

**IDENTIFYING AND UNDERSTANDING CONSUMERS OF WILD
ANIMAL PRODUCTS IN HANOI, VIETNAM: IMPLICATIONS FOR
CONSERVATION MANAGEMENT**

by

Rebecca Catherine Drury

Thesis submitted in fulfillment of the requirements for
the degree of Doctor of Philosophy

University College London

February 2009

I, Rebecca Catherine Drury, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

.....

Abstract

Vietnam is an established thoroughfare for illegal wildlife trade, and rapidly growing urban prosperity is increasing domestic demand for wild animal products. Consumer-targeted interventions, including awareness campaigns and social marketing, and supply-side approaches such as wildlife farming to reduce demand for wild animals, are increasingly being used alongside regulatory measures to curb illegal trade. These approaches are based on limited information about wild animal consumers and consumption behaviour in urban Vietnam. In particular, little is known about the characteristics of consumers, the context of consumption, the values associated with wild animal products, the ability of farmed wild substitutes to satisfy consumer demand and current awareness levels and attitudes regarding wild animals. Focusing on the central Hanoi population, this thesis investigates all of these issues using a structured questionnaire survey (n=915) and a series of semi-structured interviews (n=77).

There is considerable demand for wild animal products, and for wild meat in particular, amongst the population of central Hanoi. Wild meat consumers tend to be high-income men of all ages working in high-status positions as businessmen, finance professionals and government officials. Consumption of medicinal products is positively related to age and education. Wild meat is a prestige food used to demonstrate wealth and status and there are considerable social pressures to consume it. Preferences for wild-caught products show farmed substitutes will not satisfy demand for wild products; widespread farming may actually increase overall demand for wild animal products by introducing new consumers and encouraging existing consumers to place greater emphasis on the origin of products. Wildlife-related awareness does not reduce consumption behaviour and the population surveyed displayed a largely utilitarian attitude towards wild animals. The thesis concludes with recommendations to reduce wildlife decline driven by overexploitation for trade in Vietnam.

Acknowledgements

I would like to thank the Economic and Social Research Council for funding this research, and all those who supported me through the last four long years.

In Vietnam, many thanks to Scott Robertson and ENV for helping me to heave the project off the ground, and to Hien for her enthusiasm during the pilot study. I am hugely grateful to Luong and Nga for cheerfully acquainting themselves with every third household across Hanoi come sweltering heat or tropical storm, and remaining admirably upbeat whatever their reception; many thanks also to Phuong for cheerfully stepping in when she was most needed. I am indebted to Chien without whose patience, determination and skills of persuasion I could never have had an audience with any wild meat consumers. I would especially like to thank Le, not only for her linguistic brilliance and perseverance in finding interviewees, but also for her ongoing friendship and for teaching me so much about Vietnam. I am also grateful to all those who took the time to participate in the research, and for the hospitality received along the way.

My supervisors Katherine Homewood, Sara Randall and Caroline Garaway have answered countless questions, advised and encouraged, and helped me get to grips with social science, and for this I am grateful. I would particularly like to thank Sara for taking me under her wing in the last few months and for her honest approach, both the thesis and I are much better for it.

I would also like to extend a huge thank you to my family for allowing me such freedom, and particularly to my Mother for being a constant source of support, friendship and chocolate. I am also extremely appreciative of all the friends and family who emailed, wrote and sent parcels whilst I was in the field. But I owe the greatest thanks to Paul who stuck by my side and encouraged me every single step of the way.

Thank you.

Contents

1. Introduction: Managing The Trade in Wildlife	13
1.1. The Wildlife Trade	13
1.1.1. Vietnam and Trade in Southeast Asian Wildlife	13
1.1.2. Markets for Southeast Asian Wildlife	17
1.1.3. Impacts of Illegal Trade in Wildlife	19
1.2. Managing Wildlife Exploitation	21
1.2.1. Regulatory Approaches: Restricting Harvest and Trade	21
1.2.1.1. Regulatory Approaches in Practice	22
1.2.1.1.1. Regulatory Approaches in Vietnam	24
1.2.2. Consumer-Targeted Approaches: Reducing Demand	24
1.2.2.1. Consumer-Targeted Approaches in Practice	27
1.2.3. Supply-Side Approaches: Farming Substitutes	29
1.2.3.1. Supply-Side Approaches in Practice	30
1.3. Summary and Research Aims	35
1.4. Thesis Structure	36
Chapter 2. The Socio-Cultural Context of the Research	37
2.1. Population and Geography	37
2.1.1. Biodiversity	39
2.2. A Brief History	39
2.3. Vietnam Today: Politics and Economy	41
2.4. Culture and Philosophy	43
2.4.1. Identity and 'Face'	44
2.5. Traditional Medicine: Philosophy and Practice	44
2.5.1. Medicine, Food and Medicinal Food	46
2.6. The Social Roles of Consumption	48
2.6.1. 'Prestige Foods'	50
2.6.2. Contemporary Urban Consumption Trends	51
2.7. Summary	53
Chapter 3. Methods	54
3.1. Research Permission	54
3.2. Fieldwork Schedule	54
3.3. Working in Hanoi	54

3.4. Quantitative Methods	55
3.4.1. Researching Wildlife-Related Knowledge and Awareness	57
3.4.2. Researching Attitudes	60
3.4.3. Completing the Questionnaire	63
3.4.4. Sampling Method	64
3.4.5. The Sample Population	65
3.4.6. Data Entry and Analysis	70
3.5. Qualitative Methods	72
3.4.1. Semi-Structured Interviews	73
3.5.1.1. Wild Meat Consumers	74
3.5.1.2. Central Hanoi Public	76
3.5.2. Data Entry and Analysis	78
3.6. Unstructured Data Collection	78
Chapter 4. The Scale and Context of Wild Animal Consumption	79
4.1. Introduction	79
4.1.1. The Scale and Context of Wild Animals Consumption in Vietnam	79
4.2. Methods	81
4.2.1. Measuring Scale	81
4.2.2. Defining Wild	82
4.2.2.3. Statistical Analyses	82
4.3. Results	84
4.3.1. The Scale of Consumption	84
4.3.1.1. Frequency of Consumption	86
4.3.1.2. Wild Meat Species	86
4.3.1.3. Authenticity of Reports	87
4.3.1.4. Seasonality in Consumption	89
4.3.2. The Context of Wild Meat Consumption	89
4.3.2.1. Company	89
4.3.2.2. Setting	93
4.3.2.3. Location	95
4.3.2.4. Occasion	98
4.3.2.5. Changing Context	99
4.4. Discussion	101
4.4.1. The Scale of Wild Animal Product Consumption	101
4.4.2. The Context of Wild Meat Consumption	105

Chapter 5. Identifying Consumers Of Wild Animal Products	110
5.1. Introduction	110
5.1.1. The Characteristics of Consumers	110
5.2. Methods	111
5.3. Results	111
5.3.1. Multivariate Analyses	119
5.3.2. Sex	121
5.3.3. Income	122
5.3.4. Occupation	122
5.3.5. Age	124
5.3.6. Education	127
5.4. Discussion	127
5.4.1. Consumers of Wild Meat	127
5.4.2. Consumers of Wild Animal-Derived Medicinal Products	131
5.4.3. Education and Wild Animal Consumption	132
Chapter 6. The Values Driving Wild Animal Consumption	134
6.1. Introduction	134
6.1.1. Influencing Consumer Behaviour	134
6.1.2. Emerging Health Concerns	134
6.1.3. The Values Associated with Wild Animal Products	134
6.2. Methods	136
6.3. Results	136
6.3.1. Rare and Precious	136
6.3.1.1. Conspicuous Consumption	138
6.3.1.2. Doing Business	139
6.3.1.3. Influencing Others	140
6.3.1.4. Pressure To Conform	141
6.3.1.5. Shifting Values	142
6.3.2. Medicinal Values	143
6.3.2.1. Tradition	145
6.3.3. Avoiding Wild Meat and Wild Animal-Derived Medicinal Products	146
6.4. Discussion	149
6.4.1. Symbolic Values	149
6.4.2. Medicinal Values	154
6.4.3. Why Not Consume Wild Animal Products?	155

Chapter 7. Wildlife Farming: A Conservation Tool?	157
7.1. Introduction	157
7.1.1. Wildlife Farming as a Conservation Tool in Vietnam	157
7.1.2. Satisfying Demand For Wild Products in Vietnam	157
7.2. Methods	158
7.3. Results	158
7.3.1. Wild Versus Farmed Products	158
7.3.2. Preferences in Practice	161
7.3.3. The Market for Farmed Wild Products	163
7.3.4. Bear Bile Farming: A Case Study	165
7.4. Discussion	168
7.4.1. Acceptability of Farmed Wild Products	168
7.4.2. Market Stability	172
Chapter 8. Wildlife-Related Knowledge, Attitudes and Consumption	174
8.1. Introduction	174
8.1.1. Environmental Knowledge, Attitudes and Behaviour	174
8.1.2. Environmental Knowledge and Awareness	174
8.1.3. Vietnamese Attitudes Towards Wild Animals	175
8.2. Methods	176
8.2.1. Questionnaire Survey	176
8.2.2. Statistical Analysis	177
8.2.3. Semi-Structured Interviews	177
8.3. Results	178
8.3.1. Wildlife-related Knowledge and Awareness Score	178
8.3.1.1. Multivariate Analysis	180
8.3.2. Knowledge of Native Biodiversity	182
8.3.3. Sources of Wildlife-related Knowledge and Awareness	184
8.3.4. Wildlife-Related Knowledge and Wild Animal Consumption	187
8.3.5. Conservation Management	191
8.3.6. Environmental Concern	192
8.3.7. Attitudes Towards Wild Animals	193
8.3.7.1. Measuring Attitudes	193
8.3.7.2. Utilitarian Attitudes	195
8.3.7.3. Concepts of Conservation	199
8.4. Discussion	202

8.4.1. Wildlife-Related Knowledge and Awareness	202
8.4.2. Wildlife-Related Knowledge, Awareness and Consumption	205
8.4.3. Attitudes Towards Wild Animals, Their Use and Conservation	209
8.4.3.1. Evaluation of Methods	209
8.4.3.2. Dominant Attitude Orientations	210
Chapter 9. Conclusions and Recommendations	214
9.1. Consumer-Targeted Approaches: Reducing Demand	214
9.1.1. Tackling Domestic Demand For Wild Animal Products	214
9.1.1.1. The Role of Wildlife-Related Knowledge and Awareness	218
9.1.1.1.1. Enhancing Wildlife-Related Knowledge and Awareness	218
9.1.1.1.2. Linking Wildlife-Related Knowledge and Consumption	220
9.1.1.2. Understanding Attitudes and Behaviour	221
9.1.1.3. Targeting Consumer Groups	222
9.2. Supply Side Approaches: Farming Substitutes	223
9.2.1. Satisfying Demand	223
9.2.2. Wildlife Farming: A Conservation Tool?	224
9.3. Regulatory Approach: Prohibiting Harvest, Trade and Consumption	225
References	228
Appendices	257
Appendix A. Questionnaire	257
A.1. English	257
A.2. Vietnamese	265
Appendix B. Sampling List and Refusals Form	273
Appendix C. Interviewer Effects	274
C.1. Introduction	274
C.2. Results	274
C.3. Implications	277
Appendix D. Legislation Regarding Wildlife Exploitation in Vietnam	279
List of Boxes	
Box 1.1. Medicinal Use of Tigers in China and Vietnam	32
Box 1.2. Bear Bile and Bear Farming	33
Box 8.1. Tiger Farming and The Controversy of the Private Tiger Breeder in Binh Duong	178

List of Figures

Figure 1.1.	Map of Vietnam and Peninsular Southeast Asia.	15
Figure 2.1.	Map of Vietnam adapted from Jamieson (1992:4).	38
Figure 3.1.	Age distribution of the urban population in Vietnam (Ministry of Labour 2006) and of the final sample of the questionnaire survey (n=915).	66
Figure 3.2.	Educational attainment of the survey sample (n=915) compared to data from the General Office of Statistics (2005) for Hanoi Province.	67
Figure 3.3.	Percentage of respondents according to main occupation (n=890).	69
Figure 4.1.	Percentage of respondents (n=915) who reported consumption of a). wild meat, b). a wild animal product other than wild meat in the last twelve months and c). reporting owning, breeding or keeping live animals, with 95% confidence intervals.	85
Figure 4.2.	Percentage of respondents (n=915) reporting consumption of wild meat and other wild animal products in the last twelve months according to the number of events reported, with 95% confidence intervals; respondents could report up to five wild meat consumption events and three events of consumption for wild animal products other than wild meat.	85
Figure 4.3.	Percentage of respondents (n=915) who reported eating wild meat type on at least one occasion in the last twelve months with 95% confidence intervals.	86
Figure 4.4.	Percentage of wild meat consumers reporting each company type according to sex (n=204)	90
Figure 4.5.	Percentage of wild meat consumers reporting each company type according to family income (n=186) and personal income quartile (n=202).	90
Figure 4.6.	Percentage of wild meat consumers reporting eating wild meat according to setting showing 95% confidence intervals (n=186).	94
Figure 4.7.	Percentage of wild meat consumers reporting eating wild meat in a restaurant according to family income (n=169) and personal income (n=117) quartiles.	94
Figure 4.8	Map showing the percentage of total wild meat consumption events (n=287) according to province in which they were reported to have occurred.	96
Figure 4.9	Percentage of events (n=207) according to description of the occasion given.	99
Figure 5.1.	Percentage of respondents reporting consumption of wild meat or a wild animal-derived medicinal product according to highest education completed (n=915).	113
Figure 5.2.	Percentage of respondents in each personal income and family income quartile who reported eating wild meat or a wild animal-derived medicinal product other than wild meat in the last twelve months (n=915).	113
Figure 5.3.	Percentage of respondents in each personal and family income quartile who reported eating wild meat in the last twelve months according to sex (n=902).	115
Figure 5.4	Percentage of respondents who reported eating wild meat or consumed a wild animal product other than wild meat in the last twelve months according to personal and family income (n=915).	115
Figure 5.5	Percentage of respondents in each occupation group reporting eating wild meat in the last twelve months (n=890).	117
Figure 5.6	Percentage of respondents in each occupation group reporting consumption of a wild animal product other than wild meat in the last twelve months (n=915).	117
Figure 5.7	Percentage of respondents in each occupation category in the highest personal income (n=799) and family income (n=543) quartiles.	119
Figure 8.1.	Mean score achieved according to highest education completed and sex (n=854).	179

Figure C.1.	Percentage of respondents (n=915) who reported consumption of wild meat and other wild animal products according to Research Assistant.	275
Figure C.2.	Percentage of respondents (n=915) who reported consumption of wild meat and other wild animal products according to Research Assistant and whether or not I was also present at the time the questionnaire was completed.	275

List of Tables

Table 3.1.	Basic wildlife values (Kellert 1993b).	62
Table 3.2.	Results of Reliability Analyses for second pilot study (n=40).	63
Table 3.3.	Number of transects and the percentage of total questionnaires (n=915) completed in each central district as related to the population (General Statistics Office of Vietnam 2006).	65
Table 3.4.	Linear regression showing the role of respondent characteristics on highest education completed.	68
Table 3.5.	Main topics covered in SSIs with wild meat consumers (n=39).	76
Table 3.6.	Characteristics of the members of the central Hanoi public (n=38) and the wild meat consumers (n=39) interviewed in SSIs.	77
Table 3.7.	Main topics covered in SSIs with the central Hanoi public (n=39).	78
Table 4.1.	Details of wild animal-derived products as defined in Figure 4.1.	84
Table 4.2.	Logistic regression showing the role of age on whether or not a respondent reported eating wild meat in the company of family (n=204).	89
Table 4.3.	Logistic regression showing the role of occupation on whether or not a respondent reported eating wild meat in the company of colleagues (n=193)	91
Table 4.4	Logistic regressions showing the role of respondent characteristics on the company (friends/other, colleagues/other or family/other) reported at wild meat consumption events in the last 12 months.	92
Table 4.5	Summary of descriptions of past wild meat consumption according to time period in which reported.	100
Table 5.1.	Logistic regression showing the effect of age on whether or not a respondent reported consumption of wild meat or a wild animal-derived medicinal product (n=915).	112
Table 5.2	Logistic regression showing the effect of occupation on whether or not a respondent reported wild meat consumption (n=890).	116
Table 5.3	Logistic regressions showing the role of respondent characteristics on consumption of a). wild meat and b). wild animal-derived medicines in the last 12 months.	120
Table 8.1.	Linear regression showing the role of respondent characteristics on wildlife-related knowledge and awareness score (n=854).	181
Table 8.2.	Summary of descriptions of wild-related information recalled from the last week according to most frequently accessed media.	184
Table 8.3	Results of Reliability Analyses (n=915).	194
Table C.1.	Logistic regression showing the effects of the research assistant collecting data on the characteristics of respondents in the survey sample (n=915).	276

List of Abbreviations

AFP	Agence France-Presse
ASEAN	Association of Southeast Asian Nations
BSE	Bovine Spongiform Encephalopathy
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CWCA	China Wildlife Conservation Association
DRV	Democratic Republic of Vietnam
ENV	Environment for Nature, Vietnam
FFI	Fauna and Flora International
FPD	Forest Protection Department
HIV	Human Immunodeficiency Virus
H5N1	Influenza A Virus Subtype H5N1
IFAW	International Fund for Animal Welfare
Int.	Interviewer
MARD	Ministry of Agriculture and Rural Development
NGO	Non-Governmental Organisation
Pers. obs.	Personal observation
Pers. comm.	Personal communication
RA	Research Assistant
RU	Response Unit
SARS	Severe Acute Respiratory Syndrome
SFNC	Social Forestry and Nature Conservation in Nghe An Province
SSI	Semi-Structured Interview
TCM	Traditional Chinese Medicine
UDCA	Ursodeoxycholic Acid
UN	United Nations
UNEP	United Nations Environment Program
VNA	Vietnamese News Agency
VND	Vietnamese Dong
WCS	Wildlife Conservation Society
WHO	World Health Organisation
WPAC	Wildlife Protection Association of China
WTO	World Trade Organisation
WWF	World Wildlife Fund

1. Introduction: Managing The Trade in Wildlife

1.1. The Wildlife Trade

Wildlife trade is the “sale or exchange of physical products produced by and/or derived from wild species” (Roe et al. 2002: 4). The trade involves timber, fish, live animals and plants, wild meat and other food products such as snake wine, skins and furs, medicinal derivatives, ornamental items, souvenirs and curios; this thesis focuses on wild animals and the products derived from them.

Worldwide, the majority of wildlife trade is legal and is an important source of income to some of the poorest people (Broad et al. 2003; Lin 2005). However, a significant proportion of wildlife trade is illegal and contributes directly to the depletion of valuable natural resources through overexploitation and the introduction of commercially valuable species beyond their natural ranges (Broad et al. 2003). While it is impossible to estimate the value and volume of the illegal trade in wild animals and plants accurately, global estimates include USD8billion (UNEP 1998), USD15billion (Roe et al. 2002) and USD20billion (Interpol 2008).

Today a significant proportion of high volume illegal trade in high-value wild species involves organised crime networks linked to arms, drugs and human trafficking (Vince 2002; Lin 2005). Trade contravening CITES has been recognised by the G8, the United Nations, Interpol and the European Union as one of five major groupings of international environmental crime; and yet the wider societal costs of organised wildlife-related crime are often overlooked, typically resulting in low investment in enforcement activities, allowing organised crime to thrive (Lin 2005).

1.1.1. Vietnam and Trade in Southeast Asian Wildlife

Records of official wildlife trade between Vietnam and China go back to 200BC, and unofficial trade is even more ancient with accounts referring to trade in rhino horn and tortoise shell before 500BC (Simoons 1991; Li & Li 1998). Wildlife has also been a major source of foreign exchange for Cambodia since the 1st century (Martin & Phipps 1996 in World Bank, 2007). During the Sui Dynasty and up until the Ming Dynasty (AD 581-1644) overseas trade in wildlife was also prosperous

(Shen 1985 in Li & Li 1998) and Vietnamese kings are reported to have presented wild animal products and live wild animals to Chinese rulers (Nash 1997). Official documents show wildlife being traded from northern Laos to southern Chinese provinces from the mid-19th century (Duckworth et al. 1999; Nooren & Claridge 2000) while the explorer Garnier (1869-85) observed a thriving wildlife trade in Laos mediated by Chinese and Thai merchants, with rhino horn and peafowl feathers selling for high prices in China (Nash 1997).

However, wildlife trade is believed to have increased significantly during the 20th century, and to have grown particularly rapidly over the past twenty years in response to increased demand and rising market prices (Donovan 1998; Compton 2000; SFNC 2003; Anon 2004; World Bank 2007). Growing affluence in East Asia as a result of economic growth is thought to be the principal factor driving increasing demand for wild animals, while improved infrastructure, stronger trade networks and better access to wildlife resources are enabling growing demand to be met (Donovan 1999; Compton 2000; Chape 2002; World Bank 2007). Recent economic liberalisation in the region has also permitted deregulation of business, decentralisation and a shift towards market economies, slowly allowing increasing levels of commercial trade (Nooren & Claridge 2000; Ma et al. 2004). This has resulted in a shift from subsistence use of many wild animal species to almost wholly commercial trade serving the growing middle classes in provincial towns and cities (Compton & Le 1998; SFNC 2003; Donovan 2004; Robertson 2004). Polet and Ling (2004) observe that hunting around Vietnam's Cat Tien national park seems more closely related to rising urban wealth than the poverty of households near the national park.

Concerns about the over-exploitation of wild populations for trade has led to international and national legislation prohibiting trade in listed species (see Section 1.3). Nevertheless, in the last few decades Vietnam has swiftly developed from being a source of wildlife to becoming the region's "key distribution centre" (Lin 2005: 201). This is partly due to Vietnam's location and developed transport infrastructure and also to improved relations with China facilitating cross-border

Figure 1.1 Map of Vietnam and Peninsular Southeast Asia¹



¹ Source: http://www.lib.utexas.edu/maps/middle_east_and_asia/vietnam_admin01.jpg

access (Geissmann et al. 2000). Donovan (1999) estimates that illegal wildlife trade in Vietnam is worth more than USD20million a year. More recently Nguyen (2003; 2008) estimated that the total revenue and profit from Vietnam's illegal wildlife trade is USD66.5 million and USD21 million per year respectively. This total profit is at least eight times greater than expenditure on monitoring and enforcement, and 12 times the total revenue from legal wildlife trade (USD 5.2 million) per year (Nguyen 2008).

Illegal trade in Southeast Asian wildlife is large, lucrative, highly organised and complex (Nooren & Claridge 2000; Broad et al. 2003; Robertson et al. 2004). Traders are able to respond rapidly to changes in supply or access by targeting new source areas, innovating transport methods and routes, exploiting weaknesses in enforcement and targeting new species within the same commodity group (SFNC 2003; Robertson et al. 2004). Traders frequently also have contacts within local authorities, allowing them to continue trading and obtaining advance warnings of enforcement activities (Robertson 2004; Robertson et al. 2004).

Links with other forms of organised crime including drug trafficking are testament to the profits that can be made (SFNC 2003; Robertson et al. 2004). For example, in 2003, one trader reported transporting an anaesthetised tiger from Laos to Vinh City in Vietnam for USD8,300 (Robertson 2004). In 2006, a gang broke into a snake farm in Dong Nai province where they stole a tiger for a buyer in central Vietnam who paid over USD11,000 for the carcass; the same gang are believed to be responsible for over thirty rare, high-value animal thefts in the country (VNA 2006). A common palm civet scent gland can fetch USD75/kg, pangolin scales USD60/kg and Sambar antlers USD29/kg (Robertson 2004).

Much wildlife traded in Vietnam is controlled by a relatively small number of traders using sophisticated, and sometimes violent, means (Nguyen 2003; SFNC 2003; Robertson et al. 2004). Many traders contract professional hunters and wildlife collecting teams to meet hunters in the forest to collect wildlife and provide supplies, often illegally crossing borders to hunt Laotian and Cambodian wildlife (SFNC 2003; Robertson 2004). Wildlife is brought into Vietnam by road and

foot, and often carried by ethnic minority people employed by traders (Compton & Le 1998; Nguyen 2003). It is delivered to traders by taxi, bus, motorbike, car, truck, boat or train, with army and police vehicles and freezer trucks used to transport more valuable cargoes (SFNC 2003; Robertson 2004; Robertson et al. 2004). Air travel is also used both within Vietnam and for transportation to China (Compton & Le 1998).

As Vietnam's wildlife populations have declined, traders have increasingly turned to neighbouring countries and today much wildlife traded via Vietnam originates from Cambodia, Laos and Thailand (Geissmann et al. 2000; Nooren & Claridge 2000; Stier 2001; Robertson 2004). Within Vietnam itself, the main sources of wildlife are protected areas (Nguyen 2003). Hunting levels increase towards the end of September as the monsoon ends, peak in the run-up to lunar new year (*Tết*), and fall again as the monsoon rains arrive (Compton & Le 1998; Nguyen 2003). Civets, muntjac, hard-shell turtles, bears, pangolins and snakes dominate illegal trade in Vietnam; primates, sambar, small cats, otters and serow are also seriously threatened (TRAFFIC/WCS 2004).

While southern Vietnamese and Cambodian wildlife populations supply wildlife markets in Ho Chi Minh City, Hanoi acts as a node for all trade destined for Chinese and north Vietnamese markets, receiving wildlife from all over Vietnam, Laos and Cambodia (Compton & Le 1998; Nooren & Claridge 2000; Nguyen 2003; Nooren 2004). Recent investigations of the trade in wild animals in Quang Binh Province in northern Vietnam identified 74 wildlife traders, 23 of whom traded internationally while the remainder mainly supplied Hanoi and Vinh City in Vietnam (Robertson 2004). Investigations in Quang Nam and Nghe An provinces found wild animals being traded to the Vietnamese cities of Da Nang, Hanoi, Ho Chi Minh City and also to China (SFNC 2003; Robertson et al. 2004).

1.1.2. Markets for Southeast Asian Wildlife

Growing affluence throughout East and Southeast Asia is increasing demand for wildlife products (Milner-Gulland & Bennett 2003; World Bank 2005; TRAFFIC 2008). China almost certainly provides the largest market for Southeast Asian

wildlife (Nooren & Claridge 2000; Stier 2001; World Bank 2005; Harris 2008), demand for which has risen alongside rapid economic development and population expansion over the last twenty-five years (Li & Li 1998), and which also appears to be spreading. For example, since economic reform, preferences for eating snake meat spreading from the southern provinces to northern and western provinces (Zhou & Jiang 2004), and turtle meat from southern to northern China (Compton 2000; Lau & Haitao 2000). As well as consuming wildlife, China also plays important roles in processing and exporting wildlife products, which contributes significantly to the foreign exchange income of southern provinces (Li & Li 1998; Nooren & Claridge 2000). Hong Kong, South Korea, Taiwan and Japan are thought to be the next most significant destinations of products derived from Southeast Asian wildlife (Baird 1993; Nooren & Claridge 2000 in Duckworth et al. 1993). A considerable amount of trade is also destined for Thailand (Srikosamatara & Suteethorn 1994).

In Vietnam, as well as being a source of wildlife and a major channel for illegal trade to China, it is also generally thought that growing economic prosperity is increasing domestic demand for wild animal products. Based on direct investigations of wildlife trade in Vietnam and data collected from key informants, Nguyen (2003) estimated that as much as half the volume of live wild animals and wild meat traded in Vietnam is consumed domestically. Moreover, a recent survey of two thousand Hanoi residents found that almost 50% had used wild animal products in their lifetime, almost half of whom consume them up to thrice a year (Venkataraman 2007). This is perhaps unsurprising given that rising urban affluence is increasing expenditure in restaurants generally and leading to a shift towards more meat-rich diets amongst many Vietnamese (Thang & Popkin 2004; Tuyen et al. 2004). But with a population estimated to reach around 101 million by 2020 (UN Data 2008), any rise in demand for wild animal products in Vietnam parallel to economic growth is likely to have significant impacts on wildlife populations and regional wildlife trade networks.

1.1.3. Impacts of Illegal Trade in Wildlife

Today direct harvesting of wildlife by humans is deemed one of the greatest threats to the survival of species unique to tropical forest habitats and a direct threat to global 'biodiversity' (Redford 1992; Milner-Gulland & Akcakaya 2001; Bowen-Jones et al. 2003; Milner-Gulland & Bennett 2003; Robinson & Bennett 2004; Wilkie et al. 2005). However, while the 'bushmeat crisis' is mainly associated with Africa, wildlife depletion as a result of over-harvesting began in Asia (Milner-Gulland & Bennett 2003; Bell et al. 2004). And, while the African wild meat trade has been relatively well documented (e.g. Bowman 2001; Barnett et al. 2002; Bowen-Jones et al. 2003; Fa et al. 2003; Cowlshaw et al. 2005a), in Asia this has received much less attention.

In reality the scale of trade in wildlife is difficult to assess: wildlife trade supplies domestic and foreign markets and is exchanged along commodity chains involving a range of actors from both barter and market economies; most is unregulated - even where trade is more structured there is limited monitoring or information in terms of the species and products involved, their value, and the volumes traded - and illegal trade by its very nature avoids any monitoring that may be in place (Roe et al. 2002; Broad et al. 2003). Nevertheless, unsustainable hunting for trade is repeatedly identified as a primary threat to many of the region's species (Duckworth et al. 1999; Robertson 2004; Robertson et al. 2004; TRAFFIC/WCS 2004; Nguyen 2008).

Even if the exact scale of illegal trade is uncertain, its impact is increasingly evident with eradication of Asian wildlife happening faster than habitat degradation (Bennett et al. 2002; World Bank 2005). In parts of Southeast Asia species hunted for centuries have vanished entirely and in some areas even small mammals and birds have been extirpated (McGowan et al. 1998; Rabinowitz 2001). At least twelve vertebrate species have been hunted to extinction in Vietnam in the last forty years (Bennett & Rao 2002) and the Vietnamese government's Forest Protection Department (FPD) estimates that 200 species of birds and 120 other animal species have become locally eliminated in Vietnam over the last four decades, mainly due to illegal hunting and trade (Nguyen 2003). In Pu Mat National

Park in Vietnam, species extremely valuable to trade have been either nearly extirpated or severely diminished (World Bank 2005).

Wildlife depletion has serious implications for world food security. Wildlife makes direct contributions to human livelihoods, healthcare and nutrition (Pimental 2005; WHO 2008), and is particularly important for the poorest households in Cambodia (Piseth 2001; Nooren 2004), Laos (Foppes & Kethpanh 1997; Emerton 2005 in TRAFFIC 2008) and Vietnam (Raintree et al. 2007 in TRAFFIC 2008) where more than a quarter of the population live below the national poverty line (Asian Development Bank 2005 in TRAFFIC 2008). Wildlife also contributes to maintaining forest structure and, in turn, upholding ecological functions ensuring water security, agricultural productivity and the security of environmental systems upon which industry and economic development depend. Overexploitation of wildlife resources therefore threatens not only biodiversity but also all those who depend on it, whether directly or indirectly. But, although estimates of the national value of subsistence use and legal commercial trade in wildlife often place it as one of the most significant contributors to the economies of many of the countries involved, it is rarely included in national economic statistics or nutrition data (Rao & McGowan 2002; Bowen-Jones et al. 2003).

Illegal wildlife trade also poses a serious threat to human public health, as well as to livestock and wildlife (Bell et al. 2004; Karesh et al. 2005). The importance of ecological factors in disease emergence is increasingly being recognised (Schrag & Wiener 1995; May et al. 2001; Antla et al. 2003; Weiss 2005). Changes in environmental conditions alter the ecological context within which disease hosts and vectors behave, leading to adaptation to the new conditions; for example, in situations with an increased human population and reduced non-human population, some vectors convert from a primarily zoophilic to an anthrophilic orientation (Patz et al. 2000). Wildlife trade encourages such novel zoonotic infections through 'unnatural' cross-exposure of species through human intervention; exploitation of new source populations for trade as a result of depletion elsewhere; increased movement and expanding trade chains; and newly exposed consumer populations (Bell et al. 2004; Karesh et al. 2005). HIV is one

such case which has reached such epidemic proportions it is now considered a primarily human disease (Hahn et al. 2000; Taylor et al. 2001). The lethal SARS epidemic of 2003 is believed to have originated in wildlife markets in southern China (Bell et al. 2004) while the third great bubonic plague in the late nineteenth century has been traced to Western Yunnan and is believed to have been spread by wildlife trade (Benedict 1996).

1.2. Managing Wildlife Exploitation

In the new millennium there has been a growing awareness of, and willingness to address, illegal wildlife trade from regional governments. For example, the 2005 to 2010 ASEAN Action Plan on Forestry included improved compliance with CITES – of which all ASEAN countries are members – and wildlife trade controls as key objectives (World Bank 2005). A number of national and international conservation NGOs are also working with governments to combat illegal trade.

To protect species from over-exploitation, conservation interventions have traditionally been founded on basic economics, for example aiming to increase the cost and/or reduce the benefits of harvesting species. Increasing costs typically involves the introduction and enforcement of regulations, while reducing benefits typically involves campaigns aiming to reduce consumer demand for wild species through social marketing or awareness raising campaigns. Although regulatory approaches have been the principal approach to stemming over-exploitation of wildlife for trade, increasing emphasis is now being placed on reducing demand for wildlife products. “Supply-side” approaches to reduce pressure on wild populations, including substitution with farmed wild products are also receiving greater consideration (Bulte and Damania 2005: 1223). These different strategies, with particular reference to Vietnam, are reviewed in turn below.

1.2.1. Regulatory Approaches: Restricting Harvest and Trade

Regulation of harvesting and trade in wildlife has been the predominant response to concerns about overexploitation of wildlife, particularly regarding international trade (Broad et al. 2003). This includes local and national legislation interventions, and multilateral conventions such as CITES. These regulate wildlife trade and/or

harvesting through access to wildlife resources - i.e. exclusion from protected areas - or export controls and may involve the use of permits, taxes, fees, concessions or full bans (Roe et al. 2002; Moyle & Oldfield 2005). Penalties range from the confiscation of hunting equipment to fines, imprisonment or even death (Messer 2002 in Bulte and Damania 2005).

The precautionary principle is often applied and trade bans or strict limitations on trade volumes have been common (Broad et al. 2003). This has been encouraged by a large component of the environmental movement within developed nations opposed to trade in at least certain species on an ethical basis (Dickson 2003). Some in developing countries have tried to depict this anti-utilitarian viewpoint as unlawfully burdening the wider conservation community with foreign moral values, often highlighting the ethics of excluding the rural poor from wildlife resources (Dickson 2003). So, although absent in the original treaty, the role CITES plays in sustainable development has become increasingly significant, and sustainable development is now included in its 'Strategic Plan' (Dickson 2003). This shift also reflects a more general move in conservation towards community-based conservation.

1.2.1.1. Regulatory Approaches in Practice

Despite their wide use, the efficacy of regulatory approaches is widely debated, and due to its prominence in regulating international wildlife trade this debate tends to focus on CITES. Owing to the complexity of wildlife trade, the number of factors that affect wildlife populations and limited information availability, isolating the impacts of specific regulatory measures is extremely difficult (Dickson 2003). Trade controls impact differently on foreign and domestic markets and on different stakeholders, and are only some amongst many other factors that influence access to wildlife resources and markets in unpredictable ways, mitigating or complementing regulation efforts (Roe et al. 2002). For example, economic collapse in Southeast Asia in 1997 and in Venezuela in 1983 was forecast to reduce demand for wildlife in line with reduced purchasing power in the region but the opposite occurred: harvests increased to supply thriving markets in East

Asia and the West, and provided much-needed income in areas where economic downturns were felt most strongly (Donovan 1999; Rodriguez 2000).

A temporary trade ban helped *Vicuña* populations recover in Argentina and trade bans have also reduced trade in spotted cats and wild birds (Ginsberg 2002; Bonacic & Gimpel 2003; Burton 2006). But while trade bans appear to have protected some species, trade in other species has continued or increased despite them. For example, trade in reptile skins is still considerable and trade in poison arrow frogs has increased (Roe et al. 2002); international trade in endangered species such as the Tibetan antelope in China is expanding (Li et al. 2000); and persistent illegal trade in rhino horn continues to contribute to plummeting rhino populations (Leader-Williams & Oldfield 2003). In addition, where wild products have high value, there is persistent consumer demand for them and enforcement is weak, attempts to put an end to legal markets rarely have had any effect other than to drive trade underground making monitoring impossible (Bennett et al. 2000; de Plessis et al. 2000; Martin et al. 2000; Moyle & Oldfield 2005). Regulation can also simply lead to substitution and shift impacts to other species with similar features or to other range states (Roe et al. 2002).

While there may be few clear-cut success stories as a result of regulation, it is possible that there may have been more failures to report without it. Moreover, cultural, geographical and species-specific factors affecting the efficacy of regulations are frequently over-simplified, with inappropriate examples often used in support or against the use of trade bans in very different circumstances (Burton 2006). Research does not show that regulatory approaches are redundant, but that they are only likely to succeed with management closer to “first-best”² support from governments (Swanson 2007: 111). Yet many endangered species are found in developing countries with scant resources and where wildlife protection is rarely high on government agendas. So while alternative approaches to managing illegal wildlife trade should be explored, regulatory approaches should not necessarily be dismissed.

²“First-best” management is the “level of management that would have been chosen if the cost of management services was zero; [it] is an ideal – one that exists within a world of costless resources.” (Swanson 2007).

1.2.1.1.1. Regulatory Approaches in Vietnam

The Vietnamese government has a range of legislation aiming to reduce over-exploitation of wild species (Appendix D). This began in 1992 with the issuance of Decree 18/1992/HDBT-CP protecting threatened species, and the Red Book of Endangered Species (Compton & Le 1998; TRAFFIC 2006a). Since joining CITES in 1994, the following have also been introduced in Vietnam: the Law on Environmental Protection; the National Biodiversity Strategy and Action Plan; and the National Action Plan to Strengthen Trade Controls of Wild Species of Fauna and Flora from 2004 to 2010 (Lin 2005). Vietnam is also part of the ASEAN wildlife initiative launched in 2004, the first commitment of all Southeast Asian countries and China to co-operate in tackling illegal wildlife trade (Lin 2005). China became a member of CITES in 1981, Cambodia in 1997 and Laos in 2004 (CITES 2008)

The Forest Protection Department (FPD) under the Ministry of Agriculture and Rural Development (MARD) is responsible for enforcing wildlife legislation. Enforcement is poor and there is a general absence of awareness of the law and/or concern about it being applied (Compton & Le 1998; Hendrie 2000; Nguyen 2003; Robertson et al. 2004; Anon. 2006). Inadequate enforcement can be largely attributed to corruption within government authorities and a lack of importance placed on wildlife conservation by the authorities (Compton & Le 1998; Nguyen 2003; Robertson 2004; Robertson et al. 2004; Nguyen 2008). Wildlife trade actors are also typically better equipped and organised than enforcement agencies: the FPD are hindered by a lack of resources and capacity, the absence of a fully developed legal framework, and a decentralised and disjointed administrative system (Compton & Le 1998; Nguyen & Reeves 2005; Nguyen 2008). As such, regulatory approaches are currently not sufficiently restraining illegal trade in wildlife in Vietnam.

1.2.2. Consumer-Targeted Approaches: Reducing Demand

Without demand for wildlife products there would be no incentive to hunt and trade wildlife, so conservationists are increasingly targeting consumers in an attempt to reduce consumption of endangered species, and in turn the incentives

to hunt them. Consumer-targeted approaches are now considered an important component of conservation efforts (Srikosamatara 1992; Wilkie & Carpenter 1999; Bowen-Jones et al. 2003; Venkataraman 2007) and awareness-raising and social marketing are typically the tools used (Wilkie & Carpenter 1999; Roe et al. 2002). Social marketing campaigns aim to influence public values, alter consumer preferences and/or stigmatise consumption behaviour while awareness raising initiatives are based on the premise that people consume wild animals because they are unaware of the impacts of their consumption behaviour on wild populations and/or are not aware of the 'importance' of protecting wild species.

The rationale behind environmental awareness raising campaigns mirrors that behind similar campaigns aiming to alter behaviour such as unsafe sex (Bosompra 2001), drug misuse (Duff 2003) and refusing immunisation (Hobson-West 2003). These view individuals as a rational actors who use new knowledge to avoid detrimental outcomes, and is based on Ajzen and Fishbein's (1980) theory of reasoned action (TRA). This hypothesises that one's intention to behave in a certain way results from one's attitude to that particular behaviour and, because attitudes are based on information about the "attitude object", that attitudes, and in turn behaviours, can be altered by new information (Ajzen & Fischbein 2000: 3; Dutta 2007).

The TRA appears to have heavily influenced those aiming to cultivate sustainable environmental behaviour. For example, when environmental concern found amongst the individuals under study does not translate into pro-environmental behaviour, researchers studying populations in various regions including in the USA, Japan, Germany, Hong Kong, South Korea and the UK have attributed this to a lack of knowledge and/or poor understanding of the human-led processes that lead to environmental change (e.g. Kellert 1993a; Chan 1999; Mankin et al. 1999; Bord et al. 2000; Kang & Phipps 2003). Accurate knowledge is also considered an important component of support for environmental policy: it is argued that raising public knowledge enables local narratives to be heard and integrated into policy debates, serving to engender public support (Hunter & Brehm 2003). Raising awareness is now considered a key solution in solving many environmental

problems in Asia including demand for wildlife (Chapman & Sharma 2001; Shiping et al. 2006; Le 2007; Tong 2007).

However, persuading individuals to altering their behavior is now considered by psychologists to be a much more complex process than simply providing information (Ajzen & Fischbein 2000). Individuals have been shown not to respond rationally to new knowledge about health risks and to make conscious choices to evade specific types of information; behaviour has also been shown to be influenced by social context and the degree to which any information source is trusted (Alaszewski 2005). As well as failing to capture the socio-cultural context of human behaviour, TRA is embedded within an individualistic philosophy within which choices are made at an individual level and is therefore also limited in its application to collectivist cultures (Dutta 2007).

Lee (1990 in Chan 2001) believes that conversion of knowledge into action is inhibited in Confucian societies because they are more inclined to conform with social norms and are more concerned about losing face; collectivism also means that individual interests should be subdued in favour of the interests of the group (Chan 2001). Indeed, although Fryxell and Lo (2003) found that environmental knowledge and values were predictive of green managerial behaviour in China, this tended to be restricted to personal actions within the wider organisational structure, rather than obvious behaviours, to minimise environmental impacts. They suggest poor links between environmental knowledge, values and managerial behaviour arise because of the perceived risks of pursuing objectives that may be viewed as personal and peripheral to those of the organisation (Fyxell & Lo 2003).

So unsurprisingly, although a range of psychological constructs including knowledge, expressed intention, attitudes and memory have been implicated in, and widely researched with regards to, the shaping of environmentally friendly behaviour, their relationships with environmental behaviour are still uncertain (Chan 2001). Attitudes towards, and concern about, the environment are shaped by social, political and cultural forces (Szagun & Pavlov 1995), and the ways in

which knowledge, attitudes and behaviour interact are also influenced by socio-cultural context (Greider & Garkovich 1994 in Hunter 2000). Barr et al. (2003: 409) argue three variables are key in determining environmental behaviour: environmental values; situational factors such as access to services, knowledge and experience; and psychological variables including personality traits, subjective norms (i.e. social pressure) and logistical factors (i.e. a belief in the effectiveness of individual actions).

Using more complex social marketing techniques to alter the beliefs that underlie attitudes is also beginning to increase in popularity, and there is an emerging field of conservation psychology looking at ways to cultivate pro-environmental behaviour (Saunders 2003). First used in the field of health, social marketing tools are now being widely used by NGOs and agencies such as the World Bank to tackle issues such as crime, consumer debt, environmental degradation and animal welfare (Andreasen 2001). These methods can be extremely powerful and their increasing use raises a number of ethical questions. For example, should campaigns be permitted to distort or exaggerate facts to obtain a desired change in behaviour and is it ethical for Western NGOs to use social marketing to alter the underlying beliefs shaping attitudes in foreign cultures in order to achieve their own aims? While some argue ethics standards should be lower than for their corporate counterparts because social marketing campaigns are for 'worthy' causes, others believe standards should be more stringent for this very reason (Andreasen 2001).

1.2.2.1. Consumer-Targeted Approaches In Practice

Social marketing campaigns have effectively stigmatised ivory consumption, reducing demand for ivory across Europe, North America, and Japan (Stiles 2004) while in India the 'say NO to Shahtoosh³' campaign has also been considered a success (Misra 2003: 83). In the latter half of the twentieth century, wearing animal fur became widely morally unacceptable in the West following campaigns by animal rights lobbyists, although it is now becoming fashionable once more

³ 'Shatoosh' is a shawl made from the extremely fine wool of the Chiru (*Pantholops hodgsonii*) also known as Tibetan Antelope.

(Skov 2005). Exposure to environmental messages in mass media has also been positively correlated with environmental knowledge and behavioural change amongst students in Hong Kong (Chan 1999) and to a reduction in pesticide use by farmers in Vietnam (Huan et al. 1999).

More recently, a number of campaigns targeting consumers of wildlife products have been launched. For example, WildAid's 'World Champions for Wildlife' public campaign is estimated to have reached over one billion people viewers per week across Europe, the Middle East, Africa, Asia, Latin America and the Caribbean (Anon. 2004). A campaign called "A Million Cooks Sign For Not Cooking Wildlife Meat" was also recently launched by the Chinese Wildlife Protection Society (Yang et al. 2007: 23). In Vietnam, awareness campaigns have targeted schools and included televised advertisements involving celebrities. For example, in 2007 a campaign targeting demand for wild animal products was designed by Saatchi & Saatchi and launched by WWF, and supported by a renowned Vietnamese scientist and a Vietnamese body-building athlete (Anon. 2006; TRAFFIC 2008). In 2008, ENV issued a television broadcast in which a senior staff member orders bear bile wine and an accompanying junior staff member refuses to drink it, and a radio broadcast in which a famous female pop star appeals to men not to eat wild meat (pers. comm. ENV 2008).

Although campaigns have been successful in raising awareness, experts working in conservation in Southeast Asia do not consider those so far to have resulted in any long-term reduction in overall consumption behaviour in Southeast Asia (TRAFFIC 2008) or in China (Pers. comm. Yan Lu). Others believe that cultural preferences for wildlife products in Asia are too deeply embedded to be reduced through either education or the promotion of substitutes (Nooren & Claridge 2000; Wilkie & Godoy 2001). Instead they fear that the desire for highly prized products is likely to reinforce demand for the genuine article, with consumers willing to pay high prices. Indeed, consumption does not appear to be reducing but becoming more popular in Vietnam (TRAFFIC/WCS 2004). The expert-led report concludes that there is still a significant lack of understanding about the relationships between

wildlife-related awareness, attitudes and consumer behaviour in Southeast Asia (TRAFFIC 2008).

The fact that so little is known about existing perceptions and knowledge of wildlife, conservation or consumption, and that there is so little upon which to base awareness campaigns, is surely also a major contributor to the failure of these campaigns to visibly reduce consumer demand for wild animals. Consumers, as the stakeholders most removed from extraction and as a group of people who are very varied in their motivations and preferences, are poorly understood. Despite the growth in demand for wild animal products in Southeast Asia there is little understanding of the economic and social drivers of these markets, seriously hindering the design of measures to reduce illegal and unsustainable trade (TRAFFIC 2008). Better understanding of what drives consumption is therefore required to predict the effect of rapidly changing socio-economic conditions, demography and policy, and ultimately to design and target interventions more effectively (Lee et al. 2000; Milner-Gulland & Bennett 2003; East et al. 2005); attention needs to be directed at urban consumers in particular (TRAFFIC 2008: xiv). Moreover, assessing public views and knowledge of wildlife not only permits the development of more pertinent and ultimately more effective campaigns, but also those fostering co-operative, and avoiding antagonistic, responses (Reading & Kellert 1993).

1.2.3. Supply-Side Approaches: Farming Substitutes

Traditional economic theory – in which trade is characterised as being perfectly competitive - predicts that legal products will lower prices by satisfying consumer demand, whereas prohibition will increase prices for illegally produced goods (Barbier & Swanson 1990; Heltberg 2001). On this basis, the supply-side approach to conservation aims to flood the market with cheap, legal substitutes for wildlife commodities thus lowering prices and in turn reducing the incentives to hunt and trade (Bulte and Damania 2005). The provision of cheap substitutes is proposed either through wildlife farming or ranching⁴, the production of synthetic

⁴ Wildlife farming generally refers to intensive management of wild stock while wildlife ranching typically means less intensive husbandry in semi-free ranching situations (Bulte & Damania 2005).

substitutes or legal sale of confiscated products. A necessary element of this approach is the legalisation of trade in certain species or products in order to crowd out illegal trade (Bulte & Damania 2005).

Based on this theory, captive breeding of wild species as a conservation tool is being encouraged in Cambodia, China, Indonesia, Malaysia, Thailand, Laos and Vietnam and is also being encouraged by CITES and certain IUCN specialist groups (TRAFFIC/WCS 2004). The production of farmed substitutes for wild products has been proposed as a measure to reduce illegal trade in a number of specific species including seahorses (Parry-Jones & Vincent 1998), musk deer (Parry-Jones 2001) and bears (Mills et al. 1995 in Bulte and Damania 2007). Lapointe (2007) argues that wild populations suffer more from regulations which drive trade underground where it cannot be monitored than from legal markets, and supports legalisation of trade in tiger parts. In addition, in some areas and for certain products such as those popular in traditional medicine, some think demand may be so strong that conservation may simply be impossible without wildlife farming (Parry-Jones & Vincent 1998). Other potential advantages include reducing animal morbidity and disease transmission by reducing distances between source and consumer and the provision of genetic reserves (Bulte & Damania 2005). Nevertheless, the legalisation of trade in, and farming and ranching of, endangered species is a controversial and, as I will demonstrate below, a largely untested approach to conservation.

1.2.3.1. Supply-Side Approaches in Practice

Ranching systems - whereby initial stocks are taken from the wild - have the advantage of potentially maintaining incentives for conserving wild stock, but they may also intensify pressure on wild populations and, if very successful, remove incentives for conservation altogether, ultimately causing existing sustainable use initiatives to fail (Anon. 2001; Bulte & Damania 2005; MacGregor 2006). For example, Haitao et al. (2007) report that turtle farming in China has intensified pressure on wild populations required to maintain reproductive viability of captive populations, and that as native species decline farmers are switching to non-native species that breed more readily. Similarly, despite the undoubted success of the

role of commercial farming in conserving some crocodylian species, Thorbjarnarson (1999) reports that a focus on sustainable use has led to a shift in attention towards more common species of high commercial value and away from those most threatened. There are also concerns that interbreeding between wild and captive animals may pass on damaging genetic traits to wild populations (e.g. Dalton 2003) and that farming will produce domesticated “phenotypes”, a process some consider equivalent to extinction (Peterson et al. 2005: 940).

In reality, the illegal wildlife trade is much more complex than traditional economic models suggest, characterised by imperfect competition due to the involvement of organised criminal networks, which exercise significant control over supplies and prices (Bulte & Damania 2005; Damania & Bulte 2007). Moreover, raising slow-breeding wild species such as tigers is significantly more expensive and time-consuming than poaching them, leaving strong incentives for illegal traders to undercut farmers in any legal market (Gratwicke et al. 2008). Laundering illegal goods under the guise of legal trade may also make trading illegal goods easier (Fischer 2004; TRAFFIC/WCS 2004), particularly where enforcement capacity is limited. Indeed, in China, a recent report concludes that illegal trade in tiger-derived products, laundered under the guise of domestic trade from captive bred animals, is widespread (IFAW 2006). In Vietnam wild meat restaurateurs were keen to develop wildlife farms suggesting this would make laundering and raising wild-caught animals easier (Robertson 2004). Distinguishing between farmed and wild-caught products such as tiger bone (Box 1.1.) requires forensic analysis making monitoring unaffordable (IFAW 2006).

Box 1.1. Medicinal Use of Tigers in China and Vietnam

Tiger bone jelly (*cao hổ*) is one of the most valued Vietnamese traditional medicines, costing up to 380USD for 100g in Hanoi (Nguyen & Nguyen 2008). Tiger cao is used to treat rheumatism, paralysis and as a “supertonic” to give strength (Compton & Le 1998; Compton 2000; Nguyen 2006: 153). Nguyen (2006: 153) describes its preparation:

“The bones are completely cleaned [...] and broken to release the marrow. They are [...] put into a big cooking pot filled with water, and boiled for 24 hours, when more water is added to compensate for the quantity evaporated. Two hours later the first liquid is taken off. A second, then third operation of this kind is repeated. The liquid obtained [...] is boiled together [...] until the mixture has the desired glue-like consistency. The semi-liquid is poured onto a tray [...] and when it is cool it is cut into [...] pieces. The yield is 30kg [...] for 100kg of bones.”

The cao can be made from the entire skeleton, costing up to 18,000USD in Hanoi (Nguyen & Nguyen 2008). Other tiger parts, including the liver, tendons, penis and paws, are also used in traditional Vietnamese medicine; in Hanoi a penis - believed to improve sex performance and cure impotence - costs over 1500USD and a whole liver almost 1000USD (Nguyen & Nguyen 2008).

In China tiger bone medicines and health tonics were mass-produced in factories, the annual off-take peaking in the 1960s at around three hundred tigers, producing approximately three metric tonnes of tiger bone jelly, but declining in subsequent decades reflecting diminishing numbers of tigers in the wild (Jenkins 2006 in Nowell and Xu 2007; Nowell & Xu 2007). China joined CITES in 1981 after which no official imports of tiger bone are reported: but domestic tiger populations were too low to support the ongoing domestic trade and evidence suggests that tigers were smuggled into China from other range states (Nowell & Xu 2007). Responding to international concern, in 1993 China strengthened protection of the tiger, prohibiting all tiger-derived products and effectively reducing supply (Nowell 2006). Proposed relaxation of the law in China regarding sales of tiger tonic is likely to reverse this trend (Nowell & Xu 2007). Trade in tiger parts is also prohibited in Vietnam but nevertheless takes place quite openly (Nguyen & Nguyen 2008; pers. obs.)

Incorporating imperfect competition arising from shifting consumer preferences and laundering into such models predicts ambiguous and potentially shifting effects on remaining demand for wild products (Damania & Bulte 2007). This perhaps explains the varied outcomes of wildlife farming ventures to date. For example, Mills et al. (1995 in Damania and Bulte, 2007) report that bear farming stabilised prices of bear bile (Box 1.2) in China while prices inflated elsewhere. Farming of *Vicuña* in Argentina has also contributed to their conservation (Bonacic & Gimpel 2003). In contrast, laundering alongside legal ranching is reported responsible for the near-extinction of crocodiles in Thailand and moon bears in China and Vietnam (Meacham 1997). Similarly, Haitao et al. (2007) argue laundering of wild turtles alongside captive-bred animals is accelerating the extinction of turtle species.

Box 1.2. Bear Bile and Bear Farming

Bear bile has been used in Traditional Chinese Medicine (TCM) for over 2000 years; traditionally taken from bears killed in the wild, the expense and rarity of bear bile served to mystify its curative properties (Li 2004). The process of extracting bile from live bears was not developed until the 1970s, in North Korea (Li 2004). Bears are anaesthetised and ultrasound scans are used to locate the gall bladder into which a needle is then inserted enabling the bile to be removed with a syringe; 10-100ml of bile is harvested on each occasion and extraction typically occurs up to four times a year (Nguyen & Nguyen 2008).

In China, by the mid-1990s, there were believed to be up to 600 bile farms keeping over 10,000 bears (Li 2004). Following international condemnation, farming bears for their bile was banned in Vietnam in 1992 and, in 1994, the Chinese government declared no new farms would be permitted: there are nevertheless currently still an estimated 7000 and 4000 bears on bile farms in China and Vietnam respectively (Robinson et al. 2006; Nguyen & Nguyen 2008). With a continually open wound, the bears are highly susceptible to infections and frequently die. Despite being commonly referred to as farms, there is limited evidence of captive breeding and many bears are sourced from the wild (Cochrane & Robinson 2002; Li 2004; TRAFFIC/WCS 2004; Robinson et al. 2006; Nguyen & Nguyen 2008).

Bear bile is widely used today in both China and Vietnam to treat a variety of ailments including gastric and muscular pains, indigestion, jaundice, poisoning and strains (Li 2004; Nguyen & Reeves 2005; Nguyen 2006: 155). The chemical structure of Ursodeoxycholic Acid (UDCA) was first defined from bile of an Asiatic Black Bear (*Ursus thibetanus*), after which it was subsequently named (Lazaridis et al. 2001). Although UDCA is found in relatively large amounts in the Asiatic Black Bear, it occurs in lesser quantities in the bile of other mammals including humans, and it has been possible to chemically synthesise since 1936; this manufactured UDCA has been clinically proven to have beneficial effects in various liver disorders (Van De Meeberg & Van Erpecum 1993; Lazaridis et al. 2001).

Traditional economic models also assume demand for wild animal products is constant, meaning that any additional supply of captive-bred products will reduce demand for wild-caught products and hence reduce prices (Damania & Bulte 2007). They ignore, for example, complexities such as that law-abiding consumers may operate in a separate market from illegal consumers, and therefore legal trade may serve to condone consumption, effectively removing social and legal restrictions by giving the impression that these species are no longer endangered, and subsequently introducing law-abiding consumers into the market and unintentionally increasing demand and inflating prices (Clayton et al. 2000). For example, the 1993 ban in China of trade in tiger-derived products was considered effective at reducing the supply of tiger parts in China (Nowell 2006) and encouraging Traditional Chinese Medicine (TCM) practitioners to recognise alternative medicines; tiger bone was removed from TCM pharmacopoeias in 1993 (Meng & Zhai 2000; IFAW 2006 in Gratwicke et al., 2008). But resuming legal trade in tiger parts may undo conservation investment over the past two decades by revitalising a waning market (e.g. Ho 2007; Gratwicke et al. 2008). Moreover in

Vietnam it is thought that a recent increase in farming of soft-shell turtles has amplified demand, with many more restaurants now including them on their menus (pers. comm. Robertson S.). Not only might demand increase as a result of wildlife farming but existing demand may already be such that farmed substitutes cannot quench it. China, for example, produced approximately 300kg of musk per year between 1982 and 1993 and yet Chinese demand in the 1990s is estimated at 500-1000kg/year (Yang et al. 2003).

For wildlife farming to be successful as a conservation tool, its products also need to be acceptable substitutes for consumers. One Vietnamese traditional medicine practitioner (Nguyen 2006) views rearing wild animals as one method of maintaining a sustainable source of wild animal-derived medicines, and also advocates using buffalo horn in place of rhino horn and bones of domestic livestock in place of tiger bones. Moreover, Von Hippel and Von Hippel (2002) report a drop in trade of harp seal and hooded seal penises and velvet from reindeer antlers - products widely considered aphrodisiacs in TCM - into the United States between 1988 and 2000 and relate this to the availability of the more affordable medicine Viagra. Von Hippel et al. (2005) have also documented TCM consumers in Hong Kong switching from TCM to Viagra to treat erectile dysfunction, though admit some use a blend of both traditional and Western approaches because they believe the latter does not address the underlying causes. So it seems that both consumers and practitioners are open to substituting some wild animal products with farmed and synthetic alternatives.

However, Robinson et al. (2006: 4) report that traditional medical practitioners consider farmed bile polluted because the mental and physical suffering of the bears contravenes the philosophy of harmony with nature upon which traditional medicine is based, and because potentially toxic substances may also be present in the bile extracted from the gall bladders of unhealthy captive bears. Hoover (2003) also convincingly discredits the claim made by von Hippel & von Hippel (2002) that Viagra has reduced trade in wild animal parts. Moreover, although Mills et al. (1995 in Damania and Bulte 2007) report farmed bear bile gaining greater acceptance over the last decade, Robinson (2006) points out that despite large

surpluses of farmed bear bile being produced wild bears continue to be hunted because wild bile is more valuable than farmed. Meacham (1997) argues where farmed alternatives are viewed as inferior substitutes availability of legal goods may actually stimulate demand for genuinely wild products amongst new consumers. A preference for wild specimens of *Pelodiscus sinensis* - by far the most commonly farmed turtle species - has already been reported in China (Shi & Parham 2000).

Wild animals are also considered to be more medically potent than domestic animals (Cotterel 1986; Anderson 1988) and, when both farmed and wild products are available, the latter are generally preferred (IFAW 2006). Almost half the respondents in a survey of Chinese wild meat consumers reported a preference for 'real' wild meat (Zhang et al. 2008) and there is already anecdotal evidence of a cultural preference for wild-caught goods over farmed equivalents in Vietnam (TRAFFIC/WCS 2004). But with limited data available informing the ability of wildlife farming to satisfy consumer demand for wild animals and hence reduce pressure on wild populations, research is urgently needed to assess the potential of wildlife farming as conservation tool. The present study therefore examines the potential of farmed wild products to satisfy demand in central Hanoi.

1.3. Summary and Research Aims

This chapter has documented the shift in conservation theory from regulation and exclusion towards more inclusive, sustainable use approaches. It has also demonstrated the theoretical potential of regulatory, supply-side and consumer-targeted approaches in reducing excessive exploitation of wild species and highlighted the challenges presented by each approach in achieving this goal. While much research has focused on wildlife trade and harvesting, fewer studies have explored the potential of supply-side and consumer-targeted approaches, especially concerning demand for wild animal species in Southeast Asia. This thesis aims to address some of the gaps outlined in this chapter by studying wild animal consumers and consumption in central Hanoi, and by pursuing the following specific research aims:

- assessing the role of domestic wildlife consumption on trade-driven wildlife decline in Vietnam (Chapter 4);
- investigating the social values associated with wild animal products, the social context of their consumption and the characteristics of consumers of wild animal products (Chapters 4, 5, 6);
- gauging the potential for wildlife farming to satisfy urban consumer demand for wild animal products with farmed substitutes (Chapters 6, 7);
- examining the relationships between wild animal consumption, awareness and attitudes towards wild animals, their use and conservation (Chapter 8).

1.5. Thesis Structure

The following chapter (Chapter 2) outlines background information on the study area and cultural context of the research, while Chapter 3 details the methods used to collect the data presented throughout the thesis. In the first data chapter (Chapter 4), the scale and form of wild animal consumption amongst central Hanoians is examined, and the context of wild meat consumption investigated. In Chapter 5, a detailed profile of the consumers of wild meat and wild animal-derived medicinal products is given. This is followed in Chapter 6 by an examination of the values associated with wild animal products and the role these play in driving their consumption, and then, in Chapter 7, by an investigation into the ability of products derived from farmed wild animals to satisfy consumer demand for products from wild animals. Chapter 8 explores the factors that influence wildlife-related knowledge, investigates the relationship between wildlife-related knowledge and awareness and wild animal consumption behaviour, and explores dominant attitudes towards wild animals and their conservation, and methodological issues in researching attitudes and knowledge. Finally, Chapter 9 draws together all five data chapters to make recommendations for future conservation management.

2. The Socio-Cultural Context of the Research

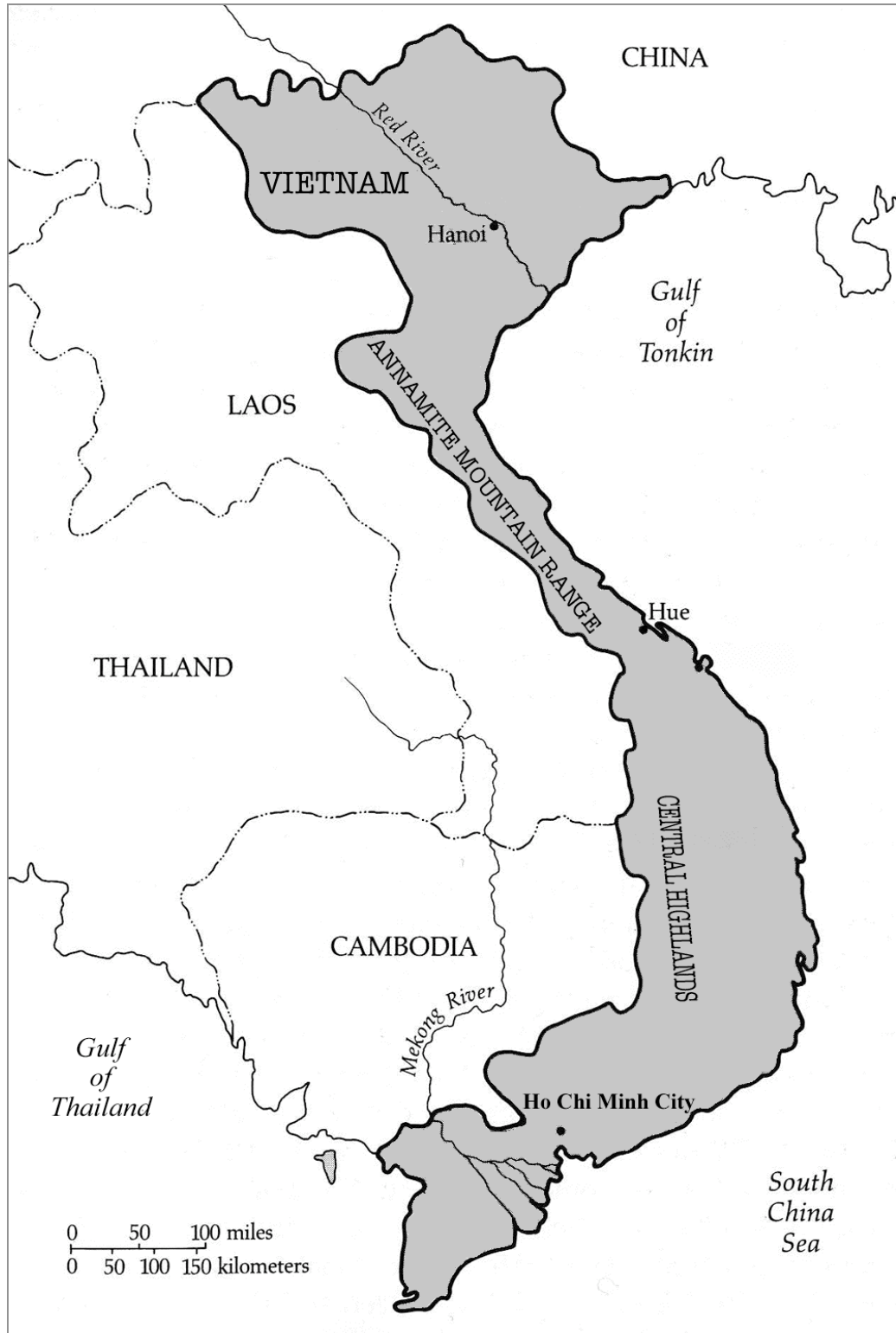
This research takes place in the context of rapid socio-economic change and in a culture very different from those in which conservation practice is typically devised. The background literature reviewed in this chapter is drawn upon to interpret the findings presented throughout the thesis and provides important background material for the reader.

2.1. Population and Geography

Vietnam reaches from China in the north to the Gulf of Thailand in the south (Figure 2.1). Its capital, Hanoi, sits at the confluence of three rivers flowing through the northern Red River delta to the South China Sea (Duiker 2002: 16). Home to over two million people and almost a matching number of motorbikes, Hanoi is a congested cacophony of life (Boudarel & Nguyen 2002; Nguyen 2002b; VietnamNet 2007). Ho Chi Minh City, formerly Saigon, is Vietnam's centre of industry, located in the southern Mekong Delta (Ashwill & Diep 2005). These two productive deltas are joined by a thin 1500km band of coastal lowlands, alongside inland hilly and mountainous regions (Jamieson 1993; Ashwill & Diep 2005). The climate is warm moist tropical in the south and moist subtropical in the north, with temperate zones above 2000m (Ashwill & Diep 2005).

With an estimated population of 88 million in 2007, Vietnam has the thirteenth largest population in the world (UN 2006). Ninety percent of the population are ethnic Viet, and the remainder comprises 52 different ethnic groups (Ashwill & Diep 2005). The largest minority group, the Han Chinese, are typically based in urban areas and known for their involvement in business (Ashwill & Diep 2005) and links to wildlife trade (Nooren & Claridge 2000). The dominant Viet population is concentrated in the Red River Mekong Deltas (Jamieson 1993).

Figure 2.1 Map of Vietnam adapted from Jamieson (1993: 4)



Most ethnic minority groups live in the central and northern highlands. These groups are often considered by Vietnamese government bureaucrats to be backward, ignorant and irrational (Jamieson 1996 in van der Walle & Gunewardena 2000; Neef et al. 2000) and are viewed negatively by the Viet majority (van der Walle & Gunewardena 2000). The practice by many ethnic minority groups of shifting cultivation is also widely perceived unsustainable and a threat to both security and natural resources (Neef et al. 2000). Government policy has attempted to encourage a switch from shifting to permanent cultivation by offering greater security of land tenure, but Neef et al. (2000: 12) observe that this has in fact led to more intensive exploitation in parts of upland northern Vietnam.

2.1.1. Biodiversity

Located in 'Indo-Burma', Vietnam is in one of twenty-five 'biodiversity hotspots' selected for their exceptional densities of endemic species (Myers et al. 2000). Boasting an exceptionally high proportion of endemic species, the country is consistently ranked in the top twenty most biodiverse countries in the world (Pilgrim & Nguyen 2007). The Central Highlands and the Annamite mountain range are the most diverse regions of Vietnam, home to recently discovered mammal species including the Saola (*Pseudoryx nghetinhensis*) and the large-antlered muntjac (*Megamuntiacus vuquangensis*) (Warne & Tran 2002; Robertson et al. 2004). Large numbers of plant, reptiles and amphibian species, three new bird and two further mammal species have also been discovered in the last fifteen years (Sterling et al. 2006 in Pilgrim & Nguyen 2007). But an estimated 28% of mammals, 10% of birds and 21% of reptiles and land amphibians, amongst others, are threatened and recent extinctions include that of the Tapir (*Tapirus indicus*) and the Sumatran Rhino (*Dicerorhinus sumatratrensis*) (Warne & Tran 2002).

2.2. A Brief History

For many, thinking of Hanoi summons the horrors of a controversial war that continues to haunt the West. But to the Vietnamese the 'American War' is one of many conflicts that this resilient people and their now modern, bustling capital have endured. Hanoi - first known as *Thăng Long* or 'Rising Dragon' - has been a capital city since independence of the first Vietnamese state of *Đại Cồ Việt* from

Han rule in 1001AD (Boudarel & Nguyen 2002; Duiker 2002). Following repeated occupations, the Le Dynasty finally ejected the Chinese in 1428AD and began extending the Vietnamese borders southwards (Duiker 2002).

However, over the following centuries discord brewed between the two most powerful noble families, one in the north, the other in the south: while the south established links with international trade and became increasingly prosperous, the north remained highly traditional and introspective, instituting a cultural rift that was to have a major impact on the country (Duiker 2002). In 1802, in an effort to reunify the north and south, the new Nguyen Dynasty (1802-1945) moved the capital to *Huế* in central Vietnam; losing its status as an imperial city *Thăng Long* was renamed *Hà Nội* meaning 'amid the rivers' (Duiker 2002).

In the 1860s French troops defeated imperial armies near Saigon and the Mekong Delta became Cochinchina; two more years and the French had claimed the entire Vietnamese empire (Duiker 2002). Hanoi once more became capital, but now of the French empire of Indochina (Boudarel & Nguyen 2002). Briefly occupied by Japan during World War II, Hanoi was finally reclaimed as the capital of the Democratic Republic of Vietnam (DRV) when the Japanese surrendered in 1945 (Duiker 2002).

But the conflict did not end there. With the French pushing to restore colonial rule, the Vietnamese launched a guerrilla struggle for independence (Duiker 2002). A ceasefire was reached in 1954, albeit one dividing Vietnam into a communist north and a non-communist south, and Hanoi once again became the capital of the DRV (Boudarel 2002a; Duiker 2002). As revolutionary leader Ho Chi Minh sought reunification, increasing civil unrest in the south in 1965 prompted US President Johnson to order B-52 raids on the north (Duiker 2002). A long and bloody war ensued, concluding in US withdrawal in 1975. After over 100 years of conflict, Hanoi – its old quarter relatively unscathed – became the capital of a reunified state: the Socialist Democratic Republic of Vietnam (Duiker 2002).

2.3. Vietnam Today: Politics and Economy

Vietnam is a one-party communist state, and following a century of conflict and political change, the Vietnamese are now largely depoliticised (Boudarel 2002b). In 1986, following an extended period of strict rationing, Vietnam launched a new policy of economic renovation (*Đổi Mới*). This liberalised the nation towards a multi-sector, socialist market economy, culminating in its admission to the World Trade Organisation (WTO) in 2007. Allowing private ownership and introducing market mechanisms represented a major shift from the previous fully subsidised and centrally planned system whereby the state provided everything from goods and services to jobs, housing and ideology (Nguyen 2004).

The results have been dramatic. The country has undergone exceptionally rapid economic growth, experiencing a rise of 6.9% in GDP per capita during 2006, and making it the third fastest growing developing economy in the world (World Bank 2007). What was an export income of USD6.6billion in 1986 has since exceeded USD73billion, with the United States and Japan providing the largest single-country markets for Vietnamese export products including coffee, rice, seafood and oil (Ashwill & Diep 2005; World Bank 2007). Vietnam has also become a major tourist destination, with the industry reported to have earned the country USD3.5billion in 2007 (Thanh Nien 2008).

These economic gains have been particularly impressive for urban residents and there is evidence of this growing affluence throughout Hanoi. For example, in 2002, the luxurious '*Trăng Tiên Plaza*' replaced the basic 'Hanoi State General Departmental Store' in the heart of the city, and not only has there been a marked increase in the luxury consumer goods available, but the ability to access these goods is being used to mark success (Thomas & Drummond 2003). In particular, a budding market of wealthy youth is eager to consume goods, but typically with a Vietnamese dimension (Thomas & Drummond 2003).

Although social transformation arising from the 'consumer revolution' has been well documented in urban China (e.g. Davis 2000b; Latham et al. 2006), similar trends in Vietnam have received less attention. Nevertheless, many of the patterns

documented in urban China resonate with those emerging in contemporary urban Vietnam. In China economic reform has seen greatly increased expenditure on goods and services and has permitted greater independence in terms of socialising (Davis 2000a; Latham 2006). While in the past feasting was restricted to those with political power, restaurants have proliferated and households are spending an increasing proportion of their budgets on eating out (Davis 2000a). Another common trend is for increasingly elaborate birthday celebrations including special meals and gift exchange (Davis & Sensenbrenner 2000).

Vietnam's prosperity has come at a cost. Building a market economy and simultaneously maintaining political control of national affairs has permitted widespread corruption and a broadening divide between rich and poor (London & McCargo 2000; Duiker 2002). Unemployment, drug misuse, prostitution and suicide have become more common (Duiker 2002; Thomas & Drummond). While the price of land in Hanoi is phenomenally high, the average monthly salary of a young person is disproportionately low, at around USD40 (Nguyen 2002b). There is also growing inequality: the Gini Coefficient for Vietnam increased from 0.34 in 1992 to 0.42 in 2001 (Weeks et al. 2004). The largest disparities are found in large urban areas, particularly Hanoi and Ho Chi Minh City, where some of the richest households in the country reside alongside others whose income is barely higher than in rural areas (Minot et al. 2003).

Renovation has served to liberate Vietnamese society in many areas (Boudarel & Nguyen 2002). But, despite a chief part of *Đổi Mới* being about encouraging intellectuals to highlight deficiencies in the system, the party maintains its belief that economic reform can only be achieved with political solidarity and has maintained a strong line against dissidents (Duiker 2002). While the government warrants praise for upholding stability (Boudarel 2002b), it now needs to decide whether short-term economic growth should be prioritised over broadening human liberty in the long-term (Duiker 2002). However it is likely the latter will be achieved through a gradual changes within the current system rather than from external pressure from society (Dixon 2004).

2.4. Culture and Philosophy

Despite centuries resisting Chinese rule, the Vietnamese adopted many aspects of Chinese culture, even assuming their socio-political system based on a strict interpretation of Confucian philosophy (Boudarel & Nguyen 2002). Although Buddhism remained important during the Ly Dynasty (1009-1225), evidence of the Confucian revival - which continued during the succeeding Tran Dynasty (1225-1400) - can still be seen in the Temple of Literature dedicated to Confucius in central Hanoi (Jamieson 1993). Neo-Confucianism became a truly dominant force in Vietnamese ideology following a further Chinese incursion by the Ming in the 15th century, then under the subsequent Le Dynasty (1428-1788). This was vigorously reinforced by the most recent Nguyen Dynasty aiming to make Neo-Confucianism the basis of Vietnamese culture, laying the foundations of culture and philosophy today (Jamieson 1993).

Over centuries, Taoism, Buddhism, and Confucianism became entwined and simplified to create a Vietnamese folk religion also incorporating relics of former animistic beliefs (Jamieson 1993). Today most Vietnamese identify themselves as Buddhist whilst also practicing ancestor worship (Matthews 1992; Pelzer 1992). There has been a recent surge in religious activity including a new phenomenon of mass, largely recreational, pilgrimages to temples and shrines, enabled by vastly increased mobility and greater religious freedom, and perhaps partly driven by a need to reinforce Vietnamese identity in a rapidly changing socio-economic climate (Soucy 2003; Taylor 2004).

At least in the north, more recent Western occupation led to juxtaposition rather than a fusion of cultures, leaving little imprint beyond French cuisine and architecture (Boudarel & Nguyen 2002). Likewise, modernisation is thought to have had a limited impact on daily life in Hanoi, with western influence perhaps most evident amongst the most privileged urbanites (Boudarel & Nguyen 2002). For example, rather than guests at banquets drinking rice wine, whisky is instead selected by wealthy individuals as a sign of distinction and contemporary knowledge (Nguyen 2002a).

2.4.1. Identity and 'Face'

Markus and Kityama (1991) outline independent and interdependent constructs of self. The former, dominant in Western cultures, is entrenched in the belief that individuals are discrete entities with the inner self foremost in regulating behaviour. The latter, dominant in East Asian cultures, is based on the basic belief that humans are interconnected and results in identity lying in familial, cultural, professional and social relationships. The centrality of social relationships and public perceptions to identity results in the Asian focus on 'face' whereby individuals are extremely concerned about others' perceptions of them and the preservation of their status (Wong & Ahuvia 1998). If an individual's personal preferences conflict with others' expectations of them, a strong individual is expected to withhold internal feelings in order to act in a way that facilitates relations and realises group goals (Wong & Ahuvia 1998).

The concept of face has Chinese origin, a literal translation of the Chinese terms *lien* – which “represents the confidence of society in the integrity of ego's moral character the loss of which makes it impossible for him to function properly within the community” - and *mien-tzu* – “a reputation achieved by getting on in life through success and ostentation” (Hu 1944: 45 in Ho 1976). While *mien-tzu* can be gained and lost, *lien* can only be lost because one is always expected to behave appropriately; one may lose face when behaviour is unacceptable or if the demands of one's social rank are not fulfilled (Ho 1976). Due to the reciprocal nature of social expectations, loss of face may not only occur when an individual fails to meet his/her responsibilities but also if others fail to conduct themselves according to his/her expectations of them, i.e. it is not only one's own actions but also treatment one receives from others that can cause loss of face (Ho 1976). Face is extremely important, meaning the desire to gain and save face is a powerful social force (Ho 1976).

2.5. Traditional Medicine: Philosophy and Practice

The Chinese and Indian Ayurvedic medical systems are the oldest continuous surviving medical traditions (Jewell 1983). The central concern of Chinese medicine is the *Dao* and the dynamic balance of the whole (Jewell 1983; Sivin

1987). Underlying many of the ideas in Chinese medicine, and Chinese traditional culture, are the theories of *chi*, *yin* and *yang* (Liu 2002). *Chi* is 'vital energy' or 'strength' while the poles of *yin* and *yang* are the most basic division of the cosmos in dynamic equilibrium: *yin* is feminine and 'cooling', *yang* is masculine, and 'heating' and health is the result of a dynamic balance between them (Jewell 1983; Sivin 1987). Illness is avoidable, and health and longevity possible, if harmony is sustained (Jewell 1983; Liu 2002). Prevention is therefore key. Food is necessary to maintain health and so it follows that a balanced diet is important for preserving harmony and restoring vital energy (Anderson & Anderson 1975).

As a result, since antiquity, the Chinese have been preoccupied with maintaining balance through the use of medicinal foods and tonics (Simoons 1991; Swanson 1996). This is also true of Vietnam where food is fundamental to health, and where tonics, medicines and food are used for both prevention and cure; in fact, tonics which have generally restorative and strengthening powers, rather than any curative purpose targeting the specific condition, comprise over half of Sino-Vietnamese *Materia Medica* (Craig 2002). Tonic consumption is often part of a daily routine for many Vietnamese men; the tonic is typically stored in a large glass jar filled with rice alcohol with a selection of expensive herbs and/or wild animals perceived as 'potent' (Craig 2002). For many men, a jar of tonic kept in a prominent and conspicuous place is a symbol of respect and identity, as well as preventative medicine (Craig 2002).

In Vietnam classical Chinese or 'northern' medicine (*thuốc bắc*) and the official state system are practised beside the more empirical grassroots 'southern' medicine (*thuốc nam*) (Hoang et al. 1993; Craig 2002). Northern medicine in Vietnam is a regional form of Chinese medicine that draws heavily from Chinese *Materia Medica* and philosophy (Craig 2002). The Vietnamese also distinguish traditional medicine from Western medicine (*thuốc tây*) (Craig 2002). Western medicines are considered fast acting and combative, but also temporary fixes with no durable outcome; they may cause further disorder and have harmful side effects, and so are considered toxic and 'hot'. Although often considered more convenient, scientific and 'modern' they are often also perceived to be addictive,

expensive and fake (Craig 2002). Traditional remedies, on the other hand, are viewed as 'cooling', natural, attuned to the body, nutritious, affordable, and are more widely trusted; they produce few side effects and work gradually, treating the whole and restoring long-term health (Craig 2002). Today it is estimated that three quarters of Vietnamese primarily use traditional medicine for common health problems (Nguyen & Nguyen 2008).

Talking about body and health, exercise, weight, appearance and vitality, and the giving and receiving of advice on food and medicine, are all major aspects of everyday conversation in Vietnam (Craig 2002). As in China, health, diet and the health properties of food frequently arise in daily conversation; dietary advice is regularly given in newspapers and advertising; and certain medicinal foods and remedies are preferred gifts to senior male acquaintances (Anderson 1988; Simoons 1991; Farquhar 2002; Lo & Barrett 2005). Moreover, rising living standards in the region have been associated with an increasing popularity of traditional medicine, particularly amongst urbanites (Farquhar 1994). This is demonstrated by all three of Hong Kong's universities recently introducing degrees in Traditional Chinese Medicine (Nooren & Claridge 2000), and by a survey of Hong Kong Chinese that found that a third of interviewees had used TCM and a fifth used it regularly (Lee et al. 1998).

2.5.1. Medicine, Food and Medicinal Food

Throughout Asia, food and medicine are famously difficult to disentangle (Craig 2002; Farquhar 2002). In TCM philosophy, medicine and food have four thermostatic properties - cold, cool, warm and hot - and five flavours - pungent, sweet, salty, sour and bitter (Jewell et al. 1983; Lo 2005). These properties determine the effects they have on the movements within the body, and which organ systems and symptoms are affected (Lo 2005). The properties and flavours of the medicines and foods selected depend on the season and also according to the needs of the individual determined by factors such as age, gender and physiological condition (Swanson 1996). Most Chinese react immediately to illness by changing their diet, and this nutritional therapy gradually shifts into herbal medicine with no real distinction made between each approach (Anderson 1997).

Although most diet therapy is based on the humoral dimensions outlined above, the concept of *pu* is also important (Anderson 1997). *Pu* foods make or strengthen *chi*, tend to be high in protein, and are often from animals that are striking in appearance (Anderson & Anderson 1975). In other words, there is an element of sympathetic medicine at work, with the ferocity or sexual prowess of an animal believed to be transferred to the consumer (Donovan 2004). Animals from the wild are often thought to have the most medically potent or strengthening meat because they eat naturally occurring foods and survive harsher conditions than domestic animals (Cotterel 1986; Anderson 1988). Nevertheless, rare foods are also partly considered *pu* due to their peculiarity and expense, and conspicuous consumption is an important driver of their consumption (Highley & Highley 1994; Anderson 1997).

Pu foods considered 'strengthening' are also the nearest thing to aphrodisiacs in TCM and because sexual performance is highly responsive to placebos TCM has had limited cause to separate the power of suggestion from active medicinal ingredients (Anderson 1997). In Vietnam the dining room is a typically male domain and sexual function is a popular theme of conversation, and an area in which the concepts of *yin* and *yang* are most commonly applied (Craig 2002). A 'strong' or 'hot' male is seen as having a stronger reproductive system and a greater chance of producing a male child; male virility is therefore associated with heat and Yang qualities and hence 'hot' foods and tonics that nourish *yang* are important (Craig 2002). In China, female anthropologist Farquhar (2002: 60) was refused certain meals because they were designed for the physiology of middle-aged men, to improve "functional masculinity". In a recent article, a traditional medicine practitioner advised a reporter that seahorses can aid blood circulation to reduce impotence and eating turtle meat can also enhance sexual pleasure (Thanh Nien 2007). Such concepts should not be considered unique to East Asia. For example, the Lele of West Africa hope to access the pangolin's fertility by consuming them (Douglas 1966) while, in the West, Fiddes (1992) suggests the macho steak is the most obvious expression of the concept that meat, and

particularly red meat, is a typically masculine food capable of sending strong sexual signals.

2.6. The Social Roles of Consumption

Much has been written about consumption as a means of communication (e.g. Douglas & Isherwood 1979; Appadurai & Appadurai 1986; Belk 1988). The literature focuses particularly on the consumption of food, its daily importance making it central to social discourse (e.g. Appadurai 1981; Goody 1982; Douglas 2003). It is also acknowledged that while food has long been richly symbolic and used as a means of communication in all cultures, this is especially the case in Asian cultures, and in China in particular (Manderson 1986; Swanson 1996). Anderson and Anderson (1977: 366) write:

“Many a non-Chinese has come away from a meal cursing the “inscrutable” Chinese for saying nothing but bland, polite phrases, when the meal itself was the message, one perfectly clear to a Chinese. In short food management is critical to all harmony – in one’s own body, in one’s social life, and in one’s interactions with the world.”

Food tells us not only how people live but also the way in which they define themselves and others, reflecting our daily lives, ideas, aspirations and interpretations of the food eaten by those with whom we want to identify (Fiddes 1992). Sharing food is a particularly symbolic means of sharing group identity because it so visibly integrated into self (Belk 1988). In China the style, splendour or simplicity in the preparation and presentation of food, the act of eating and the presence or absence of others during a meal, the expression of ideas and knowledge regarding the consumption of certain foods at certain times and in combinations with certain others, may all give clues as to an individual’s roles, affiliations, age, gender, class, ethnicity and status in society (Manderson 1986). For these reasons, even when people do not associate medicinal benefits with, or dislike consuming, certain foods, they may continue to eat such foods to maintain group identity as well as in order not to offend others (Swanson 1996).

Such discrimination is particularly important in highly hierarchical societies where diet and knowledge about food varies with income and access, and reinforcing a place in the social hierarchy may involve conspicuous consumption of good

quality, expensive, or novelty foods (Anderson 1988). Douglas and Isherwood (1979: 44) argue that the more discrete ranks in a society, the more types of food will be needed. Certainly, both Vietnam and China are famed for their extraordinarily diverse cuisine. In Vietnam, for example, there are different dishes and drinks that correspond to sex, age and almost any time of the day and season (Nguyen 2002a).

As well as projecting self-image, feasting and eating out can also serve to transform informal sociability into important economic and political networks (Davis 2000a), central to forming and structuring socio-political alliances (Hayden 2003). In China, celebrations invariably involve feasting (Hsu & Hsu 1977). Business and other important affairs are typically discussed over a formal meals in restaurants, while families may also dine in restaurants on special occasions such as reunions (Anderson et al. 1977; Donovan 2004). The types of food served at these important food exchanges signifies both the importance of the occasion and the guests, and the gratitude of the host (Cotterel 1986): the more important the event, the better and the wider the range of food must be (Anderson et al. 1977; Manderson 1986; Simoons 1991). Throughout Southeast Asia feasts also communicate status and prestige and guests should be left feeling both “impressed and indebted” (Donovan 2004: 95).

Van der Veen (2003: 414) summarises feast types after Dietler (1990; 1996): ‘celebratory’ feasts strengthen social relationships between individuals of similar social status, or those of varying social status on occasions with no competitive dimension; ‘entrepreneurial’ feasts raise the prestige of the host and oblige the guests to reciprocate, enabling the host to gain social or economic advantage; ‘patron-role’ feasts assert existing differences in status and authority but guests are not obliged to reciprocate equally; ‘diacritical’ feasts accent differences in social standing, particularly emphasising exclusivity. The first three types of feasts convert economic capital into symbolic capital - i.e. “the acquisition of a reputation for competence and an image of respectability and honourability that are easily converted into political positions” (Bourdieu 1984) - while the latter type converts economic capital into cultural capital (van der Veen 2003).

2.6.1. Prestige Foods

Although the term 'prestige food' is widely used, there is no agreed definition. It is also important to note that foods are not intrinsically symbolic or prestigious, they are simply used to symbolise, i.e. they are the medium through which prestige or status is communicated (Fiddes 1992). Jelliffe (1967: 279-80) writes:

"All cultures have prestige foods, which are mainly reserved for important occasions or, even more, for the illustrious of the community. Examination suggests that, even in vegetarian societies, these are usually protein, frequently of animal origin. They are usually difficult to obtain, so that they are expensive and relatively rare. In the western world they may have been hunted wild, as opposed to domesticated, or imported from distant regions. Lastly, and of much significance, they may quite often have been long associated with the dominant socio-historical group, as for example with 'game' in western Europe"

Similarly, Hayden (1996) describes feast foods as the rarest and most labour-intensive in production or preparation (in Van der Veen 2003). It is perhaps also relevant to note that Levi-Strauss (1966 in Fiddes 1992) argued roasting was the most esteemed method of cooking meat in many societies because it incurred most waste. Likewise, Chang (1977) notes the profligate waste of banquets hosted by the royal imperial court in China. Indeed, Fiddes (1992) suggests meat is valued *because* it is expensive in terms of production and the environment rather than *despite* it. Similarly, it is possible rare wild animals are valued *because* of the environmental cost of consuming them.

Jelliffe (1967) also relates the prestige value of animal meat to its association with historically dominant social groups. In China, as well as Europe, hunting parks have historically restricted access to valued wild animals to the elites (Schafer 1968). Fiddes (1992) argues hunting wild game being an activity largely restricted to the privileged and powerful is consistent with the importance of meat as a 'natural symbol' of domination over human and natural resources.

Important food exchanges and banquets in China are said to typically to involve 'prestige foods' rather than those eaten everyday (Anderson et al. 1977; Manderson 1986; Simoons 1991). Marco Polo observed the meat of larger animals being consumed by the wealthy upper classes in China (Goody 1982), while

Anderson et al. (1977: 373) note Chinese prestige foods including shark fin soup, bear paw and bird's nest soup, and are all of animal origin; they continue:

“Many of the famous oddities of Chinese cuisine, like those just named, were used, not for their taste or curiosity value, but for their status-marking and occasion-marking functions. Because they are rare and expensive and conspicuous they carry the message: This is not just an ordinary feast; we have done something truly special. Of course, the higher the status of the host and the more special the occasion, the higher the rank of foods served; rank is pretty well determined by price”.

2.6.2. Contemporary Urban Consumption Trends

Although argued by some to be obsolete with regards to contemporary consumption (e.g. Abramson & Inglehart 1995 in Wong & Ahuvia 1998), the term ‘conspicuous consumption’ is nevertheless used to describe current consumption behaviour both in the West (e.g. Bourdieu 1984: 34) and in East Asia (e.g. Davis 2000a: 16; Latham 2006: 2). In fact, due to the importance of face, Wong & Ahuvia (1998) argue visible public consumption is more important for Southeast Asian than Western consumers, making them more likely to focus on goods with high symbolic value. Certainly, Hanoians have been noted in particular to be extremely status-conscious (Fforde 2003; Matthaes 2006) while, in China's cities, conspicuous consumption is manifest (Harris 2006). It may be unsurprising then that East Asian countries are now important markets for highly luxurious goods (Wong & Ahuvia 1998; Davis 2000a).

Furthermore, Wong and Ahuvia (1998: 432) argue, because East Asian societies are highly hierarchical and rank is primarily determined by economic advancement, East Asian consumers are more likely to use goods to symbolically assert status. While it may seem inappropriate to apply this argument to an emerging socialist economy and culture inclined to Confucian humility, evidence of increasing individualism and a focus on economic attainment is emerging in Vietnam. For example, in place of politics, young people in Hanoi are said to now have a value system based on wealth (Boudarel & Nguyen 2002: 6). Individualistic goals focusing on educational attainment and economic status have also become increasingly common (Davis & Sensenbrenner 2000; Nguyen 2004).

Concurrently, Wong and Ahuvia (1998: 437) highlight that, in contrast to consumers in individualistic societies, conspicuous consumption by those with an interdependent self-concepts may not reflect personal preferences or goals but rather the value they place on conforming to social norms in a “materially-focused, family-oriented, and hierarchical culture”. Those with interdependent self-concepts integrate other group members into their identity, meaning they are not acting independently but as a group representative. Amongst these consumers, owning luxury goods is therefore not viewed as a self-centred focus on personal wealth but rather demonstrates one’s social virtues in satisfying familial duties (Wong & Ahuvia 1998).

Greater freedom in sociability in China, permitted by the reduction in state control over the flow of commodities, has led to a shift from vertical relationships between subjects and state officials towards more horizontal networks of informal social relations (Davis 2000a: 3). Wang (2000) highlights the importance of luxury services and goods in terms of building such socio-political relationships: in 1990s urban China, when dance halls and McDonalds were widely accessible and therefore epitomised mass culture, bowling was prohibitively expensive, but rather than use this expense to exclude others, those who could afford to consciously and strategically used their ability to play host, so as to advance their careers and gain ‘protection’ from state officials (Wang 2000). Government bureaucrats retain the power to influence commercial pursuits and hosting expensive leisure activities is an ideal method of building personal networks and making those in power sympathetic to one’s needs (Li et al. 2000). In this way state officers enjoyed luxury goods and services in line with their authority but often beyond their personal incomes (Davis 2000a). Moreover, luxury goods - having great symbolic value - are highly appropriate for gift giving, encoding esteem for the recipient and also bringing honour to the giver by displaying the ability to afford such a gift (Wong & Ahuvia 1998). While on the surface such exchanges may appear friendly, individuals often offer gifts to superiors under, as a minimum, unspoken force (Stafford 2006).

2.7. Summary

In addition to being one of the most densely populated countries in the world, Vietnam is also one of the most bio-diverse. Following a turbulent century of conflict, political upheaval and poverty, Vietnam entered the twenty-first century with one of the most rapidly growing emerging economies in the world and became a member of the WTO in 2007. Growing affluence in urban centres has led to increasing expenditure on goods and services, including eating out at restaurants. There is a thriving market for luxury commodities being used to mark success. Neo-Confucianism forms the foundation of Vietnamese culture and philosophy today. Chinese in origin, the concept of face is extremely important in Vietnamese society and Hanoians in particular are said to be highly status-conscious. Due to the hierarchical, collective nature of many East Asian societies, it is argued that East Asian consumers focus on goods with high symbolic value, and are more likely than Western consumers to conform to social norms.

Traditional Chinese medicinal beliefs also form the basis of Vietnamese medicinal philosophy and practice. Illness is considered avoidable as long as harmony is maintained through the use of medicinal foods and tonics. Food is fundamental to health and restorative and strength-giving tonics and food are widely used for both prevention and cure. Foods that make or strengthen *chi* tend to be high in protein and from animals striking in appearance; wild animals are thought to produce the most strengthening meat and medicinal products. Food, and eating food, is also highly symbolic and a means of communication in all cultures, but especially in Asian cultures, and in China in particular. 'Prestige foods' are foods through which prestige is conveyed and tend to be rare and of animal origin. Conspicuous consumption is thought to be a major part of the consumption of rare foods believed to reinforce *chi*.

3. Methods

3.1. Research Permission

There is no formal system of obtaining research permission in Vietnam. Instead researchers must align themselves with relevant non-governmental organisations and/or educational institutions that already have official permission to work in the area in question. Having approached several relevant university departments - and found all welcoming but none willing to support research specifically into the consumption of wild animals - I began approaching non-governmental organisations (NGOs). The Wildlife Conservation Society (WCS) was very supportive, and here, along with local NGO, Education for Nature Vietnam (ENV), I received the help I needed to get the pilot study underway. Both organisations agreed to support the work in the form of endorsement, if and when needed.

3.2. Fieldwork Schedule

Data were collected during a single field season from May 2006 to August 2007. The first three months were dedicated to language training and making contact with relevant university departments and NGOs. During the following four months I concentrated on focusing the research and piloting research methods before finally returning to the UK to upgrade in December 2006. January 2007 was spent carrying out further trials, and recruiting and training staff before launching the questionnaire survey in February and the semi-structured interviews in March.

3.3. Working in Hanoi

Wildlife consumption is particularly prevalent in urban areas where growing numbers of consumers with disposable income are contributing to rising demand for wildlife-derived products. Hanoi is also a central node for wildlife trade traversing Vietnam and wildlife consumption, as well as the political, administrative and educational centre. As such, this study focuses on the rapidly developing capital of Hanoi where consumers contributing to expanding domestic wildlife markets are concentrated and where informants key to the research can be accessed easily.

The quality of data is influenced by the ways those collecting the data are perceived by those being interviewed (Bernard 1995). So despite the overwhelming size of the city, I made every effort to engage with the Hanoian community. I began my time in Hanoi living with a family and then used my fledgling language skills to find a rented flat in Hanoi advertised in a Vietnamese newspaper in a Vietnamese area⁵. Landlords need official permission to rent to foreigners so finding such a flat was fortunate but as it turned out not entirely legitimate. Inevitably, after eight months I was given notice and duly became one of many foreigners in a purpose-built block.

I invested considerably in language training both in London and on my arrival in Hanoi. Initially I found that this was largely useless: it was five or six months until I became sufficiently adept at differentiating between the language's six tones in order to be able to begin to apply what I had learnt, and I regret that by that point the research had become too time-consuming to resume Vietnamese classes. Nevertheless, though unable to conduct interviews myself, I was able to hold basic conversations and this I believe went some way in gaining the trust of those who participated in the research.

Given the role of the researchers on the data obtained and the way it is interpreted, it is also important to note here my own positionality in this research. I am a conservationist with a background in zoology and, more recently, in anthropology and the human ecology of development. I am not opposed to extractive use of wild species on either ethical or moral grounds - indeed I believe direct use of wild species can contribute to successful conservation when management is well-informed and tailored to individual species and systems - but rather aim to ensure levels of extraction are kept within biologically sustainable limits.

3.4. Quantitative Methods

Quantitative methods such as structured surveys comprising mainly of closed questions have the advantage of simplifying and speeding up questionnaire completion and analysis. They are convenient and able to cover a large sample in a

⁵ The majority of foreigners in Hanoi live in an area north of the city called *Tây Hồ* or West Lake.

limited time frame, and due to the large size of the study population, I felt a structured questionnaire survey was necessary to obtain a sufficiently large sample size to answer questions about the scale of wild animal consumption, the characteristics of consumers and the context of consumption events.

Standardised questionnaires have been criticised for being artificial and contrived, and lacking the sensitivity to explore difference, inconsistency or meaning (Burton 2000). Cicourel (2004) argues that closed-question questionnaires create 'grids' through which our understanding of social process becomes distorted because they are hypothetical situations reflecting the perspective of the researcher. Rather than producing knowledge about reality, some argue that questionnaires instead produce a reflection of the ideology of the researcher, the acceptance of which advances particular interests (De Vaus 1996). There is also a danger that the validity of numerical data resulting from questionnaire surveys is treated as a given and in-built bias neglected in analysis (Hammersley & Gomm 1997).

Nevertheless, questionnaires are valuable if carefully designed, appropriately applied, sufficiently piloted, and where their inherent weaknesses are considered in analysis (De Vaus 1996; Burton 2000). The extent to which questionnaires generate good measures depends on question reliability and consistency in approach (Burton 2000). Therefore, to minimise the effects mentioned above and to help interpret survey results, it is essential that questionnaires are meticulously designed and rigorously piloted, and used in conjunction with more qualitative methods. For example, questions must be well tested so that the response categories reflect responses provided; options should be mutually exclusive and exhaustive, with space for qualification in the case that, despite testing, answers are forced into a category where they do not belong (Moser & Kalton 2004).

The questionnaire was developed over a three-month period during which a series of trials was completed. The final questionnaire comprised of almost entirely closed questions including a series of attitude scales; questions regarding wild animal product consumption; a measure of general scientific knowledge of wild animals and of awareness of conservation-related information; items investigating

interactions with wild animals including the consumption of wild meat and other wild animal-derived products; media access and recollection of any wildlife-related information; and respondent characteristics (Appendices A and B). Because of its reported dominance in domestic consumption (Nguyen 2003; Venkataraman 2007), respondents were asked to give details of any wild meat consumption prior to being asked to report on the consumption of any wild animal products besides wild meat (further details are given in Chapter 4). The questionnaire went through several stages of translation and back-translation by two independent translators to ensure no loss of the meaning and the use of everyday, accurate and familiar Vietnamese phrasing.

Questionnaires can be completed face-to-face with interviewers or self-completed as a postal or hand-delivered survey. Face-to-face approaches have many advantages. They give scope for the interviewer to probe, clarify, use visual cues and to create rapport and trust, allowing them to ask more sensitive questions. This also encourages the respondent to participate and complete the questionnaire, resulting in higher completion rates and enabling the use of a longer and more complex questions (Oppenheim 1992; Burton 2000). By comparison, self-completion questionnaires, although avoiding interviewer bias and being less costly and time consuming, are vulnerable to a high level of non-response, lack opportunity for clarification precluding the inclusion of complex questions, and need to be kept short so as not to lose respondents' interest. Due to the sensitivity and complexity of some topics in this study, and in order to limit non-response and enable a longer questionnaire, all methods were completed face-to-face.

3.4.1. Researching Wildlife-Related Knowledge and Awareness

Many researchers have attempted to measure environmental knowledge. Some studies ask respondents to estimate their own level of knowledge on a given subject (e.g. Mostafa 2006), but are criticised for lacking objectivity. Others measure environmental knowledge using multiple-choice questions (e.g. Chan 1999) or factual statements with true or false options (e.g. Kellert 1991a), and are criticised because even experts sometimes disagree on the correct response. And yet others assess knowledge based on responses to open-ended questions which

are later coded (e.g. Arcury & Christianson 1993); although this method enables the respondent to demonstrate their knowledge in their own words, it is subject to coder bias and limited by the eloquence of the respondent.

Because issues related to wildlife conservation are often complex and subject to debate, this study initially attempted to measure wildlife-related knowledge and awareness using the latter method. However, a pilot study with the central Hanoi public (n=40) demonstrated that the detail and length of responses were heavily influenced by the respondent's enthusiasm and their environment: some respondents had many distractions while others had none, and some were put under pressure or assisted by others around them. Unbiased post-hoc recording also proved difficult and the information recorded was open to further bias from the Research Assistants (RAs) who recorded, and later translated, the responses. For this reason, a series of multiple-choice and true and false questions were considered more appropriate for the questionnaire survey. As well as reducing coder bias, respondents could self-complete these questions at their own pace, rather than discuss them aloud, reducing the likelihood of assistance or pressure from those around them.

This method assumes that wildlife-related knowledge and awareness is quantifiable on a linear scale. Moreover, although care was taken to develop and test as constructive and relevant a measure of wildlife-related knowledge, the measure was designed from Western perspective; as such it is embedded in western scientific and cultural concepts and may not adequately capture alternative knowledge bases that might be considered constructive in forming wildlife-related attitudes and behaviour by others. To explore awareness and knowledge of wildlife-related issues in more depth and to triangulate quantitative results, this is also explored in SSIs.

A large pool of seventy true or false items and multiple-choice questions was created. These were translated into Vietnamese and back translated to ensure no loss or distortion of meaning. Questions focused on national fauna and excluded ambiguous items focusing only on statements that are widely considered fact.

These items were then distributed to Vietnamese respondents (n=35) including NGO staff, students and the general public. These respondents were asked to answer each item and also to rank items in terms of their difficulty along a Likert scale of one to five from 'very easy' to 'very difficult'; items consistently ranked and which successfully differentiated between respondents were then used to construct a final measure (Appendices A and B). These were then piloted within the questionnaire (n=40).

There is some debate over whether to include a 'don't know' option as a response in a true or false scale. Some argue (e.g. Mondak & Anderson 2003) that it should be excluded on the grounds that respondents vary in their propensity to guess: some respondents will be more cautious than others and if you exclude 'don't know' you force these make a guess based on their background knowledge; on the other hand, by excluding the 'don't know' option there is the risk that a respondent who is genuinely ignorant on the subject in question may score highly based purely on guess. However, a study investigating this idea concluded that respondents fared similarly whether given the 'don't know' option or not and advised continuing with the standard format including the 'don't know' option (Sturgis et al. 2006).

For true and false and open-ended questions, respondents scored one point for a correct answer and zero points for an incorrect answer, a 'don't know' response, or for failing to respond. For multiple-choice questions with one correct option, respondents scored one point for choosing the correct option only and zero points for selecting any other. For multiple-choice questions for which there were up to four correct options, respondents received half a point for each option correctly selected up to a maximum of two points. If the respondent failed to respond to more than three questions then their total score was recorded as 'missing'. Respondents self-completed the measure: only if requested would RAs read the questions aloud and record spoken responses on behalf of respondents.

3.4.2. Researching Attitudes

The matter of defining and studying attitudes is difficult and has long been debated by social psychologists (Oppenheim 1992). Highlighting this complexity, Oppenheim (1992) defines an attitude as “a state of readiness, a tendency to respond in a certain manner when confronted with a certain stimuli” forming part of a broader amalgam of values, beliefs and feelings themselves comprised of multiple parts. Attitudes have been defined in various ways, but a common theme is that attitudes are “evaluations or feeling states about an attitude object”, and because attitudes are multi-faceted, it follows that any tool aiming to measure an attitude should comprise multiple items, each measuring a different facet of the overall attitude towards the object in question (Browne-Nunez & Jonker 2008: 57).

Multi-item attitude scales have been used to measure attitudes towards wildlife and wildlife conservation in East Asia (e.g. Kellert 1991a), Africa (e.g. Gillingham 1998; Infield & Namara 2001), North America and Europe (Kellert 1993a); Traditional Chinese and Western Medicine in Hong Kong (Chan et al. 2003) and green purchases in China (Chan 2001). Nevertheless, in a review of attitude surveys conducted in Africa, Browne-Nunez and Jonker (2008) report many researchers do not adequately define the attitude concept, and fail to pre-test attitude measures, test internal reliability of scales, or discuss the theory behind their choice of methods, meaning the validity of their findings is questionable.

Contingent Evaluation Methods (CEM) have also been used to study attitudes to wildlife conservation in various countries including Sri Lanka (Bandara & Tisdell 2003), the UK (White et al. 2001) and the USA (Kotchen & Reiling 2000). CEM asks respondents to place a value, or a series of values, on an object, and this value is then used as a measure of their attitude towards it. Bandara and Tisdell (2002) argue this technique allows the respondent greater expression regarding a specific conservation concern. But the derived values CEM uses are criticised for replicating assumptions of neoclassical economics including an anthropocentric view of natural resources (Pate & Loomis 1997). CEM values are also contingent on the amount of information the respondent brings to the survey and the information brought by the survey itself, and respondents may not be aware, or

understand all the functions, of the resources in question (Pate & Loomis 1997). CEM is also criticised for remaining one-dimensional despite researchers' efforts to incorporate broader societal values.

Attitude surveys are a practical way of covering a larger sample and hence better representing a large population, such as that in Hanoi, and enable rigorous statistical analysis. So with careful design, pre-testing and reliability analysis, multi-item attitude scales were considered an appropriate method for measuring Hanoian attitudes to wild animals, but only alongside semi-structured interviews exploring attitudes in more depth.

Kellert's (1996) approach to assessing the ways in which humans value wildlife, though based on industrial society, are a recognised standard for this area of social investigation (Rose 2001) and have been used to study attitudes towards nature and animals in the U.S.A, Germany and Japan (Kellert 1991b; 1993a) and have also been adapted to study attitudes in Botswana (Mordi 1987 in Browne-Nunez & Jonker 2008). Although this typology was not created for Vietnamese, many conservation awareness campaigns targeting Hanoians are currently designed by Western organisations (e.g. World Wildlife Fund, Wildlife At Risk), so comparing Hanoian attitudes to those identified in Western countries was considered a suitable starting point for a topic that has been little explored in Vietnam (see Chapter 8 for further discussion). Attitude orientations for this research were therefore adapted from attitude orientations and scales developed by Kellert and Clark (1980; Table 3.1).

Seven scales based on the typology developed by Kellert and Clark (1980) were used in the questionnaire (Aesthetic, Dominionistic, Ecologistic, Moralistic, Naturalistic, Utilitarian-Consumption, Utilitarian-Habitat). A further two scales measured attitudes towards conservation, defined as a primary concern for the conservation of wild species in their natural habitats, and to wild meat consumption, defined as a primary interest in the consumption of wild animals as meat. Each attitude scale comprised a series of five interrelated items designed to measure a single underlying construct or attitude orientation; the items for each

scale were mixed and for each item respondents were asked to select one option from a Likert scale of one to five from 'strongly agree' to 'strongly disagree' (Appendix A). Aiming for the highest level of understanding among respondents, the scales were designed to be as relevant to, and straightforward for, Hanoian respondents as possible. For example, each item contained a single object and used examples rather than abstract concepts. Care was also taken to ensure that individual items were not leading.

Table 3.1. Basic wildlife values (Kellert 1993b).

Attitude Orientation	Definition
Aesthetic	Primary interest in the physical attractiveness and symbolic characteristics of animals.
Dominionistic	Primary interest in the mastery and control of animals, typically in sporting situations.
Ecologistic	Primary concern for the environment as a system, and for interrelationships between wildlife species and natural habitats.
Humanistic	Primary interest in and strong affection for individual animals such as pets or large wild animals with strong anthropomorphic associations.
Moralistic	Primary concern for the right and wrong treatment of animals, with strong ethical opposition to presumed ethical exploitation or cruelty toward animals.
Naturalistic	Primary focus an interest and affection for wildlife and the outdoors.
Negativistic	Primary orientation an active avoidance of animals due to dislike or fear.
Neutralistic	Primary concern a passive avoidance of animals due to lack of interest.
Scientistic	Primary interest in the physical attributes and biological functioning of animals.
Theistic	Primary orientation a fatalistic belief in wildlife as controlled by external deities of non-natural forces.
Utilitarian-consumption	Primary interest in the practical value of animals.
Utilitarian-habitat	Primary interest in the practical value of habitat associated with wild animals.

The first generation of scales was circulated around local experts and colleagues for comment. Based on discussion with respondents from the central Hanoi public during the trial of the questionnaire (n=40), the attitude orientations being measured and the items used to measure them were then finalised. Two generations of attitude scales were then piloted with two independent samples of the central Hanoi public (n=40) to ensure the scales were reliable. Reliability was tested using Cronbach's Alpha which gauges consistency among individual items in a scale by measuring how well each item correlates with the sum of the remaining items. Scales should ideally have a Cronbach Alpha of 0.7 or above to be considered reliable; the results from the second pilot study are shown in Table 3.2.

Table 3.2. Results of Reliability Analyses for second pilot study (n=40)

Attitude Scale	Cronbach Alpha
Aesthetic	0.696
Dominionistic	0.805
Ecologistic	0.707
Moralistic	0.698
Naturalistic	0.684
Utilitarian-Consumption	0.762
Utilitarian-Habitat	0.758
Wild Meat Consumption	0.770
Wildlife Conservation	0.760

During trials, respondents were asked to self-complete the attitude scales but some asked the RA to read each item aloud and to record their response. The involvement of the RA on these occasions ensured respondents fully understood each item, and allowed respondents to ask for clarification. This method also proved highly valuable in that these respondents were forward in discussing their choices and the contents of the items, giving a deeper insight into respondents' opinions and the knowledge and perceptions these were built on. As such, despite being more time-consuming, all attitude scales were completed from then on with the RA who recorded any comments made by each respondent alongside the relevant item.

3.4.3. Completing the Questionnaire

Two full-time RAs were employed to complete the questionnaire survey. These were recruited by advertising on an online NGO network and hired following face-to-face interviews. Both were women in their early twenties who had recently graduated from university and were completing masters degrees part-time, had some previous experience in surveying and were competent in spoken and written English; both also had a genuine interest in the environment and hoped to go on to work in conservation. When one assistant left her contract three weeks early, a third young female undergraduate who had previously completed surveys as a volunteer at an environmental NGO was employed in her place. All three assistants received two days of desk training before completing five days of supervised trial, and received further training and support as needed throughout the data collection period.

Both assistants worked independently but in the same area from 8am to 4pm each weekday with an hour's lunch break; they often took this break later than the average Hanoian in order to keep appointments with those working office hours. I accompanied the interviewers on two days each week and my presence was recorded on all questionnaires completed at this time. All parts of the questionnaire were completed with the assistant except for those in the wildlife-related knowledge and awareness scale which were self-completed under the interviewer's supervision; on rare occasions the respondent requested that the assistant read out the questions and record the respondents' answers on their behalf. Questionnaires typically took between twenty and thirty minutes to complete and each interviewer was usually able to complete between five and six each day. Any additional comments made by the respondent were recorded by the interviewers in Vietnamese and translated into English later the same day.

3.4.4. Sampling Method

Hanoi comprises four central districts and nine outer districts covering an area of 193.7km² and which are home to an 'average' population of 1.93m people, according to the most recent data (General Statistics Office of Vietnam 2006); data at ward and commune level were not available. In order to make it more manageable, the sample was restricted to the four central districts of Hanoi, containing 56% of the total average population in approximately a quarter of the total area of Hanoi: 1,076,850 people across 49.6km² (General Statistics Office of Vietnam 2006).

To obtain a sample as representative of the central Hanoi population as possible, a sample proportional to population size was taken to form a sample representative of each of the districts surveyed (Table 3.3). Within each of the four districts, questionnaires were then completed along a series of pre-determined transects along which every third house, business or street seller (from now on referred to as 'response unit') was approached. RAs were, however, advised to avoid police stations and other official buildings. Within the response unit (RU), respondents were then chosen based on pre-determined characteristics of gender and age on a

rotational basis (Appendix B). This both determined who was interviewed in each response unit and served to weight the sample according to the age and gender of the sample population⁶. If a respondent of the required age and sex did not reside or work in the selected RU, the RA proceeded a further three RUs until a respondent fitting the required description was found. However, if a respondent fitting the description lived or worked at the selected RU but was not present at the time of calling then, where possible, an appointment was made to return at a convenient time to complete the questionnaire. In reality, however, it was not always possible for the interviewers to make appointments after 6pm since both attended classes most evenings; in an effort to compensate for any respondents who had been excluded the RAs worked for six weekends during June and July in place of two weekdays.

Table 3.3 Number of transects and the percentage of total questionnaires (n=915) completed in each central district as related to the population (General Statistics Office of Vietnam 2006)

District	Population	Population (%)	Questionnaires completed (%)	Transects
Ba Dinh	226,200	21.0	21.4	4
Dong Da	366,250	34.0	32.9	7
Hai Ba Trung	306,100	28.4	30.9	9
Hoan Kiem	178,300	16.6	14.6	5
Total	1,076,850	100.0	100.0	25

3.4.5. The Sample Population

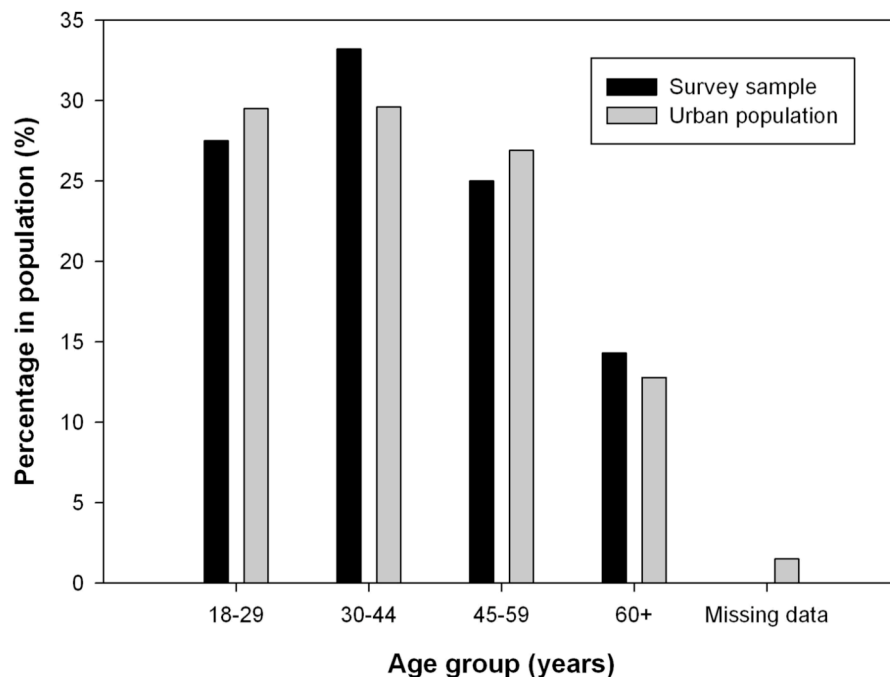
A survey of less than a thousand is limited in its ability to explore variations within a population (Hedges 2004); so while all quantitative findings are supported by qualitative data from SSIs throughout the thesis, this should be borne in mind. Approximately half of those approached refused to complete the questionnaire; although there are no significant differences in refusal rates between age groups, gender, RA or month completed, this high rate of non-responses will almost certainly have introduced bias into the sample population. Moreover, those collecting data will each have been perceived differently, asserting varying

⁶ Data for the urban population in Vietnam indicates that the age groups 18-29, 30-44 and 45-59 occur in roughly equal proportions, while the over sixty age group is approximately half the size of these other groups (Ministry of Labour 2006). For this reason, for every two respondents interviewed in each of the younger age groups, only one was sought in the over sixty age group. Equal numbers of male and female respondents were sought and achieved for each age group since data indicated that the genders were equally represented in the urban population across all ages (Ministry of Labour 2006). See Appendix C for analysis of the sample population.

influences on the resulting data; the effect of the RAs on quantitative results is explored fully in Appendix C.

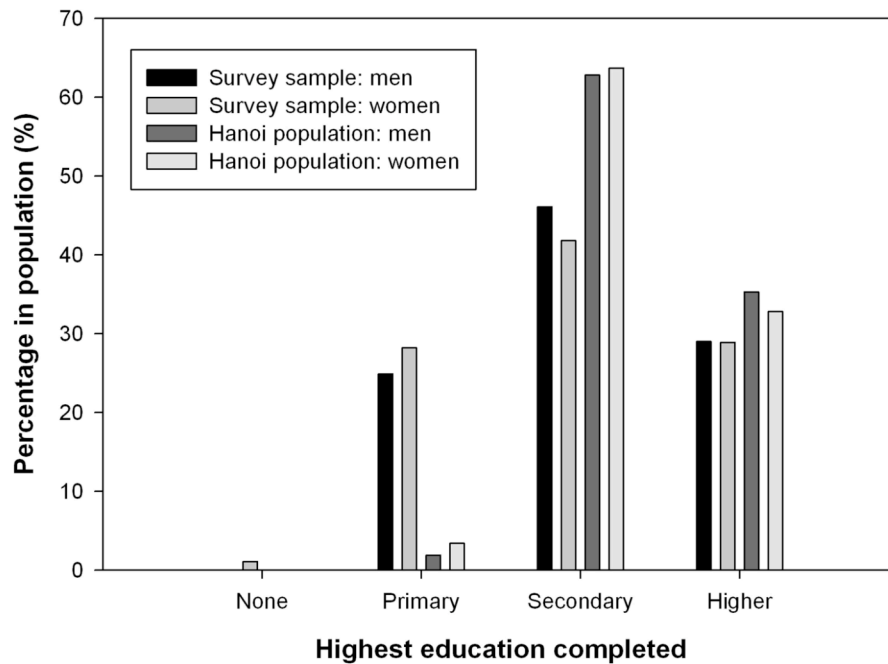
Here the sample population is compared to available census data and multiple linear regression is used to explore differences found between them (Table 3.4, p. 68). Unsurprisingly given the sampling method the age (Figure 3.1) and gender distribution of the sample population mirrored official statistics: 49.8% of respondents were male and 48.7% female⁷ compared to the even 50.0% divide of the Vietnamese urban population (Ministry of Labour 2006). Comparison with data from the General Office of Statistics (2005) suggests the survey accessed lower than representative proportions of respondents having completed secondary and higher education and much higher than representative samples of those having completed primary education only (Figure 3.2).

Figure 3.1 Age distribution of the urban population in Vietnam (Ministry of Labour 2006) and of the final sample of the questionnaire survey (n=915):



⁷ Gender data is missing for 1.5% (n=13) of respondents.

Figure 3.2 Educational attainment of the survey sample (n=915) compared to data from the General Office of Statistics (2005) for Hanoi Province:



Occupation accounts for 28% of variation found in educational attainment (Table 3.4). Those with lower levels of education are significantly more likely to work in unskilled occupations ($p < .01$) compared to service workers while students, ($p < .01$), finance ($p < .01$) and non-finance professionals ($p < .01$), businesspeople ($p < .01$) and those working in the armed forces and police ($p < .05$) are significantly more likely to have achieved higher education than those in services. Personal income is also correlated with educational attainment (Table 3.4): those for whom income data is missing ($p < .05$), those in the lowest ($p < .01$) and the second-lowest ($p < .01$) income quartiles achieved a lower level of education than those in the highest. It is not surprising to find that occupation and personal income are related to educational attainment in this way.

However, compared to DHS (2005) data, the sample includes a disproportionately high proportion of those having completed a relatively low level of education. Because occupation and personal income are both positively correlated with educational attainment and the sample, this suggests that not only are those with higher educational attainment under-represented in the survey sample but that those in occupations and income groups associated with higher educational levels

Table 3.4 Linear regression showing the role of respondent characteristics on highest education completed⁸

Predictor variables	Step 1			Step 2			
	B (SE)	β	Sig.	B (SE)	β	Sig.	
(Constant)	3.95 (0.05)		.00**	4.24 (0.07)		.00**	
Occupation (reference category: service workers)	Armed forces/police	1.56 (0.45)	0.10	.00**	1.38 (0.44)	0.09	.00**
	Business	0.99 (0.17)	0.18	.00**	0.81 (0.17)	0.14	.00**
	Clerks	1.32 (0.24)	0.16	.00**	1.30 (0.23)	0.16	.00**
	Skilled	-0.12 (0.09)	-0.04	.19	-0.17 (0.09)	-0.06	.06
	Unskilled	-.077 (0.13)	-0.17	.00**	-0.59 (0.13)	-0.13	.00**
	Unemployed	0.26 (0.24)	0.03	.28	0.50 (0.24)	0.06	.04*
	Student	0.89 (0.17)	0.15	.00**	1.08 (0.17)	0.18	.00**
	Housework	0.10 (0.19)	0.02	.61	0.34 (0.19)	0.05	.07
	Retired	0.01 (0.09)	0.01	.87	0.09 (0.09)	0.03	.29
	Non-finance professionals	1.67 (0.14)	0.34	.00**	1.62 (0.14)	0.33	.00**
Personal Income (reference category: highest quartile)	Finance professionals	1.54 (0.19)	0.24	.00**	1.39 (0.18)	0.22	.00**
	Missing data				-0.30 (0.11)	-0.09	.01*
	Lowest quartile				-0.68 (0.10)	-0.27	.00**
	Second-lowest quartile				-0.38 (0.09)	-0.16	.00**
	Second-highest Quartile				-0.15 (0.10)	-0.05	.12

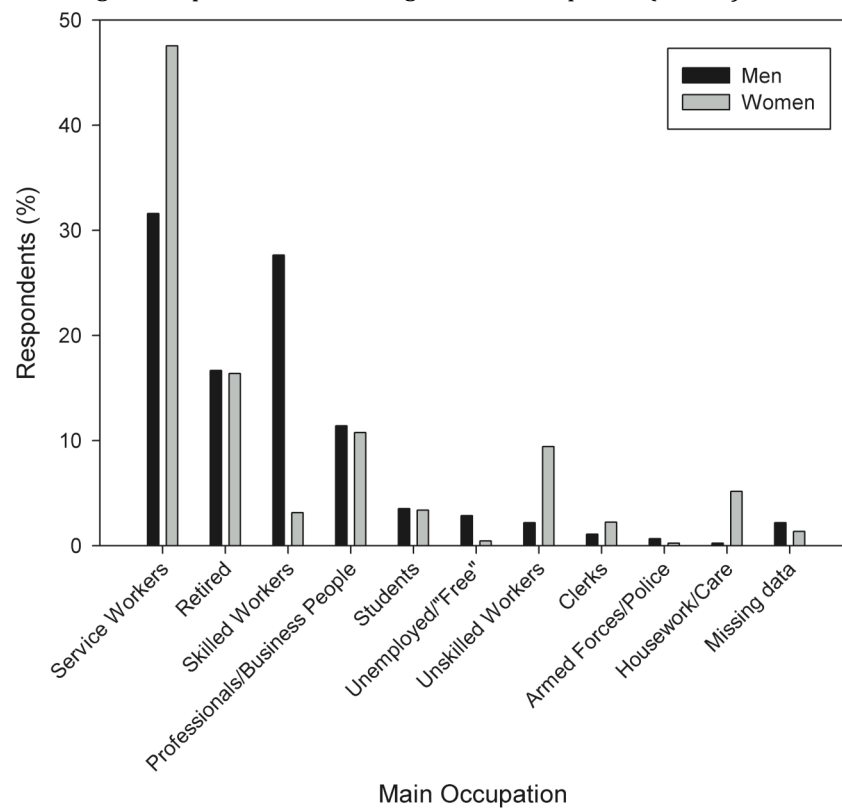
Model: R² = .28 for Step 1; Δ R² =.04 for Step 2 (F = 28.36, p <.000). **p<.01, *p<.05

⁸ To avoid singularities arising from insufficient samples in some occupation groups, education is treated here as continuous, as opposed to categorical, for multivariate analysis; because education was numbered in a scale in the questionnaire respondents, its treatment as a continuous variable is justified on the basis that respondents would expect it (pers. comm. Hennig C.).

are also under-represented. Unfortunately data regarding occupation and income of the Hanoi population were not available with which to compare the sample population directly.

It is highly likely that those working in the armed forces and police and government officials are under-represented because government buildings and police were actively avoided (Figure 3.3). It is also probable that those working in services (e.g. security guards, sales people, parking attendants) and unskilled occupations (e.g. mobile street sellers, cleaners) are over-represented because they were typically the ‘frontline’ of people encountered along the streets of Hanoi. In contrast, professionals and clerks working in offices are likely to have been much less accessible and hence under-represented. Moreover, many of those involved in the highest status occupations may have been missed because they were busy and/or inaccessible in large offices where gatekeepers were more accessible candidates.

Figure 3.3 Percentage of respondents according to main occupation (n=890)⁹:



⁹ Occupation data missing for 2.8% (n=25) sample

In addition, while a considerable proportion of men reported a skilled occupation, relatively few women did so. The majority of these men worked in male-dominated jobs such as mechanics and driving which, necessarily, line Hanoi's streets. In contrast, skilled women are perhaps more likely to work in the many factories located in the outskirts of Hanoi: female factory workers can be seen streaming to and from factories on the outskirts of the city between shifts (pers. obs.). Likewise, unskilled women comprised mainly of mobile street sellers while unskilled males are perhaps more likely to be found labouring in less-accessible building sites or fields. Finally, due to compulsory retirement at 55 years for women and 60 years for men (pers. obs.), it is unsurprising that the proportion of retirees is high.

3.4.6. Data Entry and Analysis

I entered all quantitative data in an Excel spreadsheet within a week of being collected. This enabled me to investigate and clarify anything unclear or unusual on the completed questionnaires with RAs, to identify potential interviewees (see Section 3.4.1) and to begin initial analyses. Quantitative data were analysed using SPSS 14.0. How data were organised for analysis, and treatment of missing data is detailed below; more details, including of the statistical tests used, are given in the relevant data chapters.

Due to the sensitivity of reporting income, respondents were asked to choose a card showing the income category representing their income for the previous month: for this reason, fixed income categories were used to measure both personal and household income in the last month in place of a continuous scale. Family income was subsequently calculated as the median income within the category selected, divided by the total number of people it was reported as shared between during the same period. For analysis, family income and personal income were divided into sample quartiles, and education into approximate tertiles. For multivariate analysis, dummy variables were then created for all categorical predictors with the largest category or the richest quartiles for family and personal income serving as the baseline group. All predictors were entered into multivariate models in one block because the effect of order of entry of predictors is often overstated (pers. comm. Hennig C.).