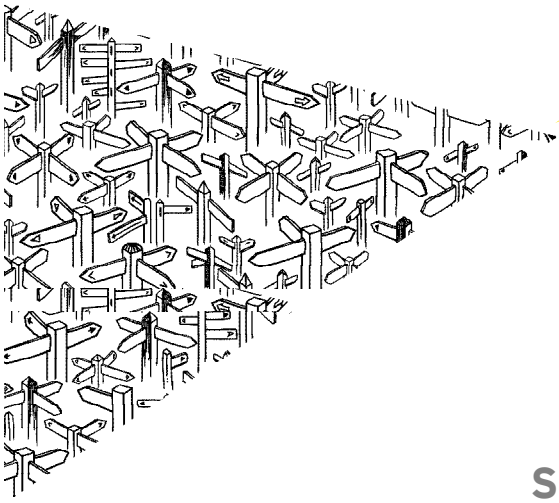

Sustainability in the leather supply chain

Research for MVO Nederland

Final Report

June 2013

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Content

Executive summary

In this research report Ernst & Young assesses the sustainability issues in the leather supply chain with a focus on the effects/risks and relevant trade flows for Dutch companies. The research consists of three parts. Part one addresses the main trade flows and trends in the leather supply chain. Part two describes the main processes used in the different phases of the supply chain and outlines the global sustainability issues that can occur. Part three identifies which of the global sustainability issues occur in ten selected countries: India, Pakistan, Bangladesh, China, Vietnam, Indonesia, Thailand, Brazil, Uruguay and Egypt. The research was conducted for MVO Nederland from December 2012 to May 2013.

Part one: The leather supply chain

China and Italy important players
The leather (goods) supply chain is a globalised one. Its dynamics are dictated by conditions such as the spread in the availability of animals, capital and cheap labor and different regulatory frameworks. Most important producing, processing, importing and exporting leather countries are located outside of Europe. The most relevant exception being Italy which is –after China- the world's second producer, processor, importer and exporter of leather and leather goods.

Competition challenges European market
At European level access to raw materials, access to fair trading market conditions and the effects of the successful modernization of the European leather sector – which at times hurts the competitive position of more expensive European products - are the main challenges of the European Leather Industry. This trend is also seen in the Netherlands. Here, high cost of labor and more stringent environmental legislation have lead to a loss in competitiveness in relation to upcoming markets such as South Europe and Asia. The Netherlands presently counts two tanneries and three finishing plants. Even though the sector is small, the Dutch leather supply chain shows a rather international spread.

Dutch imports: Europe and Asia
The main types of hides and skins imported into the Netherlands are of Bovine (77%) and Sheep (15%) origin. The Netherlands import around 2.960.979 tons of hides and skins yearly. The main sources of bovine hides into the Netherlands are Germany (**51)**% and Belgium (**20%)**. The main sources of sheep hides are: France (**34%)** and Switzerland (**21%).** The main types of leather imported into the Netherlands are of Bovine (84%) and Pig (10%) origin. The main suppliers of bovine leather for the Dutch market are Italy (38%) Germany (24%), Brazil (17%), and India (6). These countries mainly source their bovine hides in Europe. Top pig leather imports into the Netherlands originate from Asia, with China being the most important source (82%), followed by Taiwan (13%).

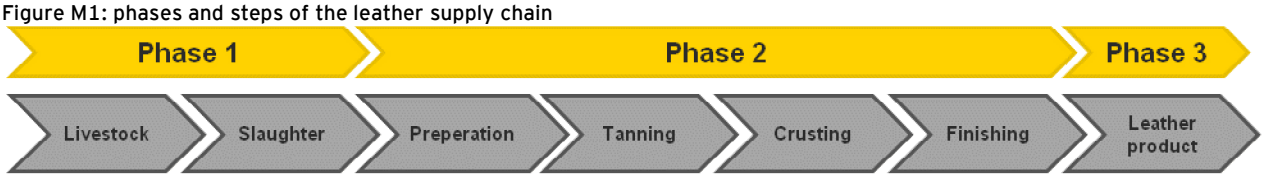
Looking at the origin of leather goods entering the Dutch market, we see China (70%), Germany (6%) and India (5%) predominate as countries of origin. China in its turn imports most of its leather from Brazil, United States and Argentina.

Part two: Sustainability issues in the leather supply chain

Scoping: livestock to finished leather

The scope of the research was limited to the first two phases of the supply chain (see figure M1). The first phase covers the part of the supply chain from animal to raw hide or skin. The second phase covers the supply chain from raw hide or skin to leather.

Figure M1: phases and steps of the leather supply chain



Even though livestock is not reared for leather, this step is included because the issues in the livestock phase are severe and it is difficult to obtain sustainable leather from unsustainably reared livestock. In addition to the scope of the research, the leather product phase also encounters sustainability issues. So, it is important to include this phase in activities to make the supply chain (more) sustainable. The research shows that the sustainability issues that can occur in the supply chain can be severe and require attention. Table M2 shows that all categories of sustainability issues occur in this supply chain.

Table M2: Sustainability issues in the leather supply chain

	Phase			
Issue	**Livestock (incl. feed)**	**Slaughter**	**Preparation & Tanning**	**Crusting & Finishing**
Climate change				
Biodiversity & deforestation				
Pollution of air, water and soil				
Water use / water availability				
Waste				
Animal welfare				
Resources scarcity				
Land acquisition				
Community impact				
nuisance				
discrimination of small local farmers				
Health and safety workers and community				
Human rights				
Child labour				
Forced labour & human trafficking				
Freedom of association				
Labour conditions (contracts, living wage, working hours)				

issue identified
no issue has been identified

Livestock issues: deforestation, animal welfare, land use and climate change
Rearing livestock is an activity that comes with many sustainability risks. Important issues that occur only in the livestock phase include deforestation due to extensive cattle rearing and the increasing need for agricultural land to produce feed. This leads to resources scarcity, mainly of fertile land, which leads to unfair land acquisition and discrimination of small farmers and/or indigenous peoples. Animal welfare also remains a persistent issue. Climate change threats are also largest in the livestock phase. Land use change, methane released from enteric fermentation and manure and fertilizers used in feed production are some of the main causes of climate change. In the other phases of the supply chain, the main contribution to climate change is found in energy use for machines.

Pollution widespread and persistent
Pollution of air, water and soil may occur in all phases. In livestock rearing and slaughtering pollution occurs with organic contaminants. During tanning and finishing both organic and chemical contaminants cause pollution. The consequences of this contamination for flora, fauna and human health, is severe. Contamination affects groundwater and the availability of clean drinking water. Water use in slaughter, tanning and finishing can cause water availability problems in water scarce regions. However, contamination of available water sources seems a more substantial problem.

High risk in poor labour conditions
All phases of the supply chain can be considered as hazardous work with high health risk resulting from working with animals (livestock and slaughter), sharp tools (slaughter, tanning and finishing) and chemicals (tanning and finishing). Often workers are insufficiently protected and trained to ensure their health and safety.
Human rights issues can be a problem throughout the supply chain. Child labour, forms of forced or bonded labour, lack of freedom of association and bad working conditions may occur in all phases and are wide spread. Pressure from parties downstream in the supply chain, asking for low prices, short delivery timelines and switching to the cheapest option, adds to this problem.

Part three: Sustainability issues in ten countries
Local research shows that not all sustainability issues occur in all countries. In addition the good practices developed by local government or companies, also vary. Even in one region, like South America, the difference between Uruguay and Brazil is remarkable. For example: In Uruguay wages and labour conditions have gone up, resulting in better social circumstances, but also in a worse competitive position and a decline in the size of the sector, leading to unemployment. Brazil on the other hand still struggles with forced and bonded labour, child labour, bad working conditions and major deforestation problems. However, some issues, like child labour and pollution, seem a risk in nearly all of the countries investigated. The findings of the local research are presented in factsheets which are a good point of departure for companies that wish to assess the risk they might encounter when sourcing from suppliers in these countries.

Sustainable solutions
Throughout the research and in annex 2, a variety of sustainability initiatives and business solutions are presented. Also, every country factsheet includes a local CSR initiative. They show that a sustainable practice is possible. The sector is taking steps to regulate the use of chemicals, prevent pollution with cleaner production technologies or adopt labels that prove good social and environmental practices. Some companies even develop business models in line with the concept of circular economy.

In conclusion

The sector is confronted with substantial sustainability challenges in the supply chain. The good practices identified show that there are sustainable solutions. The challenge is to extrapolate these solutions to the entire supply chain, whilst maintaining a competitive advantage. This requires new sustainable business models from companies throughout the supply chain. This report can help companies and other organisations to get insight in the specific CSR risks in their supply chains. This insight is an essential first step in order to work towards a sustainable supply chain, together with supply chain partners and supporting organisations. We encourage companies to take this first step and work cooperatively towards identifying sustainable business models and creating a sustainable supply chain.

1 This report

As the national knowledge and network organisation on CSR, MVO Nederland wants to generate knowledge on the trade flows and the sustainability issues that occur in the leather supply chain. MVO Netherland has asked Ernst & Young to research the leather supply chain, with a focus on the effects/risks and relevant trade flows for Dutch companies. The research was conducted from December 2012 to May 2013.

The research report consists of three parts. The first part (chapter 2) analyses trade flows of raw hides & skins, of finished leather and of leather used in products. Whilst the chapter also discusses global and European trade flows, the main focus is on trade flows connected with the supply chain of Dutch companies. The chapter also discusses general trends that influence the trade flows in the sector.

The second part (chapter 3) identifies the main sustainability issues that can occur in the in the different phases of leather production in the scope of this research: livestock, slaughter, preparation, tanning and crusting & finishing. The chapter also gives insight in some best practices in the leather supply chain. This research is mainly based on a desk study, complemented by a number of interviews.

The third part (chapter 4) gives insight in the sustainability issues that occur in ten countries that are part of the supply chain of Dutch leather using companies and that, based on our research, are at risk of sustainability issues occurring. The ten countries selected are: India, Pakistan, Bangladesh, China, Vietnam, Indonesia, Thailand, Brazil, Uruguay and Egypt. This research was done by Ernst & Young's regional experts by a limited desk study and/or interviews. Per country a country factsheet provide insight in the economic relevance of the leather sector, the main sustainability issues and a best practice from the country.

The final chapter gives conclusions and recommendations for future steps.

2 The leather supply chain

2.1 *Introduction*

This chapter gives a general introduction to the Global and the European leather supply chains before taking a deeper dive into the Dutch leather supply chain.

Paragraph 2.2 gives an overview of the main global producers of hides & skins, leather and leather goods. The information used in this paragraph stems mainly from the FAO.[1] It helps to set the scene for the global supply chain of leather.

In paragraph 2.3 an overview is given of the top 5 countries into and from which the European Union exports and imports hides, leather and leather goods. This gives some insight into the main incoming and outgoing flows of the leather supply chain into Europe. Furthermore, this paragraph also highlights the main challenges the European Member States experience when engaging in the global leather supply chain.

Paragraph 2.4 entails an analysis relevant to the central question of MVO Netherlands regarding trade flows, namely: who are the most relevant import partners to the Netherlands regarding hides, leather and leather goods? As requested, we have mapped the following:

- Top 5 of countries from which the Netherlands imports hides
- Top 5 of countries from which the Netherlands imports leather + for each of these countries their top 5 providers of hides
- Top 3 countries from which the Netherlands imports leather goods + for each of these countries their top 3 providers of leather + for each of these countries their top 3 providers of hides.

2.1.1 Remarks on the data and methodology used in this study

Sources of information
The tables and overviews showed in this chapter have been generated from data of official statistic databases of FAOSTAT[2], Eurostat[3] and CBS[4]. Additionally, data of the FAO Compendium[1] the Chinese Trade and Research Center[5] and the Indian Chamber of Commerce[6] has been used. For China data on the origin of leather imports was only available at a high level aggregation. The China trade and research center provides only the qualitative top 3 import partners to China. That is the reason that no further differentiation was possible and also the reason why paragraph 2.4 does not include trade percentages for China. The data set from the India Chamber of Commerce provides information on import flows of leather into India. Besides the data from databases, relevant publications (see end notes) have been used for cross-reference.

Comparability of source data
Please note that publications and databases may use different definitions and time series to capture trading data. An overview of the databases, the used definitions and the time series covered in this study, is given in Attachment 1.

All data used in this research reflects quantities of products produced, imported or exported. The rationale is that this enables a volume comparison and therefore more insight in the amount of processing activities taking place in a country.

The original datasets for leather and leather goods include goods of different customs tariff codes. At times these are measured in different units. In order to enhance comparability of trade flows, this study has harmonized the units given in the databases by determining the following conversion factors:

Table 1: Used data conversion factors

Good	Database unit (as is)	Report unit (to be)	Conversion factor
Leather	kg	M2	1:1
Leather of bovine hide	Piece	M2	1:4
Leather of pig skin	Piece	M2	1:1
Leather of goat skin	Piece	M2	1:1
Leather of large game hide	Piece	M2	1:7
Leather of lamb skin	Piece	M2	1:1
Leather of horse hide	Piece	M2	1:4
Leather of reptile hide	Piece	M2	1:4
Leather of sheep hide	Piece	M2	1:1
Leather of hides & skins/ unknown animals 'general'	Piece	M2	1:2
Leather goods – gloves	Pair	Kg	1:0,2
Leather goods – briefcases	Piece	Kg	1:2
Leather goods – handbags	Piece	Kg	1:1

Going forward, the insight into the datasets of international leather trading flows would benefit from a practice of reporting in harmonized or multiple units, so that comparability of flows can be improved.

Origin of goods
While the focus of this research is on trade and trade movements between countries, it acknowledges that each country will also be an important source for its own demand of hides, leather and leather products. As a consequence the research takes into account that activities necessary to generate a specific (by) product will also take place in the country engaging in trading activities for this product. This is particularly relevant to paragraph 2.4.

Additionally, it should be pointed out that while the top 5 and top 3 trade flows are mapped in this research, it is well possible that the actual origin of a specific flow of goods from one country into another has an origin that is not included in the top 5 or top 3 list of trading partners. For example: Leather imported into the Netherlands from India can be made out of a skin originating in one of the top 5 sources of supply of hides & skins to India (e.g. Germany), but it could also have a different

origin. Based on the available data it is not possible to pinpoint the exact origin of the flows. That is why the top 5 has been chosen as a relevant indication of important trade partners. It is likely that leather created in India used hides & skins with an origin of one of these top 5 suppliers or India itself.

Status of the used data
Finally, please note that all data presented in the databases reflect official trading data. Informal trade movements are therefore not captured by this research. Informal trade movements could however be relevant when for example trade barriers impede normal flow of goods between countries.

2.2 *Insight into the global leather market*

The supply chain of leather goods comprises three broad stages. The first stage in the leather supply chain is to obtain raw material. In this case obtaining animal hides & skins. In the second stage, raw hides & skins are tanned and finished to convert them into leather. In the third stage leather products are manufactured. Where the production of hides & skins can be considered a by-product of the meat industry, the second stage can be considered the most capital intensive and the third stage the most labor intensive[7]. This differentiation has an impact on how related activities tend to spread globally.

The leather goods supply chain is a globalised one. The spread in the availability of animals, capital and cheap labor and different rules and regulations leads to an overall trade picture in which hides, leather and leather products are traded across the globe. Often, developing countries benefit from cheap access to raw material and lower labor costs and are able to achieve leather production at lower cost than developed countries. Naturally, there are regional differentiations to this general picture.

In 2011 the Food and Agriculture Organization (FAO) of the United Nations published the World statistical Compendium for raw hides & skins, leather and leather goods[1]. This comprehensive report provides a good overview of the state of affairs and major trends in the leather industry between 1992 and 2011.

The research shows that, on a world scale, China (13%), United States (11%), Brazil (11%), India (8%), Argentina (4%) and Russia (4%) are the top producers of bovine hides. With the bovine hide production in Brazil showing a slight rise in the last 10 years. China (22%), Australia (7%), New Zealand (6%), India (5%), Iran (5%) and the Islamic Republic of Iran (5%) are important producers of sheep and lamb skins. Major goat and kidskins producing countries include China (31%), India (17%), Bangladesh (7%), Pakistan (6%) and Nigeria (5%). Unfortunately the FAO research does not provide data on the global production of pig skins.

Table 2: Overview of top 5 global producers, importers and exporters of light and heavy leather[1]
Please note the figures below represent average values over the years 1992 – 2011.

Leather					
Production (Global quantity %)		Import (Global quantity %)		Export (Global quantity %)	
China	18%	China	63%	China	43%
Italy	10%	Italy	10%	Italy	13%
Korea	7%	United States	3%	Brazil	7%
India	7%	Korea	3%	Korea,	5%
Russia	6%	Spain	2%	United States	4%
Brazil	6%				

As can be seen from the table above, global trade production of leather shows a predominance for China (18%), Italy (10%), Republic of Korea (7%), India (7%) and Russia and Brazil (both 6%) as the main leather producing countries. Looking at the average export figures between 2000 – 2011, China appears to be the leading leather exporting country, followed by Italy in Brazil. However, the past 3 – 4 years have shown a trend of declining exports for China and increasing exports for both Italy and Brazil. It seems like these countries are strengthening their export position of leather. Considering these figures, most important producing, importing and exporting leather countries are located outside of Europe. The most relevant exception being Italy which is the world's second producer, importer and exporter of leather.

On a global basis, the main product generated out of leather is footwear with leather uppers. By far the largest producer and exporter in this segment is China followed, at a long distance, by Italy. The US is the main importer.

Table 3: Overview of top 5 global producers, importers and exporters of footwear with leather uppers[1]
Please note the figures below represent average values over the years 1992 – 2011.

Footwear with leather uppers					
Production (Global quantity %)		Import (Global quantity %)		Export (Global quantity %)	
China	41%	United States	30%	China	57%
Italy	6%	China	21%	Italy	8%
Mexico	6%	Germany	7%	Brazil	4%
Brazil	4%	United Kingdom	6%	Indonesia	3%
India	4%	France	4%	India	3%

Trends & developments

According to Cotance[8], on a global scale, the leather industry is rather mature. The organization does not necessarily expect there will be relevant newcomers to the global leather industry (especially tanning) in the coming years. According to Cotance, most countries that could benefit from a difference between the free market and internal market conditions (like e.g. access to low cost raw materials produced in the own country), have already used this advantage and taken strong trading positions. This strong position is even making it hard for newcomers to enter the leather market. In this view, global trade flow patterns, specifically main players, are expected to remain constant in the near future.

Free Trade?

Whereas global trade plays a crucial role in the leather supply chain, this trade is not always free between countries. Countries use tariff and non-tariff barriers to protect their domestic producers' markets from imported goods. The principle behind tariff barriers is that tariffs increase the price of imported goods in comparison to domestic products, hence relatively improving the competitiveness of these domestic products. Developing countries often argue that developed countries raise tariffs to protect domestic sectors that are labor intensive. Non-tariff barriers (NTB) take the form of strict sanitary and phytosanitary measures or adherence to stringent certification measures such as a 1SO 9000 certification or for example REACH. For the leather supply chain, the non-tariff barriers can have a potentially larger impact on the flow of goods than the tariff barriers. On average, producers of developing countries tend to have more issues to comply with non-tariff barriers than their counterparts. In principle, this could lead to a more sustainable supply chain. At the same time, informal trade flows may arise that are harder to control.

2.3 *Insights into the EU leather market*

On a global scale the leather industry in regions like Asia and the Americas is on the rise. This creates a pressure on the European leather market, which is tending to shrink. However, the EU Leather Industry still achieves the world's highest export values on hides (38,4%), leather (40%) and footwear with leather uppers (50,9%) in the international market place[1]. In 2011 the turnover of the European tanning sector was about 7,7 billion Euros and the sector employed about 34.500 people. However, where the EU remains a major actor in the global leather market the net production output in the Far East is often higher[9][10].

According to the European Commission, the main challenges of the EU tanning industry are:[11,12]

- **Access to raw materials.** For the European tanning industry, access to especially bovine hides is of key importance, as this constitutes a major part of the raw material used by the industry. In recent years, the production of beef within the European Union has dropped and sub sequentially influences the availability of raw materials of European origin. In this context the access to raw materials in third countries is essential. This is the reason why the European Commission pursues for trade barriers on access to raw materials to be removed as much as possible.
- **Market access**. As explained before, the leather supply chain comprises both capital and labor intensive steps. For EU tanners the competition from non-EU countries, especially low-labor cost countries has a relevant impact on the competitiveness of the EU tanners. In this context, fair and reciprocal market access is therefore essential in order to allow EU tanners to find markets on which to sell their products.
- **Modernisation**. In order to cope with competition, EU tanners are aiming their production to higher quality output and high fashion content leathers. Another aspect that influences the sector are the investments made by EU tanners in environmental protection, waste reduction, recycling, recuperation of secondary raw materials, etc.

Data from Eurostat (2005) presented on the site of the European Commission, states the following overview of Europe's main leather supply chain partners.

Table 4: Overview of main leather trade partners for the European Union[3]

Product	Top 5 community suppliers (2006 – 2010)	Top 5 community markets (2006 – 2010)
Raw Hides & Skins	US Switzerland Bosnia & Herzegovina Iran South Africa	China Turkey Hong Kong Thailand India
Leather	Brazil India Nigeria US China	Hong Kong China Tunisia US Croatia
Leather Goods	China India Switzerland Vietnam Pakistan	Hong Kong Switzerland Japan USA South Korea

As can be seen in table 5, of the EU-27 countries, Italy is the main actor in the leather industry. The country appears in all top 5 regarding the production, import and export of hides. It also dominates the production, import and export of leather and is the most important producer and exporter of footwear with leather uppers. Germany is the main importer of footwear with leather uppers. Spain dominates the EU production of hides and France is the union's main exporting country of hides. Within the European Union the Netherlands appears in the top 5 in the import of hides (4th place), the export of hides (3rd place) and import of footwear with leather uppers where it comes in the 5th place.

Table 5: Overview of main leather trade partners for the European Union[1]
Please note the figures below represent average values over the years 1992 – 2011.

Production (EU-27 quantity %)		Import (EU-27 quantity %)		Export (EU-27 quantity %)	
Hides					
Spain	20%	Italy	45%	France	17%
United Kingdom	18%	Germany	10%	Germany	17%
Greece	12%	Austria	7%	Netherlands	10%
France	12%	Netherlands	6%	United Kingdom	10%
Italy	**10%**	Spain	6%	Italy	9%
Production (EU-27 quantity %)		Import (EU-27 quantity %)		Export (EU-27 quantity %)	
Leather					
Italy	53%	Italy	45%	Italy	61%
Spain	13%	Spain	11%	Germany	8%
Germany	8%	Germany	8%	Spain	6%
France	4%	France	6%	United Kingdom	5%
Austria	3%	United Kingdom	6%	Austria	5%
Footwear with leather uppers					
Italy	38%	Germany	21%	Italy	33%
Spain	15%	United Kingdom	18%	Spain	11%
Portugal	10%	France	13%	Portugal	11%
France	8%	Italy	12%	Germany	8%
Romania	7%	Netherlands	7%	Romania	6%

2.4 *Insights into the Dutch market (main sectors and major actors[13])*

In the Netherlands, high cost of labour and more stringent environmental legislation have lead to a loss in competitiveness in relation to upcoming markets such as South Europe and Asia. According to a report on the Dutch leather sector by the SER[13], in 2010 the Netherlands counted two tanneries and three finishing plants. The two Dutch tanners use raw hides from the region and also use their waste to generate green energy. The total tanning capacity is 150 ton/ day, the finishing capacity is 2 mln m^2/year. 50% is seat leathers (home, car, aircraft) and 50% is leather goods and shoe leather.

Even though the impact of the leather industry located in the Netherlands is low, the footprint caused by the raw hides & skins, leather and leather products demand in the Netherlands can be significant. In order to identify possible issues in the leather supply chain of the Netherlands, this study mapped the origin country of the main hides & skins, leather and leather goods passing through the Dutch market. For leather and leather goods this study also maps the origin of hides and leather for the main Dutch suppliers. The results of the research are presented in a summarized form in figure 1. The results will be elaborated on in more detail in the following sub-paragraphs.

Figure 1: Schematic overview of the Dutch Leather Supply Chain[2,3,4,5,6]

Hides - Bovine

Netherlands		
Germany	26.349 t	51%
Belgium	10.455 t	20%
France	2.339 t	5%
United Kingdom	2.273 t	4%
United States of America	2.072 t	4%

Hides - Sheep

Netherlands		
France	452 t	34%
Switzerland	274 t	21%
Germany	196 t	15%
Poland	112 t	8%
United Kingdom	78 t	6%

Leather - Bovine			Hides - Bovine		
Netherlands			Netherlands		
			Germany	26.349 t	51%
			Belgium	10.455 t	20%
			France	2.339 t	5%
			United Kingdom	2.273 t	4%
			United States of America	2.072 t	4%
Italy	4.298.937 m²	38%	Italy		
			France	87.144 t	25%
			Germany	33.003 t	9%
			Netherlands	30.127 t	8%
			United Kingdom	23.910 t	7%
			United States of America	19.004 t	5%
Germany	2.696.179 m²	24%	Germany		
			Austria	25.803 t	29%
			Netherlands	20.894 t	23%
			France	6.932 t	8%
			Italy	5.487 t	6%
			Czech Republic	2.986 t	3%
Brazil	1.874.783 m²	17%	Brazil		
			United States of America	1.252 t	46%
			Uruguay	541 t	20%
			Bolivia	280 t	10%
			Argentina	180 t	7%
			Paraguay	149 t	6%
India	693.471 m²	6%	India		
			Germany	1.093 t	9%
			Italy	1.007 t	8%
			Spain	802 t	6%
			Netherlands	800 t	6%
			France	788 t	6%
Romania	236.622 m²	2%	Romania		
			Italy	1.163 t	68%
			France	104 t	6%
			Croatia	74 t	4%
			Bosnia and Herzegovina	58 t	3%
			United Kingdom	41 t	2%

Leather - Pig			Hides - Pig		
Netherlands			Netherlands		
			China	0,6 t	55%
			Iceland	0,3 t	27%
			Belgium	0,1 t	9%
			Brazil	0,1 t	9%
China	1.348.637 m²	82%	China		
			Japan	26.333 t	39%
			United States of America	20.499 t	30%
			Canada	14.747 t	22%
			Australia	3.329 t	5%
			Czech Republic	1.287 t	2%
Taiwan	213.010 m²	13%	Taiwan		
			no data available		
Vietnam	35.513 m²	2%	Vietnam		
			no data available		
Thailand	17.732 m²	1%	Thailand		
			Japan	1.268 t	96%
			Belgium	16 t	1%
			Canada	16 t	1%
			Czech Republic	9 t	1%
			United States of America	5 t	< 1 %
India	13.688 m²	1%	India		
			Netherlands	36 t	52%
			China	24 t	35%
			United States of America	7 t	10%
			South Korea	2 t	2%
			Italy	1 t	1%

Leather goods			Leather			Hides		
Netherlands			Netherlands			Netherlands		
						Germany	26.544 t	50%
						Belgium	10.511 t	20%
						France	2.791 t	5%
			Italy	4.301.155 m2	33%	Italy		
						France	87.144 t	25%
						Germany	33.002 t	9%
						Netherlands	30.127 t	8%
			Germany	2.699.231 m²	21%	Germany		
						Austria	25.803 t	29%
						Netherlands	20.894 t	23%
						France	6.932 t	8%
			Brazil	1.874.782 m²	15%	Brazil		
						United States of America	1.252 t	46%
						Uruguay	541 t	20%
						Bolivia	280 t	10%
China	84.423 t	70%	China			China		
of which Hong Kong	*9.219 t*	*8%*				United States of America	448.730 t	35%
						Australia	238.081 t	19%
						Canada	140.140 t	11%
			Brazil	$ 299,01 M		Brazil		
						United States of America	1.252 t	46%
						Uruguay	541 t	20%
						Bolivia	280 t	10%
			United States of America	$ 185,59 M		United States of America		
						Canada	21.669 t	62%
						Spain	6.426 t	18%
						Mexico	1.677 t	5%
			Argentina	$ 89,09 M		Argentina		
						Australia	618 t	34%
						Uruguay	384 t	21%
						United States of America	376 t	21%
Germany	7.801 t	6%	Germany			Germany		
						Austria	25.803 t	29%
						Netherlands	20.894 t	23%
						France	6.932 t	8%
			Italy	16.078.770 m²	34%	Italy		
						France	87.144 t	25%
						Germany	33.002 t	9%
						Netherlands	30.127 t	8%
			Brazil	3.494.610 m²	7%	Brazil		
						United States of America	1.252 t	46%
						Uruguay	541 t	20%
						Bolivia	280 t	10%
			Poland	3.400.340 m²	7%	Poland		
						Germany	1.723 t	15%
						Austria	1.684 t	15%
						Slovakia	1.619 t	14%
India	5.741 t	5%	India			India		
						Spain	1.297 t	7%
						Germany	1.247 t	7%
						Italy	1.209 t	6%
			Italy	$ 64,19 M	18%	Italy		
						France	87.144 t	25%
						Germany	33.002 t	9%
						Netherlands	30.127 t	8%
			Saudi Arabia	$ 34,38 M	10%	Saudi Arabia		
						Yemen	195 t	77%
						Kuw ait	24 t	10%
						France	16 t	6%
			Argentina	$ 22,42 M	6%	Argentina		
						Australia	618 t	34%
						Uruguay	384 t	21%
						United States of America	376 t	21%

Leather goods: quantity in tonnes *Leather: quantity in m² or USD* *Hides: quantities in tonnes*

2.4.1 Origin of Dutch Hides & skins

Data of FAOSTAT[2] over a time series of 2001 to 2010 on Dutch imports of raw skins and hides shows, that most hides imported into the Netherlands are of bovine origin (76%). Next come sheep (15%) and pig (4%) skins. This reflects the general worldwide picture that bovine hide is the most used animal hide for further processing into leather[13].

Table 6: Overview of overall hides & skins imports in the Netherlands per animal type
Please note the figures above represent average values over the years 2001 – 2011

Type of Hide/Skin	Average imported by NL (tons)	Average imported by NL (%)
Bovine	2.275.975	77%
Sheep	444.433	15%
Pig	116.331	4%
General	87.851	3%
Goat	21.755	1%
Horse	11.557	0%
Game	2.023	0%
Rabbit	1.054	0%
Total	**2.960.979**	

Because of the dominance of bovine hides and sheep skins in import, the research has further focused on the mapping of the top 5 suppliers of these specific hides & skins. Please see Map 1 below.

Map 1: The top 5 Netherland suppliers of bovine hides and sheep skins[2]

At European level, the Netherlands itself is a small producer of raw hides, generating about 2% of total EU-27 hides. For bovine hides, the top 10 suppliers of raw hides into the Netherlands are all European countries except for the US and a small stream of unspecified origin (1% on place 10). For sheep skins, the top 10 trade is more intercontinental showing Sudan, Iceland and Australia in the list of top 10 suppliers.

2.4.2 Origin of Dutch leather and its supply chains.

Based on data of Interstat[4] over a time series of 2008 to 2011, the Dutch leather imports show that most leather imported into the Netherlands is of bovine origin (75%), followed by pig leather (17%) and sheep leather (3%). So also here bovine leather is clearly dominant.

Table 7: Overview of overall leather imports in the Netherlands per animal type[4]
Please note the figures above represent average values over the years 2008- 2011.

Type of Leather	Average imported by NL (m2)	Average imported by NL (%)
Bovine	11.281.073	84
Pigs	1.406.669	10
Sheep	327.274	2
General	269.859	2
Goats	121.082	1
Large Game	35.660	0
Horses	27.937	0
Reptiles	9	0
Total	13.469.563	**100%**

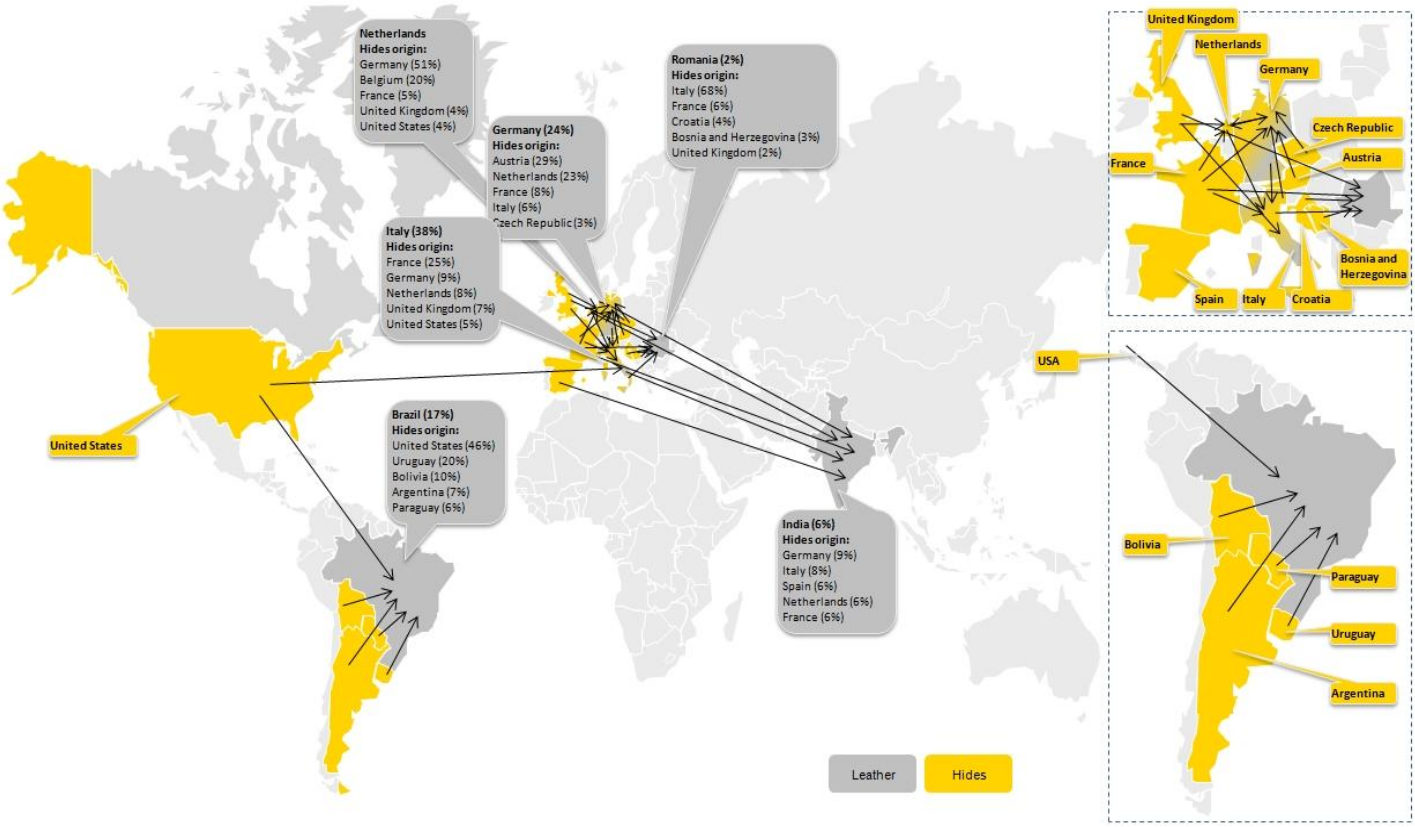
Considering the dominance of bovine and pig leather import, this study will further focus on these two categories. Map 2 gives a visual of the bovine leather supply chain for the Netherlands.

According to Interstat data, the main suppliers of bovine leather are Italy (38%), Germany (24%), Brazil (17%), India (6%) and Romania (2%). This data reflects that a majority of Dutch bovine leather import stems for the EU. The presence of Brazil in the Dutch top 5 import of bovine leather is not surprising considering that this country is the world 3rd exporter of bovine leather[1]. It is interesting that the Netherlands does not import bovine leather from China, the world's major bovine leather exporter. Yet, does import bovine leather from India, which only ranks 13th on the world's bovine leather export list.

Origin of hides for leather supplied to the Dutch market

Looking at the FAO data, the main hide sources for the Dutch bovine leather suppliers, Italy, Germany, India and Romania show a dominance of European origin import. This picture is especially interesting for India, as the country is far away from the European Union. India is an important trade partner for the EU and an emerging global economic power. The country has a sizable and growing market of more than 1 billion people.[14] General EU investment in India more than tripled between 2003 and 2010. And the EU is also investing is developing a better trade relation with India. Free trade negotiations between EU and India have been launched in 2007 and are still taking place. This context may stimulate the trade between Europe and India. The other major supplier of bovine leather to the Dutch market, Brazil, displays a more intercontinental sourcing behavior, including the US, Australia and other South American countries as major sources of bovine hides.

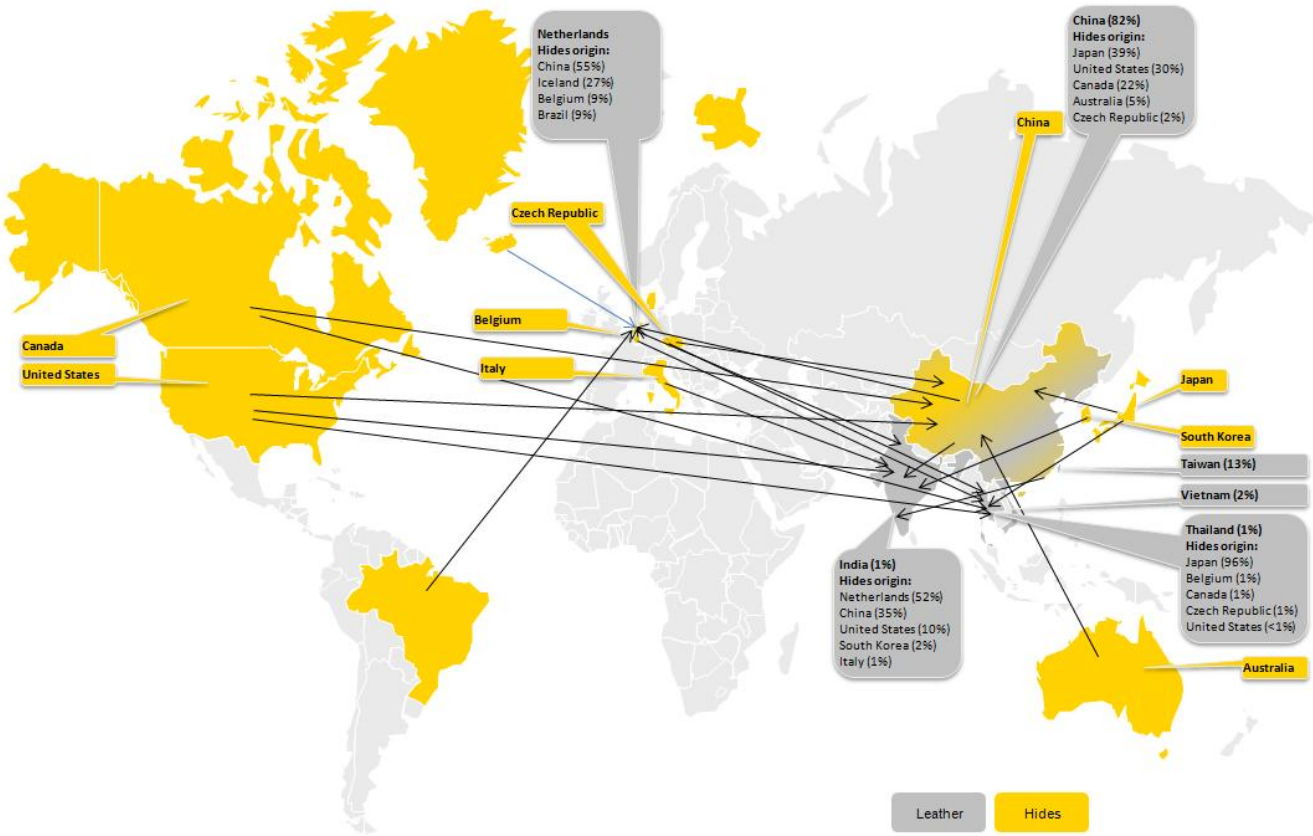
Map 2: The top 5 Netherland suppliers of bovine leather and their respective top 5 suppliers of bovine hides[2,4]



The pig supply chain for leather and hides greatly differs from the bovine supply chain. Interstat shows that the top 5 pig leather imports into the Netherlands originate from Asia, with China being the most important source (82%), followed by Taiwan (13%), Vietnam (2%) and Thailand and India with 1% each. At first sight, the dominance of Asian countries in the Dutch pig leather top 5 does not seem surprising as the Asia-Pacific area remains the largest region of the world for yearly pork production. It supplied 57 percent of all output in 2011. By comparison, its share was more than double that from Europe, which provided twice the amount, produced in North America and this in turn was approximately double the quantity from Latin America[15].

However, a closer look at FAO hides origin data shows that the origin of pig skins into the leather exporting countries have a more global spread. Amongst China's main pig hide providing countries are Japan (39%), the United States (30%), Canada (22%), Australia (5%) and Czech Republic (2%). India and Thailand also source their pig skins from all over the world. India's main source of hides being the Netherlands (52%) and Thailand mainly sourcing it's hides from Japan (96%). Unfortunately the FAO database does not provide information on Vietnam and Taiwan. In addition to the published figures, we take into account that China, India, Thailand, Vietnam and Taiwan themselves are significant suppliers of the pig skins processed in their countries.

Map 3: The top 5 Netherland suppliers of pig leather and their respective top 5 suppliers of pig skins[2,4]



2.4.3 Origin of Dutch leather goods and original supply chains

As discussed in paragraph 1.2 the production of leather goods is the most labor intensive process in the leather supply chain. According to the FAO[16] about 50 percent of bovine hides and approximately 40 percent of sheep and goat skins is processed into footwear. The rest is used for the production of garments, furniture and travel goods. It is projected that in the medium term leather shoes will continue being the major leather product consumed, although other products are also expected to increase their share especially in the developed countries. The world's main producers of shoes include China (41%), Italy (6%), Mexico (6%), Brazil (4%) and India (4%)[1].

Interstat data shows that the top 3 origin countries for leather goods into the Netherlands are China (70%), Germany (6%) and India (5%). Showing a predominance of Asian origin for leather goods imported into the Netherlands. For these three countries, this research has explored the subsequent origin countries for leather and then hides.

Origin of leather for leather products supplied to the Dutch market
For China, the most relevant country of origin for Dutch leather goods, data on leather origin is not readily available. Following information on the Chinese site for customs statistics, the top 3 origin countries for Chinese leather are Brazil, United States and Argentina.

The second supplier of leather goods to the Netherlands is Germany (6%). According to data of Eurostat[3], most of the leather imported into Germany has bovine origin.

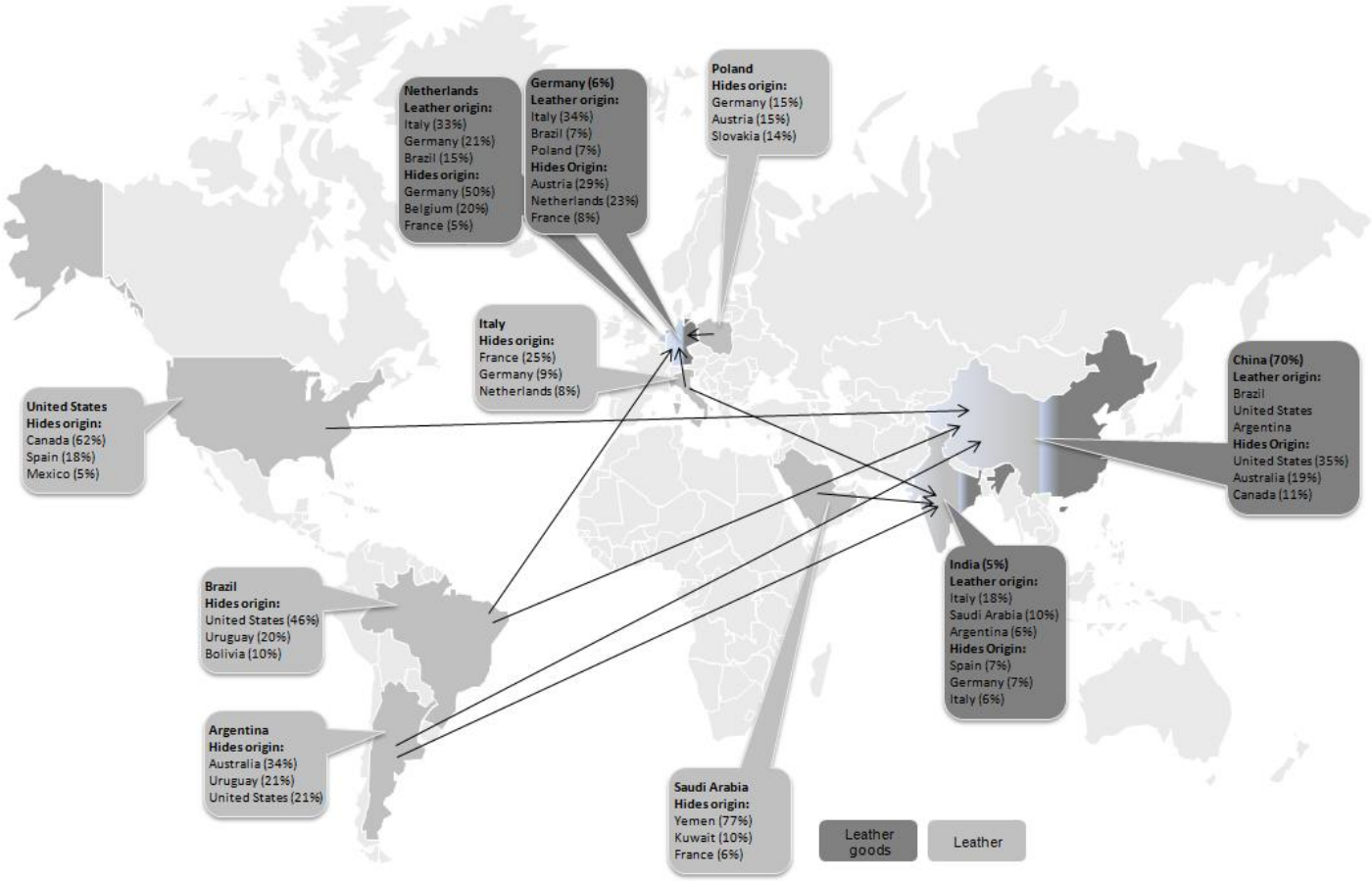
The third supplier of leather goods into the Netherlands is India. The Netherlands imports about 5% of its leather goods from India. According to the data of the Indian Chamber of Commerce[6] most leather imported into India has bovine origin. This is about 85%. This is taken into account when mapping the origin of the hides imported into India.

Origin of hides of leather used for leather goods supplied to the Dutch market
As stated above Brazil, United States and Argentina are the main suppliers of leather into China. Whereas Brazil itself has a significant production of cattle and bovine hides, it also imports hides from other countries. The top 3 is as follows: United States (46%), Uruguay (20%) and Bolivia (10%) Showing a strong sourcing relation within the Americas. The United States mainly sources its hides from Canada (62%), Spain (18%) and Mexico (5%). Argentina on its turn has more distant sourcing relations, importing from Australia (34%), Uruguay (21%) and the United States (21%).

The Netherlands sources about 6% of its leather goods from Germany. The country's main suppliers of leather are Italy (34%) , Brazil (7%) and Poland (7%). The hide flows for Italy and Brazil have been disclosed above. Poland imports its hides mainly from Germany (15%), Austria (15%) and Slovakia (14%).

Finally, India's main suppliers of leather are Italy (18%), Saudi Arabia (10%) and Argentina (6%). Argentina's main sources of hides are Australia (34%), followed by Uruguay (21%) and United States of America (21%). For India Saudi Arabia is the second provider of leather. Saudi Arabia on its turn sources its hides & skins mainly from the Yemen (77%), Kuwait (10%) and France (6%). Finally, Italy is India's main provider of leather. As stated before, on a European level, Italy is one of the most important actors in the leather supply chain. The country chooses to source nearby and imports its skins and hides mainly from France (25%), Germany (9%) and the Netherlands (8%). Map 4 visualizes the trade flows for leather goods.

Map 4: The top 3 Netherland suppliers of leather goods and their respective top 3 suppliers of leather and hides[2,4,5,6]

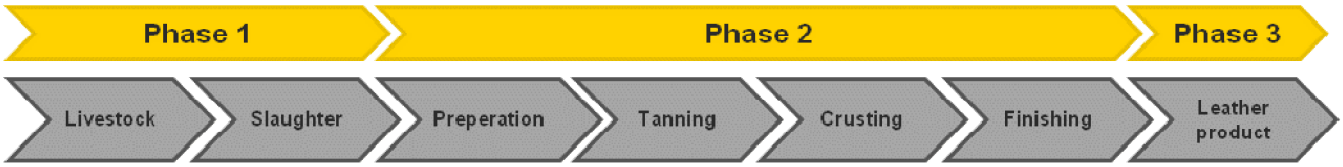


3 Sustainability issues in the leather supply chain

3.1 *Introduction*

In chapter 2, the main trade flows in the supply chains of Dutch leather using or producing companies have been identified. In this chapter we examine the main sustainability issues that can occur in the in the different phases of leather production. We distinguish three phases (see figure 2). The first phase covers the part of the supply chain from animal to raw hide or skin. The second phase covers the supply chain from raw hide or skin to leather. The production of leather goods (phase three) is outside the scope of this research.

Figure 2: phases and steps of the leather supply chain



An overview of sustainability issues found per step are presented in table 8. We have used the classification and phrases that match those used in the CSR risk checker of MVO Nedeland.

We would like to emphasise that the issues we describe in this chapter exist and *may* occur in companies that are part of the leather supply chain. The focus of the study was on CSR risks and issues, not on good practices. The only good practices mentioned in the report are the ones we identified during our research for issues. Therefore the good examples of the sector are presented in a limited way.

Whether or not an issue occurs, will depend on a large number of circumstances. Amongst others the country of origin, level of local laws and law enforcement and the level of economic development of the country in question. Companies and other organisations using this report are encouraged to further investigate the specific CSR risks in their supply chains. In chapter 4 we take a closer look at ten countries, relevant for the Dutch leather supply chain.

Table 8: Sustainability issues in the leather supply chain

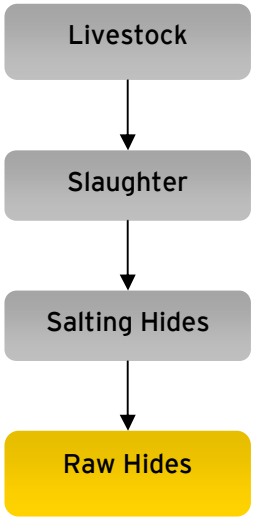
	Phase			
Issue	**Livestock (incl. feed)**	**Slaughter**	**Preparation & Tanning**	**Crusting & Finishing**
Climate change				
Biodiversity & deforestation				
Pollution of air, water and soil				
Water use / water availability				
Waste				
Animal welfare				
Resources scarcity				
Land acquisition				
Community impact				
nuisance				
discrimination of small local farmers				
Health and safety workers and community				
Human rights				
Child labour				
Forced labour & human trafficking				
Freedom of association				
Labour conditions (contracts, living wage, working hours)				

issue identified

no issue has been identified

3.2 *Sustainability issues from livestock to raw hides*

3.2.1 Livestock



The production of leather starts with the rearing of the cattle, sheep, pigs and other animals. Livestock production contributes to 40 percent of the global value of agricultural output and supports the livelihoods and food security of almost one billion people, and is expanding rapidly[17]. It is socially and politically very significant in developing countries, since it provides food and income for many of the world's poor.

Livestock producers practising extensive livestock production mostly let their animals roam free to search for food. In intensive livestock production, large numbers of animals are reared and producers supply feed and shelter. The feed includes crops like, grains, vegetables and beans which are grown on farmland. The feed is transported to the pastures and fed to the animals. The animals are usually reared because of meat and/or milk. The hides are mostly a by-product. In some cases the animals are specifically reared for their skin, like minks. This study focuses mainly on cattle, since bovine leather is by far the major type of hide and leather used.

Part of the supply chain?

Since hides & skins are only a by product of livestock production and almost never a reason for producers to rear livestock, Cotance argues that the livestock phase of the supply chain should be excluded from the sphere of influence of tanneries and producers of leather products. When looking at life cycle analysis only a relatively small part of the environmental impact is allocated to leather. Even for the slaughter phase only 7% of the impact is allocated to leather. However, Cotance does consider the slaughter phase within the sphere of influence of tanners. Experts from Rabobank confirm that the influence of leather producers on the livestock phase of the value chain is limited. If the sector wants to improve the sustainability of this phase, cooperation with the food sector is elementary.

Source: interviews with Mr. Gonzalez-Quijano, secretary general Cotance, January 2013 and Mr. Justin Sherrard, Food & Agri Research, Rabobank, November 2012

Climate change

The emission of green house gasses caused by livestock is a well described issue, for instance by the FAO[18]. The FAO calculates that livestock contributes about 9 percent of all CO_2 that is derived from human-related activities. In addition livestock generates 65 percent of human-related nitrous oxide, which has 296 times the Global Warming Potential (GWP) of CO_2. Livestock is also responsible for a significant amount of the total methane emissions (25 times the GWP of CO_2).

The greenhouse gas emissions are related to[18]:

- Feed production: Green house gasses can occur when energy intensive fertilizers are used during production. The use of seed, herbicides and pesticides also results in greenhouse gas emissions.

- On-farm use of energy: Diesel for machinery (for land preparation, harvesting, transport) and electricity (irrigation pumps, drying, heating, etc.).
- Land use change: The rearing of livestock results often in land use changes, for instance the change from forest into farm land. A forest contains more carbon than farm land and therefore a net carbon emission is the result. Carbon dioxide is also emitted as a result of land use change because of release of carbon dioxide from soil when disturbed.
- Methane released from enteric fermentation: Livestock that feeds on grass like plants (which are difficult to digest) produces significant amounts of methane as a result from their normal digestive processes. The methane is exhaled by the animal.
- Manure: The anaerobic decomposition of organic matter in manure releases methane.
- Transport: A lot of transport movements occur in the life cycle of livestock, for instance the transport of feed and the ingredients in the feed.

Biodiversity & deforestation

The livestock sector is by far the single largest anthropogenic user of land. Grazing occupies 26 percent of the Earth's terrestrial surface, while feed crop production requires about a third of all arable land. Expansion of grazing land for livestock is a key factor in deforestation, especially in Latin America: some 70 percent of previously forested land in the Amazon is used as pasture, and feed crops cover a large part of the reminder[19]. According to the Brazilian government, cattle is responsible for about 80% of all deforestation in the Amazon region. Greenpeace claims that in recent years, on average one hectare of Amazon rainforest has been lost to cattle ranchers every 18 seconds[20]. Deforestation causes many problems including a reduction of biodiversity, loss of indigenous medicinal plants, erosion, climate change, water scarcity, etc.

Livestock production continues to threaten natural biodiversity. The increasing demand for food of animal origin and the productivity of high-output breeds tend to favour these foreign breeds over local breeds[21]. The result is genetic erosion, which causes problems in the industry since traditional breeds are generally more resistant or tolerant to diseases, and more resilient to temperature changes[22].

Pollution of air, water and soil

Livestock account for 64 percent of global anthropogenic ammonia emissions, mainly present in manure[18]. This results in acidification and eutrophication. Eutrophication is the process by which water acquires a high concentration of nutrients, especially phosphates and nitrates. This results in an excessive growth of algae, a reduction of oxygen in the water and finally the death of other organisms, such as fish. In addition, surface water contamination may have ecotoxicological effects on aquatic flora and fauna, and for human health if the water is used for public consumption[18]. Acidification is the decrease of the pH of soil and water, caused by acids. It affects the growth of plants and causes a decline in fish numbers[23].

The use of antibiotics is a widespread problem in livestock rearing. This causes problems for human health (see health and safety workers and community). There are also indications of a second problem of the use of antibiotics, which is the negative effect it might have on bacteria involved in the nitrogen cycle. The decrease results in denitrification which hampers the replenishing of nutrients in the soil. This leads to impoverishing of the soil.[24]

Water use/ water availability

The agricultural sector is the largest user of freshwater resources[18]. Livestock is responsible for a portion thereof, through water used for feed production and as drinking and servicing water for the livestock. Water scarcity can have a big impact on ecosystems and decreases biodiversity, especially in water scarce areas.

Waste

Livestock produces manure. Manure can cause the issues described about manure in the topics above: global warming and pollution of water and soil.

Animal welfare

Animal welfare is an issue in livestock rearing. The housing and management (i.e. castration, branding, feeding, weaning) of the animals affects the welfare of the animals[25]. Intensive farming can involve several additional issues such as crowding animals closer together, keeping them in larger groups, confining them in cages. Crowding for example cause stress, restricts animal movement, which results in over-heating in summer. Another issue relates to pregnancies of sows (female pigs) in sow stalls. Individually caged, they are unable to turn around. When they are about to give birth, they are transferred to very narrow farrowing crates. At only three to four weeks old, the piglets are removed from their mother and transferred to pens with concrete or slatted floors. Meanwhile, their mother is impregnated again and the cycle continues[26].

Resource scarcity

Degraded land: About 20 percent of the world's pastures and about 70 percent of all grazing land in dry areas is considered degraded, mostly through overgrazing, compaction and erosion created by livestock action. Different types of erosion exist, two important types are wind erosion and water erosion. Wind erosion occurs in arid and semi-arid regions. The wind either picks up and carries loose soil particles or the surfaces are worn down as they are struck by airborne particles carried by wind. Wind erosion results in a decreased soil fertility, a loss of the top soil and might also cause air pollution caused by fine particles in suspension can affect people's health. This effect can be caused by overgrazing, when plants are exposed to intensive grazing. This removes a lot of the vegetation, exposing the soil and remaining plants to the wind[27]. Another type of erosion, water erosion, is caused by rainfall when the vegetation cover is removed. The water drags the soil into rivers. This leads to a decrease in fertile land.

Loss of fertile land and decrease of groundwater: Livestock rearing also results in compaction which causes the drying out of the land. Compaction decreases the water permeability of this soil, which increases the runoff of water into rivers. Resulting in a decrease of groundwater. Deforestation, also leads to the drying out of the land because the loss of vegetation decreases the permeability of the soil to rainwater, thus increasing runoff.[28]

Land acquisition: Access to land and its resources is becoming an increasingly acute issue and source of competition among individuals, social groups and nations. Often the rights of indigenous people have been violated when large companies expand their pastures or agricultural land. Access to land has driven disputes and wars throughout history and, in some areas, resource-related conflicts are on the increase. For example, disputes over access to renewable resources, including land, are one of the principal pathways in which environmental issues lead to armed conflicts[18].

Community impact

Nuisance: The bulk of farm nuisance complaints are about odours emanating from manure handling and storage. Other complaints include flies from manure, or spilled feed.[29]

Discrimination small, locally owned farms: Research consistently shows that the social and economic well-being of rural communities benefits from larger numbers of farmers rather than fewer farms that produce increased volumes. In rural communities where fewer, larger farms have replaced smaller, locally owned farms, residents have experienced lower family income, higher poverty rates, lower retail sales, reduced housing quality, and persistent low wages for farm workers. The food animal industry's shift to a system of captive supply transactions controlled by production contracts has shifted economic power from farmers to livestock processors. Farmers have relinquished their once autonomous animal husbandry decision-making authority in exchange for contracts that provide assured payment but require substantial capital investment. Once the commitment is made to such capital investment, many farmers have no choice but to continue to produce until the loan is paid off. Such contracts make access to open and competitive markets nearly impossible for most hog and poultry producers, who must contract with integrators (meat packing companies) if they are to sell their product[30].

Health and safety workers and community

Depending on the conditions, herding, shepherding and handling livestock may be considered as hazardous work. Injuries from animals include being bitten, butted, jostled, stamped on, gored or trampled[31]. Livestock producers are at risk for human illness and high mortality rates. They frequently encounter social disputes, cattle raiding and civil disturbance as well as serious endemic disease problems, and diseases transmitted by animals (like Q-fever)[32]. Livestock also excrete many zoonotic micro-organisms and multi-cellular parasites of relevance to human health. Some of the most important water-borne bacterial and viral pathogens are salmonella spp, viral diseases, and livestock parasitic diseases[18].

High levels of nitrate within water resources may represent a health hazard for both community and workers. Excessive levels in drinking water may cause methemoglobinemia ("blue baby syndrome") and can poison human infants.

Antibiotics, which are used in animal farming to prevent disease and to promote growth are considered a world health problem by the WHO. The usage of antibiotics in the agri-food industry far surpasses the human usage. Some estimates suggest that antibiotic use in animals and fish is at least 1000-fold greater in terms of absolute tonnage compared with use in humans[33]. Antibiotic use in animals has led to immunity of bacteria to those antibiotics and interspecies transfer of resistance determinants. This makes antibiotics ineffective when used by humans, leading to diseases without a cure for both humans and animals[34]. The Centers for Disease Control (CDC) estimated that 2 million people contract resistant infections annually and, of those, 90,000 die[30].

In addition to antibiotics, hormones are used to increase meat production (illegal in the EU, but widely used elsewhere). These hormones can affect human growth when consumed[26].

Human rights

Child labour: Among certain ethnic groups, cattle herding is almost entirely done by children. Herders represent one of the most widespread and culturally accepted forms of children's work in many regions. In migrant or nomadic communities, child labour should be addressed with an

understanding of this unique lifestyle that intertwines cultural values with production needs. Even so, this lifestyle often impedes normal school enrolment and attendance, while also these children need education to prepare for other jobs in the future. In cases where children work for large companies or producers, child labour is also a serious issue. Children rarely wear protective shoes or boots, and this increases their risk for additional injuries and illnesses such as cuts, wounds, bruises, thorn injuries, skin disorders, and infections. Diseases can be contracted through routine contact with animals, insects, pathogens in animal carcasses and work near livestock stabling areas and butchering houses[31].

Forced labour: Indigenous peoples suffer from discrimination, which can turn into forced labour, especially in large and remote cattle farms. According to the United States Department of Labor, cattle ranching takes place with forced labour in Bolivia, Brazil, Niger, South Sudan and Paraguay[35]. In Paraguay between 7,000 and 8,000 indigenous are estimated to be in a form of servitude, similar to traditional debt bondage. In Brazil, forced labor results from young men being brought by brokers to rural plantations where they then enter into debt bondage. Indigenous Guarani are the main victims of forced labor in Bolivia, as they work on the plantations or ranches of large landowners, with family labour arrangements often going back generations. Low rates of payment often result in debt bondage or peonage[36].

Working conditions: Paying a minimum wage is a legal requirement, paying a living wage is not. In many countries minimum wage is far below a living wage[37]. Cattle farmers and their workers work long hours. The work involves working in extreme temperatures and under varying weather conditions.

3.2.2 Slaughter

In this phase livestock is transported to the slaughterhouse where it is slaughtered and the hides are removed from the carcasses. The hides are then salted for preservation[38]. The resulting raw hides are transported to the location for phase 2 of the process.

Climate change

Climate change in this phase is in most instances related to energy use, as no other large emission source of green house gasses is present during slaughter.

Pollution of air, water and soil

Waste water of slaughter houses contains high amounts of organic matter. When organic matter is discharged to the surface water, it is decomposed in the water, using oxygen. This results in a reduction of the total oxygen content of the water, causing a reduction of organisms that need the oxygen to survive. This polluting effect is expressed as biological oxygen demand (BOD). Wastewater from slaughterhouses and meat processing industries have been classified by EPA as the most harmful to the environment. Discharging slaughterhouse wastewater without treatment contributes to greatly degrading the aquatic environment and pollution of irrigation water[39]. The Cleaner production institute also identified the wastewater as a hotspot in the slaughtering process [40].

Water use/ water availability

A lot of water is used in the slaughterhouse, about 6 – 15 litres per kg carcass[18]. This is about a third of water used in the whole tanning process (see also paragraph 3.3).

Waste (Water)
Examples of solid waste include animal by-products; sludge from wastewater treatment; clean and contaminated packaging; protective clothing and equipment.[41] These waste fractions containing high amount of organic substances generate methane emissions if land filled.

Community impact
Nuisance: Potential nuisance for the community concerns the odour from slaughterhouses, particularly in built-up areas and in warm weather/climates. The odours are generally associated with the collection and storage of blood, gut contents, inedible offal, heads, feet, bones, meat scraps and SRM waste (waste potentially infected with BSE).[41]

Health & safety workers and community
Production-related work such as slaughtering, is often repetitious and physically demanding because of factors such as noisy working environments with (sometimes) uncomfortable temperature (too hot, too cold), working odd hours, heavy lifting and using potentially dangerous tools/knives and machines. Relative to other industries, the food processing industry has one of the highest incidences of injury and illness. Animal slaughtering plants have the highest incidence of injury in the food processing sector[42].

Animal welfare
Animal welfare is an issue in the slaughtering process. This involves the transport and handling of the animal before it reaches the slaughterhouse, the unloading into a strange environment where they are subjected to further handling, housing and inspection[43]. Five main causes of welfare problems during the time preceding slaughter are: poor condition of arriving animals, stressful handling methods, distractions that hinder movement, improperly trained employees, and poor maintenance of equipment. In audits of slaughter facilities 98.2% of vocalizations were associated with four different adverse events: excessive electric prodding, slipping on the floor, too much pressure in restraining devices, and missed captive bolt stuns. Stress hormone levels can double or triple in cattle because of slipping on slick floors or being over-prodded. Cattle also find yelling by workers to be stressful and aversive. Stunning is performed before slaughter to render the animal insensible to pain. If the stunner is not positioned correctly, it may fail to render the animal unconscious. If it is not effectively stunned the first time, it may be more difficult to re-stun, so it is critical the stunner be positioned correctly, which may not be an easy task since the cow is likely to be moving. Exsanguination follows stunning (exsanguination is the process of blood loss, to a degree sufficient to cause death). Cows should be stuck no longer than 15 seconds after stunning and bled to death quickly[44]. This is not always achieved.

Human rights
Child labour: Child labour can occur in slaughterhouses[45].

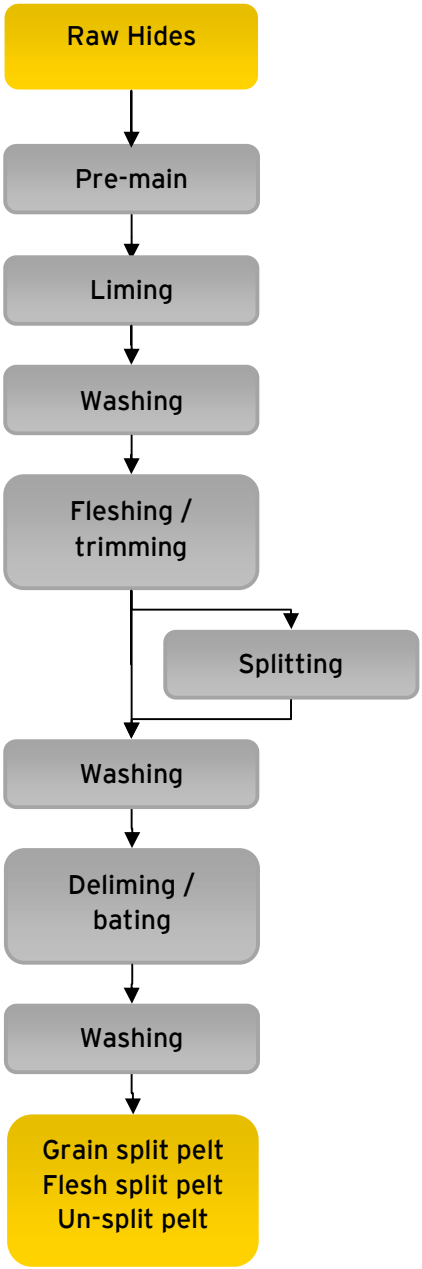
Forced Labour: There are reports of forced labour in slaughterhouses. E.g. in the US and in India.

Freedom of Association: This is not a specific issue for slaughterhouses, but can occur in any country where freedom of association is an issue.

Working conditions: Paying a minimum wage is a legal requirement, paying a living wage is not. In many countries minimum wage is far below a living wage[46].

3.3 *Sustainability issues from raw hides to leather (phase 2)*

3.3.1 Preparation



This section describes the preparation phase of leather production. The hides are soaked and limed to remove mainly hair, cells and certain protein-like substances[47]. Subsequently the hides are fleshed to remove collagen and certain other proteins including fats. The hides can be split at this stage but this can be done after tanning as well. The splitting process splits the hide in two or more layers that can be sold separately. The top layer is the most valuable and is called the grain split pelt and the other part the flesh split pelt.

Pelts that are not split result in full-grain leather which is the most high quality leather. It can be used for sofa's or footwear. Top grain splits result in top grain leather, which is a high-end leather as well but it is thinner and more pliable than full grain because it is split. It is used for lower quality furniture and footwear. The flesh splits result in split leather which has a lower strength than top and full grain leather. It is used for products with less durability, like gloves.

The pelts are delimed, bated and washed before continuing to the next stage, tanning. In this process the substances introduced in the liming process are removed from the pelts. Bating is a process to make the pelt more pliable.

Climate change

The waste from for instance the fleshing is sometimes dumped on open land. This generates significant amounts of methane[48]. An LCA performed of Italian and Spanish leather concludes that a hotspot of the life cycle is the energy consumption of the process from hide preparation until finishing[49].

Another source of green house gasses is transport. Hides & skins are sometimes transported over large distances, as demonstrated in chapter 2.3. The two factors that determine the amount of green house gases are distance and type of transport. Transporting goods by plane results in approximately 100 times more CO_2 than transporting the goods by ship. Truck transport results in 8 times more CO_2 than using a ship. An overview of the emission of transporting one ton of goods over 1 km is presented in table 9. The table shows that distance is not necessarily an indication of a large CO_2-emission. In conclusion, transporting the hides should not be done by plane and a transport by ship is recommended if the distances are longer[50].

Table 9: CO_2-emission per modality

Mode of transport	Kg CO_2 for transporting one ton hides one km[a]
Plane	1.1
Truck	0.133
Ship	0.0107

Pollution of air, water and soil

The chemicals used in this part of the process are mainly lime, sodium sulphide, sodium hydrogen sulphide and ammonium salts. If the companies do not have proper waste water treatment, these chemicals and/or large amounts of organic material are discharged to the surface water. The organic material in the waste water is mainly caused by the fleshing step, where excessive organic material is scraped from the hide[51]. 75 percent of the oxygen reducing substances (BOD / COD) of the leather production from hides is the result of the preparation of the hides for tanning[52].

Water use / water availability

This phase of the leather production process is the most water intensive. The water consumption for this part of the process is 20 -25 m^3 per ton raw hides. This is more than half the total water use (34-40m^3)[51]. Large water consumption can be a problem, especially in water scarce areas.

Waste

Only 20% of the weight of raw hides results in grain leather. Splits result in another 10% of product but the remaining 70% is waste or low value by-products. Even though it is possible to use a portion of the remains for glue, soap, feed[49] and fertiliser a lot of the remains are discarded. The generated salt from the desalting process is considered waste but is sometimes recycled[40]. Most of the waste consists of hair, trimmings and fleshings from the raw hide. It is difficult to manage this large amount of waste well. The waste is recycled well in developed countries but not or in a lesser extent in developing countries[51]. The uncontrolled dumping of waste causes a high emission of methane, which has a potentially large effect on climate change. Solid waste that is land filled in a European country like Spain or Italy results also in a significant amount of methane and is identified as hotspot in the life cycle of Spanish and Italian leather[49].

No more waste

The European tanning industry is distinguishing itself by reducing the amount of waste and by changing waste into useful by products. Examples of products that are produced from material that used to be seen as waste include: glue and feed/pet food made from gelatin and slow release fertilizer made from animal hairs. In addition hair and wool are recovered to serve as wool textiles or filling material.

Source: interview with Mr. Gonzalez-Quijano, secretary general Cotance, January 2013 and Best Available Techniques (BAT) Reference Document for theTanning of Hides and Skins, IPPC, final draft June 2012

[a] Calculated using the LCA database Ecoinvent 2.2 and SimaPro 7.3

Community impact

Nuisance: Odours may result from raw hides & skins, decomposition processes of organic waste and from wastewater treatment plants that are poorly controlled and maintained. Other causes of odour are substances like sulphides, mercaptans, and organic solvents used in production. These intensive smells cause nuisance for both workers and the local community[53]. Uncontrolled waste may severely harm the health and biodiversity of local communities, especially in areas where housing and facstories are intertwined.

Health & safety workers and community

In the preparation phase workers are often exposed to dangerous chemical that may cause health problems.

Human rights

Child labour: Children are often involved in the production of leather in countries including Bangladesh, Pakistan and India. In the preparation process children usually work as assistants; they carry out orders of adults and help where necessary. After sprinkling the leather with lime, children pull the leather out of large vats with tongs. If these vats leak, it is the children's task to stop up the openings with remnants of leather. During the unhairing of the animal hides, children soak the leather[55].

Forced Labour: The ILO reports incidents of bonded/indenture labour in tanneries in India. This might also occur in other countries[54].

Freedom of Association: This is not only an issue specific for the leather supply chain. It can occur in any country where freedom of association is an issue.

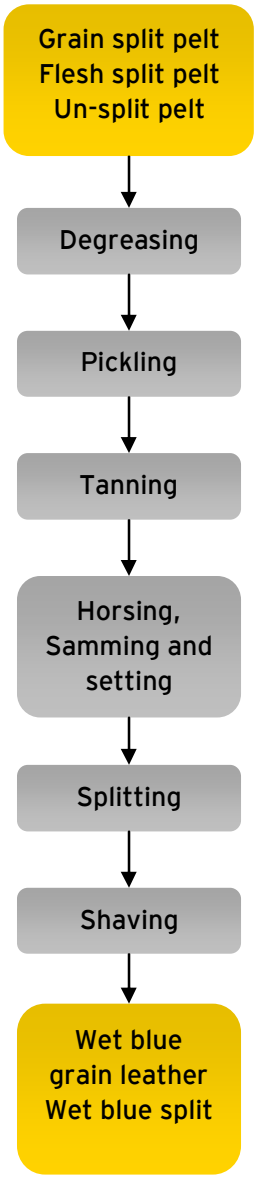
Working conditions at the beginning of the leather supply chain, including preparation, are often very bad with people having to work long hours, being paid low wages while being exposed to dangerous chemicals. This process usually takes place in low-wage countries[55]. In these countries the problem that a minimum wage is not a living wage (see livestock and slaughter) is also a problem. The Cleaner Production Institute states that companies in the leather industry do not give due consideration on the social issues and welfare of the workers. As examples they describe that there is no canteen and designated place for the workers to take rest and meal, instead they saw workers consume food near the machines. They conclude that working conditions are not comfortable and workers, most of the times, remain under stress. Management concentrates on the production targets without keeping in mind the comfort and the willingness of the workers[40]. This does not only occur in this step of the process, but during the whole leather production.

Supply chain issue: Transparency

Before hides & skins reach the tannery, they have a history of their own; they protect the animals during their lifetime, they are removed either by manual or mechanical means, they are preserved, stored and shipped. The conditions under which hides & skins are obtained escape, however, Tanners' control, notably when these are imported into the EU from distant places, but social and environmental mismanagement in the area of their raw materials affects adversely the tanning sector's image. European tanners, their customers and consumers are increasingly sensitive to issues regarding Socially and Environmentally responsible procurement and Animal Welfare. COTANCE and ETUF:TCL have started an ambitious joint project on transparency of the origin of hides & skins and traceability of raw materials for European tanners in July 2011.

Source: Euroleather, Supplies and Transparency, http://www.euroleather.com/index.php/socialissues/132-supplies-and-transparency.html

3.3.2 Tanning



The tanning process is required to make leather from split and non-split pelt. This process makes the pelt more durable and conserves it for a long time. The tanning process starts with degreasing, which is especially important for sheepskin[51] since it is more greasy than bovine skin. Degreasing is done with a non-ionic surfactant and/or a solvent. After decreasing, the hide is pickled to reduce the pH of the pelt prior to tanning, thereby sterilising the skin, ending the bating action, and improving the penetration of the subsequent tanning material[51]. The next step is tanning, which is most often done using chromium salts. About 80-90% of the leather is tanned using chromium. Other tanning agents are vegetable tannins, syntans[b], aldehydes and oil. After tanning the leather can be horsed[c] up to age and allow further fixation of the tan and setting of the fibres to occur[51]. The leather is sammed, squeezing the leather between rollers, to reduce moisture. The leather can be split and shaved (reduce and/or even out the thickness of the hide). The end product of this phase is wet blue grain leather or wet blue split, leather that needs a finishing before use.

Climate change

Greenhouse gas emissions in this phase are mostly related to energy use.

Pollution of air, water and soil

The most obvious polluting aspect of this phase is the tanning which involves many different chemicals, of which chrome is most used (80-90%)[51]. There are different types of chromium, among which chromium III and chromium IV. In the tanning process chromium III is used, which toxicity is insignificant compared to the toxicity of chromium VI[56]. However, when the tanning process in not well controlled, chromium III can oxidize to chromium VI. It is possible to buy Chromium VI and reduce it to Chromium III. This increases the risk that Cromium VI remains in waste streams and waste water. Chromium IV is highly toxic for flora and fauna. It has for example been shown to have a toxic effect upon daphnia[d], which disrupts the food chain for fish life[57]. There are alternatives to chromium, like syntens and aldehydes but they have a negative effect on the environment as well[51]. No real 'eco' options seem to be available (see box). Reduction and efficient use of the chemicals is therefore important. It is also important to have proper waste water treatment to reduce the burden even more. Pollution in this stage of the leather production may lead to severe loss of biodiversity.

[b] Synthetic organic compounds used alternatively or in addition to chromium and vegetable tannins.

[c] Piling up of the hides and storing it for some time

[d] Commonly known as water fleas.

There are three options available for the waste water:

- Waste water treatment at tannery with chromium recovery[51]
- Discharge in domestic sewage[58]
- Uncontrolled discharge[59]

Uncontrolled discharge should obviously be avoided. In developing countries this is still common practise. For instance, effluent from tannery industries is dumped into the Palar River in India, on road sides and on agricultural fields. This caused pollution of groundwater and resulted in a reduced yields from agriculture, water scarcity, for agriculture as well as domestic purpose and increased rural poverty[59]. The discharge directly in the domestic sewage system also leads to problems like clogging of the sewer and interfering with the sewage treatment[60]. Having a chromium recovery does not only make it easier to clean the water, it also reduces the need of newly produced chromium as the recovered chromium can be used in the production process again.

The search for Eco Leather

The leather technology center (BLC) describes the search for "Eco Leather": Designers and technologists concluded that producing "Eco leather" could not be done by choosing the right tanning agent (chromium vegetable or mineral free) as each type has environmental impacts in different areas of their life cycle. The focus should be on how the leather is manufactured. They believe that the effective control of leather manufacturing processes and the professional management of waste liquids, solids, energy, water consumption, chemicals and other key factors can yield the most significant reduction in environmental impact. Therefore the group set out to measure and encourage improvement of environmental stewardship within the leather supply chain. The Leather Working Group (LWG) was formed in 2005 and together with BLC they developed an auditing protocol and started to audit and rate leather producers. Their view: Choosing a rated supplier helps to choose a more sustainable leather.

Source: http://www.leatherworkinggroup.com/index.htm

Air emissions of volatile halogenated hydrocarbons require special attention, as some of these have a considerable global warming effect and cause the breakdown of the ozone layer. They are used predominately in the degreasing of sheepskins. Activated carbon filters reduce these emissions but their use is not standard practice in tanneries.[51]

Water use / Water availability

The tanning of 1 kg of leather requires about 3-4 litres of water, about 10% of the total water is from preparation until finishing. The water use in other parts of the process is higher.

Waste

In this phase solid waste consists of chrome spitting and chrome shaving, which is organic matter, with chrome[61]. This waste is often land filled but this might lead to deterioration of water quality in neighbourhood areas of land fill sites. Land fill gas, which is 50-60% methane, contributes significantly to global warming. Another disposal option of this waste is thermal incineration, preferably with energy recovery. Incineration of Chromium III containing waste might lead to the formation of the toxic chromium VI under some conditions[62]. If correctly incinerated, the chromium III is only present in the ashes, which in turn may be used as a substitute for chromium ore in chromate(VI) production[56].

Best practice – Sustainable degreasing

AkzoNobel has won the European Responsible Care 2012 award for the introduction of a new technology for 'Sustainable degreasing and dewatering of animal skins' called DeMythe®LDD technology. This technology, based on the solvent Dimethyl Ether (DME), removes water and fat from animal skins and hides in a closed loop process and operates at relatively low temperatures. After the process cycle has been completed, the DME is separated from the water and fat, and then recycled. The recovery rate is >99%. In other words, low waste, high degreasing and drying performance, low energy consumption, high product quality and high cost efficiency. Hence, it contributes to a better environment.

Source: http://www.akzonobel.com/ic/products/dimethyl_ether/ldd_demythe/

Community impact

Nuisance: Leather tanning often results in an odour that can constitute a nuisance to the surrounding community[52].

Health and safety of workers and community

Tannery workers may be exposed to chemical hazards during loading, unloading, handling, and mixing of chemicals; during the washing, and disposing of chemical containers; and during the management and disposal of chemical waste and effluent[63]. Many workers work with chemicals without protection like gloves or other adequate safety measures. As a result they can frequently suffer from allergies, skin diseases and bronchial problems[55]. For example, past and present tannery workers in Bangladesh described and displayed a range of health conditions including prematurely aged, discoloured, itchy, peeling, acid-burned, and rash-covered skin; fingers corroded to stumps; aches, dizziness, and nausea; and disfigured or amputated limbs. Many common health problems that tannery workers face result from repeated exposure to a hazardous cocktail of chemicals when measuring and mixing them, adding them to hides in drums, or manipulating hides saturated in them[64]. It is estimated that in India alone 2000 t to 3000 t of chromium escape into the environment annually, with chromium concentration ranging from 2000 to 5000 mg/l in the aqueous effluents (the permissible level is 2 mg/l). At high concentration, Chromium is toxic, mutagenic, carcinogenic and teratogenic[65].Organic solvents are used for degreasing and are emitted to the air. A number of

Best practice – Waste water and process optimization

General wastewater management measures and process optimization in tanning facilities should aim to reduce the need and intensity of end-of-pipe treatment through implementation of wastewater prevention measures, including:

- Reduction of water consumption, through recycling of process streams;
- Use of 'batch" instead of 'running water' washes;
- Segregation of wastewater streams (e.g. soaking liquors, sulfide-rich lime liquors, and chrome-containing liquors) to improve treatment speed and efficiency. Segregation of water streams also helps to isolate particularly concentrated or toxic compounds, such that they can be removed separately and possibly recovered for reuse;
- Use of short (e.g. low-water content) floats in the tanning cycle (e.g. floats using from 20 to 40 percent water with respect to normal floats), which allow for water savings of up to 70 percent and facilitate chrome fixation(when combined with increased temperature at the end of the tanning operation);
- Split hides before deliming and tanning, when feasible, to allow improved penetration of the tanning chemicals into fiber structure thereby reducing chemical usage.

Source: IFC EHS Guidelines for Tanning and Finishing

organic compounds are directly harmful to human health[9].
Workers may also be exposed to disease-agents such as bacteria, fungi, mites, and parasites which may be present in the hides or as part of the manufacturing process.

In tanneries where both liming and tanning is executed, it is very important to keep waste water streams of these activities segregated and to pre-treat these streams separately according to their characteristics. The mixing of liming and tanning streams gives rise not only to the obnoxious smell typical of poorly managed tanneries; the resulting lethally poisonous gas, hydrogen sulphide (H_2S), is still by far the most frequent killer in tannery accidents, which occur mainly in inadequately ventilated spaces, especially in pits and channels.[61]

Human rights

Child Labour: Large leather tanneries sometimes subcontract the work out to smaller tanneries. These smaller tanneries, where health and safety measures in the workplace are often insufficient, employ a relatively large number of children[55]. Like in the preparation phase, children in the wet blue stage mostly function as assistants; they take orders from adults and help them wherever needed. For example, they transfer the pieces of leather to the drum and remove them again after the chemical processing.

If the drum is leaking liquids then children are the ones who have to stuff the openings with pieces of waste leather. Moving the leather around in this way (manually) can only be done with the smaller pieces of leather, since bigger ones are too heavy. It explains why children work only in the small-scale tanneries; these work with smaller and cheaper pieces of leather whereas most large scale tanneries use machines to process large pieces of leather[67]. In less mechanised tanneries, the children dust the leather off with a cloth and dye it by hand[55]. They are being exposed to dangerous chemicals and often go barefoot and without proper protection (see also *Health and safety of workers and community).*

Forced Labour: The ILO reports incidents of bonded/indenture labour in tanneries in India. This might also occur in other countries[66].

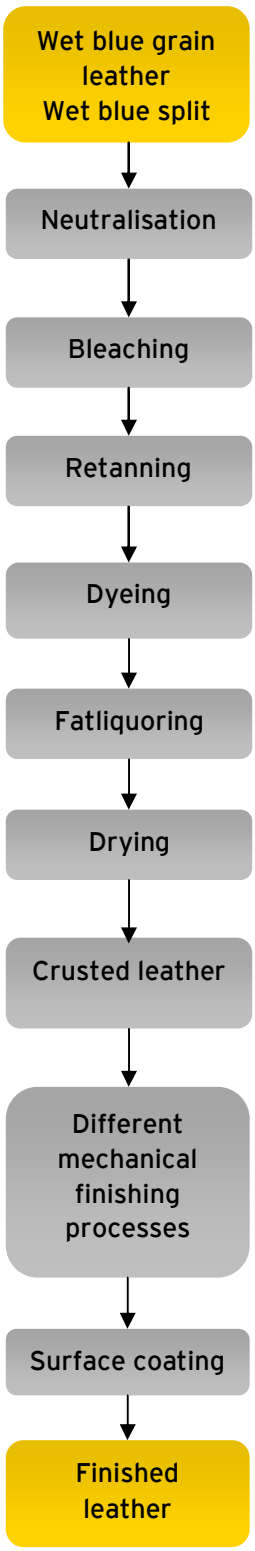
Freedom of Association and Working Conditions: The same issues may occur as described in preparation.

Auluna

In close cooperation with Handvaerskradet, Cowi and Chinese Consultants, Auluna has, in 2008, finalized a feasibility study of how to start up a state of the art tannery with full focus on environment and workers health and safety. The study has a detailed description of the cultural expectations of tanneries in China. In this way, Auluna has been able to identify the main problem areas of the tanneries and the challenges they face in the next 5 years. Auluna has been a member of BSCI since the beginning of 2005.The requirements recommended by the BSCI initiative are implemented in the Auluna code of conduct. Auluna leather has also introduced a Traceability Program which has identified a model to give more transparency in production processes. Auluna wants to document all stages of the production line in their value chain giving a more visible control and documentation of conditions and decisions made by their partners in the chain. They want to help their customers to understand the process in a simple and efficient manner.

source: http://www.aulunaleathercompany.com/responsibility

3.3.3 Crusting & Finishing



In the crusting phase certain properties are added to the leather such as: water repellence or resistance, oleophobing, gas permeability, flame retarding, abrasion and anti-electrostatics[51]. The leather is first neutralized to a suitable pH for the next steps. The next step is an optional bleaching step. The leather is retanned to improve certain aspects of the leather, like the feel and handle of the leather. In the fatliquoring step the leather is lubricated to achieve product-specific characteristics and to re-establish the fat content lost in the previous procedures. In the finishing phase the leather's appearance and performance characteristics, colour, gloss, flexibility, water resistance, are enhanced. This involves mechanical processes and surface coatings.

Climate change
Greenhouse gas emissions in this phase are mostly related to energy use.

Pollution of air, water and soil
The chemicals used in the retanning process are mostly the same as in the tanning and the same environmental issues are present. Many different chemicals are used in this stage of the process including: fatliquaring agents, dyes, surfactants, solvents, anti-foaming agents, flame-retardants[9]. As stated in paragraph 3.3.2, chemicals can cause significant pollution. Pollution in this stage of the leather production may lead to severe loss of biodiversity.

For example, brominated flame-retardants (BFRs) have been added to consumer products including leather for several decades since they are efficient flame-retardants even in low concentrations. However, since 2008 they have attracted renewed attention because of environmental and health concerns. For instance, polybrominated diphenyl ethers that have been found in Breast Milk, are associated with a negative effect on children's neuropsychological development. As a consequence, some flame-retardants belonging to polybrominated diphenyl ethers (BDE) such as penta- and octa-BDE were banned for use in the European Union in 2003 (Directive 2003/11/EC). Other organic bromine compounds are subject to careful examination in EU risk assessments.[51]

Waste water is an important factor in this part of the process, even though the amount produced is less than in the previous parts of the process, it contains a significant amount of the chromium, more than present in the waste water of the tanning process itself. See for the problems caused by chromium containing waste water paragraph 3.3.2.[51]

Approximately 50 percent of VOC[e] emissions to air arise from spray-finishing machines, and the remaining 50 percent from dryers. Some VOCs are dangerous to human health or cause harm to the environment.

Water use / Water availability
This part of the process consumes a lot of water. About 40% of the water used from the preparation until finishing is used in this part[40].

Waste
The waste in the finishing step is residue from finishing and sludges from finishing agents[51]. The waste, containing many different chemicals, should be managed well.

Community impact
Nuisance: the same problems occur as in preparation and tanning.

Health and safety of workers and community
As in preparation and tanning (paragraphs 3.3.1 and 3.3.2) the main health and safety hazards are found in the use of chemicals. For example, organic solvents are used in the finishing process. For example, Formaldehyde is used for fixing protein finishes (and ironing wool-on sheepskins), it is carcinogenic and requires special precautions[51]. Solvents usually are categorised (varying in the Member States) according to their toxicity. Due to their volatility, organic solvents are emitted into air. A number of organic compounds are directly harmful to human health or to the environment[9]. In addition to chemical use, hazards can occur when working with the mechanical processes, especially in finishing.

Human rights
Child Labour: Children can have different tasks in the crust leather stage and often assist in manual tasks. For example, if the leather is not wet enough for shaving, a child puts water on the leather. A very common job for children is drying the leather, either on the roof or in any available spot inside the tannery, but more often outside on the field. Laying out the leather and pegging it to the ground is also referred to as toggling. The tanner usually employs an adult to dry the leather, who in his turn employs some children. Children also trim the leather during its crust stage; they cut the uneven edges with a little knife to improve the shape. Toggling and trimming are typical tasks for children and in Bangladesh adults are hardly seen doing these tasks[67].

Finishing the leather mainly requires chemical reactions done in machines. However, children are also employed in this stage. In less mechanised tanneries they, for example, dust the finished leather with a simple cloth; the older children can be found painting the leather by hand. After painting, the pieces have to dry and also here children are involved in the same way as in the crust stage. Children also sort the finished pieces of leather by size or quality, to prepare them for sale [67].

Forced Labour, Freedom of Association and Working Conditions: The same issues may occur as described in preparation.

[e] Volatile organic compounds are organic chemicals that easily vaporise at ordinary, room-temperature conditions.

Best practice – Biodegradable leather

Hulshof has managed to develop a fully green product, a basic concept for biodegradable leather. Through the replacement of chemicals with biodegradable products, and through the application of formulas, they are able to produce PIURO, an organic leather suitable for many purposes. The leather that biodegradable during the waste phase and therefore returns nutrients to the biological cycle.

Under composting circumstances, PIURO is turned into compost within a foreseeable period of time. An example of a company who uses this product to make biodegradable shoes is OAT Shoes.

Source: http://www.hulshof.com/hulshof_for_sustainable_leather/biodegradable_leather.aspx

4 Sustainability issues in ten countries

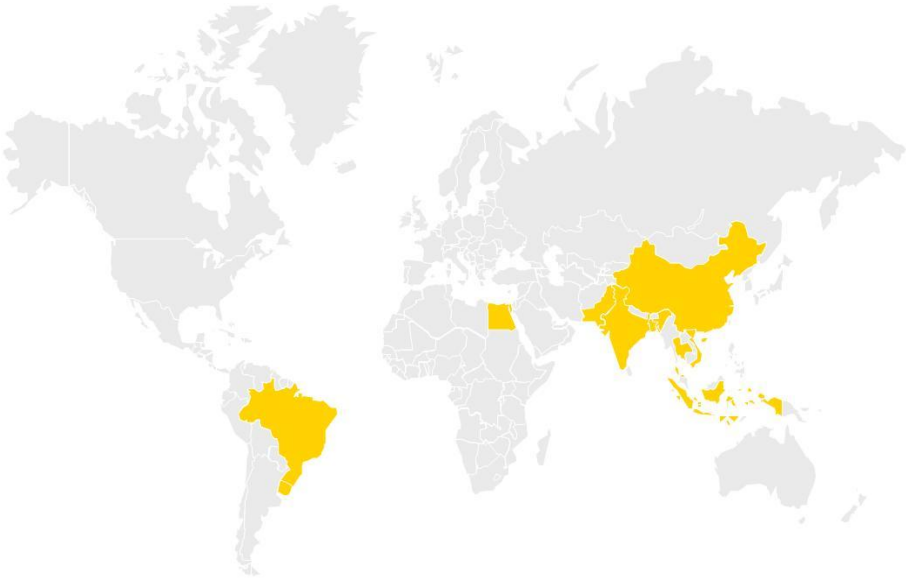
4.1 *Introduction*

This chapter analyses the sustainability issues that occur in ten countries. The countries are selected based on the following parameters:

- Significant players in the global leather supply chain, based on trade flows, future trends and/or expert opinion
- Part of the supply chain of the Dutch leather using companies that are member of the CSR Netherlands sustainable leather network and
- Based on our research, are at risk of sustainability issues occurring.

The ten countries selected are:

- India,
- Pakistan,
- Bangladesh,
- China,
- Vietnam,
- Indonesia,
- Thailand,
- Brazil,
- Uruguay,
- Egypt.



For these ten countries a desk study was carried out by Ernst & Young's regional experts, in some cases this study was complemented by interviews with local experts. During the local research, the occurrence in the country of the sustainability issues as defined in chapter 3 was investigated. We like to point out that the main focus of the study was on negative aspects/issues, not on best practices. Whilst we do present at least one best practice per country, we are convinced that many more can be found. In addition, the country factsheets are based on a limited local desk research. Hence, it is possible that issues in the leather supply chain that do occur in the country are not identified. It is also important to note that the issues mentioned in the factsheets may occur in the country yet do not occur in all companies. Additional research is required to assess the performance of a specific supplier.

Leather supply chain India

Economic relevance

- The leather industry and its supply chain in India is mostly unorganized sector/ SME sector. Small companies contribute to 90% of the overall production.
- Only large export companies have certain systems and adherence to environmental regulations and standards.
- The total leather manufacturing units in India (as of 2010) was at 2334 across eight Indian states.
- It provides employment for over 2.5 million, primarily in the lower rung of economy and to women (30%).
- In the global leather trade, India's share is about 2.6% and is the eighth largest sector within the country to bring in Foreign exchange earnings.
- India has the largest livestock population in the world.
- The livestock population largely contributes to the milk production, meat and subsequently to leather.

Sustainability issues India Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation	■			
Pollution of air, water and soil		■	■	■
Water use / water availability			■	■
Waste	■	■	■	■
Animal welfare	■	■		
Resources scarcity	■	■	■	■
Land acquisition	■			
Nuisance	■	■	■	■
Discrimination of small local farmers				
Health and safety workers and community		■	■	■
Child labour	■	■	■	■
Forced labour & human trafficking		■	■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)	■	■	■	■

Sustainability Initiative

- Given the deep environmental impact this stage of leather processing has, there have been several initiatives undertaken in India. Chrome recovery, Common Effluent Treatment Plants (CETPs) – 19 operational in India, Zero Liquid Discharge Technology (120 individual units and 14 ETPs) and other measures such as clean-tech options in place of anaerobic lagoons, monitoring of waste water, energy and water metering and so on . The Government has formulated several schemes for the benefit of this sector:
  - Tannery Modernization Scheme – Financial assistance of Euro 0.05 million for plant and machinery
  - National Leather Development Programme – UDP and GoI Joint Programme
  - Leather Technology Mission
- Maris Projects B.V. is a company specialised in waste management activities. They have designed an installation to treat fleshing waste from tanneries and convert it into bio-oil, bio-gas and fertilizer. With this project 40 tons of fleshing dumping is reduced in the area of Kanpur. This result in a production of 4 tons bio-oil a day. This is second generation bio fuel, which is not in conflict with food or feed. Next to the bio-oil the installations also derive raw materials from the waste like proteins for poultry feed and pickle salt that can be reused.

Summary CSR Issues

Climate change

- Methane emissions from Enteric fermentation from livestock in India contributed to about 10.4 MT / year (2011), of which 90% was from cattle.

Biodiversity & deforestation

- Biodiversity & deforestation is impacted through livestock grazing. India has a large population of goats. Goats are known to damage land through grazing. Cattle are fed and cattle grazing does not have much impact on biodiversity in the country.
- In India, there were serious conflicts on common property resources wherein forest lands were used for grazing. Currently, protected areas have been restricted for any non forest purpose for the promotion of forestation and reducing degradation.

Pollution of air, water and soil

- Slaughter is officially allowed only in the states of Kerala and West Bengal. In other states, slaughter happens illegally in unorganized sector where aspects of environment HSE etc are neither mandated nor monitored. While, mechanized means of slaughter are increasing, conventional methods and unauthorized slaughter houses are plenty in India. Wastes such as blood, hair, bones and other animal wastes if disposed untreated are a serious threat to nearby water bodies as well as landfills, owing to the diseases and health hazards.
- Water pollution is a serious problem. Effluent and rotting waste from tannery industries is often dumped in rivers, e.g. into the Palar River in southern India, and even on agricultural fields.
- To curb water pollution and effluent discharge a number of Common effluent Treatment Plants (CETPs) have been set up to treat leather industry waste water in the country. In most case of water treatment in the country residual/ thermal evaporation stage is hardly carried out. Some states have mandates for zero water discharge from facilities. While, organic pollutants have significantly reduced in the discharge through these measures, salinity as a pollutant is yet to be fully addressed.
- Pollution monitoring and enforcement is difficult for SME's. They still use traditional technology that has not changed over the years.

Water use / water availability

- Tanneries are amongst the biggest consumers of fresh water, with about 350 Litters of fresh water for every 10 kg of raw skin. This leads to severe depletion of surface and ground waters.

Waste

- Currently, R&D efforts are being taken to generate electricity from livestock waste. Effective waste management techniques such as pits, waste to energy conversion have been adopted and are effective in reducing methane emissions as well as other waste issues.
- No organized system of disposal exists for slaughterhouses.
- One of the biggest problems is that over 50% of original hides and skin remains as solid waste (2400 tons /day), and is not converted to leather.

Animal welfare

- In India , cruelty to animals and ill-treatment during transportation and slaughter is being practiced widely, despite .
- Legally, cow slaughter is allowed only in two states - Kerala and West Bengal, therefore cows have to be transported from all across the country. All forms of illegal slaughter use unethical practices.

Resources scarcity

- Many indigenous breeds are close to extinction due to the change in agriculture production systems in the country. Several initiatives have been undertaken to conserve these species through sustainable use of native species and protection of innovations in this sector.
- Land resources are affected by livestock grazing leading to degradation of marginal lands. Water is a critical raw material for all the other stages.

Land acquisition

- Land acquisition Bill has been recently cleared in India, which is favourable to farmers. Under this, developers must seek consent from 80% of the people whose land has been acquired for private projects. The bill has provisions for providing grazing land while resettlement of populations.
- Majority of farmers (landless and marginal) holding livestock use common grounds for grazing and this is under serious threat owing to the pressure of encroachment, privatization of lands and allotment for non community purposed.

Nuisance

- The effluents, noise, dust and odour emanating from slaughter houses and tanneries is a serious issue to the nearby communities. The largely unorganized sector based approach to the industry results in these units sprawled amidst residential communities.

Discrimination of small local farmers

- With a majority of sale happening through middlemen, the actual price of the animal may not be provided to the farmers.

Health and safety workers and community

- Tannery workers may be exposed to chemical hazards during loading, unloading, handling, and mixing of chemicals.
- HSE aspects are poor across the supply chain due to the unorganized SME sector of the industry as a whole. Only large and export oriented units have formal HSE practices, to a certain extent, as they are mandated by certifications and good HSE practices by the importing companies/ countries. Finished product and units have some HSE inspection and audits.

Child labour

- Children are involved in grazing and herding (mostly small and marginal farmers). Their right for education is not met.
- Child labour occurs in slaughterhouses (Indian Times).
- Children are often involved in the production of leather products in countries including Bangladesh, Pakistan and India. (SOMO). Child labour in tanning and finishing occurs less as it requires lifting of heavy materials for processing. Children do perform other tasks like cleaning hides. Children often come from low castes or from under developed places in the country such as UP, Bihar and Agra. It is often hidden in the unorganized part of the sector.

Forced labour & human trafficking

- The ILO reports incidents of bonded/indenture labour in tanneries in India. Ethnicity and caste is a factor for bonded labour in India. In general, it is the lower castes and economically backward communities who face the issue of bonded labour.

Freedom of association

- Freedom of Association is allowed in Tanneries. But predominantly being an unorganized sector, the labour force is not organised with clear employment benefits etc. In export oriented tanneries, factory unions are present. However true representation of laborers seems to be missing.

Labour conditions (contracts, living wage, working hours)

- Tanneries mostly employ daily wage labourers, often from lower castes (Dalits), earning about USD 60 - 150 a month. The HSE aspects as well labour conditions in all the phases are poor in the unorganized sector and in SME 's across the country, workers are exploited.

Leather supply chain Pakistan

Economic relevance

- The leather industry in Pakistan is on a decline, due to the higher labour costs compared to India, Bangladesh and China.
- The country witnessed a decline of 8.19% (2011-12) and the total leather exports were at USD 226.855 million.
- This sector contributes to 5% of the country's GDP. About 500,00 people are directly employed in this industry, contributing to about 5% of the GDP and 5.4% of the overall export earnings of the country.
- There are over 800 tanneries in Pakistan, of which 300 still use age-old methods of tanning. In the rural sector, vegetable tanning is still widely used.
- China outsources polluting processes (raw to semi finished) to countries like Pakistan.
- Raw hides are banned from direct export from Pakistan.

Sustainability issues Pakistan ■ Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation	■			
Pollution of air, water and soil		■	■	■
Water use / water availability			■	■
Waste		■	■	■
Animal welfare		■		
Resources scarcity	■	■	■	■
Land acquisition	■			
Nuisance		■	■	■
Discrimination of small local farmers	■			
Health and safety workers and community		■	■	■
Child labour	■		■	■
Forced labour & human trafficking			■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)		■	■	■

Sustainability Initiative

- Effective Microorganisms (EM) is a liquid concentrate, a combination of various beneficial naturally occurring microorganisms produced through natural process of fermentation. EM Technology is a biological tool to reduce or remove pollutants in waste water and solid wastes in sewage systems. It also helps in reduction of odour in waste water. Currently, this technology is under research by The Pakistan Tanners Association to be used in the leather industry.
- The UNDP and the Pakistan Government have launched the Kasur Tannery Pollution Control Project. Through this initiative, an effluent treatment plant, chromium plant and a solid waste disposal site has been implemented.

Summary CSR Issues

Climate change

- Agriculture including livestock emissions are a major contributor to methane emissions. However no reported studies were evidenced during our research to account for emissions only from livestock.

Biodiversity & deforestation

- Overgrazing has been identified as one of the reasons for deforestation. Pakistan faces immense problems of deforestation and forest degradation. Less than five percent of its total area is under forests. The rate of deforestation of 1.5% is very high and alarming.

Pollution of air, water and soil

- Pakistan has a large section of unorganized slaughter houses, where conventional methods are followed. They do not have proper treatment facilities. Blood, carcasses and hair are the main pollutants from the discharges.
- The tanneries operating near Peshawar are polluting the Kabul river putting its domestic water consumption under threat. For every tonne of raw skin / hide about 50-100 m3 of waste water and 45 - 150 kg of dried sludge are produced.
- The sulphides and chromium from tannery effluents are about 20-100 times greater than the permissible limits prescribed by the National Environmental Quality Standards.
- In the Kasur area, about 9000 m3 of waste is generated every day, into nearby water bodies and canals that irrigate agricultural lands.
- Air emissions contain hydrogen sulphide and ammonia.

Water use / water availability

- For every 30kg/day of food intake, cattle need about 100-150 litres of fresh water, 5-6 times a day.
- Tanneries consume water in the range of 350 - 1000 l / kg of hide. This process requires water for extensive washing, in water hoses, cooling water. Wastage is through leakages, no reuse of steam condensate, running washes, no batch washes in tannery and other similar practices. Further salted hides need more washing water.
- In Pakistan, where effluent treatment is not carried out (e.g. in unorganized tanneries, the water bodies are significantly affected.

Waste

- Solid waste is generated at the rate of 1000 tons per day in tanneries. In the unorganized sector (slaughter, tanning, finishing) waste causes problems since no proper treatment of waste is carried out.

Animal welfare

- We could not locate any specific document on animal welfare during slaughter in Pakistan. However, Pakistan being a Muslim nation, the halal method of slaughter is practiced as a rule. No study / material indicate non compliance to these rules were traceable on the public domain. (There was one instance of sheep that was rejected by Bahrain being culled in Pakistan in a cruel manner)

Resources scarcity

- Land and water are the two resources which are a key requirement for all the four phases. These are scarce resources in Pakistan.

Land acquisition

- Pakistan's 2009 Agricultural investment policy allows foreign investment in agricultural land in Pakistan. As per the policy, two categories of land are available for investment - state farms with some infrastructural facilities and marginal semi arid land not subject to individual property rights
- This will directly impact the marginal and landless farmers who are currently using these lands.

Nuisance

- With slaughter houses, odour and animal waste being disposed is an issue.
- The effluents and emissions from tanneries are a nuisance to residents as well as people working in the tannery owing to their effluents and emissions. These have a direct impact on the water, air and soil and therefore affect the communities using these resources. This is a greater issue, where tanneries are part of residential areas (eg Sialkot in Lahore).

Discrimination of small local farmers

- Owing to the foreign investment in Pakistan land, the worst affected are the poor and landless farmers, who currently graze / utilize these areas and will henceforth have no access to these areas after privatization.

Health and safety workers and community

- The unorganized slaughter houses, do not maintain clean and safe working conditions for workers.
- People residing near tanneries have complained of diarrhoea and rashes, due to the polluted water they consume.
- The World Health Organization standard permissible level of toxins in water at 0.05 parts per million (PPM), and over 2 ppm have been recorded in Kasur resulting in diarrhoea, dysentery, respiratory disorders and skin diseases.

Child labour

- Child labour occurs in livestock rearing. No evidence was found on child labour in slaughterhouses.
- Children are often involved in the production of leather in countries including Bangladesh, Pakistan and India. (SOMO).
- The US department of labor states that child labour occurs in leather production in Pakistan.

Forced labour & human trafficking

- Bonded labour in Tanneries exists especially in very low castes. This is usually not a form of debt bondage, but bondage through the way the sector is organised and due to excess availability of (unskilled) labour.

Freedom of association

- Since no information could be located on trade unions and the functioning thereof, we have indicated this as an issue. The PakistanTanners Association and larger councils in the leather sector are present.

Labour conditions (contracts, living wage, working hours)

- Traditionally in Pakistan, the poorer communities (lower castes) usually work in tanneries. Given the economic conditions, though the work is strenuous and intensive, there is stiff competition to work in these sectors. The bad working conditions have a serious impact on these workers, who are impacted more than any other group.
- Bare minimum protection has been provided to the tannery workers - gloves and boots. Workers can be found standing inside the ditches handling the hides and the chemicals. Dust filled with chemicals causes throat irritation. Verbal and physical violence are not regarded as an unusual feature of the employer-employee relationship in Kasur.
- Daily wages are around USD 2 for an adult worker. Workers employed directly by the factory generally have more benefits and better wages than workers that are working through middlemen.

Leather supply chain Bangladesh

Economic relevance

- The leather sector in Bangladesh in the 4th largest foreign exchange earning sector accounting for USD 429.52 million in FY 2011-12.
- The value of leather export has grown by an average of USD 41 million per year, over the last ten years.
- There are over 200 small, medium and big tanneries spread across 25 acres of land in the Hazaribagh area, surrounded by residential space.
- Over 35,000 - 40,000 people are directly related to this sector.
- China outsources polluting processes (raw to semi finished) to countries like Bangladesh.
- Livestock population in Bangladesh stands at 24.3 million cattle and 32.7 million goats, which generates about 200 million sq ft / year semi finished and finished leather.
- On average, 0.25 million tons of raw hide is processed every year.

Sustainability issues Bangladesh Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation				
Pollution of air, water and soil		■	■	■
Water use / water availability			■	■
Waste		■	■	■
Animal welfare		■		
Resources scarcity	■	■	■	■
Land acquisition	■			
Nuisance		■	■	■
Discrimination of small local farmers				
Health and safety workers and community		■	■	■
Child labour			■	■
Forced labour & human trafficking			■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)		■	■	■

Sustainability Initiative

- UNIDO has prepared a Typical Tannery Guide, for Bangladesh, with the help of experts and has suggested several pre-treatment, clean tech, solid waste management, occupational health & safety assurance etc. UNIDO has initiated a project in Bangladesh, working toward sustainability in the leather sector, as a part of which a guide for better waste and waste management in the tanning process was released. UNIDO is working on the Re-tie BGD (Reduction of Environmental Threats and Increase of Exportability of Bangladeshi Leather Products) project since 2009 working toward technically sound Bangladeshi leather sector.
- The Government of Bangladesh took an initiative of shifting tanneries from the Hazaribagh to another locality with a 200 acre land availability along with provisions for CETPs. About 155 tanneries have received allocations in this site already. However, there are still some issues with the new site. Health & Safety Training, water and waste management techniques, use of solar energy, Hair saving process and other training is being imparted to local tanneries to cope with the relocation.

Summary CSR Issues

Climate change

- Bangladesh has one the highest density of livestock population per unit of land. 71% of the total methane emissions in the country is from cattle, 372 Gg of Methane (1995) and an overall emission of 12, 426.54 Gg of CO2e from the livestock sector.

Biodiversity & deforestation

- The country does not have any dedicated land for grazing. Livestock mainly survives on grass grown on canal side, patches and homesteads. Croplands have been converted to shrimp cultivation farms. Therefore, deforestation due to livestock grazing is very minimal and may not be significant in comparison with deforestation due to industrialization and shrimp culture.

Pollution of air, water and soil

- The slaughter houses, majority of them being in the unorganized sector, let out their wastes and are mostly untreated.
- 15,000 m3 of highly polluted effluents from tanneries are discharged into the Buriganga river. Chromium, hydrogen sulphides, sodium sulphides are some major pollution causing chemicals. Chromium was found in Dhaka soils as well as in crops such as wheat and rice with higher concentrations in the roots.
- A study conducted in 2010 on the raw effluent from tanneries in Bangladesh revealed that the samples had high chromium and toxicity to bacteria, which are detrimental to aquatic species.
- The groundwater is significantly affected by tannery effluent waste and the 95% of Dhaka's water supply is from ground water.
- Air pollution: Benzene gas, nitrous oxides, hydrogen sulphide are commonly found in ambient air.

Water use / water availability

- Water consumption is exceptionally high in tanneries, due to lack of water control enforcements as well as access to free water. The water table of the Buriganga river is receding at a rapid phase yearly at a rate of 1.5-2 m due to over-exploitation.
- Because of contamination of the groundwater, tanneries endanger the supply of drinking water.

Waste

- Waste is an issue, since slaughter wastes and tannery wastes from the unorganized sectors are largely untreated.
- 75 metric tons of solid waste including salts, bones, leather shavings and trimmings is generated from tanneries .
- It has been indicated that leather waste products are processed into poultry feed and this is leading to severe health issues in birds, owing to the chemical content in the leather waste.

Animal welfare

- Bangladesh has several unorganized slaughter houses where animal welfare is an issue. Also during transport of animals.

Resources scarcity

- Land and water are scarce resources in Bangladesh, owing to the increasing population growth.

Land acquisition

- Land conflicts ate very high in the country, owing to the shortage of land. This has left over 50% of farmers landless.

Nuisance

- Tanneries located close to residential spaces are a serious nuisance in terms of odour, pollution and waste from these tanneries.
- About 180,000 residents in the Hazaribagh area live in makeshift houses making them more exposed to pollutants in air, water and soil.
- The entire area around hazaribagh is full of open gutters with red/black effluents and scraps of leather all around the street and has a strong odour of hydrogen sulphide.

Discrimination of small local farmers

- In Bangladesh, majority of farmers are women. The government has made provisions for subsidies and incentives for farmers under Agriculture Input Assistance Card (AIAC) scheme. However, owing to the fact that most of the lands are registered under their husband's name, who usually work in other countries, these women are unable to access these subsidies. This might also apply to livestock farmers.

Health and safety workers and community

- Past and present tannery workers in Bangladesh described and displayed a range of health conditions including premature aging, varied skin disorders such as discoloured, itchy, peeling, acid-burned, and rash-covered skin; fingers corroded to stumps; aches, dizziness, and nausea; and disfigured or amputated limbs. Many common health problems that tannery workers face result from repeated exposure to a hazardous cocktail of chemicals when measuring and mixing them, adding them to hides in drums, or manipulating hides saturated in them.

Child labour

- The US department of labor states that child labour occurs in leather production in Bangladesh.
- Children at the age of 11 - 12 are hired at tanneries.
- The tanner usually employs an adult to dry the leather, who in his turn employs some children. Children also trim the leather during its crust stage; they cut the uneven edges with a little knife to improve the shape. Toggling and trimming are typical tasks for children and in Bangladesh adults are hardly seen doing these tasks. (IREWOC).
- Children are often involved in the production of leather in countries including Bangladesh, Pakistan and India. (SOMO).

Forced labour & human trafficking

- No information was found on forced labour.

Freedom of association

- Trade unions are allowed, but only if more than 30% of the workers are a member and with government permission. As soon as members lose their job, they cannot remain a member, rendering the union powerless to act.
- Currently the trade union is demanding working conditions as per European Standards, failing which the workers will not move to the new Savar Leather Industrial Park where the government wants to relocate tanneries.
- Police violence against workers on strike occurs in Bangladesh.

Labour conditions (contracts, living wage, working hours)

- Deplorable social and working conditions have been reported in the current Hazaribagh location.
- Wages range around USD 64 a month for a labourer in the liming department, working 12 hours a day. Given that there is a 40% umemployment in Bangladesh, workers accept any working condition.
- In general women in Bangladesh quite often encounter more obstacles than men in workplaces, and are treated unequally in working conditions.

Leather supply chain China

Economic relevance

- China has 2,900 tanning companies, which are mainly driven by domestic demands,
- Most of the producers are concentrated in Hebei and Zhejiang.
- Total production value of hide and leather industry was approximately USD 254 billion in 2011.
- China is the largest exporter of leather in the world.
- The breakdown of the hide/leather market value is 50.9% for small companies, 33.9% for medium companies and 15.2% for large companies.
- In Nov 2012, China Leather Times reported a 5.49% decline in employment, especially for Sichuan 17.22% (Southwest China) and Guangdong (Southeast China). This drop is also visible in Zhejiang, Jiangsu and Shandong (East China), which produce the bulk of the leather and footwear. This is due to weak overseas demand and increasing number of Chinese and foreign companies heading out of China for better opportunities.

Sustainability issues China Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation	■			
Pollution of air, water and soil	■	■	■	■
Water use / water availability	■		■	■
Waste	■		■	■
Animal welfare	■	■		
Resources scarcity	■			
Land acquisition			■	■
Nuisance			■	■
Discrimination of small local farmers				
Health and safety workers and community		■	■	■
Child labour			■	■
Forced labour & human trafficking			■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)	■	■	■	■

Sustainability Initiative

ISA Tan Tec have developed the LITE Leather branded product line to help 'the world environment while producing high performance leather products with Low Impact To the Environment'. The LITE concept applies to all leathers being produced at their tannery, where they are measuring every possible production stage and its environmental impact. They are measuring CO2 emissions and found that, just by doing this, they have reduced their emissions by 30%. The tannery has more than 900 employees and is one of the leading suppliers of leathers to globally recognized brands such as Timberland, Keen, Rockport, ECCO and Cole Haan. Over the past few years, ISA have made numerous investments into various human rights and environmental activities and have launched a programme in China where handicapped workers are being taught how to make various items using leathers made by ISA.

Summary CSR Issues

Climate change
▶ Mado County in Qinghai Province (where the Yellow River originates) used to have more than 1,000 lakes; now there are less than 300. The top reason for the disappearance of lakes, according to a Tibetan environmentalist interviewed by our local expert, is climate change.
Biodiversity & deforestation
▶ Leather production from cattle requires large tracts of land to raise animals. In areas such as China this often leads to deforestation.
▶ From 1990s on, the Chinese government is still encouraging to revert farmland to forests and grassland, and it is regarded as one of useful approaches for vegetation conservation.
Pollution of air, water and soil
▶ Stockbreeding is the 3rd most pollution sector in China, because the large amount of excrement.
▶ China has achieved large economic growth over the past 30 years, at the cost of the environment. Exact information on the status of the environment is not shared transparently. For example, soil pollution findings (2006-2010 survey/research) are a state secret in China.
▶ In Xinji city, location of one of the major leather making areas, in 2013 local citizens complained about polluted drinking water due to tanning. Around 100 tanneries have been working for over 20 years in the area and pollution of groundwater and air need to be solved urgently.
▶ The pollution caused by tanneries can be a problem. However, research shows that the sector has placed greater emphasis on pollution prevention and applies cleaner production technology, including recycling of waste chromium liquid, waste ash solutions, hair removal, solid waste resource utilization as well as better water reuse.
Water use / water availability
▶ Leather processing requires large volumes of water, the industry is amongst the country's top twenty water dischargers by volume.
▶ China is suffering from a lack of potable water, having to support 20% of the world's population on 5% of the world's renewable freshwater. The usable water resources that China possesses are under increasing strain and the Chinese Ministry of Water Resources has stated that water use has "already surpassed what our natural resources can bear". China's water resources are unequally distributed. China's northern regions are naturally water-scarce whereas the southern regions are water-rich.
▶ Water pollution further adds to water issues: 78% of China's water is unfit for human consumption ; 90% of groundwater is polluted; and 19% of China's seven river basins and 35% of its 26 key lakes and reservoirs are too polluted for agricultural or industrial use. Polluted water is, however, still used due to huge demand and dwindling water resources, which leads to soil and crop contamination.
Waste
▶ The amount of COD from breeding excrement is about 17.84 million ton. More than the sum of industrial waste water and domestic sewage.
▶ The vast majority of leather tanneries in China use the gray alkali to remove hides' hair which results in liquid waste generally containing sodium 3-6g / L, suspended solids and insoluble matter. The COD and BOD levels are high, and are harmful to the environment. The liquid waste can economically be recycled, reducing the environmental pollution.
Animal welfare
▶ The inhumane husbandry and slaughtering of animals also present significant issues in China.
Resources scarcity
▶ In a recent report commissioned by Greenpeace, scientists from the Chinese Academy of Agricultural Sciences have warned that temperature rise, water scarcity and loss of arable land could cut China's overall food production by 14 to 23 percent by 2050. This will have an impact on growing enought argriculture to sustain the hides sources for the leather industry.
Land acquisition
▶ Land acquisition will be much harder in China. With rapid urbanization, real estate development etc, farm land decreases seriously and in 2010 there are only 1.8 billion mu (about 121.8) million hectares farm land in China. The Chinese central government requires local authorities to make sure there is no decrease of farm land, even though there are encourage on reverting farm land to grass and forests in west China.
▶ Land dispute has always been a common issue in China, with the local authorities siding (often corrupted) with the companies to seize land which is already occupied for other reasons. Such forceful seizing often resulted in bloodshed and media attention, however, little is often done. Reports are known where leather factories (Nanning Yanzi Ling) were involved.
Nuisance
▶ Complaints from residents near tanneries increase on waste, pollution, noise and odour, since the general public pays more attentions to health and environment. I.e. since 2005 until today there are complaints against FG leather industry on odour from treatment of wastewater.
Discrimination of small local farmers
▶ No discrimination against farmers was found, however, the China Ministry of Industry and Information wants all small scale tanning plants (30,000 pieces and below) and all low technology and capability tanning plants to be eliminated before 2011.
Health and safety workers and community
▶ Next to health and safety issues due to pollution, not enough protection equipments for employees and local community is available leading to fatal accidents. For this the authorities enhanced HSE supervision to leather treatment sector from 2011.
▶ In june 2013 a major fire occurred in a poultry slaughterhouse. Blocked fire escapes resulted in more than 100 death and casualties
Child labour
▶ Officially children younger than 16, cannot be employed. But in labor-intensive Industry and remote areas, such as the west, the child labor is still the issue to pay attention to.
Forced labour & human trafficking
▶ The US department of labor reports high occurrence of forced labour in China, e.g. in related industries like foodware and garments. Maplecroft also indicates China as an extreme risk. No reports were found specifically on the leather sector.
Freedom of association
▶ Freedom of association faces severe restrictions in China
Labour conditions (contracts, living wage, working hours)
▶ Factory farming reportedly has bad working conditions, also in China.
▶ There are still cases of missing contracts, high working hours etc. in tanneries. Conditions vary.

Leather supply chain Vietnam

Economic relevance

- Leather production volume in Vietnam is still small and can presently meet only about 30% of the demand from local industry.
- There are about 60 companies and tanning units throughout the country. There are six tanneries with foreign capital while the rest are local private companies and small tanning units.
- The production of finished leather is mainly concentrated in tanneries in Ho Chi Minh City where over 70% of the total national leather volume is produced.
- In 2008, the leather industry employed 6,030 workers, with an average number of 183 workers per tannery. 5.5% of the workers were university graduates, 25.5% were skilled and experienced technicians, and the rest (68.63%) were unskilled workers.
- Around 200 workers worked in tanning villages spread over Hung Yen and Quangnam provinces.
- There are approximately 18 standard industrial abattoirs in Hanoi. However, most are working at reduced capacity as their trade has been poached by sub-standard slaughter.

Sustainability issues Vietnam ■ Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■	■	■	■
Biodiversity & deforestation	■			
Pollution of air, water and soil	■	■	■	■
Water use / water availability		■	■	■
Waste	■	■	■	■
Animal welfare	■	■		
Resources scarcity	■			
Land acquisition	■			
Nuisance	■	■	■	■
Discrimination of small local farmers	■	■	■	■
Health and safety workers and community	■	■	■	■
Child labour				■
Forced labour & human trafficking			■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)		■	■	■

Sustainability Initiative

- An increasing number of firms are applying green and sustainable technologies. One example is Saigon Tantec Leather, which built the first 'green' tannery in Vietnam. The company uses solar energy and applies natural wastewater treatment in its processes.
- In September 2012, an industrial park in Ho Chi Minh City invested in a wastewater treatment system to handle wastewater from seven tanning firms operating in the area. Two more industrial parks were scheduled to open wastewater treatment systems by the end of 2012.
- The Leather and Footwear Research Institute held a seminar in September 2012 on ISO 26000, which provides guidance (and not requirements) on how businesses and organizations can operate in a socially responsible way. The so-called 'ISO 26000 project' will help Vietnamese businesses, especially SMEs, to become more involved in the process of international integration and sustainable development, while facilitating CSR in Vietnam.

Summary CSR Issues

Climate change

- The leather industry, along with the textiles and garment sectors, are major contributors to greenhouse gas emissions and ecological destruction in Vietnam- according to ASSIST, a leading international capacity-building organization.
- Since 70% of hides are imported, emissions from modes of transport are incurred.

Biodiversity & deforestation

- Next to intensive cattle systems, extensive calf-cow grazing systems, under which grazing in the open is practiced in the daytime and penning is used at night exist in Vietnam. This has the potential to reduce diversity through over-grazing by animals.

Pollution of air, water and soil

- Cattle farms (especially those without biogas digesters) were responsible for high levels of pollution.
- Water and air pollution from slaughterhouses occurs. Especially in the Tri Thuy Commune in Phu Xuyen District.
- The tanning industry is categorized as one of the most pollutant-causing industries in the country. The environmental problems are especially complicated with small and medium-sized tanneries because their location in highly populated areas. where waste discharge causes problems.
- Lax control, lenient fines and backwards technologies in the leather production industry have helped deteriorate the country's land, water and air.
- Other factors leading firms to be reluctant to invest in wastewater treatment processes include an uncertain regulatory environment, high costs, lack of knowledge of available technologies and lack of experience in cleaner production processes.
- Not all tanneries have waste water treatment systems. Water pollution by tanning factories has led the Ministry of Natural Resources and the Environment to prohibit tanning production activities in Vietnam's three main river basins.

Water use / water availability

- The leather industry itself does not cause water scarcity. However, many slaughter houses and tanneries practice unhygienic water use, contaminating drinking water of villages.

Waste

- Only 7% of livestock farms actually use waste management measures. Nevertheless, a good 50% of animal manures are processed by aerobic treatment to produce organic fertilizers.
- Companies involved in the tanning and dressing of leather have significantly contributed to the growth of industrial solid waste.

Animal welfare

- In 2009-2010 period, Vietnam faced disease outbreaks among animals and thus the necessary culling of standing inventories.
- Director of the Department of Agriculture and Rural Development Hoang Thanh Van said that many slaughter houses has no regular/proper quarantine. According to officials, loose management from local authorities leads to traders slaughtering smuggled, sick or dead animals. Apart from the VISSAN abattoir (currently slaughtering on average 30 cattle despite its 20-fold capacity), the situation in cattle abattoirs is disastrous from a hygienic perspective. However, some abattoirs do observe proper animal treatment such as rest period of at least 6 hours for cattle.

Resources scarcity

- Feed shortages exist at times of drought (dry season) and flood (wet season). The coastal strip has a growing shortage of land and feed resources to allow the existing cattle industry to expand due to urbanisation, industrialisation and geography, e.g. tropical south and subtropical north.
- Competition for land, water and forests has intensified in Vietnam and the benefits earned from these resources are often not shared in an equitable manner.

Land acquisition

- Land disputes have become more frequent as the government seizes property to lease to domestic and foreign investors. Affected residents and farmers rarely find the courts helpful, and their street protests often result in state harassment and arrests.

Nuisance

- Cattle farms (especially those without biogas digesters) are responsible for high levels of pollution and caused many health problems. Complaints included: bad smells, water pollution, and headaches.
- Slaughterhouses and tanneries cause problems with odour.

Discrimination of small local farmers

- Reported in 2007, in general, urban bias and systemic discrimination against private entrepreneurship is still pervasive. The report pointed to the durable legacies of socialism as one reason for this discrimination. Oxfam indictates discrimination against the rural poor, ethnic groups and women in a report from 2012.

Health and safety workers and community

- The practice of batch slaughter without any equipment to elevate the carcass from the floor contaminates the spot for slaughtering with the faeces and urine of the live animals, dried blood and organic waste. Workers sometimes walk and work here with bare feet.
- Based on 2006 report "Report on Vietnam Leather Tanning Industry" by Vo Thanh Kiet, occupational safety and health protection is ignored in the tanneries. No use of protective clothes and safety devices. The knowledge on proper storage and handling of hazardous chemicals is very low.

Child labour

- The SOMO report 'Where the shoe pinches – Child Labour in the production of leather shoes' indicates that children tan and process leather.

Forced labour & human trafficking

- There is no recent report on forced labour, but based on 2006 "Report on Vietnam Leather Tanning Industry", the offered salary is usually not appropriate to the heavy workload and bad work conditions. The low pay might constitute a form of forced labour.

Freedom of association

- The right of freedom of association is restricted. Vietnam only has one national trade union, the Vietnam General Confederation of Labour. Workers who take part in strikes that do not have government approval, risk sanctions. But the conditions to be met for organising a strike legally are so restrictive it is almost impossible to respect them. There was a huge increase in the number of illegal strikes from 423 in 2010 to nearly 1000 in 2011. Most strikes are linked to the fact that workers wages have not kept up with inflation, which reached 18%.

Labour conditions (contracts, living wage, working hours)

- Profit distribution among raisers, slaughterers, traders and distributors are not equal. Raisers are often put at a disadvantage and take high risks.
- The working environment in tanneries is very poor; the smell of chemicals and raw materials is pervasive, workers are not protected.
- Most of the workers, including the majority of household tannery entrepreneurs, have a very low level of education. Some larger tanneries, however, employed highly qualified staff to see to the technical aspects of the business.
- The offered salary is usually not appropriate to the heavy workload and precarious occupational safety and health protection conditions.

Leather supply chain Indonesia

Economic relevance

- 60% of the raw materials (e.g. chemicals, hides) needed in the leather industry is imported from the US and Australia.
- There is a 12% decrease in leather product export due to the global crisis.
- The gross contribution to GDP in 2012 by the leather products, textile and footwear industry is reported by The National Statistics Body at IDR 75.7 trillion (SGD 9.69 billion).
- Small-scale industry has a production capacity of 250,000 square foot leather annually while large-scale industry has an annual production of 20,000,000 square foot annually (2010).
- In March 2013 the Indonesian Tanners Association (APKI) wanted the government to halt raw leather exports to meet a domestic shortage.

Sustainability issues Indonesia Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■	■	■	■
Biodiversity & deforestation	■			
Pollution of air, water and soil	■	■	■	■
Water use / water availability	■	■	■	■
Waste	■	■	■	■
Animal welfare	■	■		
Resources scarcity	■			
Land acquisition	■			
Nuisance	■	■	■	■
Discrimination of small local farmers				
Health and safety workers and community	■	■	■	■
Child labour	■		■	■
Forced labour & human trafficking				
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)	■	■	■	■

Sustainability Initiative

PT Budi Makmur is one of the most prominent tanneries in Indonesia, supplying up to 70% of leather for golf products imported by the US from Indonesia. It is the finalist for Tannery of the Year 2011 for Asia category. The company is the biggest player in Yogyakarta, Indonesia, dwarfing around fifteen other tanneries in the area. It directly employs 250 workers (20% of them are women). The company sources its machines from local supplier (locally-made). The company harvests rainwater and it makes up 30% of water use by the company. Savings in water are made by recycling pickle liquors as far as possible. This also reduces salinity in the final effluent. The company's sole source of heat for wet processing and drying is a wood-burning hot water plant by utilizing off-cuts from mango, coconut, jack-fruit and bamboo trees that have no other use. This has saved approximately 400 litres of heavy fuel oil per day.

Summary CSR Issues

Climate change

- Live cows also produce methane gas and nitrogen oxides from manure which are GHG contributing to global warming.
- Energy is used for machinery. Indonesia has 5 national grids, with average emission factor of 0.74.

Biodiversity & deforestation

- A cattle ranch requires a lot of open space. In Indonesia, this equates to forest clearing to make way for such ranches. Very often, this is done via burning. Biodiversity loss is inevitable with habitat loss from deforestation. The rainforest in Indonesia are home to some of the highest levels of biological diversity, containing third largest area after Amazon and Africa's Congo Basin. It contains 10% of world's known plant species, 12% mammal species including endangered orangutans and critically endangered Sumatran tigers and rhinos and 17% of all known bird species.

Pollution of air, water and soil

- Finishing requires colouring. Reports point to heavy use of chemical as a source of contamination.
- Some contaminants reported by the Indonesian Tanners Association are waste sludge, organic solvents, and heavy metals, from finishing and tanning processes.
- River contaminations have been reported in the Garut Regency, where the leather industry in thriving. River Cigulampeng and River Ciwalen have been reported to cause skin problems to people using them for daily activities.
- Manure from cattle has caused complaints both from air pollution and water pollution in e.g. Situbondo and Bogor.

Water use / water availability

- In Indonesia, potable water is sourced from two main sources namely groundwater and from state-run utility board, which source water from river or groundwater. Indonesia is currently facing water shortage with 1/3 of the population having little access to clean water.
- Excessive use of water across the four stages in the leather industry will cause negative impact to water availability as does water pollution.

Waste

- A demonstration plant in Cakung Slaughterhouse shows efforts made to use slaughterhouse waste through anaerobic digestion and windrow composting.but complains remain about waste e.g. from slaughterhouses in Jakarta.
- Disposing tanning waste irresponsibly still occurs in Indonesia. In 2012 and 2013 locals complained about tanning waste that was disposed of irresponsibly and they created environmental problems in Magetan and Medan.

Animal welfare

- "Cruel treatment" of live animal has been widely reported in Indonesia. As recent as 8 January 2013, photos of such cruel treatment such as lifting of cows using cranes pulling ropes tied to the neck of the cows circulate and reported by news agencies.
- In 2011, Australia banned all live cattle export to Indonesia for six months because of animal rights concerns in Indonesian abattoirs. It took an average of 4 cuts to kill the animal.
- In better abattoirs, animals are stunned following Halal requirements with a concussion stunner.

Resources scarcity

- Indonesia only source 40% of its leather locally while others are imported.

Land acquisition

- The community was allowed to use 6,000 ha of abandoned land in South Sulawesi to create a modern cow ranch.
- On the other hand, there is a conflict over land acquisition between Indonesian BPTU and the Ulayat land in West Sumatra.
- It is a common problem in Indonesia to have communities protesting against companies for not consulting them prior to relocation/ construction and land use. Very often, the acquisition of land is forced by the local authorities.

Nuisance

- Hundreds of local residents forcefully obstruct the construction of new abbatoir near Omben, Sampang because of odour.
- Pollution problems caused by the industry such as the river contaminations hinder the daily activities (bathing, showering, agriculture) of communities relying on the same river.

Discrimination of small local farmers

- There has been no report on discrimination to small local farmers in Indonesia. Instead, there is growth observed, among small players in the industry.

Health & safety workers and community

- We would like to caution that health and safety awareness is low in Indonesia and so is the reporting of any health statistics.

Child labour

- Child labour especially in a family-run business is a norm in Indonesia (especially for labor intensive industries). The minimum working age is 18 but there is little enforcement in the country.
- Child labour is prevalent due to 2 factors - poverty and social culture. They are often paid lower wages and for longer working hours. While we do not find evidence that this happens in the leather industry, we assume child labor which is wide-spread in Indonesia would also impact the leather industry. Where the shoe pinches - Child Labour in the production of leather brand name shoes" published by SOMO, the US Department of Labour listed Indonesia as one of the countries where children work in the footwear production industry.

Forced labour & human trafficking

- Major human trafficking issues have not been reported on tanning and leather-product industry. Most human trafficking issues in Indonesia have been reported on the agriculture, fishing and mining sectors whereby people from villages have been forced to work elsewhere (within the country).

Freedom of association

- Questions remained on the effectiveness/ influence of unions.

Labour conditions (contracts, living wage, working hours)

- Small-scale tannery workshops are considered an informal industry, hence few regulations are enforced by the government, which can result in bad working conditions.
- It is understood that not all employees enjoy comfortable working conditions and equitable wage. Reports are found on sportswear factories, but reports on such issue particularly on cattle ranch and tanneries employees were not found.

Leather supply chain Thailand

Economic relevance

- The leather industry in Thailand generated 17.3 billion baht of revenue for the country in 2010 and provides jobs to 30,000 workers. Players comprise 120 tanneries located in two special industrial estates in Samut Prakan's Bang Pu district.
- Twenty largest tanneries provide on average 300 cow hides daily or more than 500,000 square feet per month. They have 60% of the market share with 50% production exported and the other half sold to local manufacturers of leather goods.
- Thirty medium tanneries provide between 100-300 cow hides daily or 100,000-150,000 square feet per month. They have 35% market share.
- Eighty small tanneries produce less than 100 cow hides daily or less than 100,000 square feet per month. They have 5% market share but it is common to sub-contract their tanning work to medium-sized tanneries.
- Most tanneries are family-owned.

Sustainability issues Thailand Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■	■	■	■
Biodiversity & deforestation				
Pollution of air, water and soil	■	■	■	■
Water use / water availability	■	■	■	■
Waste	■	■		
Animal welfare				
Resources scarcity	■			
Land acquisition				
Nuisance	■	■	■	■
Discrimination of small local farmers	■			
Health and safety workers and community	■	■		
Child labour	■	■	■	■
Forced labour & human trafficking	■		■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)		■		

Sustainability Initiative

Between 2009 and 2014, Thailand is participating in the Small Scale Livestock Waste Management Program Project initiated by the World Bank. One of the objectives of the program is to reduce methane emissions from improved livestock waste management practices through a carbon finance transaction between the World Bank and the project sponsor. Component activities include installation of anaerobic wastewater treatment systems and implementation of an environmental management and indigenous people plan during construction and operation phases.

Summary CSR Issues

Climate change

- In 2008, GHG emissions by methane from livestock in Thailand amounted to 5,012,732 ton CO2e / year.
- Hides are imported mainly from the US, Australia and New Zealand. Hence, there are CO2 emissions attributed to the transportation of the hides.

Biodiversity & deforestation

- The Thai government has successfully increased reforestation efforts by more than 64,000 hectares since 2000. In addition, the government has also expanded the conserved forest areas. Deforestation is due to several reasons and cannot be solely blamed on cattle rearing.
- Rural communities use the forests for grazing livestock and cultivation. However, Thai locals conserve their forest due to religious reasons (Forest buddism). So for Thailand, there is little negative impact from livestock on biodiversity and deforestation because government and communities actively preserve forests and reforest.

Pollution of air, water and soil

- In the Rachaburi province in the Central Plains, the levels of NH3-N, COD and BOD, are above the accepted minimum standards. Probably caused by the 400 farms which produce 2,000 tons of animal solid waste and 2,500 tons of wasted water and urine per year.
- Reports from Thailand Department of Environmental Quality Promotion points to inefficient water treatment facilities of many slaughterhouses. This lead to pollution problems surrounding areas such as water, odour, noise and soil pollution.
- The Thai Tanning Industry Association (TTIA) plays a major role in managing the industry's central wastewater treatment facilities in both estates as well as joint raw material and chemical purchasing schemes. TTIA spends about $20 million annually on cleansing tannery wastewater alone – more than that spent in any other Thai industry. Still there are complaints about pollution.

Water use / water availability

- Thailand consistently faces twin problems with water: severe flooding in rainy season and drought in dry season, leading to water scarcity. It has annual rainfall of 800,000 cubic meters but can only retain 70,000 cubic meters. Flooding has led to agriculture and livestock damage along with effects on people's health.

Waste

- All of the waste from Lamphun's slaughterhouse was collected and used to produce fertilizer while the waste from Chiang Mai's slaughterhouse was transferred to a sanitary landfill site with domestic compost. There are reports of primitive way of collecting and treating waste.
- In general, there is no significant waste problem reported with respect to the industry. The TTIA runs wastewater treatment facilities in estates with high concentration of tanning industry. Since the tanning industry mainly supplies to the European market, they comply with the strict environmental regulations.

Animal welfare

- There are no reported incidents on animal cruelty or mistreatment during slaughter. Major reported issues with mistreatment come from slaughter of dogs, not cows or hide-producing animals.

Resources scarcity

- Increasing land use for crops decreases forage supply. Cattle farmers have to go further to look for feed supply.

Land acquisition

- No issue reported on unlawful land acquisition.
- A report stated that Al Qudra from United Arab Emirates planned to acquire 400,000 ha of land by early 2009 to produce wheat, maize, rice, vegetables and livestock in a.o. Thailand.

Nuisance

- In the municipal district of NakhonRatchasima province in the Northeastern region, complaints have frequently been filed regarding the pollution from farms, restrained by their limited lands, which have no pond of any kinds to ameliorate toxic waste water. The farms simply discharge wastewater directly into public waterways, leading to endless friction between farm owners and protests from the community.
- Inefficient water treatment facilities of many slaughterhouses lead to odour and noise.
- In January 2011, the Stop Global Warming Association is threatening to file a civil lawsuit against tanning factories in Samut Prakan province if they fail to ease the problem of foul odours in the area.

Discrimination of small local farmers

- The FAO reports that large producers (dairy cooperatives) were favored over small producers (e.g. of pigs).

Health and safety workers and community

- Animal diseases have caused problems to livestock farmers, livestock industries and, to some extent, consumers in Thailand. The Thai government has supported research and development on vaccines and, in some cases, has produced vaccines for the farmers.
- Thai tanning industry provides for European, Japanese, and the US markets. Each has their own safety requirements that Thai suppliers have to follow. There are no reported incidents of non-compliance to the requirements.

Child labour

- Thailand aims to restrict child labour by declaring list of jobs deem too dangerous for children. This includes a night shift job from 10pm to 6am, and working in a slaughterhouse.
- There are no recent reported specific incidents of child labour in the relevant industries. But child labour still happens in Thailand. Child labour at a small-scale business tends to go unreported. The US Department of Labour reports that child labor does exist in garments and leather bags.

Forced labour & human trafficking

- The top 3 industries that absorbed the most illegal migrant workers from Cambodia, Laos and Myanmar in Thailand are farming and livestock (171,857 workers). Migrants are more vulnerable to bonded labour.
- The US Department of Labor reports bonded labour in the garment industry.

Freedom of association

- The Textile, Garment and Leather Workers Federation of Thailand (TWFT) exists, although no website or any other information about the federation is found. TWFT is affiliated to Industrial Global Union.

Labour conditions (contracts, living wage, working hours)

- Some of the conditions indentified in slaughterhouses include unskilled manpower, poor maintenance, primitive way of collecting and treating waste, and no special handling equipment.
- According to ILO Global Report in 2007, the working hours in Thailand are "too long." No current report was found. The Thai Tanning Industry Association (TTIA) states that workers have a safe environment to work in.

Leather supply chain Brazil

Economic relevance

- Brazil has the largest commercial cattle herd in the world and is the largest exporter of beef.
- By 2018, the government intends that Brazil provides nearly two out of every three tones of beef sold internationally. This plan is backed by investments.
- Brazil has 749 tanneries, mainly concentrated in the states of Rio Grande do Sul (30%) and São Paulo (21.2%).
- The leather sector, was responsible for 39,400 jobs in 2010 and 50.000 in 2011. More than half of the vacancies are concentrated in states Rio Grande do Sul (34.8%) and São Paulo (17.5%).
- The sector was responsible for generating $ 2 billion in exports in 2010, which represented approximately 0.8% of total exports. With China, Brazil holds the position of largest exporter of tanned leather.

Sustainability issues Brazil Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation	■			
Pollution of air, water and soil	■	■	■	■
Water use / water availability	■	■	■	■
Waste	■	■	■	■
Animal welfare	■	■		
Resources scarcity	■			
Land acquisition	■			
Nuisance			■	■
Discrimination of small local farmers	■	■		
Health and safety workers and community		■	■	■
Child labour	■	■	■	■
Forced labour & human trafficking	■			
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)	■	■	■	■

Sustainability Initiative

In 2012 a group of four ranches in Brazil became the first in the world to earn Rainforest Alliance certification for sustainable cattle production, leading to the first certified Gucci handbag in 2013. The ranches, all belonging to the group Fazendas São Marcelo Ltda., met a rigorous set of standards that promote the humane treatment of livestock, the conservation of natural resources and the rights and well-being of workers. The standards were developed by the Sustainable Agriculture Network (SAN) in response to the vast destruction of rainforest that results from cattle farming. Located in Mato Grosso in western Brazil, the ranches cover a total area of 32,000 hectares including 13,000-hectare reserve in the Amazon. This protected area helps to buffer natural forests and provide shelter and migratory habitat for wildlife. Altogether, about 60,000 cattle graze on the ranches sustainably managed pastures. Since the majority of ranch workers are male, training is provided to worker wives on crafts and artisanal cooking, allowing opportunities for economic advancement. The most rural of the four certified farms provides a private school for 20 resident children, and the company supports the public schools near its other properties, subsidizing teacher training to enhance education for the 10,000 schoolchildren in neighboring communities.

Summary CSR Issues

Climate change
▶ Brazil is the fourth largest emitter of greenhouse gases (GHG). Deforestation and other changes in land use for the creation, production and transportation of grains and livestock are responsible for 75 percent of Brazil's greenhouse gases.
Biodiversity & deforestation
▶ According to the Brazilian government, cattle is responsible for about 80% of all deforestation in the Amazon region. Greenpeace claims that on average one hectare of Amazon rainforest is lost to cattle ranchers every 18 seconds.
Pollution of air, water and soil
▶ Low investment in maintaining pastures, causes soil compaction and erosion leading to soil degradation. ▶ Water resources are polluted by livestock and slaughter. E.g. the River Basin Passo Fundo. ▶ The groundwater and soil in 12 cities in Rio Preto were contaminated by the use of chemicals such as chromium VI.
Water use / water availability
▶ Water scarcity is possibly the number one environmental problem of this century. To produce a pound of meat 9463 liters of water are required. If Brazil would charge for water like in other countries, a kilo of meat would cost around $ 130.00. ▶ Depending on the production and where tanneries operate, the impact of water use can be significant.
Waste
▶ Giants heaps of scrap leather are found in several areas. They are scattered and exposed to sun and rain, without any control or care. In some instances, the remnants exceed the height of walls. Waste disposed of without proper treatment, pollutes rivers and soil of the region. There are several cases where contamination resulted in dead fish.
Animal welfare
▶ The issue of animal welfare has become a concern constant, and society has demanded regulations to improve quality of life of animals. Some farms have proven that better animal welfare also leads to better quality and have set an example. ▶ Clandestine slaughter still happens in Brazil.
Resources scarcity
▶ Inadequate livestock management has had negative effects on Brazil's environment. Overgrazing has caused a lack of nutrient replacement resulting in a proportion of the country's pastureland being degraded.
Land acquisition
▶ Brazil has one of the highest levels of inequality of land distribution in the world ▶ The highly skewed land distribution and government expropriation and redistribution policies are a major source of conflict in Brazil, taking the form of forced evictions or assassinations of rural workers, peasants, union leaders and religious supporters involved in the struggle for land. ▶ Large farms continue to displace smallholders who lack formal land titles.
Nuisance
▶ In Brazil problems with bad smell coming from the production of leather remain. ▶ Residents of Boa Esperança do Sul (SP) suffer for at least five years with the stench caused by the remnants of the leather tanneries. The material is stored illegally on land and vermin is now invading their homes.
Discrimination of small local farmers
▶ Small farmers, who have little access to the market, can become captives of large slaughterhouses, which will pay lower prices. ▶ The occupation of land for cattle or soybeans is often associated with (deadly)conflict.
Health and safety workers and community
▶ Workers in leather slaughter industry suffer bad health and safety circumstances. ▶ Workers in the tanning industry are frequently exposed to chemicals and products containing chromium, aniline and toluene.
Child labour
▶ Child labor occurs in Brazil. In the first global study of child labor in the livestock sector, ONU calculates that the practice represents 40% of the agricultural economy. It also occurs in slaughter and in footwear.
Forced labour & human trafficking
▶ Indigenous peoples suffer from discrimination, which can turn into forced labor, especially in large and remote cattle farms. ▶ E.g. in Mato Grosso forced labor results from young men being brought by brokers to rural plantations where they then enter into debt bondage or are not paid at all. When trying to escape there are beaten. ▶ Forced labor and exhausting hours of work expose workers to conditions analogous to slavery.
Freedom of association
▶ Brazilian Unions have filed complaints against the governance for breaching rights of freedom of association and collective bargaining to the ILO Committee on Freedom of Association in 2010.
Labour conditions (contracts, living wage, working hours)
▶ Employment in the sector is often low-skilled and poorly paid. ▶ Slaves and children work under very bad working conditions

Leather supply chain Uruguay

Economic relevance

- The leather industry is one of the oldest activities in Uruguay. Today it is a mature industry that consists of a few companies. There are three main tanneries (Zenda, Bader and Paycueros).
- Zenda is the largest player in the industry, employing between 800 and 1,000 people in Uruguay alone and, in Uruguay, is capable of processing about 4,000 hides per day
- The leather sector was among the hardest hit by the crisis that erupted in 2008. In 2011, the industry produced 27% less than in 2006 and 2007, due to the international crisis.
- Due to rising wages recorded the sector Uruguay seems to be at a disadvantage compared to some competitors, including Brazil.

Sustainability issues Uruguay Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation	■			
Pollution of air, water and soil	■	■	■	■
Water use / water availability	■			
Waste			■	
Animal welfare				
Resources scarcity	■			
Land acquisition				
Nuisance		■	■	■
Discrimination of small local farmers	■		■	
Health and safety workers and community	■	■	■	■
Child labour	■			
Forced labour & human trafficking				
Freedom of association			■	■
Labour conditions (contracts, living wage, working hours)			■	■

Sustainability Initiative

- In Uruguay, the Santa Lucía River wetland (SLW) in the lower watershed, is one of the largest wetland systems in the country (approximately 22,500 ha), and has been designated as an important bird conservation area due to the high concentration of globally threatened birds. Pollution by a.o. slaughterhouses and tanneries, discharging significant organic loads. To improve this situation Argentina and Uruguay work together with UNDP in the Freplata Project to promote cleaner production in a.o. tanneries.

Summery CSR Issues

Climate change
▶ Agriculture and livestock are the major source of climate change in Uruguay (82.4% of total). ▶ Livestock are a major player, responsible for 18% of greenhouse gases (GHG).
Biodiversity & deforestation
▶ The progress of agriculture and livestock are closely linked, both with biodiversity destruction and climate change. ▶ Natural grasslands cover more than 70% of Uruguay and constitute a significant portion of one of the last extensive temperate grassland ecoregions in South America . Approximately 1.7% of Uruguay's total national territory is designated as protected area. Thus many elements of significant value (mainly grasslands and marine ecosystems) lie outside protected areas.
Pollution of air, water and soil
▶ Livestock in Uruguay causes eutrophication of lakes. It is estimated that 82% of the supply of nitrogen is due to livestock. ▶ Experts warn that if no measures are taken to prevent contamination including from slaughterhouses, Uruguay could lose the benefit of being one of the few countries in the world with clean water. ▶ There are still tanneries that cast their polluted effluents in water bodies, contaminating soil, surface water and groundwater.
Water use / water availability
▶ The clean water supply in Uruguay is threatened by pollution (see above).
Waste
▶ There are problems with the disposal of waste into the environment. Tanneries are inspected and fined for irregularities.
Animal welfare
▶ Uruguay is classified as low risk for bovine spongiform encephalopathy (BSE) by the World Organisation for Animal Health. ▶ In 2009, Uruguay created the Honorary National Commission of Animal Welfare, whose main goal is to control that the standards of care, protection and respect towards animals are met. Slaughterhouses fall under an audit system. No information was found that animal welfare is a problem.
Resources scarcity
▶ According to FAO studies in Uruguay on the water supply livestock and tanneries require small volumes compared to irrigation. However, protection of water quality, especially groundwater, is essential. ▶ Public policy linking agriculture / livestock and climate change, and agriculture / livestock and biodiversity protection, are rare.
Nuisance
▶ Problems with odors from tanneries and slaughterhouses still bothers the population today in Uruguay.
Discrimination of small local farmers
▶ Small and medium tanneries have been disappearing in favor of large corporations. ▶ Small farmers suffer exclusion from trade and technologies used in the industry.
Health and safety workers and community
▶ The concentration of animals during completion generates health risk for workers. ▶ Studies show that many rural workers have jobs below quality. This problem happens in slaughterhouses as well.
Child labour
▶ Child labour seems to occur less in Uruguay than in the rest of the region. Child labour does still occur in livestock handling. ▶ Uruguay does not appear on the child labour list of the US department of Labor in 2012.
Forced labour & human trafficking
▶ No information on forced labour was found.
Freedom of association
▶ In 2011 workers from tanneries protested claiming the sector was acting against union involvement, sanctioning workers.
Labour conditions (contracts, living wage, working hours)
▶ The Uruguayan leather industry is undergoing a process of de-industrialization, resulting in fewer jobs and uncertainty about the workers future. Strikes have occurred claiming repression of the workers and unilateral decisions.

Leather supply chain Egypt

Economic relevance

- Egypt is known for high quality raw material of leather with an estimated supply increase of 2.4%/year within the domestic market, being the highest of any country in the region.
- Bovine material (hides) represents 70% of the market.
- In terms of production activity, Egypt ranks the 4th just behind Italy, Spain and Germany within the countries, exporting to EU in tanning activity.
- The leather tanning and footwear industry is one of the most promising industries within Egypt.
- A large number of leather producers are small scale manufactures who have low access to international markets.
- The country is planning to establish a new leather city consisting of 100 leather companies.

Sustainability issues Egypt Identified as issue	Phase			
	Livestock (incl. feed)	Slaughter	Preparation & Tanning	Crusting & Finishing
Climate change	■			
Biodiversity & deforestation	■			
Pollution of air, water and soil		■	■	■
Water use / water availability	■	■	■	■
Waste	■	■	■	■
Animal welfare		■		
Resources scarcity		■	■	■
Land acquisition				
Nuisance		■	■	■
Discrimination of small local farmers				
Health and safety workers and community		■	■	■
Child labour	■	■	■	■
Forced labour & human trafficking			■	■
Freedom of association	■	■	■	■
Labour conditions (contracts, living wage, working hours)		■	■	■

Sustainability Initiative

- Egypt has adopted a conscious move toward establishing a Leather City on the outskirts of Cairo, near Suez canal . This was due to the heavy pollution of the Nile river. The first in 10th of Ramadan City accommodating 100 factories and the other in Morgham region in Alexandria accommodating 50 factories.
  The new location is said to be an "Eco Tan Centre" and has a.o. the following:
  - Establishing an environmental laboratory, with all equipments that are capable of analyzing diverse environmental parameters related to atmospheric emissions, sound contamination and wastewater analysis.
  - Pilot tanning drum that allows carrying out optimized tests on the traditional processes related to tanning in order to minimise the amount of pollution produced, to research, demonstrate and train Egyptian tanneries' workers on the new tanning technologies that are more environmentally friendly.

Summery CSR Issues

Climate change
► Machine tanning process may be energy intensive as compared to traditional systems, since large number of leather is still made in the unorganized sector the power burden is presently not seen.
Biodiversity & deforestation
► Large areas within the Nile Basin are overgrazed and yet much of the pasture resources remain underutilized.
Pollution of air, water and soil
► Slaughterhouses are dominated by the unorganized sector and therefore treatment methods are not stringent which leads to water pollution. ► Chromium discharged into the sewage system causes serious environmental impact. ► Currently, the entire area within which Leather is processed is concentrated in Old Cairo and portions of Alexandria. Industrial wastewaters have a high biochemical oxygen demand (BOD) from biodegradable wastes such as those from slaughter houses and tanneries.
Water use / water availability
► The only major source of water is the Nile and more livestock than people live in the Nile basin. The problem is the availability of water and to make water available for livestock irrigation waste water is being treated and send for Livestock rearing. ► There is no explicit mention of water availability issue due to the leather industry in Egypt, but issue of wastewater and its recycling has been identified as a problem, thereby affecting water use. Also in Egypt, in general water demand is 25% higher than its availability and the rest of the demand is satisfied through recycling agriculture drainage discharge. ► Egyptian tanneries, in general, do not have easy access to environmental information and often lack anyone who is responsible for environmental issues.
Waste
► Tanning process leads to chromium residue that leaves the tannery as waste into water and hence causes water pollution is the largest polluter within the industry. There are still cases of waste dumped directly into the sewer without treatment by small leather manufacturers. ► Post tanning, during the process of trimming and shaving solid wastes such as fibers and organic matter containing chromium are often left behind in the process of making fine quality leather. Waste that can be salvaged it is usually sold, else these wastes are sent to landfills. ► The inefficient use of resources leads to waste generation.
Animal welfare
► Cruelty to livestock in Egypt is a big problem. The cruelty in raising, transporting and eventually slaughtering the animals exists on a large scale. ► However, the slaughterhouse is not the only place they get mistreated. During shipment the cattle are often crammed into ships like sardines and forced to stand in their own feces. In 2012, a reported 200 cattle died on a ship from Australia to Egypt.
Resources scarcity
► Livestock is not a scarcity in Egypt, but resources like water and land for slaughter and tanning may be an issue in the future. ► Although human resources are not scarce, highly mechanised post tanning activities require scarce skilled operators to operate the machines.
Land acquisition
► The Government of Egypt in its Industrial Zone Development Initiative has begun to demarcate land/areas for different business activities. For example "Al-Robeiki" in Badr City, is an exclusive location established for leather industries.
Nuisance
► Wastewater discharges and accumulation of waste generate odor in the tanning process. Given that currently the tanneries are within the proximity of large cities of Cairo and Alexandria, they cause severe nuisance to the communities.
Discrimination of small local farmers
► There were no explicit reports on discrimination against farmers within the Leather industry in Egypt.
Health and safety workers and community
► The Egyptian tanning factories often consist of one or several buildings that have several stores in which different activities in different floors are carried out where generally there is a significant lack of proper lighting and healthy conditions. ► Puddles and flooded areas with waste water are often produced, resulting in risks to workers. ► Volatile Organic Compounds (VOCs), sulfurs, carbon dioxide (CO2), nitrogen oxides etc. are emitted causing health problems. ► In general, there are no storage zones available for dangerous and non-dangerous wastes. Furthermore, it has been noted that the different types of dangerous waste are not separated, which could make them even more dangerous.
Child labour
► International Labor Organization (ILO) study of the leather tanning industry in Cairo found that most child labour in the industry was concentrated in small enterprises that produce for domestic consumption. ► Traditionally, the presence of child labour within the leather industry in Egypt has been predominant. A 2008 survey of the UNICEF estimates that there are some 1 million street children in Egypt and these children often get picked up in the agriculture and services industry. Child labour is present on farms where there is cotton farming and cattle rearing is carried out together. ► Children also work in a number of sectors deemed hazardous by the Government of Egypt including leather tanning.
Forced labour & human trafficking
► Forced labour is mostly in the form of bonded child labourers in the leather industries of Egypt.
Freedom of association
► State controlled trade unions came to end with the fall of the Mubarak dictatorship , however, the new government is still cooperating with that union. Several strikes and clashes have been reported with the military and the trade unions in Egypt, including in the leather sector.
Labour conditions (contracts, living wage, working hours)
► Working conditions are likely to be an issue in Egypt.

5 Conclusions and Recommendations

- According to Cotance, the market is mature and the countries that are major players in the sector, are likely to remain significant players.
- The leather supply chain is complicated and trade flows are not always transparent.
- The sustainability issues that can occur in the supply chain can be severe and require attention.
- Countries and companies that do not pay attention to sustainability issues currently have a cost advantage since societal cost are not incurred.
- Because of non transparent supply chains and subcontracting, Dutch companies are at risk of sourcing from these companies, with or without their knowledge.
- Dutch companies sourcing from these companies have a cost advantage in the short run, but will likely incur other cost because of reputational damage, less quality, long term supply security, etc.
- In addition, society increasingly expects companies to take responsibility, not only for their own operations but also for the supply chain. Better control over sustainability of the leather supply chain is essential for the long term.
- Since the sector is judged to be mature, working together with the current supply chain for a more sustainable sector seems possible.
- Another option is to source more from local/regional sources, where sustainability issues are already addressed.

Future steps/recommendations

- Feedback from the sustainable leather network suggested that next to the ten selected countries additional countries, like Russia, become more important. It is advised to complete the local research with other countries, relevant for the companies of the network.
- The focus of this study was on worst case scenarios, not on best practices. The only best practices mentioned in the report are the ones we identified during our research for issues. Therefore the good examples of the sector are only presented in a limited way. Since the sustainable leather network wants to improve the sector, it will be useful to further identify best practices. Especially those that could be reproduced or be adapted for the sector.
- The leather goods production was outside the scope of the research. In that part of the supply significant sustainability issues exist. For Dutch importers of leather goods and for companies that have leather goods made in high risk countries, it is important to include that part of the supply chain and to extend the research with that phase.
- During the research most experts in the industry tend to exclude the livestock phase from the leather supply chain. The main argument is that leather is a by product, with relatively low value compared to meat, and that no animals are reared for leather. The only exception might be cattle rearing in India, where we found reports that animals are sometimes reared for leather. When focussing on a sustainable leather supply chain, it is more in line with international practice (including LCA's) to exclude livestock and include the leather goods production phase.

Closing Remarks

This research has mapped the main trade flows for hides and skins, leather and leather goods for the Dutch leather supply chain. It has also looked at sustainability issues that occur during the production process of leather and has mapped the sustainability challenges in relation to the production of leather in a selection of countries. In the Netherlands, the production of hides and skins, leather and leather goods follows high production standards and as a consequence causes few sustainability issues. That being said, the Dutch leather supply chain does include a variety of countries where leather production conditions are not as well developed as in the Netherlands, causing damage to the environment and the people involved in the production of leather (goods).

Therefore the sector is confronted with substantial sustainability challenges in the supply chain. The good practices identified show that there are sustainable solutions. The challenge is to extrapolate these solutions to the entire supply chain, whilst maintaining a competitive advantage. This requires new sustainable business models from companies throughout the supply chain. This report can help companies and other organisations to get insight in the specific CSR risks in their supply chains. This insight is an essential first step in order to work towards a sustainable supply chain, together with supply chain partners and supporting organisations. We encourage companies to take this first step and work cooperatively towards identifying sustainable business models and creating a sustainable supply chain.

Annex 1 – Overview of used databases

Database	**FAOSTAT**	Timeseries	2001 - 2010
Comments	Database on purely the production, import and export of hides & skins. Data is aggregated at the level of the reporting country. Enables to map the production, import and export flows for a country of choice (as far as data is available) In this research we have aggregated data per country at animal level.		
How data was used and why	In this report the database was used for all mappings of trade flows for hides & skins. Original data shows that there often are significant variations in import and export partners per year. We have taken average production, import and export values over a timeframe of 10 years. This levels out the variations and gives a better insight in longer term partnerships between countries.		

Categories defined in database	Match to aggregation level in research
Hides Dry Slt Horses	Horse
Hides Dry Slt Nes	General
Hides Drysalt Buf	Game
Hides Nes	General
Hides Nes Cattle	Cattle
Hides Unsp Horse	Horse
Hides Wet Salted Buffaloes	Game
Hides Wet Salted Cattle	Cattle
Hides Wet Salted Horses	Horse
Hides Wet Salted Nes	General
Hidesdry S.Cattle	Cattle
Skin Furs	General
Skins Nes Calves	Cattle
Skins Nes Goats	Goat
Skins Nes Pigs	Pig
Skins Nes Sheep	Sheep
Skins of Rabbits	Rabbit
Skins Wet Salted Calves	Cattle
Skins Wet Salted Goats	Goat
Skins With Wool Sheep	Sheep
Skinsdry S.Calves	Cattle
Skinsdry Slt Goat	Goat
Skinsdry Sltdpigs	Pig
Skinsdry Sltsheep	Sheep
Skinswet Salted	General
Skinswet Sltdpigs	Pig

Database	**FAO Compendium**	Timeseries	2000 - 2011
Comments	Document containing trade data at global level for production, import and export of hides & skins, leather and leather goods. Data does not provide overviews for all types of animals (pigs e.g. are excluded in the overview of hides) Data only provides overall production, import and export numbers per country. It does not include an overview of trading patterns (so which country exports to which country)		

How data was used and why	We have aggregated the data per country and over the time period 2000 -2011. We have looked at the average output over the complete time period and, where relevant, commented on the changes in output trends at country level in the past 10 years.
	Data has further been aggregated per:
	- element (production, import, export)
	- animal
	  o Hides: Bovine; Goat and kidskins; Sheep and Lamb
	  o Heavy leather: Bovine
	  o Light Leather: Bovine; Sheep and Goat
	  o Leather shoes: all animal origin
	- Item (hide, heavy leather, light leader, shoes)		

Terminology used in database			
Heavy leather – Not further specified. Only appears in combination with Bovine leather. Light leather – Not further specified. Appears in relation to bovine leather and sheep and goat leather Bovine - of or pertaining to the subfamily Bovinae, which includes cattle, buffalo, and kudus Kidskin – young goat			

Database	EuroStat	Timeseries	2002 - 2011
Comments	The database of Eurostat provides data at European Member state level aggregated per Customs tariff code.		
How data was used and why	Data of Eurostat was only used to map the main import partners for Germany on leather in paragraph 1.4. The import values were averaged over the 2002- 2011 time series to provide longer term trade insights. The data was aggregated at the level of specific HS codes.		
Harmonized Commodity Description and Coding System (HS) codes defined in database		Match to aggregation level in research	
4104 - Tanned or crust hides & skins of bovine (including buffalo) or equine animals, without hair on, whether or not split, but not further prepared 4105- Tanned or crust skins of Sheep or lambs, without wool on, whether or not split, but not further prepared 4106 - Tanned or crust hides & skins of other animals, without wool or hair on, whether or not split, but not further prepared 4107- Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine(including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 41.14 4112- Leather further prepared after tanning or crusting, including parchment-dressed leather, of Sheep or lambs, without hair on, whether or not split, other than leather of heading 41.14 4113- Leather further prepared after tanning or crusting, including parchment-dressed leather, of other animals , without hair on, whether or not split, other than leather of heading 41.14 4114- Chamois (including combination chamois) leather; patent leather and patent laminated leather; metallised leather 4115- Composition leather with a basis of leather or leather fibre, in slabs, sheets or strip, whether or not in rolls; parings and other waste of leather or of composition leather, not suitable for the manufacture of leather articles;			

Database	**CBS**	Timeseries	2008 – 2011
Comments	Main database for import and export data of the leather supply chain to and from the Netherlands. Does not provide import and export data for other countries. Data is available for a range of HS codes. Data covers hides & skins, leather and leather goods.		

How data was used and why	This report uses the CBS data to map the import of hides & skins into the Netherlands, but also to map the inflow of leather and leather goods.
	The ranking of the top 5 or top 3 countries has been done based on the average import values per import partner over the period 2008 – 2011. This levels out possible deviations in the data.
	Data has further been aggregated per:
	- element (import, export)
	- animal
	  o Cattle
	  o Lambs
	  o Sheep
	  o Reptiles
	  o Pigs
	  o Goats
	  o Horses
	- Item (hide, leather, leather goods)		

Categories defined in database		Match to aggregation level in research	
Hides & skins 41012010 Gehele huiden en vellen, van... 41012030 Gehele huiden en vellen, van... etc Leather 41041110 Leder met natuurlijke nerf, ... 41041151 Leder met natuurlijke nerf, ... etc Leather Goods 42010000 Zadel- en tuigmakerswerk voo... 42021110 Documentenkoffertjes, akteta... etc			

Annex 2 – Overview of sector initiatives, guidelines and organisations

Leather tanning & finishing

Leather Working Group
http://www.leatherworkinggroup.com/index.htm
The Leather Working Group is an online resource for all stakeholders in the leather industry including brands, manufacturers, suppliers, NGOs and end users. The objective of this multi-stakeholder group is to develop and maintain a protocol that assesses the compliance and environmental performance of tanners and promotes sustainable and appropriate environmental business practices within the leather industry. The group seeks to improve the tanning industry by creating alignment on environmental priorities, bringing visibility to best practices and providing suggested guidelines for continual improvement. Examples of initiatives are:

1. Tannery Environmental Auditing Protocolscoresystem. The purpose of this tannery auditing protocol is to evaluate the environmental performance of tannery operations (scoring method in categories bronze to gold).
2. Hide Traceability. LWG introduced an assessment of traceability into the environmental stewardship audit process. This will ultimately ensure that the leather manufacturers within the LWG program have a clear understanding of where their raw material is originating from.

International Textile, Garment and Leather Workers Federation (ITGLWF)
http://www.itglwf.org/lang/en/about.html
The ITGLWF is a Global Union Federation bringing together 217 affiliated organisations in 110 countries. The aims of the ITGLWF are to:

- draw up policy guidelines on important issues for unions in the sectors and coordinate the activities of affiliates around the world;
- act as a clearing house for information of relevance to the daily work of unions in the sector;
- undertake solidarity action in support of unions in the sector whose trade union rights are being denied;
- run a programme of education and development aid to assist unions in developing countries in organising workers and educating their members to play an active role in their union;
- lobby intergovernmental organisations and other relevant institutions to ensure that the interests of workers in the sectors are taken into account in decisions made at international level.

The Blue Angel (Der Blaue Engel)
http://www.ecolabelindex.com/ecolabel/blue-angel
The Blue Angel is a label initiated by the German government and awarded by an independent jury to products that are environmentally friendlier than others serving the same use. For leather products, the Blue Angel provides in an eco-label for low-emission upholstery leather (RAL-UZ 148) and for footwear
(RAL-UZ 155). The label signals to the consumer that leathers bearing the Blue Angel have been manufactured with the aim of minimizing their impact on health and environment during manufacture, the entire useful life as well as during recycling and disposal.

IULTCS Environmental Guidelines
(Technical Guidelines for Environmental Protection Aspects for the World Leather Industry)
http://www.iultcs.org/environment.asp
In the area of the development of standards for methods of test for leather (other than made-up articles) ISO has established a working relationship with the International Union of Leather Technologists and Chemists Societies (IULTCS) that essentially takes the form of a standards development partnership.
The standards development work on standardization in the field of raw hides and skins including pickled pelts, tanned hides and skins and finished leather, and leather products (including methods of test for leather products) is undertaken by ISO / TC 120. Standards development for leather footwear is the field of work of ISO / TC 216, whereas protective clothing and equipment that utilize leather components is the field of work of ISO / TC 94.

IFC Guidelines
(Environmental, Health, and Safety Guidelines Tanning and Leather Finishing)
http://www1.ifc.org/wps/wcm/connect/de6c3d00488556f2bb14fb6a6515bb18/Final%2B-%2BTanning%2Band%2BLeather%2BFinishing.pdf?MOD=AJPERES&id=1323152378134
The IFC (International Finance Corporation) has developed guidelines in 2007 for the leather tanning and finishing industry, about handling chemicals, waste and health & safety of employees and the community.

REACH Restricted Substances List (RSL)
http://www.mikeredwood.com/leather_technology/technical_performance/30
REACH is a regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. It also promotes alternative methods for the hazard assessment of substances in order to reduce the number of tests on animals.
Although REACH is a European regulation, irrespective of the location of the factory, it does apply if the chemicals, the leather or the finished products made of it are finally sold on the European market. In the EU region REACH applies more or less to all participants of the supply chain regardless of their status, either as manufacturers, importers, distributors, or retailers. The effects will be felt by everyone who is involved in Europe and will most likely affect parts of the supply chain that are not directly involved in Europe because of the global nature of leather manufacture and tannery suppliers.

Substances of Very High Concern
http://echa.europa.eu/web/guest/candidate-list-table
The European Chemicals Agency has published a list of hazardous chemicals, some of wich are used for leather tanning and finishing. The use of the chemicals in this list should be prevented, or they should be replaced by less harmful alternatives.

EU Ecolabel for Footwear
http://ec.europa.eu/environment/ecolabel/documents/footwear.pdf
The EU Ecolabel for Footwear is the official EU mark for greener footwear. This label guarantees: limited water pollution during production; a reduction of emissions of volatile organic compounds during production; the exclusion of substances harmful for the environment and health; limited residues of metals and formaldhedyde in the final product; the use of recycled packaging; and the careful control of different aspects of durability.
IVN Natural Leather Standard
http://www.imo.ch/logicio/pmws/indexDOM.php?client_id=imo&page_id=leather&lang_iso639=en

The IVN Natural Leather Standard defines requirements for the production of high quality leathers – high quality in terms of technical, ecological and human health parameters.
Several substances commonly used in leather tanning, such as chromium salts, are harmful or toxic to human health and/or the environment. Chromium salts are discharged via the waste water into the environment, where they may even lead to the pollution of ground and drinking water. Both, disposal as well as incineration of chromium tanned leather products causes the release of harmful substances. Additionally, chromium salts pose a direct health hazards for workers and consumers, as they are known to cause contact dermatitis and eczema in susceptible individuals. Alternatives like vegetable tanning can serve the consumers demand for leather products, such as upholstery and shoe wear, produced under less environmental harmful conditions, and are therefore accepted within the IVN Natural Leather Standard.

Schadestoff Geprüft (SG) Mark (Tested for harmful substances - label)
www.label-online.de/label-datenbank?label=242
http://pfi-group.org/fileadmin/user_upload/media/SG-Criterias_11_2011_E.PDF
SG Mark is a label for low pollutant leather goods, upholstery and shoes. The focus of the label is on consumer's health. To document that their products have been manufactured with exceptional care, producers may choose this SG label (SG Mark). This mark is awarded to those products only, which meet the stringent limit values and parameters for harmful substances set forth in the SG test criteria catalogue.
All SG limit values are in general much lower than the statutory specifications. The SG mark confirms that according to present-day knowledge there is no danger to health. And this provides the consumer with confidence in the product's safety. To document that their products have been manufactured with exceptional care, they label them with the label.

Fair + Green Leather
http://fairtrade.nl/EN/MainContent/Fashion/fair-green-leer.aspx
Fair Trade original provides in a range of fair trade leather products, that are made from ecologically tanned leather. These products have been developed in cooperation with a leather expert and an Indian leather tanning company.
Fair Trade Original procures fair trade products under fair trade terms and conditions from the organization's trading partners and offers them support in product development, production methods, logistics, and marketing. Fair Trade Original then supplies the products to selected retailers.

USAID fact sheet Leather Processing
(Leather Processing: Cleaner Production Fact Sheet and Resource Guide)
http://transition.usaid.gov/our_work/environment/compliance/ane/ane_guidelines/leather.pdf
This USAID fact sheet offers basic information on important adverse environmental impacts of leather processing, as well as associated health and safety impacts. It also discusses opportunities for mitigating those impacts, with an emphasis upon "cleaner production" strategies that may also provide financial benefits to micro- and small enterprises (MSEs).

Sustainable Leather management
http://sustainableleathermanagement.com/
Sustainable Leather Management (SLM) is a future-oriented initiative that forms the basis for a new technology platform at LANXESS. It is a comprehensive management approach that promotes the development of sustainable leather production concepts and embraces the entire life cycle from the manufacturing process to recycling.

Cattle farming / livestock

Leather Working Group
http://www.leatherworkinggroup.com/index.htm
http://www.leatherworkinggroup.com/images/documents/FINAL%20STATEMENT%2026.10.11.pdf
The Leather Working Group has been working closely with Greenpeace and other NGOs in support of their campaign to eliminate deforestation in Brazil caused by cattle ranching.

Forest Footprint Disclosure (FFD) initiative
http://www.forestdisclosure.com/
FFD acts as a central point of exchange for information, research and best practice case studies on deforestation issues in Brazil and the Amazon, encouraging innovation through exchange and collaboration with all stakeholders. FFD requests corporations to report to investors on how they are managing their exposure to deforestation were sent out to 450 of the largest companies worldwide. FFD is asking them to give an update on their progress on controlling this risk. On completion of a disclosure request each company receives a feedback report detailing their strengths and weaknesses compared to their peers, as well as a follow-up meeting to answer their specific questions and discuss particular issues of concern. This is how FFD brings about better practice and helps investors identify their risks and opportunities. Company reports are only shared with the endorsing investors, not disclosed to the public.

TFT Leather and Shoe Group
http://www.tft-forests.org/product-groups/pages/?p=6278
Clearing rainforest for the expansion of cattle ranching is one of the main causes of deforestation in the Amazon. In fact cattle ranching occupies about 80% of the 70 million hectares of rainforest that has been cleared in the Amazon as reported by Greenpeace in a 2009 report. In addition, further down the supply chain, leather products & shoes are also linked to many dangerous sources of pollution such as the chemicals and glues used in the leather production processes. These sustainability issues increasingly pose reputational and regulatory risks. TFT works with pioneering companies determined to rewrite the leather products & shoes story and turn those risks into opportunities. To learn more about TFT's experience and goals for our engagement with the leather industry read Building on our Foundations.

Livestock, Environment and Development Initiative (LEAD)
http://www.fao.org/agriculture/lead/en/
The LEAD initiative is an inter-institutional consortium with the secretariat located within FAO. The work of the initiative targets the protection and enhancement of natural resources affected by livestock production while at the same time alleviating poverty. The work of the LEAD initiative focuses on the close and complex interactions between government policies and the environmental impact of livestock production. Its scope is to support the formulation and implementation of effective policy frameworks, at local, national and global levels. To this effect, LEAD conducts analysis and maintains databases to monitor and estimate the consequences of livestock sector's growth and structural changes. It also identifies technologies to mitigate the negative effects and

maximise the positive effects of different modes of production, and assesses ways to enhance their development and adoption.

International Livestock Research Institute (ILRI)
http://www.ilri.org/Home.asp?SID=1&CCID=41
The International Livestock Research Institute (ILRI) works at the crossroads of livestock and poverty, bringing high-quality science and capacity-building to bear on poverty reduction and sustainable development. ILRI works in Africa, Asia and Latin America, with offices in East and West Africa, South and Southeast Asia, China and Central America.
ILRI is a non-profit-making and non-governmental organization with headquarters in Nairobi, Kenya, and a second principal campus in Addis Ababa, Ethiopia. We employ over 700 staff from about 40 countries. About 80 staff is recruited through international competitions and represents some 30 disciplines. Around 600 staff is nationally recruited, largely from Kenya and Ethiopia.

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