

Science has provided evidence of changing human-animal relationships over time. Lawrence (2004) wrote in a book review of *Animal Acts: Configuring the Human in Western History. Journal of Popular Culture* that the beliefs about differences between humans and animals have been a very important factor in determining the nature of human-animal relationships in the Western history, and the world is now at a stage where scientific evidence is blurring many boundaries between humans and animals. With the development and increase in popularity of the animal movement, scientific approaches of evaluating AW and animal suffering are being devised (Dawkins, 2006; Duncan, 2005; Jordan, 2005a; Jordan, 2005b).

In following sections, data regarding the various uses of animals around the globe are given and discussed. To ensure that all information provided within this thesis is comparable between the different societies, only uses of animals that are common to nations worldwide are considered. The common uses for animals outlined here are: 1) food and clothing; 2) experimentation; 3) human companionship; 4) uses of wildlife; and 5) working, sports, zoos, etc. The last category is diverse and may include animals used for a wide range of different activities. Animals may also be subjected to other culturally specific uses such as religious sacrifice.

### Food and Clothing

The national differences in the uses of animals for food and clothing are relatively well researched, since agriculture is a fundamental industry of most nations. Therefore, large amounts of national data are available. Table 5 is obtained from FAOSTAT (FAO, n.d.), an online database of the Food and Agriculture Organization of the United Nations. This table summarizes the number of live animals worldwide in agriculture production in 2007. It includes official, semi-official or estimated data. The data suggest that a total of 23 billion live animals were produced in 2007. According to the data provided by animal protection organizations, more than 50 million animals worldwide were raised in cages, and 61 billion farm animals were reared for meat, milk or eggs (WSPA, n.d.-c).

**Table 4 Production of mink furskins of major producing nations in 1998 and 2002 in thousand pelts (USITC, 2004)**

Nations	1998	2002
Denmark	11,900	12,200
The Netherlands	2700	3000
Russia	3330	2700
US	2900	2550
Finland	2100	2000

CN	1200	1700
Sweden	1300	1400
Canada	950	1200
All other	3709	4115
World	30,089	30,865

**Table 5 Worldwide live animals in agriculture production in 2007**

Animals	Head
Buffalo	202,386,626
Camels	22,009,432
Cattle	1,389,590,364
Goats	850,219,925
Horses	58,408,987
Pigs	989,884,170
Sheep	1,112,520,621
Chickens	17,251,899,000
Ducks	1,069,108,000
Geese and guinea fowls	334,851,000
Turkeys	470,077,000
<b>Total</b>	<b>23,750,955,125</b>

Table 6 and Table 7 shows the weight (in tons) of meat (poultry, pork, and beef-veal) produced by a number of different nations. The tables shown that the amount of meat produced globally is constantly increasing (Jovanovic, Miladinovic et al., 2004). Since 1996, Asia has been producing more meat than any other continent (Radovanovic & Stamenkovic, 2004). In 2000, the continents' ranking in the amount of meat produced is as follows: 1) poultry production; Asia>North and Middle America>South America>Oceania (Jovanovic, Miladinovic et al., 2004); 2) pork production; Asia>Europe>North and Central America (Miladinovic & Stamenkovic, 2004); 3) beef and veal production; North America>Middle America>South America>Asia>Europe>Africa.

Table 6 and Table 7 also provide details of the meat production globally (Jovanovic, Miladinovic et al., 2004).

**Table 6 Ranking of nations in terms of total meat production in tons**

<b>Total Meat (Stamenkovic, 2004)</b>	<b>Poultry Production in 2000 (Jovanovic, Miladinovic et al., 2004)</b>	<b>Pig Production in 2000 (Miladinovic &amp; Stamenkovic,2004)</b>	<b>Beef production in 2000 (Radovanovic &amp; Stamenkovic, 2004)</b>
CN	USA	CN	USA
USA	CN	USA	Brazil
Brazil	Brazil	Germany	CN
France	France	ES	Argentina
Germany	Mexico	France	Russian Federation
ES	UK	Poland	Australia
Russia	Thailand	Brazil	France
Argentina	Japan	Canada	Germany
Italy	Italy	Denmark	Canada
Canada	Canada	The Netherlands	Italy
Australia	Argentina	Italy	
Great Britain	Indonesia	Japan	
Japan	Australia	Belgium-Luxembourg	
The Netherlands	Poland	Great Britain	
Poland			
Denmark			
Belgium			

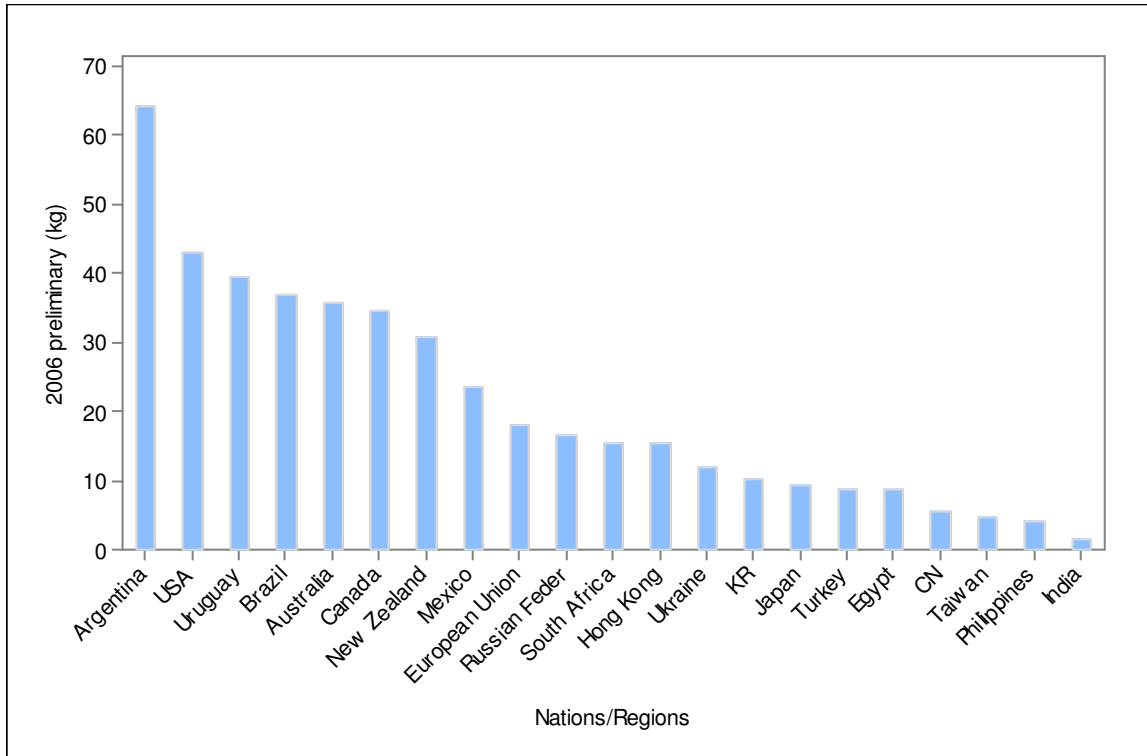
**Table 7 Trend of meat production in different nations in the period 1991-2000**

<b>Trend</b>	<b>Poultry (Jovanovic, Miladinovic et al., 2004)</b>	<b>Pig (Miladinovic, Stamenkovic,2004)</b>	<b>Veal and Beef (Radovanovic, Stamenkovic, 2004)</b>
Increasing	Belgium-Luxembourg Bulgaria UK Italy Hungary Poland France CZ Spain Indonesia CN Thailand Canada USA	Yugoslavia Croatia Slovenia New Zealand Argentina India	Spain India CN Turkey Canada USA Argentina Brazil Australia

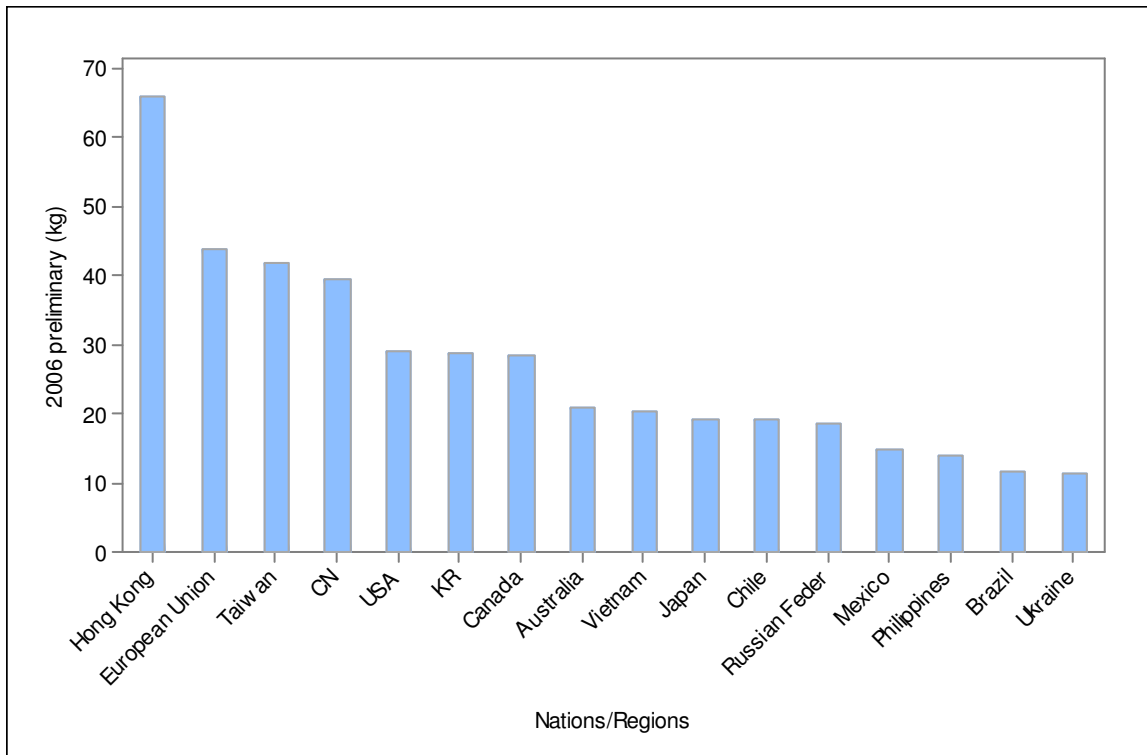
<b>Trend</b>	<b>Poultry (Jovanovic, Miladinovic et al., 2004)</b>	<b>Pig (Miladinovic, Stamenkovic,2004)</b>	<b>Veal and Beef (Radovanovic, Stamenkovic, 2004)</b>
	Argentina Brazil Mexico Australia		
Decreasing	Yugoslavia Germany Romania Japan Bosnia-Herzegovina Macedonia Slovenia Croatia	Austria Hungary Romania Russia CZ Japan Venezuela Bosnia-Herzegovina	Austria Belgium Italy Yugoslavia UK Germany Poland Russian Federation France The Netherlands CZ Japan Bosnia-Herzegovina Slovenia Croatia

As shown in Tables 3 and 4, CN and the USA are in the top three nations for all types of meat production and total meat production. In addition, the poultry production of the USA, poultry production of CN and beef production of the USA have been increasing over the past ten years. Brazil and France are also in the top five production nations in three of the columns. Figure 2, Figure 3, and Figure 4 are created based on the data published by the United States Department of Agriculture (USDA, 2007). In terms of the per capita meat consumption, some South American nations and Middle Eastern nations, such as Argentina, Uruguay, United Arab Emirates and Kuwait, emerge on top of the lists of beef and poultry. The accumulated impact of animal use associated with the large amount of meat consumption is astonishing. Top nations for total meat production and per capita consumption should be particularly concerned about these issues.

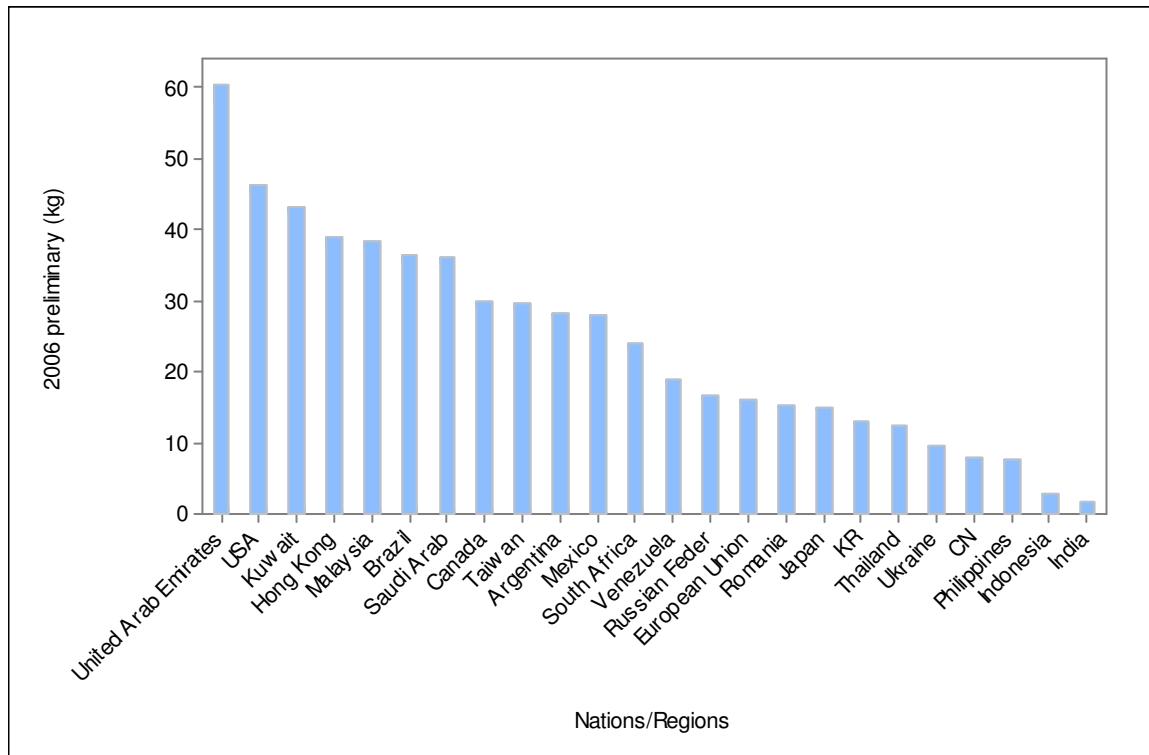
**Figure 2 Beef consumption per capita in different nations and regions in 2006**



**Figure 3 Pork consumption per capita in different nations and regions in 2006**



**Figure 4 Broiler meat consumption per capita in 2006**



Fur production is one major contentious issue of use of animals for clothing. The responsibilities of the issues can be divided into two sectors, the consumer sector and the producer sector.

The 2007 news release of International Fur Trade Federation (IFTF, 2007) stated that global fur sales have been increasing for eight consecutive years and reached 13.40 billion USD in 2006. The production of major producers in the years 1998 and 2002 are presented in Table 4. According to the 2004 report of the U.S. International Trade Commission, the US was the world's largest-volume producer of furskins derived from animals harvested in the wild for the period of 1998-2002. Denmark was the leading mink-producing nation, accounting for nearly 40% of world production in 2002. Other major producers included the Netherlands, Russia, Finland, CN, Sweden and Canada. World production of mink furskins was estimated at 30.9 million pelts in 2002. The US was a major exporter of both wild and farmed furskins (USITC, 2004).

According to the report of animal protection organizations, CN is now the world's biggest exporter of fur garments; the European Union is the world's biggest consumer of fur, and the treatment of animals in the industry of CN is said to be incompatible with animal welfare standards in the European Union (Hsieh-Yi, Yi-Chiao, et al., 2005). It is also said that the fur industry in CN boomed when the nation began to open commercially to the other nations at 1980s, and has gained a rapid growth until recent years (Hsieh-Yi, Yi-Chiao, et al., 2007).

Some other animals used include stray cats and dogs and wild harp seals that are killed for their furs (HSUS, n.d.-b.; FFA, n.d.). In 2004, fur farming was outlawed in England and Wales on the ground of 'public morality' and an increasing number of European nations have, or are in the process of, introducing legislation to curtail, or prohibit, fur farming (Linzey, 2002).

Animal transportation and slaughtering are sectors with a high likelihood of causing suffering in animals, and are therefore widely researched and regulated by governmental policies e.g. (DEFRA, 2006) and animal protection organizations (RSPCA-AU, 2008).

### Experimentation

Different sources have provided different estimations on the number of laboratory animals used worldwide. Some animal advocates estimated that there are 40 million to 100 million animals used in experiments annually (NCB, n.d.; Singer, 2006; BUAV, n.d.); while the Research Defence Society (RDS) suggested that the figure is unlikely to exceed 50 million animal procedures per year (RDS, n.d.).

Taylor, Gordon et al. (2008) pointed out that many estimates of worldwide annual laboratory animal use are imprecise and unsubstantiated. They collated data for 37 nations that publish national statistics; and they estimated the statistic for 142 nations based on the publication rate using a statistical model. They found a conservative estimate of laboratory animal usage to be 58.3 million animals in 179 nations. They further estimated the global figure by extrapolation, and concluded the global figure is likely to be more than 115.3 million animals in 2005. Table 8 was derived from the results of their study. The population of each nation was obtained from International Data Base (IDB, 2008). Nations with most per capita use of laboratory animals are listed on top of the table.

**Table 8 Number of laboratory animal use in 2005**

<b>Nation/Region</b>	<b>Estimated Total Number (Taylor, Gordon et al., 2008)</b>	<b>Number per 1000 People</b>
NO	1,000,426	217.81
Singapore	700,583	158.30
Australia	2,389,813	118.12
Japan	11,154,961	87.46
Greece	926,092	86.81
Switzerland	550,457	73.50
Canada	2,316,281	71.52

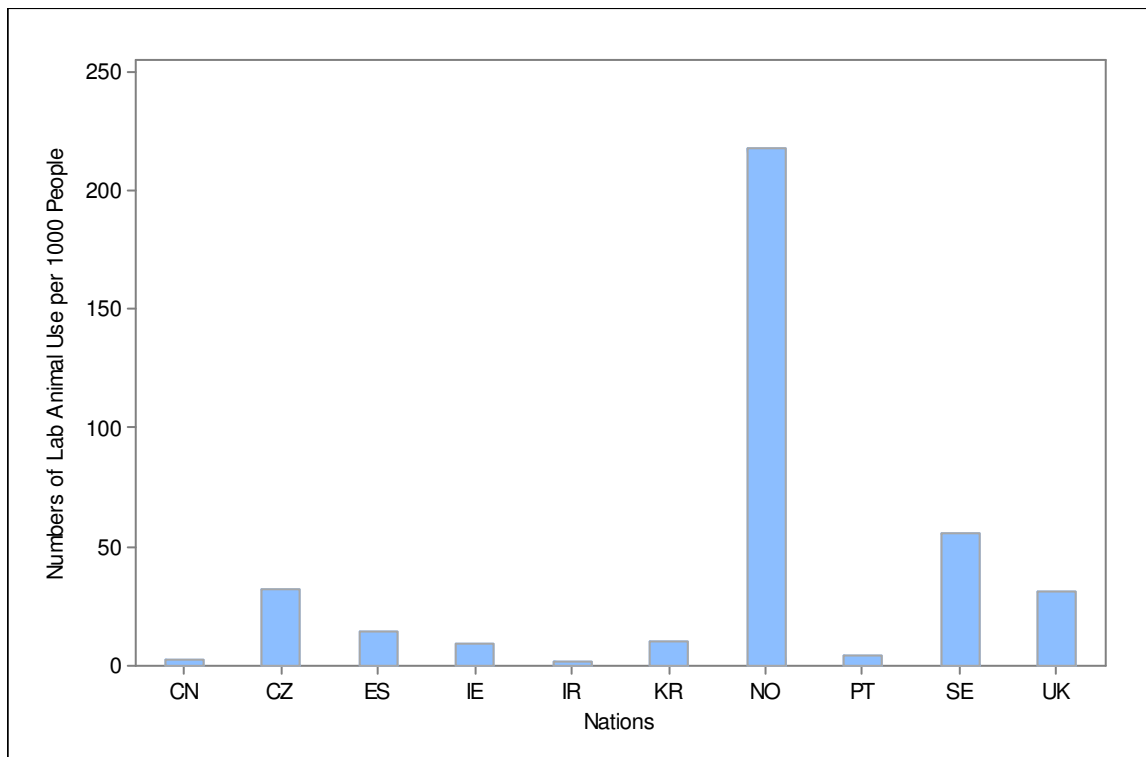
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Belgium	718,976	69.37
Denmark	365,940	67.36
New Zealand	261,463	64.59
USA	17,317,147	58.59
SE	505,681	56.18
Taiwan	1,237,337	54.51
Finland	256,826	49.17
France	2,325,398	36.96
The Netherlands	531,199	32.38
CZ	330,933	32.31
UK	1,874,207	31.01
Hungary	297,209	29.70
Germany	1,822,424	22.11
Austria	167,312	20.44
Thailand	1,059,355	16.50
Italy	896,966	15.44
ES	595,597	14.76
KR	482,769	10.06
IE	37,940	9.45
Poland	358,829	9.31
Luxembourg	4,120	8.79
Argentina	296,789	7.57
Croatia	31,676	7.05
Turkey	455,692	6.27
Brazil	1,169,517	6.19
Slovenia	11,991	5.96
Latvia	13,319	5.82
Chile	78,321	4.90
Israel	305,98	4.54
Slovakia	23,369	4.30
Portugal	41,621	3.94
Estonia	4,900	3.68
Bulgaria	26,360	3.54
Mexico	341,870	3.22



South Africa	119,044	2.51
Cuba	27,238	2.40
CN	2,975,122	2.28
IR	130,443	2.01
Lithuania	5,767	1.60
Russian Federation	220,252	1.54
Cyprus	967	1.24
Egypt	76,680	0.99
India	991,865	0.91
Colombia	31,080	0.72
Nigeria	34,371	0.25
Malta	0	0.00

**Figure 5 Numbers of laboratory animal use per 1000 people of 10 participating nations in 2005**



As shown in Figure 5 among the participating nations of GAAS2007/08, per capita use of laboratory animals is highest in NO, lowest in CN. Two nations are excluded from the chart because data for them are not available.

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## Human Companion

Pet keeping is a common practice in many nations worldwide. Some data regarding the population of companion animals in the USA, EU and CN are available. The total population of companion animals in the USA was more than 147 million (WSPA, n.d.-a) in 2002. 36.1% householders owned dogs and 31.6% owned cats (Belotto & Silva, 2006; AVMA, n.d.). In 15 member states of European Union, the total population of companion animals was 504 million in 2003 (IFAH-Europe, 2005). In CN, pet ownership has been rapidly increasing in recent years. The Xinhua News Agency, which is the official press agency of the government of CN published an article stating that 'It is estimated there were 100 million pet animals in the nation in 2004 and this figure will increase 5 times by 2009 (Li, 03 2004). Research has also linked a significant amount of abuse of companion animals to domestic violence (Conboy-Hill, 2000). Other cases of animal abuse occur due to the owners neglecting the basic care requirements of the animal.

Areas which are over-populated by pet animals are also commonly observed in some nations such as the USA (HSUS, n.d.-c.) and India (IFAW, 2003). Large numbers of animals are euthanized as a result of the over-population in some nations. *RSPCA Australia National Statistics 2007-2008* shows that RSPCA Australia euthanized 23,772 dogs and 42,731 cats in 2007-2008 financial year. Percentage of received animals being euthanized is 33.7% for dogs, 61.9% for cats. Among those animals being euthanized, 51% dogs were euthanized because of behavioural problems, 46% cats were euthanized for medical reasons; in total 2821 dogs and 10355 cats were euthanized because of 'no room for adoption' (RSPCA-AU, 2009). According to American Humane Association (AHA, 2008), roughly 64% of the total number of animals that entered shelters of the United States in 1997 were euthanized and the total number of animals being euthanized is 9.6 million annually.

## Uses of Wildlife

Wildlife trafficking is undertaken for a number of reasons including the use of wildlife as status symbols, and for medicines as well. According to Strategic Vision (CITES, 2005), the illegal trade in wild animals is one of the major factors in the depletion of the world's natural resources and is performed for commercial gain. It appears to be a common problem worldwide. International agreements, such as the Convention on International Trade in Endangered Species, is considered as a means of combating this problem.

International Union for Conservation of Nature listed 5966 vertebrate species worldwide as threatened in 2008 (IUCN, 2008). The numbers of threatened species of each group of

animals were: Mammals — 1141, Birds — 1222, Reptiles — 423, Amphibians — 1905, and Fishes — 1275.

### **Working, Sports, Zoos etc.**

Animals are also frequently used in other areas including work, sports, entertainment and zoos, but related data about these areas of animal uses in different parts of the world are limited. However it is estimated that there are 90 million equines working in the developing world, with the highest equine proportion concentrated in central Asia and North and East Africa (Davies, 2006). Different types of uses include but are not limited to: acting, assisting man's hunting, assisting man's fishing, circus, conservation park, fighting (bull, dog, bear vs. dog, cock), racing (horse), guarding (dog), intelligent human assistant (chimpanzee), military use, mine detecting (dolphin), rodeos, rescue, riding for transportation, sniffer (dog), vehicle pulling, zoo with confinement.

### **Philosophy**

To a certain extent, attitudes towards animals reside in one's personal philosophy about animals. Other factors influence the attitudes via modifying the personal philosophies. Everyone has their own version of the philosophy of animals. In this section, the representatives of some well-known schools of thought that relate to the major conclusions of the present study are briefly described.

Philosophical discussion of human-animal relationships has a long history (Armstrong & Botzler, 2003). Socrates, Aristotle, and many other ancient Greek philosophers had their own views on animals' moral status (Armstrong & Botzler, 2003). In the East the traditional philosophical thinking of animals has been influenced by religions such as Hinduism, Buddhism (Mang, 2005) and Taoism (Chen, 2004)

The well-known contemporary animal philosophers from the west got involved in animal issues in the early 1970s. Some of those philosophers, such as Peter Singer (Singer, 1975; Singer, 1993), argue on a utilitarian basis that avoiding suffering is in the interests of animals, so they should be counted equally in decision making. Others, such as Tom Regan (Regan, 1983), argue that individual animals have inherent value. He used a concept of 'subject of a life' to explain the moral status of animals. His animal rights theory states that animals are moral patients, they do not have the capacity to behave morally; most humans are moral agents, they can follow ethics and can be responsible for themselves morally.