Environmental Management System: characteristic activities 2007 - 2009



Source: UNIC 2009

figure 35 - Environmental Management System: costs structure 2007 - 2009



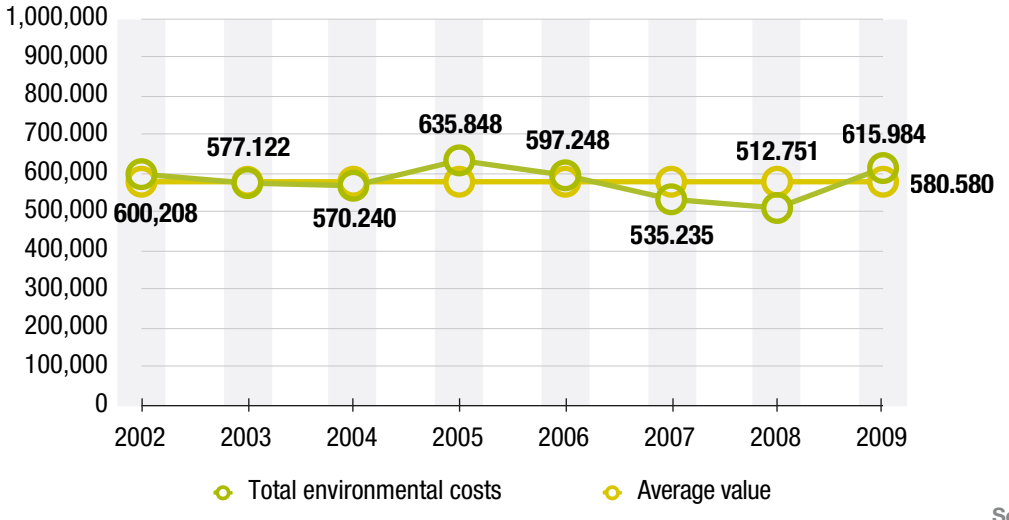
Source: UNIC 2009

final considerations

The absolute value of the average environmental expenditure per tannery (Figure 36) increased further in the 2009 survey. On average, each tannery spends approximately € 615,985. This figure ranks second only compared to the situation that emerged in 2005 (€ 635,848).

A number of indicators, in particular, the indicators concerning the consumption of chemical products, water consumption and the production of waste materials showed positive variations in 2009, with a loss of efficiency partly due to the variation in the types of incoming raw materials, to major production subdivisions and smaller orders, which are typical symptoms of the difficult economic situation being experienced. In general terms, it can be noted that the environmental performance of the tanneries, however, remains high throughout the period.

figure 36 - **Total environmental costs 2002 - 2009 (€)**



Source: UNIC 2009

table 8 - **Total environmental costs 2002 - 2009 (€)**

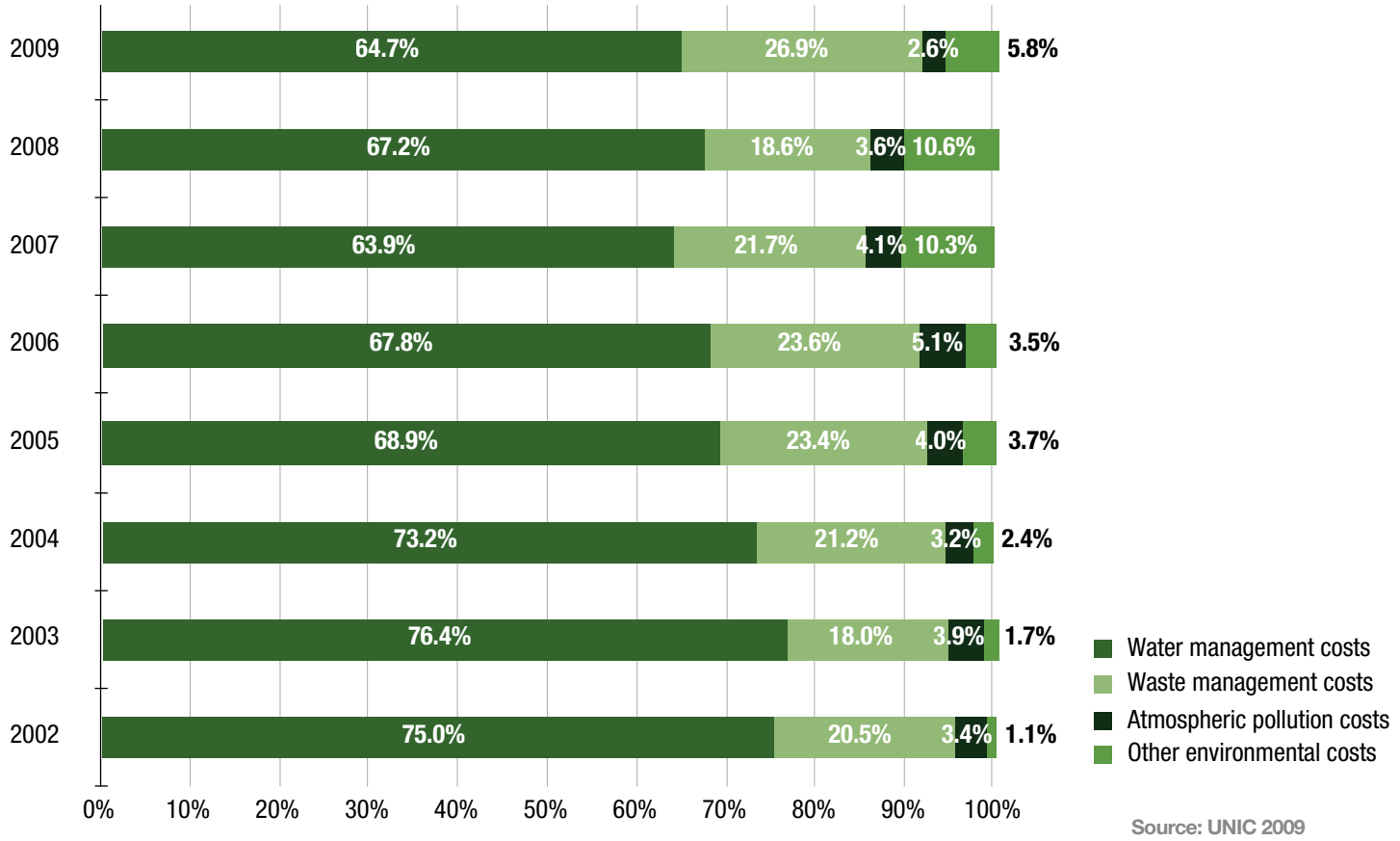
	2002	2003	2004	2005	2006	2007	2008	2009
Total environmental costs	600,208	577,122.3	570,239.8	635,848.3	597,248.0	535,235.0	512,751.30	615,984.56
Water management costs	450,398	444,047.8	420,414.1	468,784.5	440,326.1	342,095.0	344,531.47	398,364.13
Waste materials management costs	123,051	101,503.1	116,714.1	130,142.6	122,242.0	115,972.9	95,424.10	165,516.13
Atmospheric pollution costs	20,190	21,939.8	18,255.5	20,355.9	19,120.1	21,849.2	18,593.73	15,956.13
Other environmental costs	6,569	9,631.5	14,856.1	16,565.3	15,559.7	55,317.9	54,012.03	36,148.17

Source: UNIC 2009

Table 9 and Figure 37 illustrate the distribution of the environmental costs referred to 2002–2009. Water and waste materials are confirmed as representing the aspects with the greatest impacts from the economic point of view. The relative importance of the tannery residues management factor increased up to approximately 27% of the total in the 2009 survey. This result is to be partly attributed to an increase in the quota of waste materials produced per square metre of finished leather, and partly due to the greater attention paid by tanneries to this specific aspect that also has the effect of the relative increase in costs.

An increase in the incidence of environmental costs on turnover and on the total operating costs was recorded again this year. The values recorded (3.13% and 3.27%, respectively) represent the maximum values, although the increases were more limited compared to 2008. The overall increase in the incidence on turnover and total operating costs compared to the values referred to 2002, therefore corresponded to 64.9% and 55.8%, respectively.

figure 37 - **Environmental costs: distribution 2002 - 2009**



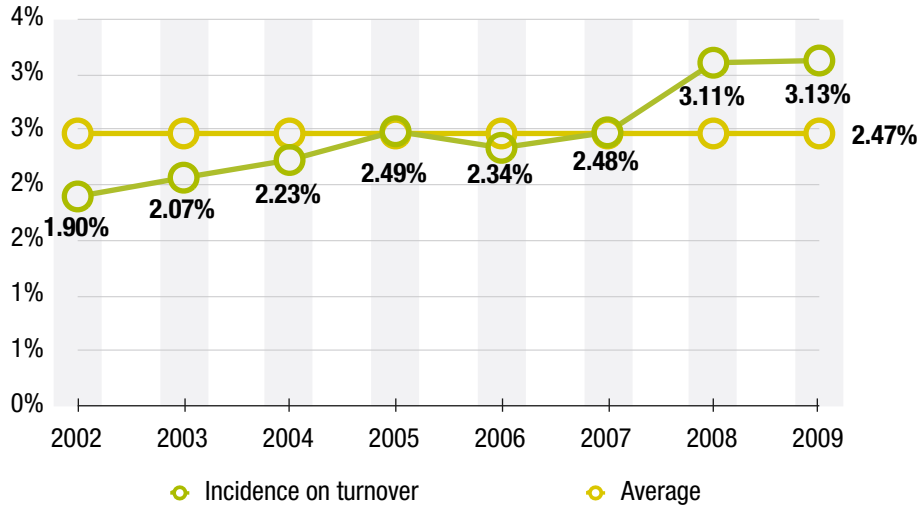
Source: UNIC 2009

table 9 - **Environmental costs: distribution 2002 - 2009**

	2002	2003	2004	2005	2006	2007	2008	2009
Water management costs	75.0%	76.4%	73.2%	68.9%	67.8%	63.9%	67.2%	64.7%
Waste materials management costs	20.5%	18.0%	21.2%	23.4%	23.6%	21.7%	18.6%	26.9%
Atmospheric pollution costs	3.4%	3.9%	3.2%	4.0%	5.1%	4.1%	3.6%	2.6%
Other environmental costs	1.1%	1.7%	2.4%	3.6%	3.4%	10.3%	10.5%	5.8%

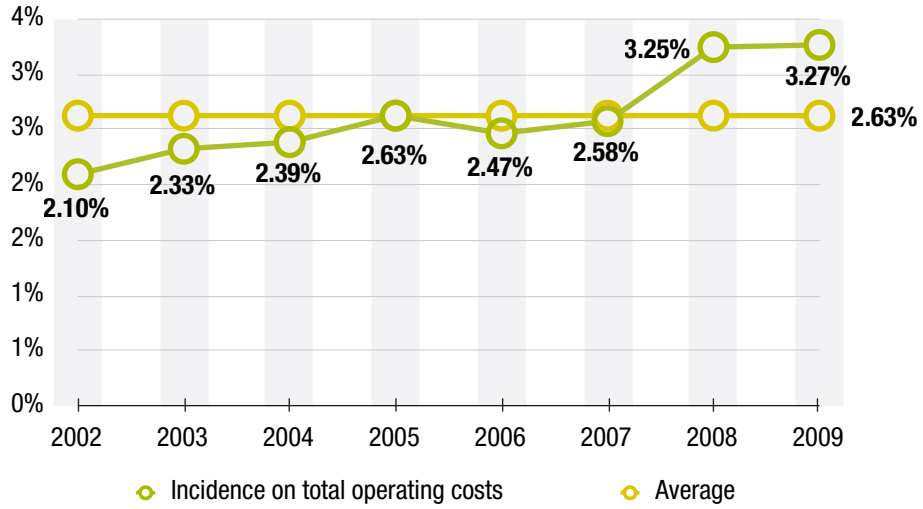
Source: UNIC 2009

figure 38 - **Incidence of environmental costs/turnover 2002 - 2009**



Source: UNIC 2009

figure 39 - **Incidence of environmental costs/total operating costs 2002 - 2009**



Source: UNIC 2009

Lastly, as is customary, Figure 40 illustrates the trends for the value of production and the incidence of environmental costs on turnover index-linked to 2002. The mirrored trend of the two curves is always apparent. The incidence of environmental costs increases as the value of production decreases.

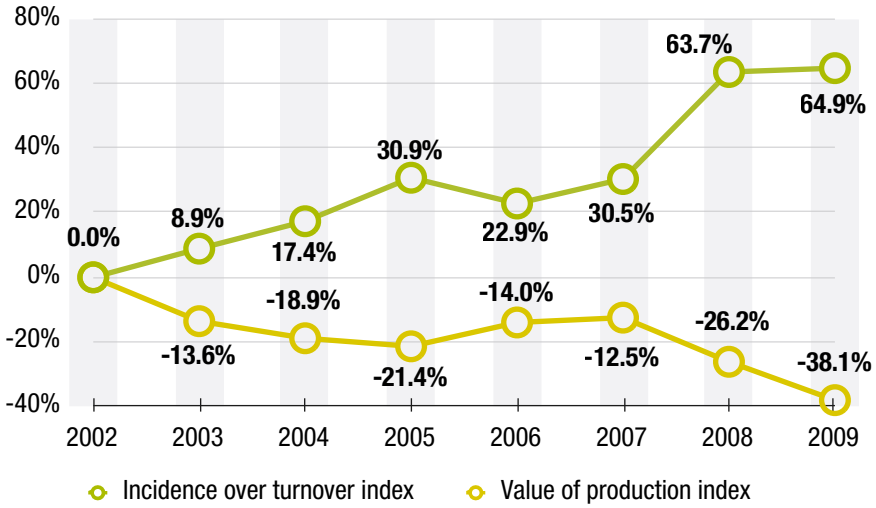
It is important to note in this context that over the years the Italian tanning industry has created medium-large size operating structures with the aim of reducing its inherent environmental aspects. For example, the consortium water treatment facilities which participated in this year's survey employ 356 persons, overall, while servicing approximately 739 tanneries. It is therefore evident that maintaining large centralised structures entails the existence of a component of fixed maintenance costs which therefore corresponds to a rigid structure of the environmental costs.

The 3.13% incidence of environmental costs on turnover is partly due to the fact that Italian tanneries are required to address the most demanding, complicated and "fragmented" legislation in the world. This corresponds to a loss of competitiveness on the international markets, above all, in the absence of policies which enhance reciprocity in relation to the emerging and competitor countries which are not subject to any cost associated with minimising the impact and depollution.

All this, if not adequately addressed, can have negative effects on a sector that has experienced a major crisis and that despite everything continues to produce wealth and progress, demonstrating a virtuous conduct from the environmental point of view, which should be rewarded and encouraged.

The efforts made should be acknowledged in order to safeguard the survival of the category, also through a series of measures to encourage environmental investments and to acknowledge the costs supported by assigning a tax credit in relation to the environmental expenses sustained.

figure 40 - **Trend for environmental costs / turnover - value of production 2002 - 2009**



Source: UNIC 2009

part

THREE

SOCIAL RESPONSIBILITY

Steadily increasing commitment and attention are dedicated to ethical and social aspects by the companies operating in the sector in order to strengthen and enhance the relationship with the supply chain and the local community.

The situation that emerges from the analysis of the information collected shows a sector that is firmly rooted in the territory and constantly committed to combining industrial growth with the well-being of its personnel, the sustainable growth of the territory and improving the quality of life of the local communities, also in collaboration with the local administrations.

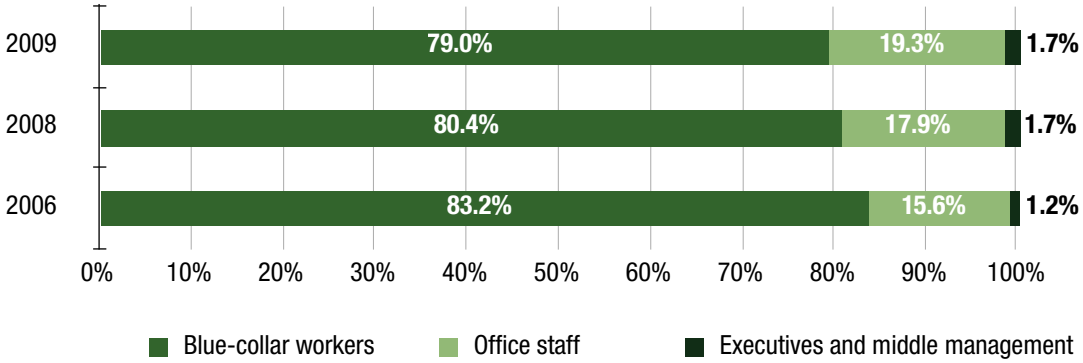
The tannery sector has its own Code of Conduct from 1999 that represents an important statement of its sensitivity in relation to social ethics, this Code of Conduct was completely rewritten at the end of 2008 to give the companies operating in the leather sector an important tool with which to communicate the commitment to protect workers and the environment and to guarantee the quality and safety of the products (in the Annex).

The information concerning the social aspects was processed on the basis of the information provided by a number of sample companies involved in the environmental balance, referred to the 2009 financial year, supplemented by the information provided by labour consultants that operate within the territory. This has enabled the data of the social portion of the report to be referred to a **sample of 197 companies which employ approximately 5,600 persons.**

The following indicators were considered:

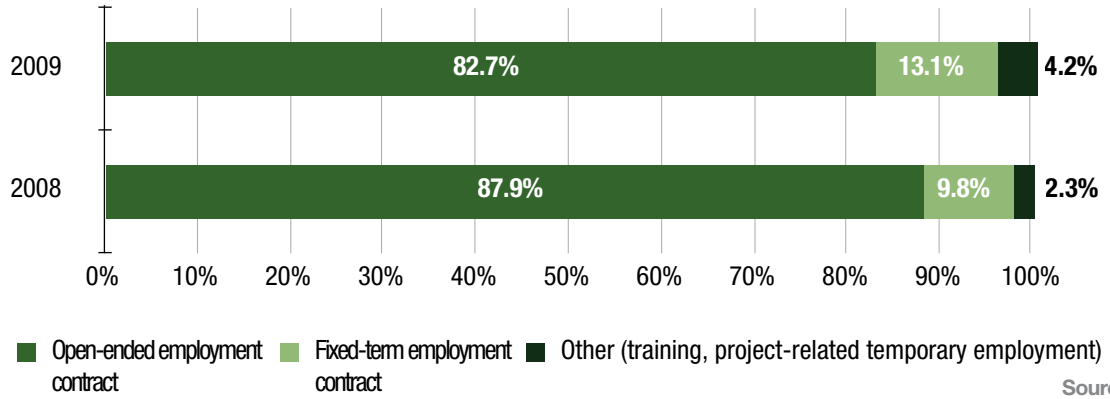
- ***Organisational structure***
- ***Type of employment contract***
- ***Age brackets***
- ***Seniority classes***
- ***Level of academic qualifications***
- ***Territorial origin***
- ***Structure of industrial relations***
- ***Workers who are Trade Union members***
- ***Unemployment benefit systems***
- ***Disciplinary measures***
- ***Incentives and benefits for workers***
- ***Training activities***
- ***Membership of inter-professional funds***
- ***Frequency of accidents***
- ***Ratio of serious accidents***
- ***Average duration of accidents***
- ***Actions taken to minimise health risks and occupational safety***
- ***Association policy and existence of internal self-regulation systems***
- ***Initiatives implemented at the local level***
- ***Relationships with the community and solidarity initiatives***

figure 1 - **Organisational structure 2006 – 2009**



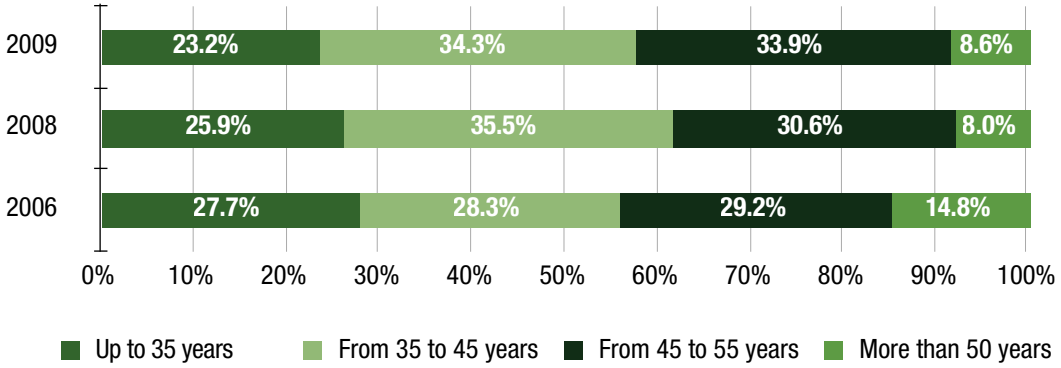
Source: UNIC 2009

figure 2 - **Contractual types 2006 - 2009**



Source: UNIC 2009

figure 3 - **Age brackets 2006 - 2009**



Source: UNIC 2009

survey results

The predominance of professional figures with technical and production type duties (79% of the workforce) in the company is confirmed by analysing the organisational structure of the companies operating in the sector (Figure 1), even if decreasing slightly compared to 2006 (83.2%).

Whereas, the low incidence of management and coordination type duties (office staff and middle management) is an indicator of the predominance of small and medium-size companies, however, almost always involving family enterprises, and the tendency to attribute the decision-making responsibilities to personnel in a middle management position, but with proven experience.

As is clearly shown in Figure 2, the majority of the persons who work in tanneries are hired with an open-ended employment contract (82.7% in 2009), with fixed-term employment contracts which represent the second item in order of importance (13.1%) and other types of contract (training, project-related, temporary employment) corresponding to the remaining quotas.

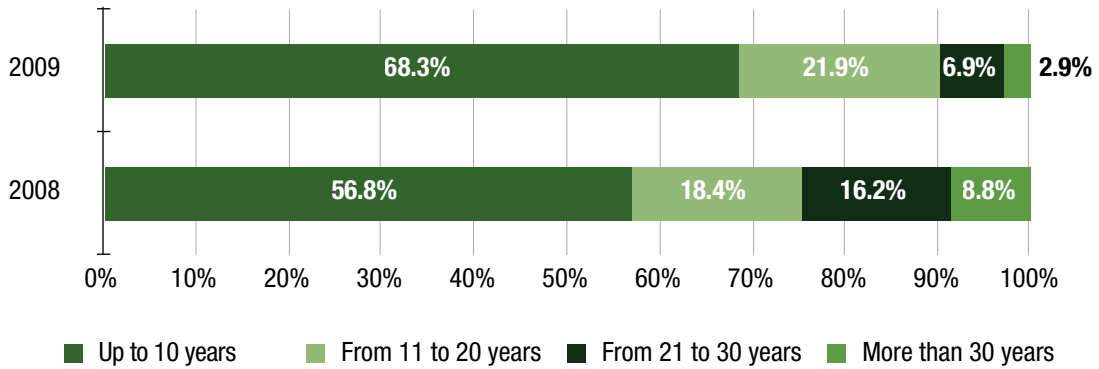
The distribution according to age bracket (Figure 3) shows quite a consistent distribution. The age brackets between 35 and 55 show the largest percentage incidence, with a representativeness of young persons aged under 35 that remains above 20% throughout the survey period. Therefore, the tannery sector appears to attract new workers at a constant rate.

As illustrated in Figure 4, more than 50% of the employees have worked in a tannery for less than 10 years (63.9% in 2009), with a significant quota of the total remaining for a large portion of their professional career.

The information illustrated in Figure 1 concerning the organisational structure is reflected fairly accurately by the analysis of the academic qualifications in the three-year period surveyed (Figure 4). However, the trend towards a progressive organisational structure for the sector can be noted with an increase in the incidence of figures with a diploma and University degree, and with both technical and organisational duties.

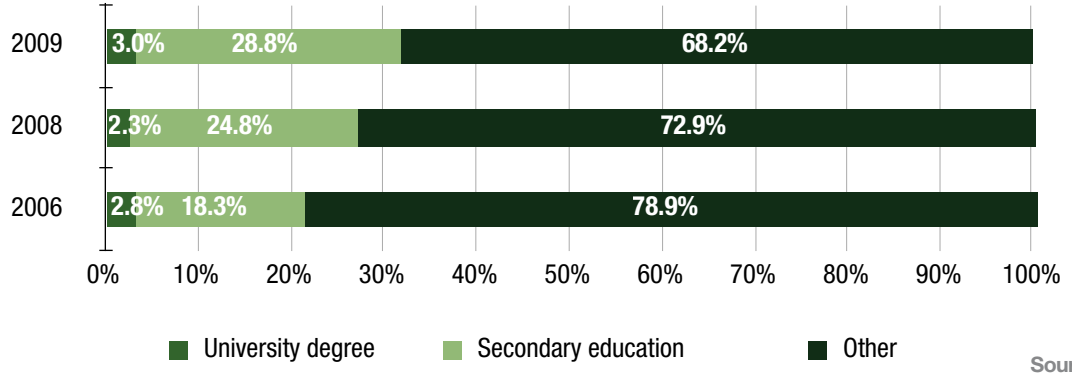
The tanning sector's firm roots in the territory and therefore its social and economic importance, in particular, can be noted by the distribution of the workers' territorial origin (Figure 6). In fact, a large portion of the personnel originate from the Province in which the company operates. The workers originating from Non-EU countries continue to be significant in numerical terms.

figure 4 - **Seniority categories 2008 - 2009**



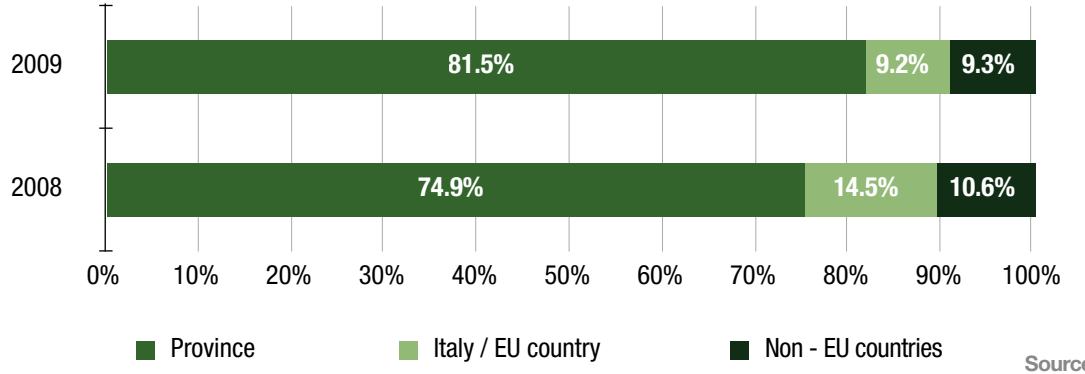
Source: UNIC 2009

figure 5 - **Level of academic qualifications 2006 - 2009**



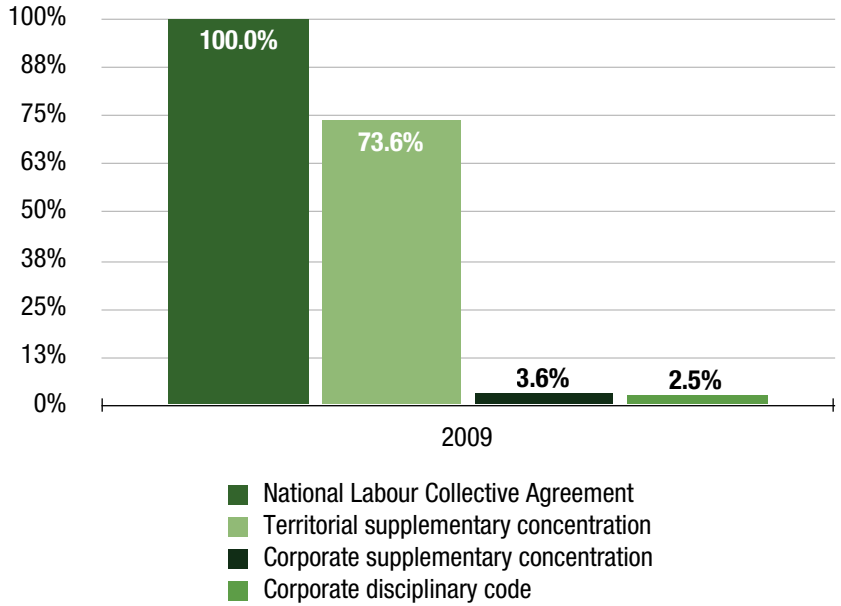
Source: UNIC 2009

figure 6 - **Territorial origin 2008 - 2009**



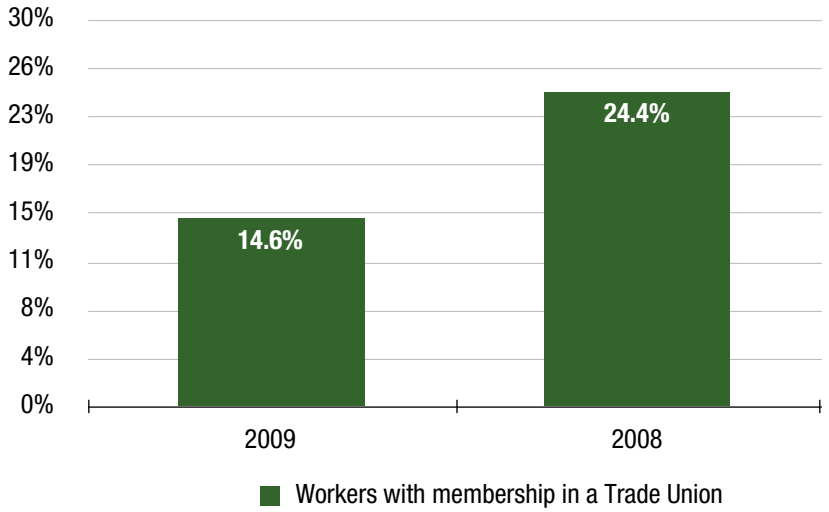
Source: UNIC 2009

figure 7 - **Structure of industrial relations 2009**



Source: UNIC 2009

figure 8 - **Workers with membership in a Trade Union 2008 - 2009**



Source: UNIC 2009

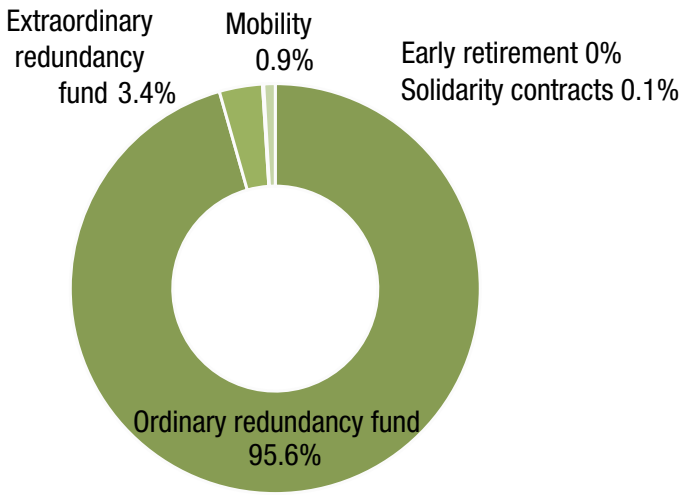
industrial relations

The trade and the social partners have developed a constructive relationship of exchange and dialogue over the years, confirmed by the numerous joint actions implemented to protect and develop the sector both at the domestic and European level.

The level and the structure of industrial relations were analysed in 2009, firstly considering the application of the various negotiating tools available to the companies (Figure 7). The Tannery National Labour Collective Agreement is applied by all the companies in the sample. A fraction of these companies (73.6% in 2009) integrates the National agreement with supplementary territorial negotiations and only a small portion with supplementary negotiations and corporate disciplinary codes.

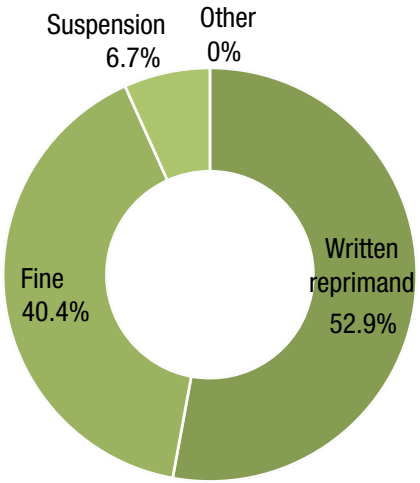
A variable percentage between 14.6% and 24.4% of the workers were members of a Trade Union during the two years covered by the survey (Figure 8).

figure 9 - **Redundancy arrangements 2009**



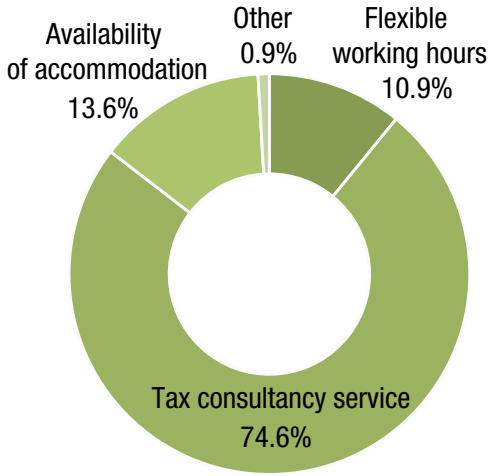
Source: UNIC 2009

figure 10 - **Disciplinary measures 2009**



Source: UNIC 2009

figure 11 - **Incentives and benefits 2009**



Source: UNIC 2009

Furthermore, the recourse to various types of redundancy arrangements available to the tanneries were monitored for the 2009 survey. By assessing their distribution based on the number of workers involved (Figure 9), it was found that the ordinary unemployment fund (Temporary Redundancy Benefits) represented 95.6% of the total, while the other instruments (extraordinary redundancy fund, solidarity contracts, mobility, early retirement) added together, corresponded to less than 4%.

Corporate relations were also monitored by analysing the disciplinary measures (Figure 10) and the incentives and benefits (Figure 11) referred to 2009. The data show a net numerical predominance of activities associated with incentives and benefits compared to disciplinary measures.

Figure 10 illustrates the apportionment of the latter, showing that the lesser measures have a much greater relative importance compared to the rest.

As far as benefits and incentives are concerned (Figure 11), the largest proportion is represented by tax consultancy activities in favour of the workers, with a significant quota also referring to companies making accommodation available for workers originating from distant locations.

training activities

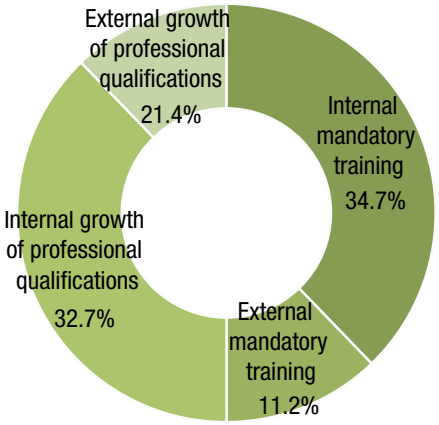
The training activities performed by the companies were also monitored during 2009, including mandatory training (all the training initiatives envisaged by law or by the employment contract, for example: training related to health and occupational safety, qualifications, apprentices, training contracts, etc.) and also including all the initiatives designed to achieve higher personnel qualifications, professional growth and refresher courses to enhance the company, and to involve the workers in relation to corporate policies.

As is apparent in Figure 12, the training initiatives performed by the tanneries involved in the survey focused almost equally on the activities envisaged by law and on other activities designed to enhance professionalism. Both types of training were performed within the company and at outside training organisations.

Considering the number of persons involved in the training process (Figure 13), the majority of cases referred to mandatory training initiatives performed internally.

The tanneries are adopting supporting tools more and more, in order to support the training activities designed for their own personal, for example: subscribing to inter-professional funds which finance the respective activities. In fact, 73.3% of the companies in the sample subscribe to these funds intended for the workers, while approximately 33.3% also subscribe to funds designed for executives (Figure 14).

figure 12 - **Training activities 2009: division based on the number of initiatives**

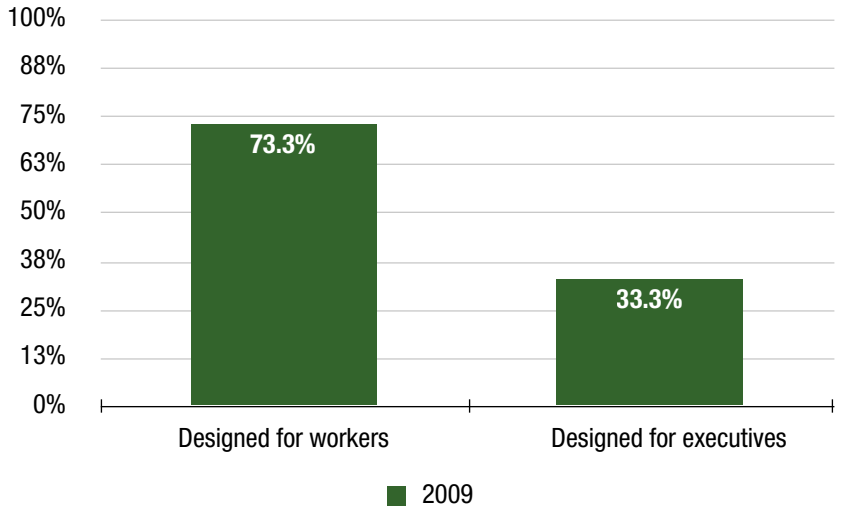


Source: UNIC 2009

figure 13 - **Training activities 2009: division based on the number of persons involved**

Source: UNIC 2009

figure 14 - **Subscription to inter-professional funds**



Source: UNIC 2009

accidents

The statistical analysis of accidents represents an important tool to appreciate the commitment that the sector dedicates to the prevention/protection of health and the workers' safety. For this reason the analysis was performed on the basis of the data provided by INAIL (National Insurance Institute for Industrial Accidents) referred to the 2006-2008 three-year period. The data referred to 2009 were collected from the sample of tanneries.

Three categories of indicators which are commonly used by INAIL or cited in the UNI 7249:2007 standards "Statistics of occupational accidents" were processed in order to be able to compare the data:

- **Relative frequency**
  total number of accidents*1000/number of workers.
- **Seriousness ratio**
  days lost/number of workers.
- **Average duration**
  number of days absent from work/number of accidents.

The trend for the relative frequency indicator shows a distinctly positive trend during the period considered, with the value of the index measured in 2009 slightly higher than 2.3 compared to the data referred to 2006 and 2007 that exceeded 6.

A marked increase can be noted during the period 2006-2009 by considering the Seriousness Ratio (Figure 16 days lost/number of workers), increasing from 1.64 for 2006 to 0.54 referred to 2009.

The analysis of the average duration of the time to recover from accidents (Figure 17 average duration in 2009 (days absence from work/number of accidents) then reflects a given consistency throughout the period considered, with values which vary between approximately 29 and 24 days.

The actions adopted by the tanneries to minimise the risks to health and workers' safety include the following: the tanneries implemented systems to manage health and occupational safety in 2009 (Figure 18), adopting practices/procedures to minimise occupational risk and implemented projects to reduce/prevent accidents.

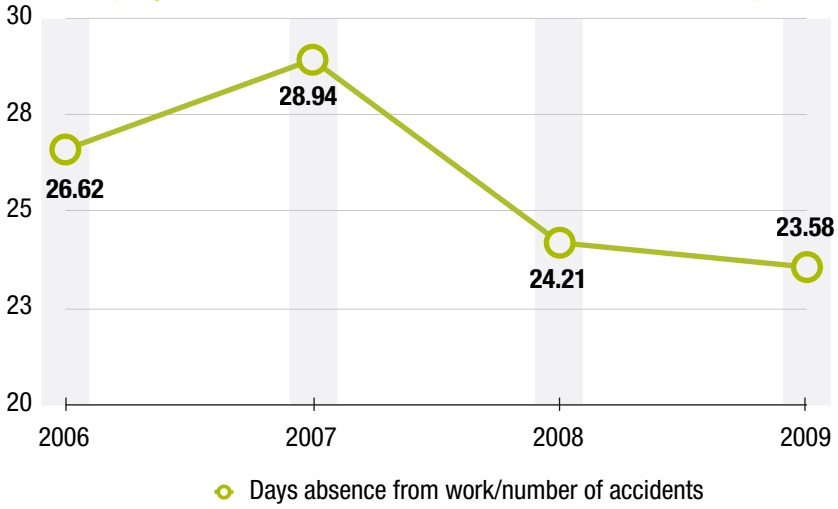
figure 15 - **Relative frequency of accidents during 2006 - 2009 (1,000 accidents/number of workers)**

Source: UNIC 2009

figure 16 - **Seriousness ratio 2006 - 2009 (days lost/number of workers)**

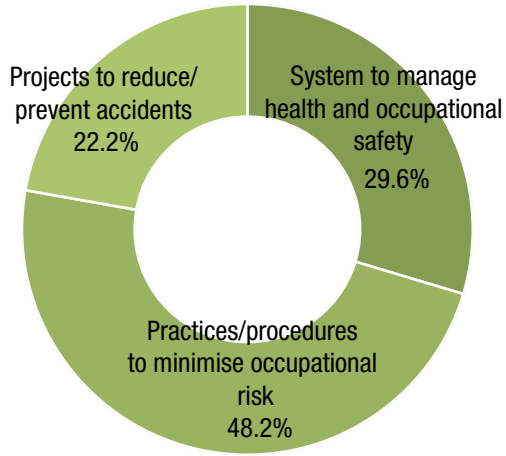
Source: UNIC 2009

figure 17 - **Average duration 2006- 2009 (days absence from work/number of accidents)**



Source: UNIC 2009

figure 18 - **Actions taken to minimise risks for workers 2009**



Source: UNIC 2009

corporate giving

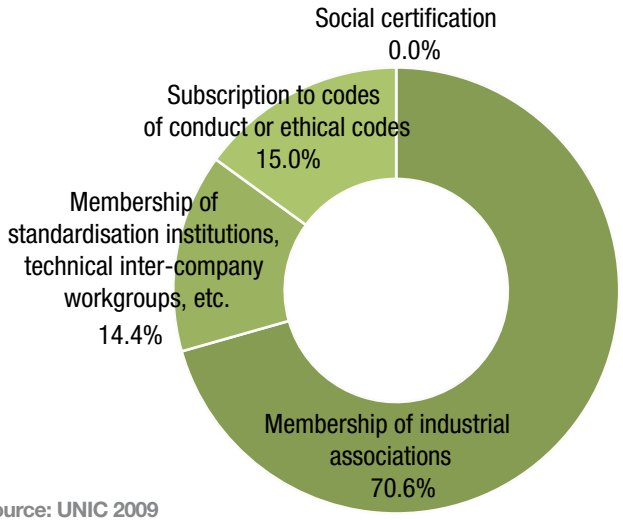
By analysing the information illustrated in Figure 19 it can be inferred that all the tanneries are members of industrial associations, at a national and local level. A fraction of these tanneries are also members of standardisation institutions, technical inter-company workgroups or other forms of multi-corporate association.

The subscription to codes of conduct and other ethical codes by some tanneries represents an example of internal self-regulation that is expanding greatly.

During the survey special attention was also focused on the initiatives performed by the companies at a local level, to improve local living conditions by participating in projects shared with territorial entities and organisations (Figure 20). The majority of the activities performed concerned the participation by tanneries in planning agreements to develop the territory (approximately 53%) and in district Projects (approximately 41%).

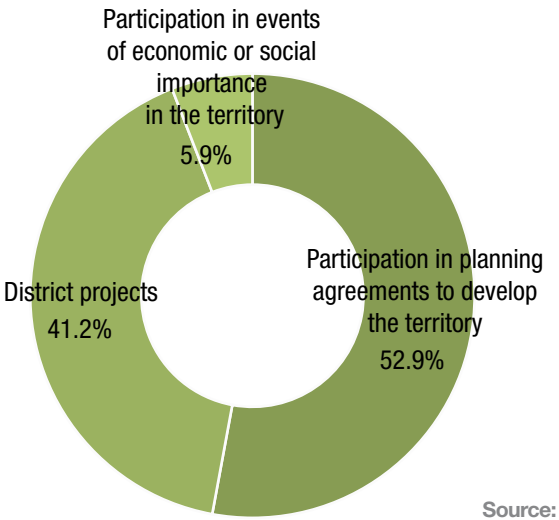
In addition, an analysis was made of the companies' commitment concerning social aspects (Figure 21), through donations, and other instruments, for example, with reference to solidarity, culture, education and environmental recovery. The actions implemented in 2009 concerned mainly Donations or other contributions in favour of no-profit associations and international solidarity initiatives.

figure 19 - **Association policy and the existence of self-regulation systems 2009**



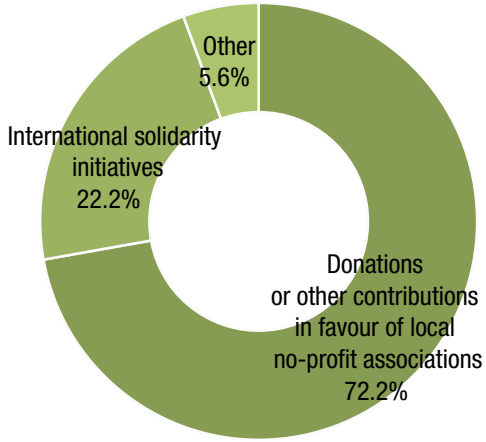
Source: UNIC 2009

figure 20 - **Initiatives implemented at a local level 2009**



Source: UNIC 2009

figure 21 - **Relationships with the community and solidarity initiatives 2009**



Source: UNIC 2009

Hanno collaborato

STUDIO BINI - SPALLETTI srl
Consulenza sul Lavoro - Servizi alle Imprese
Via San Tommaso n. 19
56029 Santa Croce sull'Arno (Pisa)
T. 0571.36511 F. 0571.34187
www.studiospalletti.it

part
FOUR

TECHNOLOGICAL AUDITS

The information outlined below provides an indication of the innovation needs identified when the technological audits were performed at the companies included in the sample. The survey aims to favour research and development processes, starting from the requirements of the enterprises. The following steps include activities which are designed to present the corresponding offer of know how, developing growth strategies, and creating the conditions so that competitive growth mechanisms are activated.

the method

The Audit activities are based on a method defined as "Gap Analysis". The method enables an analysis to be performed that considers each phase of the overall corporate process, identifying for each phase the characteristics of use, effectiveness, efficiency, and the value for the main factors associated with the strategic growth objectives.

Therefore, the aim is to identify the gap between the characteristics of each factor considered in the current situation of the company under review and the optimum conditions to achieve the objectives set.

type of innovation

The innovation requirements identified are classified in 4 categories:

- ***product innovation: namely, referred to the characteristics and functions of the finished product***
- ***process innovation: referred to materials, ancillaries and production technologies***
- ***organisational innovation: impacts the workflows and the corporate organisation models***
- ***market innovation: referred to the supply chain concerning its various components.***

As illustrated in Figure 1 the tanneries have mainly indicated needs concerning process and market innovation, reflecting 50% and 28% of the findings, respectively.

innovation objectives

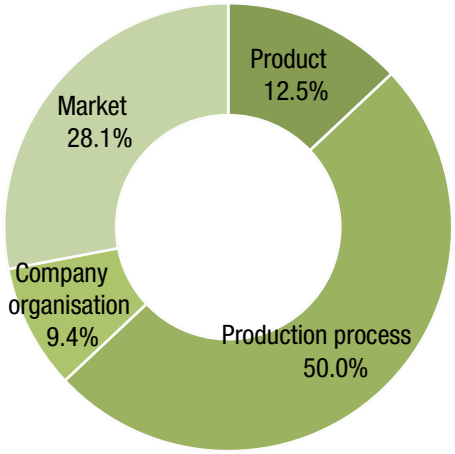
The results illustrated in Figure 2 indicate that the tanneries interviewed believe that innovation must necessarily tend towards a mitigation of the environmental impacts generated by processing (approximately 29% of the total) and to reduce the production costs (approximately 21%), tending to increase the quality and performance of the hides. Production flexibility, timing, new markets and automation complete the range of growth objectives associated with the innovative process.

It is apparent that the innovations requested must reduce the environmental impacts generated by the production processes. Based on an approach that focuses more on reducing the source of pollution rather than treating the pollution downstream, the tanneries request that the work is to focus on the consumption of chemical products and forms of energy which are associated with the main emissions into the atmosphere originating from the tanneries.

aspects associated with innovation

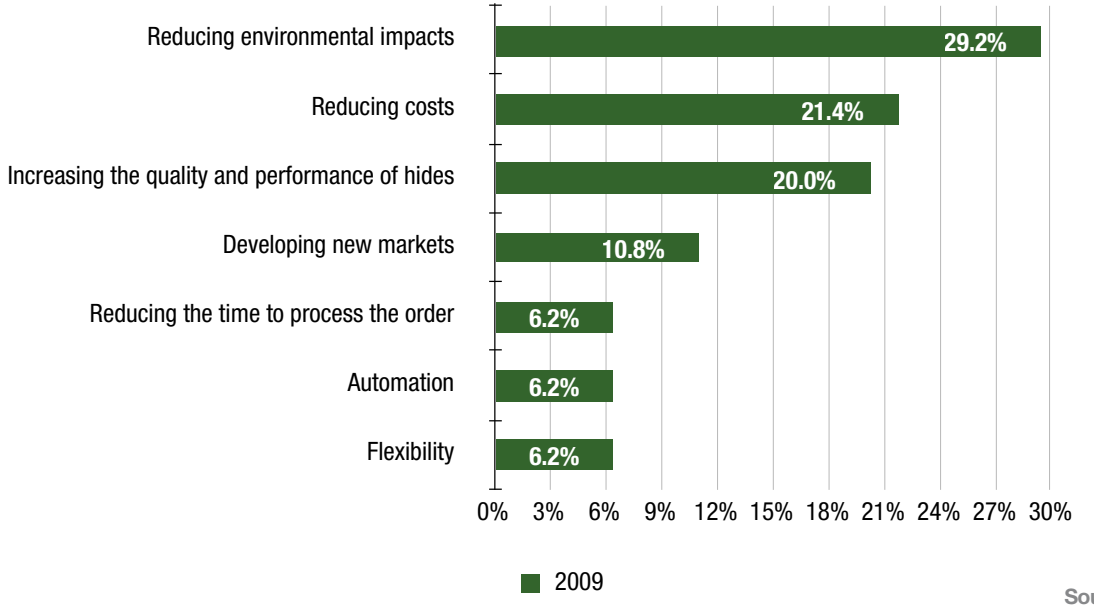
It is necessary to act mainly on the following aspects to achieve the strategic objectives: machines and plants, production processes, organisation of corporate information, including ICT systems. Instrumentation, environmental systems/plants, chemical products, represent the other factors indicated by the companies as being of interest.

figure 1 - **Innovation by type**



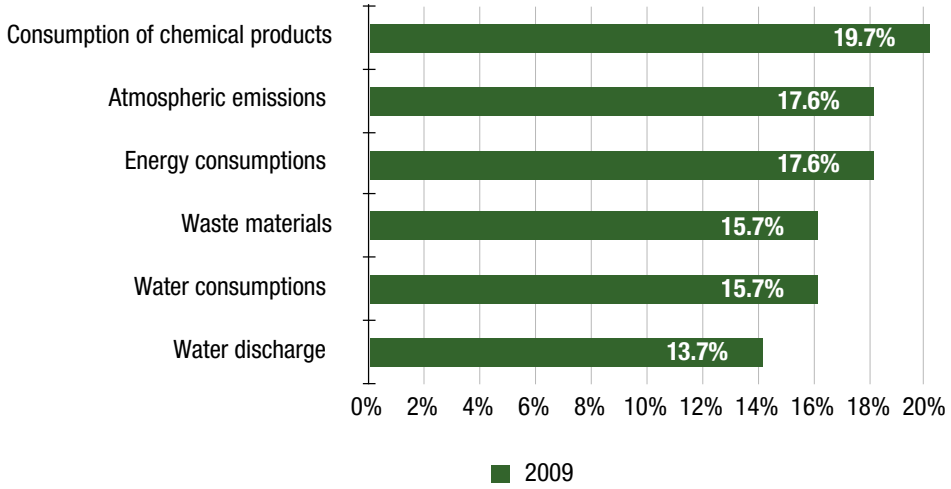
Source: UNIC 2009

figure 2 - **Innovation: objectives**



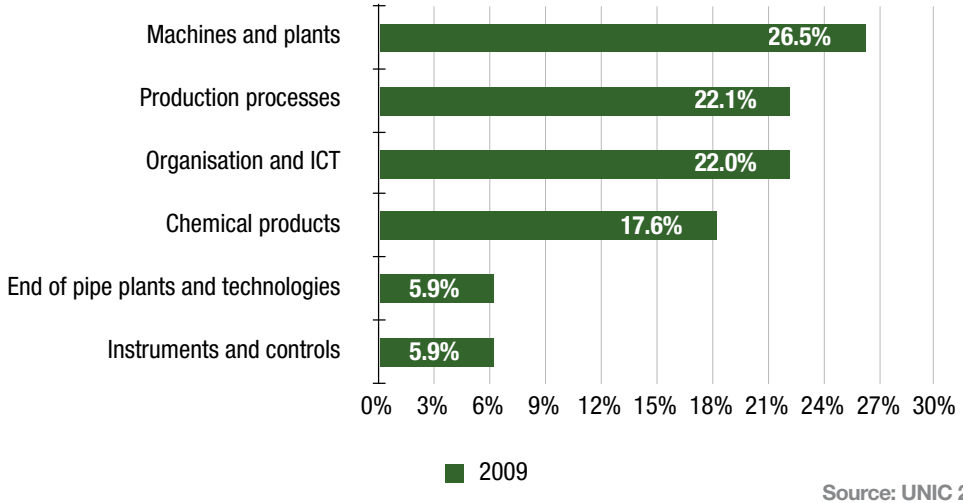
Source: UNIC 2009

figure 3 - **Environmental aspects associated with innovation**



Source: UNIC 2009

figure 4 - **Factors involved in the innovation process**



Source: UNIC 2009

APPENDIX

Introduction

The Company shall conform to the minimum requirements outlined in this document in order to comply with the (voluntary) UNIC code. The requirements have been extracted from the ILO (International Labour Organisation) agreements which discipline social accountability and transposed for the producers of goods and services in the leather sector.

Periodic controls are foreseen based on scheduled audits and performed by a qualified third-party body, duly appointed by UNIC to verify the compliance with and maintenance of the requirements prescribed and in order to issue the certificate of compliance with the UNIC code of conduct. Furthermore, audits are possible on suppliers/sub-contractors concerning compliance with the clauses which refer to them.

Social accountability

1. WORK PERFORMED BY MINORS

1.1 ►The Company shall not use or sustain the use of child labour (performed by persons less than 16 years old).
1.2 ►In particular, the Company must protect minors from situations which are potentially hazardous, risky or detrimental to health, both inside and outside the place of work, by complying with the provisions set out in the applicable legislation.

2. COMPULSORY WORK

2.1 ►The Company shall not use or sustain "compulsory" work and shall not request the personnel to provide "caution deposits" or identity documents at the date the employment relationship starts. The term "compulsory" refers to every form of work or service obtained under the threat of a penalty or which the person has not offered to perform voluntarily or that is requested as payment of a debt.

3. HEALTH AND SAFETY

3.1 ►The Company shall guarantee a place of work that is safe and healthy and shall adopt the appropriate measures to prevent accidents and injury to health during performance of the work or thereafter.
3.2 ►The Company shall appoint a management representative who shall be responsible for implementing the safety and health factors in the place of work.
3.3 ►The Company shall ensure that the personnel receive regular and documented training related to health and safety, and that such training is repeated for new personnel or reassigned personnel and shall verify the effectiveness of the training provided.

4. ENVIRONMENT

4.1 ►The Company shall establish and maintain active operating procedures and/or practices in order to reduce the environmental impacts associated with the Company's own processing operations.

5. ASSOCIATION AND NEGOTIATIONS

5.1 ►The Company shall comply with the right of all personnel to form and become members of freely selected trade unions and the right to collective negotiations.

6. DISCRIMINATION

6.1 ►The Company shall not discriminate in the hire, payment, access to training, promotion, dismissal or retirement, based on gender, race, national origin, disability, religion, social class, sexual orientation, trade union membership, political affiliation, age.

CODE OF CONDUCT

7. WORKING HOURS

7.1 ►The Company shall comply with the laws and the provisions set out in the applicable National Labour Collective Agreement (CCNL) referred to employees of tanning companies and related sectors with regard to working hours. The average duration of a working week, calculated with reference to a period of 12 months, in general, shall not exceed 48 actual working hours. The personal shall be guaranteed a rest period of at least 24 consecutive hours during a period of 7 days.

8. REMUNERATION

8.1 ►The Company shall ensure that the remuneration paid always corresponds to the legal standards and the minimum parameters established in the National Labour Collective Agreement (CCNL) referred to employees of tanning companies and associated sectors.

8.2 ►The Company shall ensure that the breakdown of the remuneration and indemnities is indicated clearly and regularly.

9. MANAGEMENT

9.1 ►The Management shall define a corporate policy that disciplines social accountability and the working conditions in order to ensure:

► a) lthe commitment to comply with and to maintain compliance with the applicable laws and to comply with the acknowledged international agreements;

► b) the commitment to foster continuous improvement, in particular, concerning its own organisational system;

► c) its accessibility in an understandable form to all the personnel, including directors, executives, and the management;

► d) its accessibility by the general public.

9.2 ►The Company shall appoint a management representative who assures compliance with all the requirements set out in this document, regardless of other possible responsibilities (refer also to 3.2).

9.3 ►The Company shall ensure that the operations personnel select a representative from among their members with the duty of facilitating relationships with the management in relation to matters associated with this document.

9.4 ►The Company shall establish and maintain active appropriate procedures to assess and select suppliers and subcontractors on the basis of their ability to comply with the requirements set out in this document and to provide documented evidence.

9.5 ►The Company shall establish and maintain active procedures to communicate regularly to all parties concerned the data and other information concerning the Company's performance in relation to the requirements set out in this document.

9.6 ►The Company shall maintain appropriate documentation to attest compliance with the requirements set out in this document.

10. PROFESSIONALISM

10.1 ►The Company shall register its financial statements relating to its business activities with a public body.

10.2 ►The Company shall comply with principles of openness, fairness and transparency when hiring personnel, in its contractual relationships and in market competition and ensure the quality of the products and safeguard the consumer.

10.3 ►The Company shall demonstrate the respective adequate management based on objective evidence, through corrective actions in the case of disputes concerning the aspects set out in this document and for the purposes of their settlement. Moreover, the Company shall prepare preventive actions to avoid a repetition of such disputes.

THE TANNERIES

Adelaide S.p.A.
Bassano del Grappa (VI)

Ambassador S.p.A.
Santa Croce sull'Arno (PI)
www.ambassadorconceria.it

Antiba S.p.A.
Santa Croce sull'Arno (PI)
www.antiba.it

Basmar
Rino Mastrotto Group S.p.A.
Trissino (VI)
www.rinomastrottogroup.com

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Santa Croce sull'Arno (PI)
www.bcn.it

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www.bonaudo.com

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Santa Croce sull'Arno (PI)

Calbe
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Arzignano (VI)
www.rinomastrottogroup.com

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Santa Croce sull'Arno (PI)

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Solofra (AV)
www.carismaleather.it

Conceria di Urgnano S.r.l.
Loc. Battaina - Urgnano (BG)
www.skiver.it

Dani S.p.A.
Arzignano (VI)
www.gruppodani.it

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Arzano (NA)
www.deanspa.it

DMD Solofra S.p.A
Sant'Agata Irpina (AV)
www.dmdsolofra.it

Fratelli Guarino Di Donato Snc
Sant'Agata Irpina (AV)

Gaiera Giovanni S.p.A.
Robecchetto con Induno (MI)
www.gaiera.it

WHICH COLLABORATED

Incas S.p.A.
Castelfranco di sotto (PI)
www.incas.it

La Veneta S.p.A.
Arzignano (VI)
www.gcveneto.com

Lloyd S.p.A.
Santa Croce sull'Arno (PI)

Lufran S.r.l.
Santa Croce sull'Arno (PI)

M.I.B. S.p.A.
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www.pandora.it

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www.russodicasandrino.com

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Castelfranco di sotto (PI)
www.sciarada.it

Settebello S.p.A.
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