SCALAR DIMENSIONS OF ENVIRONMENTAL GOVERNANCE: CONSERVATION, TRADE AND THE SAKER FALCON IN MONGOLIA

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Abstract

The central Mongolian steppe has become a globally significant site of endangered and migratory wild Saker Falcon conservation. The economic value of the Mongolian wild Saker Falcon has grown substantially in the Arabic falconry market. Maintaining the viable population size of the wild Saker Falcon is vital to Mongolia's state revenue and to reverse prospects of the falcon's global extinction. A key task is to deal with unsustainable harvesting and unregulated trade, and to support the Saker Falcon's core breeding ground in the context of conservation. In order to fulfil these tasks, an artificial nest project has been launched by the International Wildlife Consultants (IWC) UK, in collaboration with the Ministry of Nature, Environment, and Tourism, Mongolia, through funding provided by the Environment Agency-Abu Dhabi (EAD), UAE. This initiative has raised hopes for Saker Falcon conservation and governance, improving the trade and harvesting practice at the local level. Examining the fortunes of wild Saker Falcon conservation and trade processes across different scalar dimensions in this study involved a primary assessment of conservation progress and development; in doing so, major governance challenges were identified. The study also highlights the challenges of the sustainable use concept as a management strategy for endangered and migratory species. A second finding is that endangered and migratory species conservation is a political and socioeconomic process that extends beyond biological and ecological solutions. This thesis examined stakeholders' perspectives on Saker Falcon policy-development in Mongolia, using qualitative research methods such as surveying, focus groups, and in-depth interviewing. The analysis also incorporated the perceptions of rural communities, who are conservation stakeholders, living inside and on the fringe of the artificial nest areas. The study concludes that current environmental governance in Mongolia needs substantial improvements in order to facilitate sustainable use of

the Saker Falcon in the future, and to respond to wider threats to the conservation of endangered and migratory species, with due cognisance to improving rural community livelihoods.

Keywords: Endangered and migratory bird conservation, Saker Falcon trade, wildlife conservation policy and governance in Mongolia

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List of Abbreviations

AC Animal Committee for CITES

ADB Asian Development Bank

AR Assessment Report

CBD Convention on Biological Diversity

CBNRM Community based natural resources management

CITES Convention on International Trade on Endangered and Migratory Species

CMS Convention on Migratory Species

EAD Environment Agency-Abu Dhabi

ENGO Environmental Non-Governmental Organisation

ES Ecosystem Service

EIA Environmental Impact Assessment

FAO Food and Agriculture Organisation

GDP Gross Domestic Product

HDR Human Development Report

IPCC Intergovernmental Panel on Climate Change

IUCN International Union for Conservation of Nature

IWC International Wildlife Consultancy

MAS Mongolian Academy of Sciences

MNET Ministry of Nature, Environment and Tourism

MNE Ministry of Nature and Environment

MNU Mongolian National University

MOFAT Ministry of Foreign Affairs and Trade

MNT Mongolian Tugrik

MOFALI Ministry of Food, Agriculture, Light Industry

NFP National Focal Point

NCESC National Committee on Endangered Species

NPESC National Programme for Endangered Species Conservation

NPSFC National Programme for Saker Falcon Conservation

NGO Non-Governmental Organisation

NSO National Statistical Office

PES Payments for Ecosystem Services

Policy Development

RAMSAR Convention on Wetlands

Developing Countries

Kuwait

Qatar

SSIA State Special Inspection Agency

UAE, United Arab Emirates

UN United Nations

UNDP United Nations Development Programme

UNEP United Nations Environment Programme

UNESCO United Nations Educational, Scientific and Cultural Organisation

USA United States of America

US$ United States Dollar

WSCC Wildlife Science and Conservation Centre

WWF World Wild Fund

% percent

sq km square kilometre

Glossary

Aimag	**Aimag refers province in English. It is the first-level administrative subdivision of Mongolia.**
Auto-ecology	Autecology means according to Britannica Encyclopaedia, "...also called Species Ecology, the study of the interactions of an individual organism or a single species with the living and nonliving factors of its environment. Autecology is primarily experimental and deals with easily measured variables such as light, humidity, and available nutrients in an effort to understand the needs, life history, and behaviour of the organism or species" (http://www.britannica.com/EBchecked/topic/44607/autecology)
Bagh	It is a smallest administrative subdivision of Mongolia.
Birthplace	This term is used to be a special place for Mongolians. They were usually not born in hospital. In case of sickness and uncomfortable incidents, they often go to their birthplace and lay down on the soil, where they born. They believe this will give some purification effect and get energy from the land where they born. There is also tradition; they kept 3 small stones from their birthplace for memory and connection (from interview 51).
Dzud	*dzud* is defined as extreme climatic condition in winter. There are two kinds of *dzud*. First, a large amount of precipitation, which leaves livestock unable to find the grass beneath the snow and incapable of tolerating the freezing temperatures. Second, there is no snow in winter and due the extent of the cold temperature, there is no water available. Loss of livestock and wildlife is common in dzud.

Ger	Ger is Mongolian traditional mobile housing. Shape of ger is round like a tent. It is made of wood and felts, and does not use any nails.
Herder	It is a full-time employment of livestock herding. Such employment will be income as well as livelihood of many rural Mongolians.
Khoroo	A khoroo is an administrative subdivision of Ulaanbaatar, the capital of Mongolia. The term is often translated as subdistrict or microdistrict, although the latter might lead to confusion with khoroolols. A khoroo is below the level of a düüreg (district). There were 121 *khoroo* until 2007, when the number increased to 151 in 2013 (National Statistical Office 2013).
Khural	A term referring to a conference.
Kuwaiti population	Kuwaitee population is 2.7 million in 2010. The 1.4 million are the citizens and the rest of them are migrant's workers and non-citizens. She has not specified the citizens or non-citizens. If it is 15% of the total citizens, it equals 210 000 falconers. If it is all population the number will be doubled.
Range state	Range state is a term generally used in zoogeography and conservation biology to refer to any nation that exercises jurisdiction over any part of a range which a particular species, taxon or biotope inhabits, or crosses or overflies at any time on its normal migration route ("Convention Text". Convention on the Conservation of Migratory Species of Wild Animals. Bonn, Germany. 23 June 1979. Retrieved 17 February 2012).
Reverse ecology	Reverse ecology refers to the use of genomics to study ecology with no a priori assumptions about the organism(s) under consideration. It is—an emerging new frontier in Evolutionary Systems Biology—aims to extract this information and to obtain novel insights into an organism's ecology (Levy and Borenstein 2006).

Tugrik	Tugrik is Mongolian currency. Exchange rate often fluctuates. Inlast 5 years, the exchange rate from Mongolian tugrik into USdollar was 1300-1700.
Soum	It is a rural district of Mongolia.

From field study photos

Chapter 1. General Introduction

Introduction

This chapter introduces the research context, aims, objectives, and structure of this thesis. The statement of the research problem begins with one of the most contentious issues in environmental governance, specifically: the nature and extent of endangered and migratory species conservation and exploitation; it also addresses the gaps and weaknesses that remain in the current policy implementation, and how the examination of endangered and migratory Saker Falcon conservation and trade in Mongolia sheds light on these issues. The research context is provided, followed by an introduction of wildlife conservation and exploitation in relation to anthropogenic manipulations, major threats, and the nature of endangered and migratory species. Secondly, the chapter introduces more contextual information about Mongolia and Saker Falcons to develop the aims and objectives of the research. This chapter ends with a summary of all chapters of the thesis.

1.1. Research context

The rate of extinction of biological diversity appears to be accelerating (Wilson 1988, 1998; Vitousek et al.1997; MA 2005b). To reverse this trend requires an appropriate policy and governance mechanism that enables the effective conservation of the remaining wildlife populations in nature. Since the loss of biodiversity is largely anthropogenic in origin, contemporary environmental governance needs to address wildlife conservation from the social, economic, and political science perspectives, while enhancing the human–nature relationships with new knowledge and values. Beyond the biological and ecological solutions, wildlife loss requires environmental governance involving concerted policy and

action. At various levels and scales, environmental governance can address the issues by recognising and resolving the major underlying threats to wildlife that are caused by humans. Nevertheless, despite environmental governance having extensively promoted wildlife conservation in the last decades through the establishment of a number of programs, institutions, multilateral environmental agreements, legislation, and management plans, the rate of species extinction has not been reduced as expected. Therefore, this area of environmental governance needs further speculative research, particularly addressing the series of human-induced web of threats to wildlife including habitat loss, overexploitation and climate and ecosystem changes.

1.2. Endangered and migratory Raptor conservation

Like other ecological crises, the Raptors face a wide range of conservation pressures ranging from targeted harvesting to incidental mortality in agricultural chemicals and electrocution, to habitat destruction and disturbance. The international and national regulations for the endangered and migratory Raptors, and their implementation, remain a subject of substantial academic fascination and frustration. To date, a lack of convincing explanation has been produced on these questions, especially in relation to the controversial progress of endangered and migratory species conservation and ongoing trade and governance issues between the 1990s and the present. The future of endangered and migratory Raptor conservation, and particularly its range states in developing countries, is a topic that lacks the political will and a strategic management plan beyond the usual social-political development agenda. The nature and extent of such species conservation and exploitation is examined here as a distinct political and international relations dilemma, while the rich and informative experience of the scientific aspects draws upon to illustrate their contribution to management in the face of considerable scientific uncertainty. The assortment of literature on

endangered and migratory species conservation issues within scholarly periodicals devoted to various disciplines and sub-disciplines of science, law, public policy, ethics, environmental management, political science and international relations is also particularly scarce. In response, the central argument of this thesis is that the current analysis provides an important contribution to the existing literature by remaining essentially focussed on the aggravated questions about endangered and migratory species conservation, trade, sustainable use, conservation stakeholders, the knowledge gap, and the future viability of multilevel governance and policy implementation.

1.3. The Saker Falcon issues and Mongolia

The Saker Falcon is a large bird of prey used for falconry. Mongolia is one of the problematic Saker Falcon harvesting sites for its range states (Gombobaatar 2007). In fact, the wild take of Saker Falcon and practicing falconry existed in the area even before the era of Genghis Khan in the thirteenth century, and it has thus become part of the nomadic people's subsistence activities until the two hundred years ago. Such falconry practice is no longer consuming Saker Falcon in the central region of Mongolia. At present the most critical concern pertaining to the rapid decline of the wild Saker Falcon population across international habitats involves the following factors:

i. Habitat loss and alteration (through land conversion for intensive agriculture, overgrazing, quarrying, mining, etc.);

ii. Habitat destruction (through use of pesticides and agrochemicals, electrocution, collision, disturbance, predation, extreme weather, etc.); and

iii. Wild-takes for falconry purposes through both legal and illegal trafficking, and shooting for souvenirs and religious items (Nagy and Demeter 2006; Gombobaatar 2007).

Commercial use is widespread from the early 1990s in Mongolia. The market price of a single specimen is around 10,000 USD, which is three times higher than the average Mongolian's annual income. Harvesting Saker Falcon to use for falconry purpose is limited among the central Mongolians and not interesting to the local people. But, commercial prices lead to a more attractive to the locals and complex management circumstances the local and central government of Mongolia. The management and conservation of Saker Falcon are further complicated because of the large territory involved. As local communities have not been included in conservation and management activities, legal enforcement and policy implementation come at an enormous cost. Some other activities indirectly linked to the threats against the Saker Falcon include overgrazing, electrocution, persecution, habitat destruction, mining, and other incidents, which increase the vulnerability of this bird in Mongolia. The flourishing mining and livestock sectors encourage people to invade Saker Falcon natural nests and breeding ground. But at the same time, the international conservation community has made efforts to conserve and protect this bird in Mongolia.

1.4. Research questions, aims, and objectives

This study seeks to answer three primary research questions with associated aims and objectives as shown in Table 1.

Table 1. Research questions, aims, and objectives

Research questions	Aims	Objectives
What do we know about conservation and governance of endangered and migratory species that are traded alive?	To examine policy and regulatory frameworks for endangered and migratory species	1) To investigate the key concepts, policy and practices of Saker Falcon conservation in Mongolia 2) To map Saker Falcon decision-making processes and patterns, and investigating the implementation of pertinent multilateral environmental agreements in Mongolia.
What gaps and weaknesses remain in the conservation of this bird?	To investigate major gaps and weaknesses in the Saker Falcon trade	3) To analyse the regulated harvesting and trade of Saker Falcon in Mongolia to develop a sustainable management strategy
How could examination of conservation and trade of Saker Falcon, and their governance in Mongolia shed light on these questions?	To develop recommendations for Saker Falcon conservation and trade	4) To explore the knowledge gap, information sharing mechanism, stakeholder approach, and local community involvement in Saker Falcon conservation

Through these overarching questions, this study seeks to explore the implications of regulatory governance with reference to multilateral environmental

agreements, and to examine the institutional and cultural dimensions of endangered and migratory and migratory species conservation policy in Mongolia. This research further aims to understand how sustainable use and the impacts of regulated trade are interpreted by the globally endangered and migratory Saker Falcon conservation programme in Mongolia.

The argument made by the study is divided into three areas: (i) endangered and migratory and migratory species conservation, which involves identifying major threats, policy and regulatory frameworks, activities, and challenges for maintaining the core Saker Falcon population in its natural habitats; (ii) the economic value and commercial use of Saker Falcon wherein the challenges of sustainable use and regulated trade are discussed; and (iii) environmental governance, which examines the stakeholder approach, knowledge gap, information-sharing mechanism, and community involvement in the Saker Falcon conservation process.

This study also strives to understand how different stakeholder group's position themselves in relation to the broader discourses of global endangered and migratory species conservation, and how these discourses shape stakeholders' relationship with wildlife and other users. This has involved the participation of several different stakeholder groups, such as central and local government officials, rural communities, NGO representatives, and academic researchers. Relationships between government policies, institutions and international conservation organisations are examined in the context of the Saker falcon conservation and trade. The study also explores how policy, science and practice interact with political interests to shape endangered and migratory species conservation and trade policy, and how this, in turn, shapes different stakeholders' access to and control over natural resources (Bryant and Bailey 1997). In order to understand the issue of the valuing nature of nature, the research adopts an environmental, economic framework with an emphasis on the issue of price setting, and a focus on analysing the current trade of the Saker Falcon. The current

economic and ecological values of the Saker Falcon across the various levels and the impact of the Artificial Nest Project is analysed as part of this focus because, to date, the results of the artificial nest project have not been taken into account in price setting for the Saker Falcon trade or in related conservation policy decisions. This study highlights a lack of information-exchange mechanisms between the stakeholders as well as the financial, technical, and human capacity issues that have become a key challenge for the implementation of conservation projects and programmes. The impact of these considerations, the IWC initiative for Saker Falcon conservation, and establishing a sustainable use model enables Mongolia to comply with the Convention on International Trade in Endangered and migratory Species of Wild Fauna and Flora (CITES) and other international conventions.

1.5. Structure of the Thesis

This thesis is broadly structured around the aims and objectives presented previously. These create the basis of the three empirical chapters: 5, 6 and 7. Chapter 2 explores the relevant literature concerning wildlife conservation and its cultural dimensions and values, the major threats to endangered and migratory species conservation, environmental governance and scale concepts in conservation, and the wildlife trade and sustainable use concepts that are discussed in various theoretical perspectives. The chapter provides the theoretical foundations for the main debates around endangered and migratory species conservation. It also defines the processes and highlights the challenges of environmental governance, which are related to endangered and migratory species conservation and then examines literature related to valuing wildlife. These key concepts frame the empirical chapters.

Chapter 3 explains and justifies the methods used, the sampling strategy and the selection of study sites. Chapter 4 introduces the Mongolia context in relation to wildlife conservation and governance processes. This chapter covers

the social, economic and political reforms in the 1990s that led to overall governance changes within Mongolia, and also introduces the environmental and geographical features of the country. The subsequent empirical chapter, Chapter 5, examines policy and regulatory frameworks of wildlife conservation. In order to respond to the research questions, this chapter initially focuses on the development of conservation policy, and the socioeconomic and political aspects of conservation activities in Mongolia. It is based on the analysis of secondary sources and primary interviews with key stakeholders, e.g. Ministers and policy makers in the former Ministry of Nature, Environment and Trade (MNET) – now the Ministry for Environment and Green Development (MEGD) and the case study *soums* (rural administrative districts). It goes on to illustrate the development of conservation institutions and the domestic arrangements, structures and mechanisms for conservation. The chapter depicts the decision-making process. It also examines the roles and contributions of national focal points, such as the CITES National Management Authority and Convention on the Conservation of Migratory Species of Wild Animals (CMS) focal points in relation to Saker Falcon conservation and trade.

Chapter 6 concerns the gaps and challenges involved in implementing the sustainable use strategy for the Saker Falcon trade, explaining Mongolia's non-detrimental finding report on Saker Falcon conservation and trade to the (CITES) in 2011. The chapter also presents the Artificial Nest Project as a biological and ecological solution to recover the wild population of Saker Falcons in Mongolia. Such development of the Saker Falcon conservation programme would bring sustainable harvesting and trade opportunities, while allowing Mongolia to comply with international legislation through the establishment of regular monitoring and data collection via the introduction of microchipping methods. With Saker Falcon trade Mongolia gains political leverage with its trading partners. Saker Falcon trade is important to Mongolia in ecological, political, and economic terms. In relation to this trade and conservation project, I assessed Saker Falcon offtakes from legal

harvesting without to examine: variations in the hunting licences and birds harvested between the areas under different administration authorities in central Mongolia; mismatches in the species and hunting quotas between the central government and the local authorities; variations in the harvesting trends over time and success rate across local authorities; the relationship between legal and illegal offtakes.The analysis investigates the economic benefits of the Saker Falcon obtained through hunting fees and payment methods in Mongolia.

Chapter 7 provides an analysis of the stakeholder approach to Saker Falcon conservation and trade. Particularly, local perspectives on factors influencing the extent of Saker Falcon conservation are important for the sustainability of current conservation work. I carried out interviewsaround artificialnests and harvesting areas to investigate the influence of theSaker Falcon harvesting and conservation at the local administrations (*soum* administration) and household levels. The influences include wildlife poached in general, location, distance from the rural settlements with respect to conservation and harvesting sites, livestock herding, seasons, human population, and indicators of household wealth (household size, income, labour and assets). It addresses tensions within and between various levels of conservation institutions and stakeholders and their implications for Saker Falcon governance. The chapter finds which aspects of a knowledge gap exist, and information sharing, community involvement and livelihoods in the context of current conservation projects and policies.

Finally, Chapter 8 concludes by summarising the key findings of the thesis, and making some general observations on the potential for improving endangered and migratory species conservation in the context of governance. This chapter provides policy recommendations and action plans for Saker Falcon management in Mongolia. The recommendations include promotion of a sustainable-use mechanism with the participation of local communities in endangered and migratory species conservation.

Chapter 2. Endangered and migratory species conservation, governance, and trade beyond sustainable use approach

Introduction

This review will examine a wide variety of topics of importance to the endangered and migratory wildlife conservation and governance. These have been extensively studied in diverse academic disciplines, such as geography, political ecology, international relations, and environmental economics, beyond biological and ecological sciences. The following topics are covered: major threats to wildlife, concept of endangered and migratory species conservation, governance, and trade issues, community based natural resource management (CBNRM), community based management as applied to wildlife conservation in developing countries in specific. The chapter reviewed the CBNRM as a theoretical framework to develop the aims and objectives of this study. The CBNRM approach to wildlife conservation and rural development recognises the rights of local people to manage and benefit from the sustainable management and use of wildlife resources. This strategy will imply reassigning to rural communities access and use rights, sharing management responsibility within legislation under a project or programmes for the sustainable use of natural resources. However, this approach has documented and studied in numerous case studies of the developing countries in Africa, Latin America, and Southeast Asia, there is a lack of evidences that applied to wildlife conservation in post socialist states in Central Asia particular. In fact, a majority of these states joined the Multilateral Environmental Agreements (MEAs) that promote the CBNRM and sustainable use concept, this literature review may find a gap in the existing literature and research relevant to wildlife conservation.

2.1. Extent and nature of wildlife loss

Since the Millennium Ecosystem Assessment Report (MA) published in 2005, decision-makers, academics, communities, and individuals recognised that wildlife loss has accelerated in unprecedented rate largely due to human induced changes for ecosystems. According to MA's scenario, wildlife loss is nonlinear and irreversible. Wildlife in many ecosystems confronts the countless threats due to the growing human population, urbanisation, industrialisation, deforestation, mining and quarrying, over-grazing, use of pesticide, and hunting (Singh 2010, p.5). Therefore, the root cause of wildlife loss begins with anthropogenic manipulation of natural systems. The scale and magnitude of anthropogenic manipulation are global, and leading to the overall systemic changes, such as global climate and environment changes (Stern et al. 1991; MA 2005b; TEEB 2010). To meet the needs of growing human populations, the natural landscapes have been intensively altered for food, timber, fuel, and fresh water in the last half century, compared to any other time in history (MA. 2005b). Since the beginning of the Industrial Revolution, there has been a nearly 30 per cent increase of the carbon dioxide concentration in the atmosphere (Vitousek et al. 1997, p.494).

More than half of all accessible surface fresh water that is only used by humans (Vitousek et al. 1997, p.494; MA 2005b). Consequently, Wilcove et al (1998) suggests that habitat loss is the single greatest threat to wildlife, followed by the spread of alien species, pollution, overexploitation, and disease. The MA report (2005) adds up human induced climate change as another driver to wildlife loss. Among the other threats overexploitation goes on substantial impacts on wildlife loss. This term stands for exceeding limits and eliminating wild stock to regenerate and sustain their wild populations. Nonetheless, wildlife is a means of survival, a renewable resource, and economic asset of many countries and human communities (Wyatt 2011), there is a tendency of over-using and over-harvesting wildlife like other common property resources (Pires and Moreto 2011).

Overexploitation concept implies the issues of subsistence, consumptive, and commercial use of wildlife, particularly this concern occurs in developing countries. Rosen and Smith (2010) noted that global trade, as a multi-million dollar industry is responsible for promoting overexploitation of wildlife. When the market demand of global trade increases, the phenomena of unsustainable and unregulated harvesting, persecution, hunting, and illegal wildlife trade have also expanded. Remarkably, the commercial price of wildlife has increased dramatically due to their rarity, unique and specific characters or features enhancing demand (Broad et al. 2002; Hillstorm and Hillstorm 2003).

2.1.1. Valuation of wildlife: Total Economic Values (TEV)

Expanding the debate for wildlife trade is an important and complicated step in conservation concept. Indeed, Pavan Sukhdev in his preface to the recent and highly influential publication 'the economics of ecosystems and biodiversity: an interim report' (TEEB-European Communities 2008), expresses that ''we are still struggling to find the value of nature'' and that this lack of valuation is ''an underlying cause for the observed degradation of ecosystems and the loss of biodiversity''. Therefore, estimating environmental capital is a complex process in order to preserve and set a limit for the use of resources. Like other capital, environmental capital needs to be expressed in monetary terms (Robertson 2007). In recent decades, various methods have been applied to value the nature, e.g. contingent valuation, cost and benefit analysis, and TEVs. Among them, Moore (2011, p. 54) notes that the concept of TEV on nature "can be calculated and that these calculations effectively measure the multiple ways through which resources can be valued (including their ecological function and ecosystem service). In addition to this, the approach also assumes that mechanisms exist for these values to be captured." Thus, the concept of TEV on wildlife can be considered as comprehensive and sensitive valuation to detect the changes in resources. For

wildlife, particularly endangered and migratory species management, this approach is extensively utilised to estimate both material and non-material values.

TEV of wildlife is included as use value, option value, and existence (or passive-use value). Wildlife-use values indicate a direct use, such as in hunting and harvesting, whereas indirect values include optional values that are meant to preserve the species for future use. Existence values, e.g. indicating the species' presence that underpins the ecosystem, refer to resources, such as wildlife or species that cannot be used (Pearce 1999a, b; Barnes 1996). Option and existence values of TEV are often estimated as "non-market phenomena and simulating willingness to pay for these phenomena" (Pearce 1999a, p.14). In addition, much wildlife has no direct-use values, and they only have an existence or bequest value. Particularly, indirect and non-use values are closely linked to cultural and spiritual aspects, which may or may not impact that species conservation. On the other hand, existence and bequest values can be estimated in the TEV and monetary term as the willingness to pay e.g. eco-tourism, and recreational activities. To some extent, such value has a greater impact on the economies. For instance, eco-tourism is an exclusive economic sector to generate income.

On the other hand, existence value has a purely political meaning. For example, a certain species is highly significant to some communities as symbolising cultural and spiritual aspects. For these reasons, TEV enables conserving of particular species to continue to have great importance in both economic and political arenas, beyond scientific use. Thus, TEV redirects the debates of wildlife conservation to the governance and institutional reform. The literature of TEV and valuation of wildlife is used in empirical studies regarding eco-tourism, environmental economics, ecosystem or wildlife or endangered and migratory species conservation and trade in South East Asia, Latin America, and Africa. There is a very small amount of research done, addressing endangered and

migratory species conservation and valuing nature of nature in former socialist states in Central Asia or elsewhere.

2.1.2. Non-material values of wildlife in conservation

The concept of value is discussed in a number of ways in the literature related to wildlife conservation. Purdy and Decker (1989) highlight the statement of the US Fish and Wildlife Service (1988) on the value concept. It is noted that “as the very basis of all wildlife management, human values are vital for wildlife managers to understand, evaluate, and apply, especially in view of widening public interests in wildlife” (Purdy and Decker 1989, p.494). Some authors argue that since there is no universal value for nature, assigning values for wildlife is complex and dependent on different socioeconomic and cultural contexts.

Although identification, description, and understanding of ‘wildlife values’ are becoming essential in policy-making and management of wildlife resources, identifying and assigning values are often a highly contested matter amongst diverse actors. Kellert (1996) describes value as an emergent phenomenon or a combination of affective (i.e. emotional) and cognitive (i.e. intellectual) elements. The cognitive, as an intellectual, refers to the evaluation of the object and particularly the feelings and/or importance that are attached to the object by humans. The cognitive element is a part of a belief that is linked to the knowledge of individuals from a subjective point of view. In conclusion, Kellert (1996) describes value as being composed of beliefs and feelings of individuals towards objects such as wildlife. According to Foster, “Value… is a word with all the complexity of life itself. What we value, and how we value it, depends on both our values and on the value of things in themselves” (Foster 1997, p.2).

Therefore, wildlife’s value is not necessarily expressed in economic and monetary terms, but it is a much broader anthropocentric concept that

encompasses cultural, socioeconomic, political, and ecological implications. In other words, wildlife values can be divided into material and non-material values. The distinction between these two types of values of wildlife is made by relevant actors involved in the exploitation, conservation, and protection of wildlife. According to Brown and Manfredo (1987, p.12), these values may also be distinguished as 'held' or 'assigned' values of wildlife. They describe 'assigned' values as material values that denote the relative importance or worth of something, whereas 'held' values denote non-material values or ideals held by an individual about something (Brown and Manfredo 1987, p. 12).

In addition, Perlman (1997, pp.39–43) develops the concept of 'held values' by describing these as pre-existent beliefs, preferences, principles, and external events. He describes 'assigned values' as not necessarily predetermined, but with active engagement with a valuing agent. Other aspects of non-material values of wildlife are the intrinsic values. These are unlike assigned or held values, which set the anthropocentric views. Instead, intrinsic value is 'inherent in the object or its relationship to other objects' (Brown and Manfredo 1987, p.13). Intrinsic or non-material value further complicates the debates in current wildlife conservation policy by suggesting the inclusion of other values beyond the monetary and material values. According to Norton (1989, p.242), 'It seems unlikely that the issue of whether wild species have intrinsic value will be decided before the question of saving wild nature becomes moot.' However, an intrinsic or non-material value engages ethical and cultural elements, which have been less considered in policy, and the contemporary conservation begins to focus on the cultural and ethical context. At the same time, cultural and ethical debates of valuing wildlife have largely evolved through scientific and technological innovation and socioeconomic transformation. Current valuation methods made attempts to include both non-material and material values of wildlife in the conservation. For instance, total

economic value (TEV) is a concept that refers to the value derived by people for a natural resource.

2.1.3. Cultural dimension in Wildlife Conservation

Many communities and countries recognise their tangible cultural heritage, such as landscapes (cultural heritage site) or symbol species. For intangible heritage, stories, language, and traditional knowledge are considered. These identified tangible and intangible heritages are always at the centre of the attention, and a subject for further investment for maintenance and protection (Tengberg et al. 2012, p. 17). One reason for using cultural dimension to wildlife conservation is that it is "… helpful in communicating the benefits of conservation to diverse stakeholder groups (Reid et al. 2006)" (Hauck et al. 2013, p.14). Cultural dimension to wildlife conservation may facilitate recreational, aesthetic, social, spiritual experiences, and knowledge significance. About cultural dimension, it associates non-material and intangible or non-commensurate values that cannot be separated from other ecosystem services.

Therefore, to improve the understanding of nature conservation, the research is needed to examine possible synergies and trade-offs between cultural, supporting, provisioning, and regulating ecosystem services (Tengberg et al. 2012, p.15). In addition, cultural aspects have linked identity and heritage values. Particularly, scholars like Kumar and Kumar (2008) and Hansen-Mo Lear (2009) describe that these values are set by "… social and cultural experience, habits and belief systems, traditions of behaviour and judgement and styles of living also come into play, factors in other words that are related to the observer and indirectly at best to the ecosystem" (Gee and Burkhard 2010, p.352). These values also set the views and needs of stakeholders. The literature clearly shows that consideration and understanding of local culture, beliefs, and ways of viewing the world are critical to the success of conservation work and that scientific and

traditional knowledge of the environment and culture must complement each other in the conservation project. Building an understanding of local culture and a rapport with local people must be incorporated from the very beginning and is as important as the ecological and biological components of the project.

2.2. Sustainable wildlife management

Wildlife conservation can be interpreted as an intervention with the explicit objective of sustaining and recovering the ecological and biological status of a group of non-domesticated animals in their natural habitat. The primary method of wildlife conservation has been in-situ, where species are conserved within their natural surroundings and habitats. The ex-situ method is complimentary to in-situ, as a secondary conservation measure. This measure offers to the selected species an artificial environment or one outside their natural habitat, while there is a lack of in-situ conservation. These conservation measures need to be identified and specified in the conservation policies. Since, wildlife is a valuable and increasingly scarce commodity, the sustainability debate turns out to be a central argument for contemporary wildlife management.

To some extent, the notion of sustainable use is a highly theoretical concept and is complicated to determine in practice; it brings in the idea of establishing a threshold limit for exploitation or the use of the wildlife resources. The concept of sustainable use is promoted in international law, national legislation, and a number of policy statements of conservation organisations. For example, there are organisations such as the Food and Agriculture Organisation of the United Nations that promote the concept in their field (FAO 2007; Sombroek and Sims 1995), while the International Union for Conservation of Nature (IUCN) also encourages the sustainable-use approach for wildlife-management policy. The IUCN specialist

groups, policy statements, and publications also support the sustainable-use concept, e.g. Christoffersen, Campbell and du Toit 1998; IUCN n.d.

One valuable definition of the concept is provided by the Ecological Society of Australia (2012): “Sustainable use is a rate of harvest within the capacity of the species, and their habitats to maintain them” (ESA 2013). This scientific interpretation reflects international policy discourses through international and multilateral environmental agreements like Conventions on Biological Diversity, Convention for International Trade in Endangered and migratory Species, Convention for Migratory Species, and Ramsar Conventions. The scientific interpretation has also implication for the debate of political and socioeconomic development. For instance, Agenda 21 of the 1992 United Nations Conference on Environment and Development (known as UNCED or the Rio Summit) and the 2002 United Nations World Summit on Sustainable Development (known as the WSSD or the Johannesburg Summit) have highlighted the significance of sustainable use for resource management in socioeconomic contexts, such as poverty-reduction and improvement of livelihoods (Frazier 2007, p.164).

Beyond these, the Convention on Biological Diversity (CBD) clearly indicates its mandate for the sustainable use of wildlife in Article 10 of the convention. This article provides the legal foundation for all member states of the CBD to implement and include sustainable use in their wildlife conservation policies. It confirms that sustainable use is not only a theoretical knowledge or perception, but this concept is also part of the political and policy commitments of the signatory countries. Like the CBD, the Ramsar Convention refers to this type of approach, under the term of ‘wise-use’. This principle is accepted by the member states, and serves as the legal basis for managing wetland biodiversity as well as its ecosystems, in a wise and sustainable manner.

Unlike Ramsar, the CITES (sometimes called the Washington Convention) is intended exclusively to control international wildlife trade and to fight against illegal wildlife-trafficking. The convention, therefore faces a specific challenge with respect to sustainable use, particularly combining the commercial use of wildlife resources and support for local livelihoods at national and local levels. One of the main provisions of the convention focuses on the endangered and migratory species trade, e.g. in Article 4. Endangered and migratory species listed in Appendix II of the convention can be traded, if host countries meet CITES requirements, namely that scientific authorities in these wildlife exporting states certify that such export will not be detrimental to the species or population concerned (Abensperg-Traun 2009, p.952). It indicates that CITES gives to the countries the freedom to enjoy their sovereign powers to access and manage wildlife resources, once they have set a threshold limit.

CITES has three appendices. Appendix 1 is the list of species with extinction, whereas Appendix 2 has the list of species in endangerment. Appendix 3 is a voluntary measure of member states, in case they choose to impose restrictions towards a certain species or population. The complexity of debate links to the species listed in Appendix 2 and their scientific, political, socioeconomic aspects of exporting states. First, this threshold limit requires being grounded on scientific assessment and regular monitoring, which many developing states struggle to achieve due to lacking the scientific capacity and suitable resources. In the case of failure or lacking scientific evidence, the species in international trade need to be considered in a significant trade-review process in CITES. This process requires a non-detrimental findings report regarding the species in Appendix 2. The exporting states must inform regarding all relevant information, including exploitation, management, and conservation actions at national and local levels. In other words, it is a process of reviewing the sustainable use of that specific species for that specific country, range states, and regions.

Some scholars like Rosser and Haywood (2002) note that “the provision is open to abuse because exporting countries may, wittingly or unwittingly, allow trade in some Appendix II species despite detrimental effects on the species or its populations” (Abensperg-Traun 2009, p.952). Secondly, the exporting countries are mainly developing countries, which have the challenges of governance, institutional reform, and transparent trade system. Thirdly, due to failures of meeting the CITES requirement, the exporting states often face a trade ban. However, this international conservation measure aims to prevent any species’ extinction; it is not a sustainable-use approach.

Abensperg-Traun (2009, p.953) highlights that a trade ban is a costly conservation measure that requires large enforcement and a conservation budget. It is also true that when such trade bans are enforced upon a country, this may have a damaging effect upon small areas within that country, struggling to achieve their income (Hutton and Dickson 2000, pp.47–56, 57–66; Abensperg-Traun 2009, p.953). These concerns regarding the implementation of the sustainable-use principle is crucial to CITES and its member states. CITES enables flexibility of the ways in which countries may implement and include sustainable use in their domestic wildlife conservation practice. When it arrives at other international regimes, it may or may not fit with their own conservation objective.

Another international instrument that promotes sustainable use of wildlife is the Convention on Migratory Species (CMS). The convention aims to protect migratory species, including the conservation, protection, and restoration of their migration routes and habitats across their ranges, while it is not restricting exploitation to “traditional subsistence use” (Guerreiro et al. 2011, p. 98). According to CMS, there are some developments to promote sustainable use through supporting local livelihoods, in parallel with migratory species conservation programmes. However, these two international regimes make a large contribution to the sustainable-use approach in the practice of wildlife conservation in

developing countries. Complexity remains in the interpretation of sustainable use in the national strategies and policies and in local practice. To some extent, sustainable use is not a completely new idea to many local communities, or sometimes it is contradictory to their culture. Thus, sustainable use and wildlife conservation are a business of multiple actors from the local to international level. These actors have a contradictory and complex position on sustainable use. In particular, the value of wildlife is perceived differently amongst diverse actors and across scales.

2.3. Importance of endangered and migratory species conservation

Endangered wildlife means the species that have experienced systematic pressures throughout all or a large portion of their ranges, likely becoming extinct. A majority of wildlife has periodic movement between two and more sites, seeking essential minerals as food, avoid harsh winter, and suitable breeding and mating sites. These species belong to multiple ecological communities in different time and space (Reynolds and Clay 2011). It impacts rarity of migratory species in several ecosystems. Rarity augments the risk of becoming extinct. Because rare species often affect the demographic fluctuation or loss of critical habitats in accordance with Reynolds and Clay (2011, p.371). Since migration is significant ecological process, the conservation of endangered and migratory species requires the collaboration of multiple decision making and implementation entities (Miller 2011, p.573). One of the biggest groups of the endangered and migratory species is a bird. Jeff et al. (2008, p.S50) summarised, as "an estimated 19% of the world's 9,856 extant bird species are migratory, including some 1,600 species of land and water birds". According to the research of Somveille et al. (2013), a subject of bird migration fascinates and gets much attention of the scientific community. There are about 2800 references cited in a book and the 4539 articles in the Web of Science under the topic of ''bird migration'', concentrated on aspects such as the

behavioural adaptations of migration, the evolution of migration and the conservation status of migratory species (Somveille et al. 2013, p.1). The status of migratory birds has been classified by BirdLife International in 2008, 11% as threatened or near-threatened on the International Union for Conservation of Nature (IUCN) Red List (Kirby et al. 2008, p.S53). At the regional level, all threatened migratory birds unequally shared by continents, such as "...48% in Eurasia, 14% in North America, 12% in South America, 17% in Africa, and 20% in Australasia (the total is larger than 100%because of shared species)" (Somveille et al.2013, p.3). Particularly, reviews of the status of migratory birds of prey show adverse conservation status for 51% of species in the African–Eurasian region (in 2005), and 33% of species in Central, South and East Asia (in 2007) as noted by Kirby et al (2008). Declining population trend of birds of prey, *Falconiformes* in particular may result in socioeconomic and cultural values of certain countries within its range. Therefore, provided data illustrate that addressing major declines of population trend are urgently required for the overall conservation and governance point of view. For species or habitat level, there are internationally agreed legal basis available for protecting, conserving, restoring, and preventing those birds of prey from extinction. Ensuring full implementation and improving coordination of the relevant conservation initiatives has increasingly become a concern across its range states. Further understanding and improving the conservation and governance is required for the sake of public and ecosystem health and safety in order to prevent possible negative impacts (epidemic, e.g. H5N1, avian influenza) of migratory birds. In the context of socioeconomic and cultural perspectives, the recent studies of Reynolds and Clay (2011) and Miller (2011) highlight the importance of migratory birds to human and ecosystems. These species provide us all valuable ecosystem services through provisioning, supporting, regulating, and cultural and aesthetic services. A literature exploring, particularly social and cultural aspects in relation to governance and conservation

has found very limited in the contemporary natural resource management or migratory bird conservation, the review attempts to contribute to this area.

2.4. Current status of Saker Falcon conservation and trade

There are internationally agreed legal basis available for protecting, conserving, restoring, and preventing the birds of prey from extinction. One of the endangered and migratory raptors that has conserved with numerous international and national legal conservation frameworks is Saker Falcon (*Falco cherrug*). This is an important migratory bird of prey, which has a large home range throughout the Eurasian steppes. The Saker Falcon is a large hierofalcon that feeds mainly on rodents and birds. Saker Falcons usually use an old stick nest in a tree that was previously used by other birds such as storks, ravens or buzzards or nests on cliffs, but lays its 3-6 eggs in spring. Recently, the population trend data revealed that the total wild Saker Falcon population had been reduced by 50 per cent, and required immediate attention and conservation measures (IUCN. 2011). According Birdlife International website, the remaining "global population is estimated to number c.12, 800-30,800 mature individuals, based on national population estimates of breeding pairs (Karyakin 2008; Dixon 2009; A. Dixon in litt .2012; A. Levin in light. 2012, BirdLife International unpubl.data) that total c.6, 400-15,400 pairs (the median c.10, 900)" (BirdLife International, retrieved on 30 July 2013).

The main reasons for the decline of the wild Saker Falcon population include the habitat loss and alteration (through land conversion for intensive agriculture, overgrazing, quarrying, mining, etc.), habitat destruction (through use of pesticides and agrochemicals, electrocution, collision, disturbance, predation, extreme weather, etc.); and wild-takes for falconry purposes through both legal and illegal trafficking, and shooting for souvenirs and religious items (Gombobaatar et al. 2004; Nagy and Demeter 2006). Although, these threats are evident across the

Saker Falcon's range states, there are some variations among the range states. When, the natural landscapes have converted into intensive agriculture, the crucial habitat loss, degradation, and destruction take place in the western ranges, including Hungary, Croatia, Bulgaria, and other Central and Eastern European states up until the mid-1990s. Due to such intensive agriculture, the prey species, such as small rodents and birds were experiencing a sharp decline that impacts the Saker Falcon population in Europe (Baumgart 1991, 1994; K. Ruskov in litt. 2007; Remple 1994; Barton 2000; Riddle and Eastham et al. 2000; Fox 2002; Haines 2002; ERWDA 2003).

Simultaneously, Saker Falcon has designated a Red List species and considered in need of particular protection in the EU. The eastern ranges of the Saker Falcon, such as Central Asia and Mongolia are considered to be its core breeding grounds. Unlike Europe, threats to the Saker Falcon in these areas are associated primarily with unregulated and uncontrolled harvesting in both legal and illegal trade. In fact, amount of threats facing to Saker Falcon in Asia, none of which have been quantified, so it is not possible to say that harvesting is the most important (Dixon. personal comments 2014). Moreover, some chemicals and pesticide uses have been recorded from 2001 to 2004 in Mongolia (Baumgart 1991; Remple 1994; Barton 2000; Riddle and Eastham et al. 2000; Fox 2002; Haines 2002; ERWDA 2010).

Beyond these threats, a main driver of declining Saker Falcon population is escorted by governance changes in Central Asia and Mongolia after the collapse of the Soviet Union. Legal and illegal trade of Saker Falcon has undertaken mainly in post-communist states in Central Asia and Central and Eastern Europe within its major range for the Arabic falconry purpose. Some countries like Mongolia generates a certain part of the state revenue from Saker Falcon trade. Such trade is required sustainable management strategy in the long-term. The key references found for Saker Falcon studies in Mongolia in the following:

Table 2. Key reference for Saker Falcon in Mongolia

Author	Reference
Amartuvshin, P. Gombobaatar, S. Harness, R. 2010	The assessment of high risk utility lines and conservation of Globally threatened pole nesting steppe raptors in Mongolia. In proceedings of the 6th International Conference on Asian raptors Ulaanbaatar, Mongolia. 23-27 June 2010. Asian Raptor Research and Conservation Network and Mongolian Ornithological Society. p. 58 (In English)
Banzragch, S. D.Shijirmaa, Shagdaruren, O. Sumiya, D. Gombobaatar, S. Batzol, B. 1998.	Status, number and population of Saker falcons in Mongolia. International Symposium on Conservation of Houbara Bustard and Falcons. Pakistan.Lahore. (In English)
Dixon, A. Nyambayar, B. Etheridge, M. Gankhuyag, P. and Gombobaatar, S. 2008.	Development of the artificial nest project in Mongolia. Falco 32:8-10 (In English)
Gombobaatar, S. Sumiya, D. Potapov, E. 2010.	Biology, Ecology and conservation of Saker Falcon *Falco cherrug* in Mongolia. In proceedings of the 6 th

	International Conference on Asian raptors. Ulaanbaatar, Mongolia. 23-27 June 2010. Asian Raptor Research and Conservation Network and Mongolian Ornithological Society. p. 80 (In English)
Ellis, D.H. Ellis, M.H. Tsengeg, P. 1997	Remarkable Saker Falcon (*Falco cherrug*) breeding records for Mongolia. J. Raptor res. 31:234-240 (In English)

2.5. Concept of environmental governance

Environmental governance is a subset, or more specialised form of governance, which aims to tackle environmental issues, such as wildlife conservation. The shared power in the decision-making process drives various aspects of society that lie beyond the conventional concerns of state security and the redistribution of natural resources (Wyman 2001). In addition, the term ‘governance’ is characterised more by its widespread use than its clarity or singularity of meaning. One of the most pertinent formulations in this field is provided by Young (1994, p.15): "Governance arises as a social or a societal concern whenever members of a group find that they are interdependent in the sense that the actions of each impinge on the welfare of others". He also highlights that governance means an interdependence that gives rise to collective action problems in the context of the actors, who left to their own devices in an interdependent world. He further elaborates that governance involves the establishment and operation of social institutions (i.e. Rules of the game that

defines social practices, assign roles and guide interactions among the occupants of those roles) capable of resolving conflicts (and/or) facilitating (Young 1994, p. 15). In addition, the environmental governance advocates sustainability as the ultimate deliberation of administering all anthropogenic activities (Brandes and Brooks 2005, p.8). To encapsulate these assorted constituents, environmental governance often uses different systems of governance, e.g. endangered and migratory species trade, migratory species conservation, or chemical pollutant control.

On the other hand, Lemos and Agarwal (2006, p.298a) acknowledge that environmental governance "… is synonymous with interventions aiming at changes in environment-related incentives, knowledge, institutions, decision-making, and behaviours". Moreover, Paavola (2005, p.94) claims "a broader definition of environmental governance as the establishment, reaffirmation or change of institutions to resolve conflicts over environmental resources". He refers to governance as being applicable for resolving conflicts of interest among the involved parties for all natural resource-use and management fields that include both renewable and non-renewable resources from biodiversity to atmospheric sinks, "... as well as to environmental safety and the quality of air and water" issues (Paavola 2005, p.94).

For the conceptual development of environmental governance, Paavola et al. (2009) provide the distinction of governance, governance framework, and governance regime. According to them, governance framework includes "… specific, purposive governance, interventions that are developed and delivered by multiple actors at multiple scales in pursuit of a broad goal (i.e. protection of biodiversity)" (Paavola et al. 2009, p.149). The basic assumption behind these definitions is that environmental governance can be perceived as an institutional arrangement of collaboration and intervention, to respond to and resolve environmental problems through incentives, awareness-raising, knowledge and

information sharing, further considering social justice and democratic pluralism in decision-making (Lemos and Agarwal 2006; Driessen et al. 2012; Paavola 2005; Paavola et al. 2009). It sums up that an environmental issue, for instance endangered and migratory species conservation and trade requires governance embedded at multiple scales and levels.

To tackle the globally endangered and migratory Saker Falcon conservation and trade debate can be argued at multi-level and multi-scales. Therefore, complexity of environmental governance is entailed realistically to respond to such problem with feasible and holistic measures, while it establishes an efficient system, respecting the values of social justice, the ecological sustainability, economic equity, and cultural diversity-sustainability (Howitt 2002; Paavola 2006). Indeed, to overcome these complexities, environmental governance needs to examine the key problems, like scale, available resources management approach, institutions and institutional dimension, actor and stakeholders, and multi-level and multi-scale governance. Overall, environmental and resource governance is a complex and dynamic system (Young 2010, p.379). In addition, developing and transitional countries often have a major environmental governance complexity.

2.5.1. Scale problem in governance

The scale problem is a broad concept of environmental governance and policy-making that can be conceptualised in diverse ways. Nonetheless, the concept has been studied in political science discipline for decades, and an understanding of scale has recently been claimed as a fundamental element of geography (Moore 2008). According to Herod. (1991, p.82), “Scale is, arguably, geography’s core concept, for only through its resolution can we negotiate the boundaries between difference and similarity.” In the context of governance, scale is extensively employed in order to provide an organisational framework for

defining boundaries related to social claims, activities, and behaviours (Blaikie and Brookfield 1987).

Scholars like Leitner (2004, p.237) extend the concept of vertical scale in relation to power: “[P]olitics of the scale is associated with vertical relations among nested territorially defined political entities; by contrast, networks span space rather than covering it, transgressing the boundaries that separate and interpret these political entities.” According to Leitner (2004, p.237), “Transnational networks represent new modes of coordination and governance, new politics of horizontal relations that also have a distinct spatiality.” Based on these definitions, environmental governance has both vertical and horizontal scalar elements, which are embedded in hierarchical levels and nested territorial units or entities, and governance operates a distinct spatiality horizontally, through transnational networks.

In addition, Bulkeley (2005, p.876) notes that the conceptual development of scale related to environmental governance is still incomprehensive, in the ways in which such problems are formed, fabricated, measured and argued between, across, and among scales. However, environmental governance, as Bulkeley. (2005, p.875) highlighted, “… must be sensitive to both the politics of scale and the politics of networks”, while hybrid governing arrangements enables operation in governance or network beyond nested territorial containers. Extending this argument, scale is central to the interactions between actors at different levels (Paavola et al. 2009). The scale has relational characteristics, for example, as illustrated by complicated hierarchies at the national, regional, and global levels. But, scales are not a rigid vertical or hierarchical structure. As MacKinnon (2010) explained, scalar relations are categorised as “… mosaics rather than fixed vertical pyramids, comprising a range of superimposed and interlocking scalar geometries and hierarchies” (MacKinnon 2010:, p.25).

Further, Martson et al. (2005, p.417) claim, “Scales evolve relationally within tangled hierarchies and dispersed interscale networks. ... Each geographical scale is constituted through its historically evolving positionality within a larger relations grid of vertical ‘stretched’ and horizontally ‘dispersed’ socio-spatial processes, relations and interdependencies” (2001, p.605–6, emphasis in original). According to these definitions, the functions of traditional state are redistributed in non-state actors at international and local level (Jessop 2002; MacLeod and Goodwin 1999; Pierre and Peters 2000). It relates to the globalisation, particularly economic restructuring in both global and local simultaneity (Bulkeley 2005, p.882). In contrast, a scale problem related to governance indicates the mismatch between theory and practice. The most striking part of the debate is primarily explained by the processes of economic and politically defined territories between treaties and governments (Görg 2007, p.957). In other words, the work of Brand and Görg (2003) and Görg and Brand (2006) demonstrate environmental “governance with government”.

Such empirical reality is more relevant to many developing and transitional countries. Particularly policy-making and implementation of governance system is only optional, whether or not such governance includes the non-state actors. In contrast, Brenner’s statement affirms that scale is constructed and interconnected as dimensions of wider socio-spatial processes, such as “capitalist production, social reproduction and state regulation rather than representing inherent properties of spatiality” (MacKinnon 2010, p.25). For instance, multilateral environmental agreements and their policy-formulation reveal the multidimensional characters. Such framing of scale problems in environmental governance and natural resources management (NRM) shifts the debate of institution and institutional dimension.

2.5.2. Problem of institution and institutional dimension

In recent years the emergence of global governance has stimulated and reinforced the concept of institutions, particularly on wildlife conservation. According to Najam et al. (2006, p.3), global governance can be understood as "the sum of organisations, policy instruments, financing mechanisms, rules, procedures and norms that regulate the processes of global environmental protection". Young (2002) applies the idea towards the concept of institution. He refers to an institution dealing with environmental and resource issues, known as environmental and resource regime. Young (2002, p.5) refers to "institutions as sets of rules, decision making procedures, and programmes that define social practices, assign roles to the participants, and guide interactions among the occupants of individual roles". In short, he defines institution as a social practice (Young 2002, p.6). According to him, the concept of the institution cannot be confused with the term of organisation, but institution refers to a series of rules and procedures with and without behavioural significance. Further, he refers to the institution as a much wider concept, which includes a range of dimensions like "… functional scope, spatial domain, degree of formalization, stage of development, and interactions with other institutions" (Young 2002, p.5).

Institutional dimension debate takes place in the institutional reform argument. It is increasingly surrounded by a thought of systemic moves towards justice and sustainability. Achieving justice and sustainability requires a shift from a single-tier 'government' approach towards a multi-scaled, multi-sited environmental governance paradigm (Armstrong and Stratford. 2004; Evans et al. 2006; Hillman and Howitt 2008, p.56). It confirms that institutions are "systems of norms and decision-making procedures that give rise to social practices that assign roles to participants in these practices, and guide their interactions" as Biermann et al. (2009, p.39) noted. In other words, Folke (1996, p.371) described wildlife conservation institutions as "the humanly devised constraints that shape human

interaction. They structure incentives in human exchange, whether political, social, or economic, and shape the way societies evolve through time (North 1990)." Young suggests that the dynamic evolution of environmental regimes refers to "... the interaction between structural factors, such as the nature of the environmental problem at hand, and the institutional features of the regime, such as monitoring mechanisms and voting rules" (Urpelainen 2012, p.339). These affect the institutions, which could be understood not only as standardised structures for overcoming natural resource management, but "they also can play a role in the onset and impact of environmental problems" (Young et al. 2008, p.116).

As stated in the earlier work of Young (1996) and Oberthür and Thomas (2006), there are different types of institutional interactions. Young and others consider the institutional fit, interplay, and scale as institutional problems (Young 2002b). 'The institutional fit' means the relation to the prevailing institutional arrangements within socioeconomic systems (Ebbin 2002; Young 2002b). The problem of interplay refers to different institutional arrangements interacting with each other horizontally or vertically and politically or functioning in ways that significantly influence outcomes (Young 1996, 2002c; Lebel 2005). Paavola, Gouldson, and Kluvánková-Oravská (2008) examine institutional interactions, focusing on the relationship between states and institutions, particularly issues of institutional fit, interplay, and scale in biodiversity governance within the European Union (EU) system. They also note that physical factors, time, and jurisdictional scales are crucial for the analysis of institutional interaction.

Thus, scholars suggest that institutions need to fit and interplay not only with socioeconomic condition, but also set in the biophysical and spatial scale context. Young further underlines how international regimes will or will not contribute to global environmental sustainability through institutional dynamics, while Paavola (2005, p.101) highlights "the establishment, affirmation, or change of institutions to resolve environmental conflicts" in general. Paavola (2005, p.101) emphasises

biodiversity governance, institutional design, and its three core aspects, such as 1) functional and structural tiers, 2) governance functions, and their organisation, and 3) formulation of key institutional rules (Paavola 2005, pp. 98–99). These aspects are considered as crucial factors in further institutional analysis, particularly in improving decision-making through the inclusion of social justice implications. Paavola (2007, p.101) suggests that the choice of governance solutions is a matter of social justice rather than of economic efficiency. Therefore, institutions are not static, but rather dynamic structures that evolve as part of a wider system. Complexity of institution and institutional dimension is closely related to the problem of wildlife conservation.

2.5.3. Problem of actor and stakeholder

According to Reed (2008, p.2417), the complex and dynamic nature of environmental problems obliges adaptable and transparent decision-making that embraces a diversity of knowledge and values. To this extent, actors and stakeholder' participation in environmental governance has been increasingly pursued and embedded in national and international policy. In actor context, environmental governance can be described as the interaction between actors pertaining to the state, the market and civil society. The concept of "stakeholders" has become visible, especially when participatory approaches recognized in environmental decision-making (Reed 2008). Other terms sometimes used in a similar way to stakeholders are "actors" and "interest groups". The word "actors" stresses that stakeholders are active and interact with each other (Grimble and Willard1997, pp.173-193).

The use of the words "interest groups" indicates that people can be grouped according to a common interest. Among these groups, for example, valuing wildlife could be recognised differently. In the wildlife conservation process, each group or stakeholder has own interest and priority to achieve and include the governance

arrangement. Participation is defined as a process where individuals, groups and organisations choose to take an active role in making decisions that affect them (Wandersman 1981; Wilcox 2003; Rowe et al. 2004). Therefore, stakeholders are defined as those who are affected by or can affect a decision (Freeman 1984; Reed 2008). As Reed (2008) argued, most conservationists focus on engaging those who hold a stake (whether directly or indirectly) in the scope of their initiative, rather than attempting to meaningfully engage with the wider public.

Stakeholder approach is defined as a "holistic approach or procedure for gaining an understanding of a system, and assessing the impact of changes to that system, by means of identifying the key actors or stakeholders and assessing their respective interests in the system" (Grimble and Wellard 1996, p.175). Yet, stakeholder identification and developing mechanisms for their involvement remain important challenges for environmental governance. If the stakeholder's mechanism operates a significant part of the environmental governance, stakeholders' power dynamic and behaviour play an important role in the governance system.

For instance, one of the main aims of the environmental governance related to wildlife conservation can be how to identify appropriate actor, or relevant and influential stakeholders, exercising the power for conservation and management to achieve the conservation objectives, and set a mechanism with respect of values and interests of participants. To understand this process, the concept of power needs to be explored. Hay (2002, pp.171-87) notes that power can be described as shaping either 'context' or 'conduct'. According to Hay (2002), diverse actors can impact the political environment, or context, where a policy originates by affecting the attitudes or preferences of policy makers. Political actors can have a significant influence on the policy making process, in which they strive to ensure a range of possibilities most acceptable for their own interests. They are able 'to "have an

effect" upon the context which defines the range of possibilities of others' (Hay 2002, p.185) with different scales in various levels and stages.

Therefore, power in governance has the effect of political actors, which separates the policy making process into different stages and level. These actors shape the context within the policy development process, which may be continuously changing due to their influence and effect to the process. However, this approach is often workable in part of policy development of wildlife conservation, the gap or challenge is in implementation part, where power shifts to non-political actors. About the state role and its power, the scholars have controversial views. A state has the role and function of decision making through political leaders and experts, who were widely understood to hold the power of governance. The fact that the state is not a homogenous entity, but is instead a complex network of different actors, indicates that, even under a narrow definition, governance must be a complex, multi-actor, multi-level and multi-scale process.

Since, the traditional governance power of the government already shifted to multiple actors, the debate of wildlife conservation is relevant to multiple actors, such as state-based, non-governmental organisations, corporations, media, activist, educational and scientific bodies (Paavola 2002, p.80). For example, regarding the biodiversity governance in Europe Kluvankova-Oravaska et al. (2009) describe that 'informal and multiple agents that are independent of a central power and operate at different levels of decision-making.' (Kluvankova-Oravaska et al. 2009, p.187). The government authorities operate at different levels, cooperating with private parties – both from civil society and market – with direct interests in the issues at stake (Glasbergen 1998). Nevertheless, scenarios of developing and transition countries have a totally different arrangements, a central government may hold a major power of decision making and management of natural resources. The emergence of intergovernmental organisations and multilateral environmental agreements (MEAs) have impacts on power relations

across and beyond the jurisdiction of all nation-states (see. Jessop 1994; Cashore 2002; Harvey 2003). Beyond the state, according to Paavola (2002, p.87), the media can play an influential role in both the negotiation of the environmental management plan and making the governance regime effective. Media can promote public awareness and stimulate the debate through informing, monitoring, and reporting about the environmental problem, e.g. wildlife problems.

2.5.4. Problem of multi-level and multi-scale governance

The problem of multi-level and multi-scale governance can be involved with the issues of actors, institutions, processes, and implications with regard to environmental issues like wildlife and endangered and migratory species management. The main problem of multi-level and multi-scale governance is related to forms of power and authorities, which are exercised by multiple actors ranging from local communities to NGOs and international financial institutions, beyond geographically, defined nation-states (Duffy 2006, p.108). Particularly, the process and implications of globalisation, global governance, science, and transboundary resource management are more visible problems in this debate. For instance, globalisation literature reveals that, as Duffield (2001, p. 44) noted, there is a fluid, mutable, and non-territorial structure and relationship to governance. As Lemos and Agarwal (2006) examined, such a fluid and non-territorial process as globalisation has contributed in both negative and positive ways to governance and environment. Within the context of globalisation, growing global market, international trade, and changes in global politics have positively transformed the conceptual meaning of governance, to some extent through providing a wider participation of multiple stakeholders in decision-making and implementation.

In relation to the environment, globalisation negatively impacts resources, e.g. wildlife and wildlife products, and their management by depleting resources and increasing demand, which has multiplied in recent decades (Lemos and

Agarwal 2006; Oldfield 2003; Jackson 2003). Within the globalisation, Bulkeley (2005, p.894) points out that governance is viewed as an alternative network, which can be conceptualised as "… part of a polycentric system of multilevel or multi-scalar governance (Betsill and Bulkeley 2004; Bulkeley et al. 2003; Hooghe and Marks 2001)". The complexity of such systems of the network is to develop institutional arrangements at multiple spatial and temporal scales, e.g. from local to global, or in short- and long-term, for the most appropriate, adaptive, and sustainable solutions for the sake of societal and environmental benefits.

Young (2002) and others find that the establishment of global environmental institutions has made important progress towards multi-level and multi-scale governance and especially wildlife and endangered and migratory species management. This non-territorial establishment of global environmental institutions has reshaped the debate of governance and power away from the nation-states and is rescaling their institutions. More importantly, the phenomenon of global environmental governance is "… bound up with transnational groupings of consultants, academics and single issue pressure groups or NGOs that constitute international epistemic communities [Haas 1992; Litfin 1994; Selby 2003, p.6]" (Duffy 2006, p. 93). Duffy (2006, p.94) highlighted Litfin's work, stating that scientific information like all forms of knowledge is embedded in the structures of power, including disciplinary power, national power, and socioeconomic power. It reveals that the problem of multi-level and multi-scale is a problem of scientific knowledge, which provides the ample foundation of political power (Litfin 1994; O'Brien, Goetz.Scholte and Williams 2000, p.206e233; Princen and Finger 1994 cited in Duffy 2006, p.94). The scientific issue is also associated with the technical aspects of the multi-level and multi-scale governance problem, such as capacity, information exchange, and knowledge-flow discourses, as well as funding and resource mobilisation.

Science policy facilitates a policy re-orientation, as Liftin (1994) marked, by informing and determining environmental issues through or in global environmental conventions. MEAs have the scientific or advisory committees that put forward the emerging scientific or conservation biology issues into policy context. Technical aspects are another complex problem of multi-level and multi-scale. Another problem or complexity of multi-level and multi-scale governance is to recognise relevant actors/stakeholders and their networks at their relevant different levels and scales as well as their capacity issues. However, recognising stakeholders/actors is a challenging task, as there is a broad interest in involving stakeholders in policy processes, particularly in wildlife management (Oldfield 2003). For example, the transboundary nature of wildlife, particularly endangered and migratory species management is required in those territories independent units as well as scientific or NGOs to interact and collaborate achieving to their conservation goals in a mutually respected and interdependent manner.

Therefore, debates of multi-level and multi-scale governance relate to both State and non-State actors, beyond their territorial boundaries and power structure. The issues like scientific knowledge, information exchange, and capacity are the main problem of such governance. In a global governance context, the multi-level and multi-scale governance problem is involved in the institutional interplay. For example, most international regimes encompass both vertical and horizontal institutional interactions through implementation processes and a network of actors (Paavola et al. 2008). In addition, most of these regimes have individual functions, organisational structures, and financial mechanisms. Politically, each region has a separate conference of the parties (COP), whiles multiple regimes, e.g. wildlife related MEAs, are able to have a collaboration in tackling endangerment or extinction of specific species conservation, or agreeing on key principles like sustainable use and precautionary measures. According to the decision of the COP15 of the Convention on Biological Diversity (CBD) and 2010 Biodiversity

Target, the idea of synergy between biodiversity-related international initiatives garnered considerable support from parties and other stakeholders (CBD 2010). Recently, wildlife conservation agreements, such as CBD, CITES, CMS, and Ramsar Convention start promoting synergy among themselves. They attempt to set a mechanism to interact horizontally with each other as part of a coherent multilateral conservation frameworks for wildlife conservation.

This synergistic approach has begun from 2004, when the Regional Workshop for Africa on the synergy among the Rio Conventions and other biodiversity-related conventions in implementing the programme of work on dry and sub-humid lands and agricultural biodiversity was held. MEAs facilitate, on the one hand, multi-stakeholder responses, such as the creation of conservation policy and implementation networks. On the other hand, it creates the sharing of responsibilities and interacting across levels and scales of actors. These comprise meetings of the parties, standing committees, scientific or advisory committees, Secretariat, and national focal points, such as appointed individuals, who are responsible for the national - scale regime-implementation.

2.6. Community-based natural resource management approach

Community-based natural resource management (CBNRM) seeks to promote both the conservation of natural resources and the environment and improve the livelihoods of people who are most directly impacted by natural resource use by devolving natural resource and conservation management activities to the community level (Gibbes and Keys 2010). For instance, this approach was adopted by many developing countries, including Mongolia for forest management in the Law on Forest 2012 which gives communities the ability to form forest user groups to hold tenure over forest land and manage and use forest products from that land (Ministry of Environment and Green Development of

Mongolia 2013). Such community-based management programs have been implemented in a wide variety of contexts around the world, especially in developing countries, but have met with mixed levels of success (Gibbes and Keys 2010; Pienaar, Jarvis and Larson 2013). CBNRM usually focuses on common pool resources, the management of which has been extensively studied over the past two decades (Ostrom 2008). A common pool resource is one, which has the features of difficult and more costly exclusion (the resource is sufficiently large or widespread, or access is guaranteed by law, that it is difficult to exclude potential users) and subtractability (one user's extraction of some of the resource denies another user that portion of the resource) (Schlager 2002). Such resources include wildlife, timber, irrigation systems, and pasture. In a given situation, a number of factors affect how likely a community-based management approach for a common-pool resource is to succeed. Schlager (2002) identifies these factors, both for the resource in question, and the community that could manage it.

Attributes of the resource:

- Feasible improvement: harvesting the resource must be of value to the community, and it must be feasible to bring the quantity of the resource to a level which is sustainable harvestable

- Condition of the resource can be monitored and predicted: the community must be able to monitor the resource and make viable predictions on its availability in the future

- Spatial extent: the community must be able to understand the extent and boundaries of the resource so that its limited nature is acknowledged

Attributes of the community:

- Salience: the community must value the resource or depend on it to some degree

- Common understanding: the community must come to a level of agreement on how the resource should be used, how available it is, and how their actions can influence its abundance or decline

- Low discount rate: the benefits from the immediate overexploitation of the resource must be small compared to the long-term benefits of its sustainable use

- Experience in organising and leadership: there must be some existing social capital in the community to be able to create the necessary local institutions to manage the resource

- Trust and reciprocity: the community must have a sufficient level of trust in its members that they will follow the management plan

- Autonomy: the community must be granted sufficient powers and rights by the government to manage the resource without undue interference

While not all of these attributes are required for the success of a CBNRM program, the more strongly they are present, the more likely success is (Schlager 2002).

Once a CBNRM program has been established, there are several factors that help it succeed in achieving management, conservation, and development objects. The most important are a clear definition of who constitutes the user community, effective exclusion of other users, and monitoring accountable to or conducted by the community (Schlager 2002). Unauthorized users outside of the management structure seriously damage its effectiveness and can overexploit

resources. Without a clear definition of the community, it becomes difficult to exclude such unauthorized users. However, defining what constitutes the community can be difficult, as it may lead to exclusion of marginal groups or face issues as the community changes (Gibbes and Keys 2010). Any community is heterogeneous to some degree, which impacts how the benefits of a CBNRM program are distributed. An improperly designed CBNRM program can reinforce existing power structures, or cause conflict with existing elites (Gibbes and Keys 2010). Effective CBNRM implementation requires better monitoring with cooperation between users, officials, and scientists. A major study of forests around the globe under a wide variety of ownership arrangements, from protected areas to private ownership, found that effective monitoring of the forest was the most important factor affecting forest health, no matter the ownership type (Ostrom 2008).

To be successful, a CBNRM program must be designed with the local ecological, social, and economic situation in mind (Altrichter 2008). Greater collaboration is required in this area, between biological and social scientists and conservation practitioners (Peterson, Russell, West, and Brosius 2010). Local culture, identity, and ways of perceiving the environment greatly influence how a conservation project should be conducted. Traditional ecological knowledge and beliefs should complement those from science to build a more effective and robust project. However, many existing conservation programs have poorly implemented social research, which should be a key part of the program from the beginning and closely involve and rely on local people and organisations (Peterson, Russell, West, and Brosius 2010). External influences outside the control of the community can have a positive or negative effect on the program, such as market prices for various resources and the willingness of the government to devolve rights and responsibilities (Murota and Glazyrina 2010).

A major review of 136 community based conservation projects across 40 countries, covering forests, grasslands, wildlife, and fisheries quantitatively identified important attributes that aided several areas of project success (Brooks, Waylen, and Mulder 2012). The study assessed attitudinal, behavioural, economic, and ecological outcomes, based on national context, project design, and community characteristics. They found that project design was most important for determining success, and a well-design project could overcome national or community issues such as corruption or community heterogeneity. Project design aspects, specific engagement with cultural and government institutions, capacity building, and local participation in decision-making and management were most important for achieving ecological outcomes. The study also found synergies between different domains of outcomes, particularly between behavioural and ecological outcomes, and ecological and economic outcomes. The most important factors for success outside of the direct control of the project were supportive local culture and traditions, and devolution of rights and powers to the local level (Brooks, Waylen, and Mulder 2012). Depending on the implementing organisation, integrated conservation and development projects (ICDPs) of this sort tend to focus too much on developing a particular type of capital; instead, programs should seek to sustainable balance natural, social, human, built, and financial capital (Garnett, Sayer, and Du Toit 2007). Programs also need to explicitly consider the trade-offs in ICDP work, as studies have shown that win-win scenarios between social and environmental outcomes seldom occur (McShane et al. 2011). Rather, acknowledging and understanding trade-offs will help build a more equitable and resilient program.

2.7. CBNRM for wildlife conservation

CBNRM programs targeted at wildlife conservation have been undertaken around the world in various contexts. Most seek some combination of reducing

human-wildlife conflict, allowing sustainable harvest of wildlife, incentivising conservation, and empowering and developing communities. Programs in sub-Saharan Africa have sought to incentivize conservation, encourage sustainable resource use, create economic development, and improve equity in rights and benefits (Gibbes and Keys 2010). Many programs have focused too heavily on the conservation or economic development aims, often failing to sufficiently link the conservation to economic benefits, and neglecting opportunities to promote equity (Gibbes and Keys 2010).

In many parts of sub-Saharan Africa, large wildlife species provide a significant tourist draw, presenting an obvious alternative income source. However, communities in developing countries are not necessarily in a position to use revenues from CBNRM for conservation work due to a lack of capacity. Revenues often invest in community projects and to pay those managing the program, reducing the conservation benefits that can be realised (Pienaar, Jarvis, and Larson 2013). Pienaar, Jarvis, and Larson (2013) propose using CBNRM revenues to fund a community conservation corps, hiring and training local residents to conduct various conservation tasks such as reforestation, monitoring, livestock herding, and building corrals and crop fences. Such a program would increase conservation outcomes while increasing earnings in the community, and would also support capacity building and the development of institutions.

The most successful CBNMR program for wildlife in sub-Saharan Africa is Namibia's. After independence from South Africa and the end of apartheid in 1990, the country suffered severe declines in many wildlife species, primarily due to poaching. With two third of the population living in rural areas and only eight percent of land arable, people depend heavily on natural resources. In 1996, the government passed a law setting up the CBNRM program, which was implemented by the Ministry of the Environment and local NGOs with support from The United States Agency for International Development (USAID) and World Wide Fund for

Nature (WWF). The program allowed local communities to form conservancies, over which they have the management and use rights. All revenues from the conservancy go directly to the community. These programs have led to measurable improvements in living conditions for conservancy members, increase in wildlife populations, and effectively increased the size of protected area buffers zones by 50% (Brown and Bird. 2011).

Several factors led to the success of this program. From the outset program design was guided by common pool resource theory, which helped to ensure that the institutional framework for CBNRM would be geared towards local control and cooperation. Management authority and usage rights were devolved to the lowest possible level. Equity, participation, and benefit sharing were explicit policy goals from the outset, guarding against the capture of benefits by local elites. Lessons learnt from CBNRM programs in neighbouring countries, especially Zimbabwe's, were taken into account. The program has been driven by local priorities coming from the residents themselves. These factors allowed the program to create a clear link between conservation and economic development (Brown and Bird 2011).

Such strategies are not suitable for all wildlife, though. Large carnivores that prey on livestock are often critically endangered and migratory species conservation, and face retaliatory action from people who have lost livestock to them. In developing countries, losing even a few livestock to predation can be a serious loss to a family, creating a significant incentive to retaliate (Pettigrew et al. 2012). Due to their conservation status, and that of their prey, which has often been depleted by hunting, no level of human harvesting is sustainable. Successful programs to reduce human-wildlife conflict with large predators usually involves preventive and mitigation measures (Pettigrew et al. 2012). In preventative measures include constructing predator-proof corrals for holding livestock at night, providing sufficient habitat for natural prey species to recover, and voluntary relocation out of predator habitat. Mitigation measures include compensation for

livestock loss to predators to reduce the financial incentive to retaliate, and community-based insurance schemes for livestock. Compensation programs should always be tied to conducting predator-friendly livestock and land management practices to incentivise these.

Alternative livelihood education and sharing benefits of ecotourism can also aid conservation. However, many implemented programs have lacked sufficient monitoring of predator and prey populations to determine if their numbers have been improved by the program (Pettigrew et al. 2012). In areas where conservation work is affected by local, traditional uses of wildlife, an approach integrating ecological and cultural issues is important for success (Garibaldi and Turner 2004). A useful approach to link these spheres from the outset is the cultural keystone species. This is a concept analogous to the keystone species in ecology, and Garibaldi and Turner (2004) define cultural keystone species as "culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practice." They suggest that such species of fundamental importance to traditional cultures are useful starting points for conservation and restoration efforts, as they are of immediate importance to the local people who have the most direct impact on those species, and the most interest in preserving and sustainably using those (Garibaldi and Turner 2004).

However, this approach was primarily developed based on work with First Nations peoples in western Canada, who still have a close linkage to the land and their traditional practices (Garibaldi and Turner 2004). In the former socialist countries such as Mongolia, such traditional knowledge is not always as intact as it is elsewhere in the world.

2.8. Conclusion

The literature review indicated that there is little research on the globally endangered and migratory species conservation, governance, and trade in general. Consequently, there is a gap of explanatory knowledge and interconnected information to enhance and implement the current conservation policy and actions, reducing the threat to the migratory birds of prey. Based on the review of these themes, wildlife conservation and migratory birds of prey in specific is a highly complex political and economic practice, which is influenced by different values of participating stakeholders. However, the free market is becoming an exceptionally robust economic force (Moulton and Sanderson 1997), and the expansion of being a part of the free market is a challenge to wildlife conservation, particularly in the context of developing countries. Particularly, it shifts the total wildlife conservation paradigm from the strict protection and isolation of humans from nature into a more wise or sustainable-use feature that re-orients and re-builds human and nature relationships at a new level. Such a rescaling and reconstruction process begins at all spheres, exclusively in the governance field through institutional reforms. But environmental governance and institutional rescaling require the contemporary wildlife conservation and policy-making to become more fluid and with polycentric perspectives through a community based natural resources management policy.

State-centred rigid structure has become a myth, in which national states use and control all resources. In addition, this transformation also has a great impact to think with a wider scope, e.g. a transboundary context, instead of struggling to protect or tackle the wildlife loss within territorial boundaries. In other words, rescaling the vision towards environmental problems is evolving. Multilevel and multi-scale governance issues have become an important debate for wildlife conservation. Beyond multi-level and multi-scale governance actors, the underlying complexities of wildlife conservation are linked to new conceptual development,

such as in valuing nature. This concept is not only exposed to philosophical, scientific, economic, political, and social arguments, but also to cultural viewpoints, such as identity and heritage values being interpreted in multi-scales for the purpose of conservation. Thus, these concepts of sustainable use, valuation methods, both tangible and intangible values, and the cultural dimension has become significant drivers to update the current wildlife conservation debate.

Chapter 3. General Methodology

Introduction

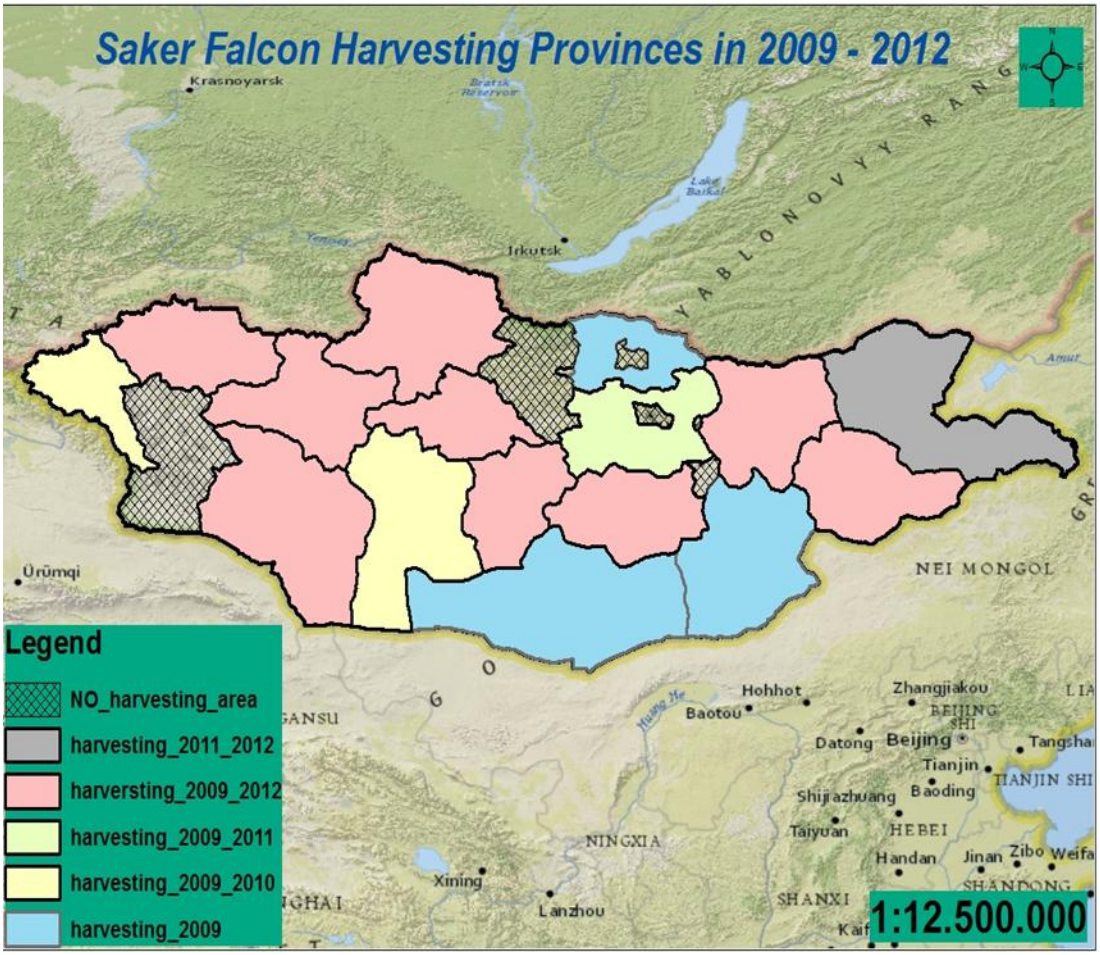
This chapter sets out the design and methodology for the study of the scalar dimensions of environmental governance as related to the conservation and trade of the Saker Falcon in Mongolia. The study consists of content analysis and field study. The content analysis revised and examined the existing literature related to this study subject. The field study has a vital role in this research. According to Bailey (2007, p.2), 'a primary goal of field research is to understand daily life from the perspectives of people in a setting or social group of interest to the researcher'. To understand contemporary wildlife conservation in Mongolia, the field study provided an opportunity for a study on multi-dimensional environmental governance and regulatory frameworks by mixed research methods. The key concepts and practices of environmental governance in relation to Mongolia's Saker Falcon conservation and trade have been examined from secondary sources, such as existing academic literature, government policy documents, and reports to the MEAs. These construct an overall endangered and migratory species policy map, and specifically Saker Falcon conservation policies, decision-making processes, and patterns, in addition to reviewing the implementation of pertinent multilateral environmental agreements in Mongolia. About policy mapping, this study needed to find a tool detecting interactions, approach, and practice amongst multiple actors and stakeholders. As Punch (2000, p.38) noted, 'explanatory knowledge is powerful: when we know why (or how) something happens, we know more than just what happens, and we can use the explanation for prediction' (Punch 2000, p.39). Adopting a qualitative methodology for the study was considered suitable for this study. As argued by Brockington and Sullivan (2003, p.57): '… if we reflect on the reasons for asking questions which require qualitative methods, and the nature of the answers they provide, it becomes clear that

qualitative approaches also embrace significant philosophical debates regarding the nature and implications of subjective experience…'. Thus, the study attempts to find a method to construct and critique current Saker Falcon conservation policies and practices with due attention to the subjective experiences of various stakeholders. Chapter 3 explains and justifies the methods used, the sampling strategy and the selection of study sites.

3.1. Identification of study areas and stakeholders

To identify the study area, there are several key factors. First, in the central region of Mongolia, a number of Saker Falcon studies have been conducted in the past. In particular, biological and ecological data collections were conducted in 1996, 1999, 2002, and 2010 by the Institute of Biology, Mongolian Academy of Sciences (MNET 2012). In addition, scientific research on the diet and reproductive success of Saker Falcon at artificial nest sites was undertaken in the central region of Mongolia by the National University of Mongolia in 1996-2006, and the Wildlife Science and Conservation Centre (WSCC), an NGO, from 2006, in collaboration with the IWC. Second, the government has regularly issued harvesting permits in several provinces of central Mongolia, as shown in Figure 1. However, there is no clear data between the areas that permits are issued and actual harvesting activities taking place. There were only a few provinces that saw intense harvesting in 2009-2012, and the majority of permits were issued and approved in the same period. Third, more significantly, the central region has had a particularly high number of visiting trappers over the last decade (Gombobaatar et al. 1999; Gombobaatar et al. 2000; Gombobaatar 2004). Fourth, the study area is dominated by steppe and desert steppe ecosystems, where large Saker Falcon populations can take refuge (Gombobaatar et al. 2000; Gombobaatar 2004).

Figure 1. Saker Falcon harvesting and nesting Areas



Sources: WWF, Mongolia 2008. http://gis.wwf.mn/Mapdata/

For this type of ecosystem, much of the breeding occurs in their natural nests. Fifth, the geography of such land lends itself to the building of artificial nests (Dixon, Batbayar, Etheridge, Gankhuyag and Gombobaatar 2008). It is predicted that local people and governments are relatively knowledgeable regarding Saker Falcon conservation, such as artificial nests and harvesting activities. Thus, Saker Falcon biological and ecological research issued permits for harvesting and

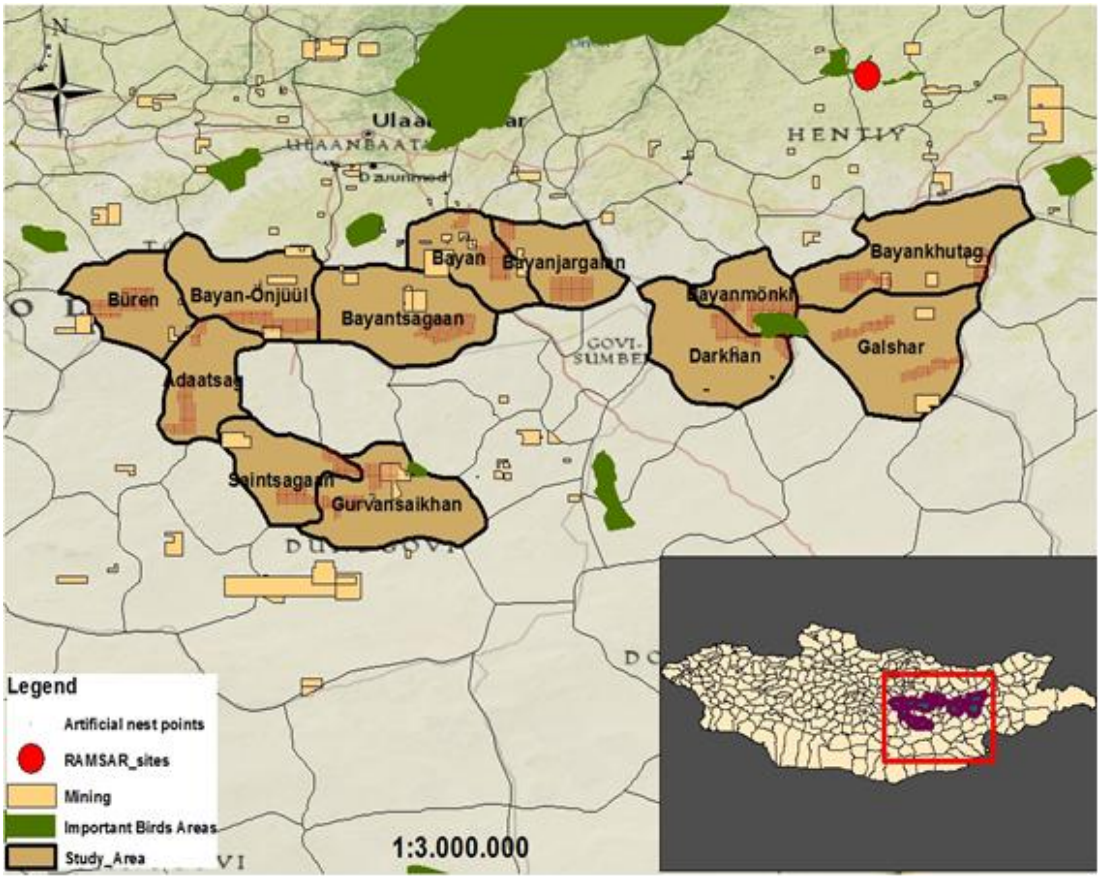
harvesting activities, so natural breeding grounds and artificial nests became the main indications for selecting the study area. From the study areas, two case study areas have been selected to explore the cultural dimension of wildlife conservation. These two places were locally well-known biodiversity hotspots. However, local people's culture towards nature seem similar, their approach to wildlife has a significant difference. About identifying stakeholders, the literature and secondary sources indicate that Mongolia's current system of policy making for Saker Falcon conservation and trade does not include multiple actors and different parties. Therefore, the study attempted to introduce this stakeholder approach for wildlife conservation, and to employ the multiple stakeholders' view as a research tool. To that extent, before the field study, the relevant stakeholders have been identified on the basis of their relevance to the subject. In this context, the local officials (e.g. soum and provincial level), ENGOs (e.g. herder groups or wildlife NGOs), policy makers (e.g. MNET and other central government agencies and institutions), conservation scientists (e.g. NUM, MAS) and local herding community were found as important parties as stakeholders. These stakeholders revealed a certain degree of involvement in the process of, or affected by the consequence of conservation and trade process of Saker Falcon. Each one of them has a certain degree of specialized knowledge in conservation and protection of Saker Falcon. In the future, they have a potential to substantially contribute the policy making and implementation for Saker Falcon conservation through the artificial nest project.

3.2. Study area

As part of my PhD, the field study was conducted from May to September, 2011 at selected sites of Mongolia. During this field study, I had an opportunity to work as a mediator between the government and Artificial Nest Project team, while I collected the data. Three separate field visits and one workshop organised from May-June and August-September in Mongolia. The study areas were twelve

different soums of three provinces in the central region, Mongolia, namely Khentii, Tuv, and Dundgobi. These provinces were selected based on the above mentioned criteria, as shown in Figure 2.

Figure 2. Study Sites visited April-September 2011



Sources: WWF, Mongolia 2008. http://gis.wwf.mn/Mapdata/

These selected sites able to host to large wildlife populations and being included in the artificial nest project since 2011. In addition, harvesting was also frequently undertaken at these selected places by foreign trappers. Some of the selected sites have mining activities while some recognised as important bird areas of Mongolia. The enforcement workshop held on the 1st July 2011. After Mongolia

provided the non-detrimental finding report regarding the Saker Falcon trade to the Animal Committee Meeting, CITES, Mongolia is allowed to continue the legal trade of Saker Falcon, with the conditions of implementing sustainable use and improved monitoring at the national level. For this purpose, the enforcement workshop has been organised in collaboration of Artificial Nest project Team, the central government enforcement officials, and representatives of conservation scientists. Using this opportunity, some interviews have been conducted for this study purpose. With the collaboration of the government officials, there found a chance to visit the trapper's camps outside of Ulaanbaatar and near Zuunmod, Tuv Province.

3.3. Research methods

There are a range of methods, quantitative and qualitative, used when studying environmental governance, institutions, conservation, wildlife trade, and ecosystems within the discipline of geography (Gomez and Jones 2010). For this study, it was critical to find the appropriate method for the aims and objectives outlined in Chapter 1. Methods for this study need to be tailored to the wildlife conservation context, and thus to consider political, socio-economic, cultural and ecological factors. As Cousins et al. 2010; Hein et al. 2006; Lindsey et al. 2006; and Longhurst 2005 and Wynberg 2002 noted that qualitative techniques, such as participant observation, interviews, group discussions, and oral histories are most commonly used strategies to predict the underlying assumptions and perspectives of the process and phenomenon. These strategies adapted to examining environmental governance process and exploring underlying challenges of wildlife conservation paradigm. A multi-method approach was applied to collect both quantitative and qualitative data. The research instruments chosen were questionnaires, interviews, focus group, and content and statistical analysis. According to Yin (2006, p.42), quantitative research is able to provide a researcher with objective data, i.e. it offers some guarantee of truthfulness, but it has often full

of bias of various types and now widely seen to be flawed. Considering these facts, this study employed the qualitative method, including descriptive statistics to compare the position and interests of relevant stakeholders for Saker Falcon conservation and trade. It also assisted to develop an understanding regarding the general environmental, institutional structure and functions and their policy making and implementation process. Since the quantitative approach was typically criticized as indirect and reductive, the qualitative approach found as normally direct and holistic ways to address the Saker Falcon conservation and trade particular. Within the qualitative method, the study selected the structured questionnaires, semi-structured interviews, focus group, and case study for data collection, content analysis, develop a research design, and in addition to descriptive statistics for data analysis.

Figure 3.Research design

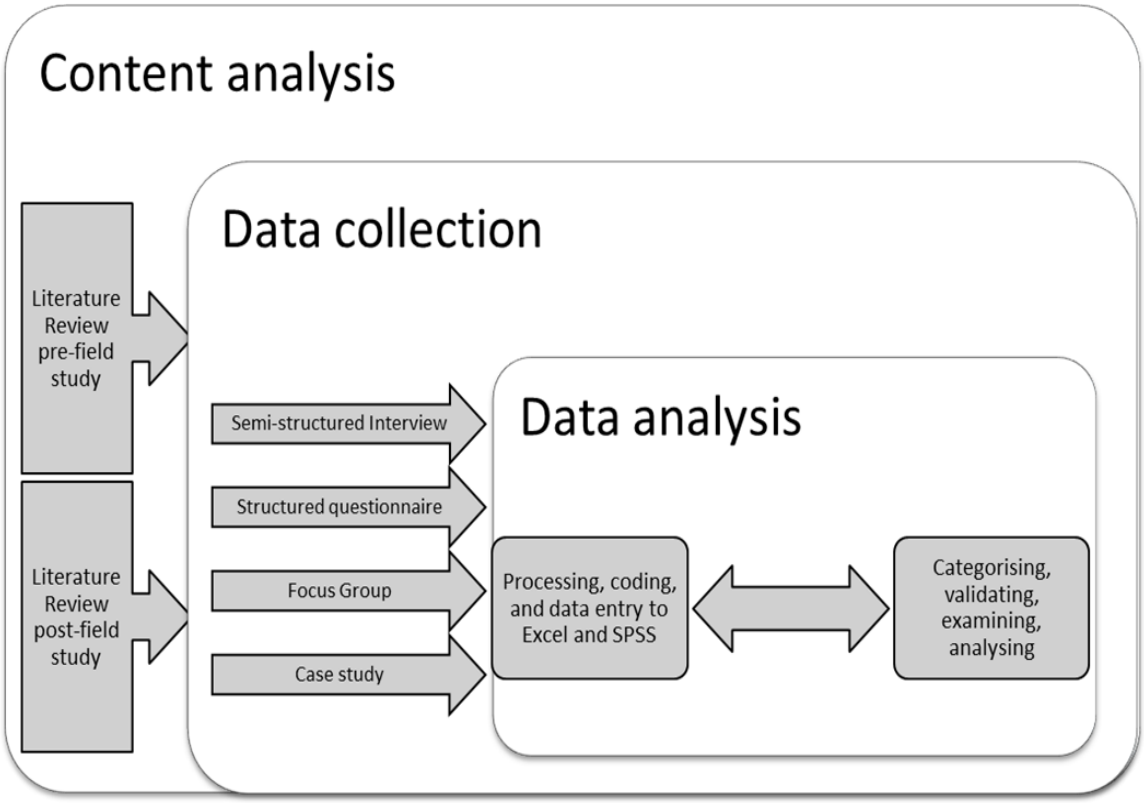


Table 3 provides the details of field study methods and number of applications during the field study.

Table 3. Study Areas and Used Methods

Study areas	Stakeholders	Focused group	Semi/Structured Interviews	Structured Questionnaires	Case study

	Bagh.gov	Env.Officer	Herder				
Adaatsag	2	1	9		9	3	
Bayan	1	0	3		3	1	
Bayan Onjuul	3	1	6	1	6	4	1
Bayanjargalan	3	1	10		10	4	
Bayanmunkh	1	1	4		4	2	
Bayankhutag	2	1	1		1	3	
Bayantsagaan	2	1	12		12	3	
Buren	3	1	5		5	3	
Darkhan	3	1	7		7	4	
Galshir	3	1	5		5	4	
Gurvansaikhan	4	1	6	1	6	5	1
Saintsagaan	3	0	5		5	3	

3.3.1. Interviews

The primary data collection, semi-structured interviews were conducted in order to discern what particular stakeholders understand or experience about the phenomenon under this study. Generally interviews were conducted face-to-face between one interviewee and one interviewer, using open-ended questions, on a site that is comfortable for the interviewee and can spend some time. The aim of the open interview questions was to collect as much information as possible from the relevant stakeholders. Interviews conducted in different occasions and different locations. For instance, the respondents were interviewed in the herding households, Bagh Governors' office, central and local government offices, national university, and herding fields. The participants were selected as key informants on

the basis of their current status and involvement in policy-making, inspection, and the monitoring processes in wildlife conservation, particularly Saker Falcon conservation and trade. Scholars noted that a limitation of this method's success is dependent on the interviewer's skill. For instance, a researcher may be prone to asking to lead questions, worded in a way that may affect the participant's response and thus insert an element of bias in the study. In order to overcome this problem, the interview begins with conversation of general climatic conditions, rural livelihood, and environmental situation, how these affect to their everyday life. It engages participants in the interview, encourages their interest to share their opinion towards nature. Particularly, rural Mongolia has a highly dependent livelihood on climate and environmental condition.

Another drawback comes from participants who may feel as though they should respond in a particular way, perhaps in a way that is politically correct or protective of someone else. This has happened occasionally during the interviews of government officials. When the issues of Saker Falcon came into the argument, they attempted to avoid and change the subject. Since the consent form and explanation of the study purpose have been provided and their names and anonymity will be protected, they used the term 'in my personal view, but it's not a government strategy', provide more information. In addition, for interview data to be fruitful, it is necessary that the interviewer continues neutral (Mack et al. 2005). It was very important to inform that a researcher has neutral position the policy makers and scientists as well.

3.3.2. Focus groups

Focus groups are another method for collecting qualitative data. These consist of many participants who meet to discuss a given research topic (Mack et al. 2005). The interaction is usually led by a researcher, who is conducting a project related to the subject being discussed. For instance, the focus group

discussion has undertaken in Gurvansaikhan, Dundgobi Province and Bayan-Onjuul, Tuv Province. For the first focus group, the environmental officer of Gurvansaikhan soum assisted me to invite several local Bagh governors to conduct the focus group. There were 7 people in total. The discussion on Saker Falcon issues and artificial nest project leads to Gurvansaikhan soum's unique natural feature and cultural perspective. Since the researcher provided the theme, the group freely exchanged their ideas among themselves and proceed the argument towards Saker Falcon harvesting in their soum areas and sharing their view on trappers. They identified the various impacts of Saker Falcon harvesting. They questioned whether it is right or wrong Mongolia to sell the Saker Falcon. This focus group provided insights of harvesting versus conservation project. Indeed the main benefit of holding focus groups is that they usually provide a large amount of information over a relatively short period of time. The second focus group was held in Bayan-Onjuul some among the herders. In this focus group, few neighbouring families near the artificial nests have participated. There were 8 people. The group dynamics and the diverse opinions within focus groups made them excellent vehicles for assessing a broad range of views on Saker Falcon conservation and trade, and exploring cultural aspects of conservation. The strength of a focus group is its ability to produce well-grounded data on social and cultural norms, the pervasiveness of these norms within a given community, and people's opinions about their own values (Mack et al. 2005). Data collected from the second focus group has the significance to develop the cultural aspects of wildlife conservation. They provided the general opinion on Saker Falcon conservation and trade, and advice on how to engage the activities with local people and their culture. Nevertheless, a limitation of focus groups, in comparison to one-to-one interviews, is considered that they are not as well suited to acquiring information on highly personal or socially sensitive topics. For this study, it reveals opposite result. The focus group is a suitable method in rural Mongolia for the issues of Saker Falcon. Rural Mongolian society is closely linked, e.g. herders do

not have a hierarchical rank like other places, and they are egalitarian, except one occasion that is respecting elders. But it does not apply in the focus group discussion. All people in the ger are equal to participate the discussion.

3.3.3. Case study

For this study, there are two case studies conducted. These aim to capture the cultural aspects of wildlife conservation, and Saker Falcon particular. It's because the cultural and local aspects of people living and sharing the same habitat with wildlife is substantial for governance setting and conservation planning.For the case study, triangulation is an important characteristic of certifying the validity of case study research. Since data collection methods of this study were triangulated or combined, data sources, strategies, or investigator might also be triangulated (Denzin 1978).In this respect, the finding of selected two sites for case studies aimed to explore the distinction and universality of these areas. The finding revealed that a potential to generalise the actual problem situation of cultural dimensions of local community towards the wildlife and ecosystem conservation. This finding of the case study methodology was expected to have the potential for further development in wildlife conservation and environmental governance.

3.3.4. Questionnaires

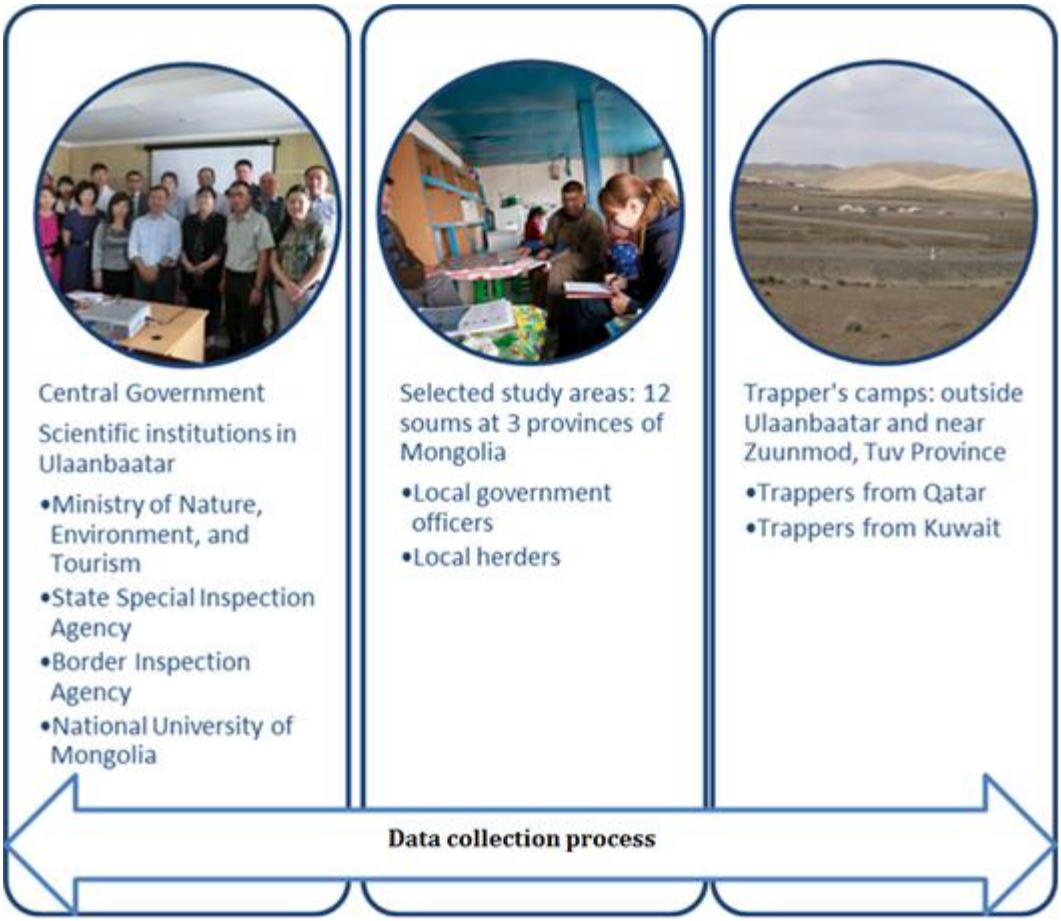
There were many reasons for using questionnaires. Questionnaires are often useful when they are used with other research instruments, this is because a multi-method approach is more appropriate for one type of approach and it is often not enough (Gillham 2000). For this study, the questionnaire used for the central government policy makers to explore multi-dimensional environmental governance, valuing nature of nature, and cultural ecosystem services. Since wildlife conservation is a practice and process, understanding the behaviour, attitude,

situation, or experience of stakeholders was essential before developing general theories (Creswell 2009). Examining and assessing their respective interests within the governance system is essential to improve the wildlife conservation. First, the questionnaires gathered data related to demographics and local herders' migration near the artificial nest sites. This data is complementary to the qualitative data that were gathered from the interviews. The second benefit of questionnaires is that they are quicker and cheaper to administer (Bryman 2008). In this study, in rural Mongolia, particularly with local government and herders the questionnaires found as not suitable design due to lack of personal space and timeframes to read the questions individually. The questionnaires were both open and closed questions used in this study as Kitchin and Tate 2000 stated, it was the attempt to gain both descriptive and analytical answers. The study attempted to receive both descriptive and analytical answers. Particularly, closed questions are typically preferable for a survey where quantitative analysis of the data is intended as the respondent is given a choice from predetermined answers (Bryman 2001; Kitchin and Tate 2000). However, there are disadvantages to using closed questions; i.e. they may not reveal attitudes and feelings and respondents do not have the opportunity to explain their answers (Bryman 2008), and respondents are limited in their responses and are unable to qualify their answers in response to closed questions (Walonick 2007). Therefore, this study limited the closed questions. It revealed these disadvantages during the first attempts made in May 2011 for some of 15 people. After this happened, open ended or at least semi-structured questionnaire would work for particularly local government and herders. They prefer to have more flexibility. Structured questionnaire was only suitable for the central government officials, who prefer to fill the forms in a flexible time frame.

3.4. Sampling and primary data collection

The issues of Saker Falcon conservation and trade were highly politicized in Mongolia. Primary data collection needs skills such as dealing with conflict, for example, between policy makers and conservationists or trappers and local people. Moreover, skills required technical expertise regarding the present policy and legal framework as well as Saker Falcon management in Mongolia. However, it appears sometimes the simplest method as informal discussion; it requires the greatest expertise of facilitating the discussion. Therefore, a researcher made an attempt to be perceived as neutral and independent, open to multiple perspectives and approachable. However, primary data collection was complicated, this process was steadily progressed during the field study. It consists of three different segments as shown Figure 4.

Figure 4. Data collection



Random sampling was not deemed suitable for this study, as the issue of Saker Falcon conservation and management needed some previous knowledge and experience amongst the respondents. For each study site, the researcher visited most often pre-selected fixed artificial nest points, using maps produced from satellite-imagery (1:40,000 or 1:50,000 scale). The data has been sampled from 6 different groups, such as central government policy makers, local government officers, herders, scientists, representatives of environmental non-governmental organisation (ENGOs), and representatives of trappers, as shown in Table 4.

Table 4. Specification of Stakeholders

Stakeholders	Number	Percent
Bagh[1].gov	30	21.9
Env.Officer	10	7.3
Herder	73	53.3
Central.gov	14	10.2
Scientists	4	2.9
ENGOs	2	1.5
Trappers	4	2.9
Total	137	100.0

The central and local government officials, scientists, and representatives of ENGOs were selected based on their direct relation to Saker Falcon conservation policy making, annual trade quota setting, engaged enforcement activities, and conducted scientific research, while trappers or foreign buyers were selected as regular trappers, who organized the harvesting at least last 5 years. About the sampling herders, they were not selected randomly sampled within the soum area. Those herders only live within average 25 km proximity from the artificial nest sites (some artificial nests were located just outside of the herders' home). Most of the herders live the harvesting areas. This information has been obtained from the bagh governors and directed by the local environmental officers. From the sampled data, only 3 groups(N=127), such as local government officials (Bagh. Gov and env.officer), herder, and central. gov policy makers have a significant number of

[1]Bagh is a smallest administrative subdivision of Mongolia. For example, each soum has in average of 3-7 baghs.

statistical analysis, whereas other groups (N=10), including scientists, ENGO, trappers have ≥5 for each category. Most of the question variables of the structured questionnaires have the full responses.

3.5. Data analysis

In the Saker Falcon policy, the study examined the files at the Ministry of Nature, Environment and Tourism (MNET), and websites of UNEP-WCCM and National Statistical Office, Mongolia. It collected time series data on export of Saker Falcon *(Falco cherrug*.) and budget allocations on environmental particularly wildlife protection and Saker Falcon annual research and inventory from (MNET) and CITES Management Authority of Mongolia. Using the content analysis of the secondary data and the collected primary data was combined in the analysis. Data analysis was back and forth process, particularly data entry into the software. All data entered into the computer. The three major groups, such as central government policy makers, local government officers, and herders use the statistical analysis through Microsoft Excel and SPSS computing software. SPSS is a statistical software package for the social sciences that can handle the data. It offers an opportunity to analyse a wide range of data and illustrate results as reports or graphs. For this study, Amos version 20 of SPSS was used. All questions and participants were coded. Overall responses were personally received, except the few cases of paper. From the primary data analysis, the participants (N=135) were given unique ID number. For statistical analysis, as mentioned earlier only N=127 was selected as samples. The questions G1 to G11 were the general questions that provide background information regarding the interviewees. The main questions were coded as M1 to M48. All data of the interviewees, including their unique ID number entered into SPSS, along with the variables. G1-G11 and M1-M48 were used as a variable in the SPSS. The responses were classified and converted into binary response variables in the

SPSS software. 3 different independent variables were identified for each of the 4 stakeholder groups. Data analysis used descriptive statistics, such as analysis of the contingency table or cross tables and frequencies to statistically test for differences in variables. Some thematic question used as the response variable and responses were sub-variables. For instance, M17 was “How do you want to help/contribute to conservation of Saker Falcon?” and multiple options were {1-regularly safeguard the nest}; {2-I can inform about illicit harvesting}; {3-I am interested, but I cannot help}; {4-I am not interested and cannot help}. Independent variables such as stakeholder characteristics are considered as a factor and in some cases covariates were education, gender, and age. The potential strength of the data analysis with SPSS was clear and time saving, a potential to develop some hypothesis. The weakness of using SPSS was less fluid and less insights, such as their feeling, attitude, and approach regarding the on-going conservationdebates and process. In other words, it was indirect. Thus, this data adapted qualitative approaches, such as defining, categorising, explaining, and mapping, understanding of stakeholders, their internal structure, identifying the dynamics of Saker Falcon conservation and trade process.

3.6. Ethical concerns and protection

According to Sarantakos (2005), researchers are bound by a code of ethics that include a number of protections that must be afforded to study participants in the following:

1. Protection from physical and psychological harm, including; the loss of dignity, loss of autonomy, and the loss of self-esteem.

2. All information should be treated as private and confidential. This is especially necessary in this study; otherwise government officials, whose opinions differ from the official policy, may not feel at liberty to

diversify genuine opinions due to concerns about possible adverse repercussions towards their career.

3. Protected from deceptions by the researcher. For example, in the current study, it would be unethical to deceive participants as to it's the real purpose.

4. All participants must give informed consent. In this regard, the study's aims and objectives should be fully under in order for them to make an informed judgment about their involvement (Sarantakos 2005). For minors Guardians - under the age of seven – informed consent must come from their guardian(s).

5. Consent should also be voluntary; the person involved should have the legal capacity to exercise free power of choice without being threatened, coerced or tricked, into participation (Sarantakos 2005).

For this study, ethical concerns were given a high priority. Firstly, since Saker Falcon conservation and trade is a highly sensitive subject in Mongolia, the anonymity of responses was paramount. Secondly, participants were given a letter, with the consent form. This listed the nature, duration, and purpose of the research, the method and means by which the study would be conducted, any harm, hazard, or inconvenience they may incur as a result of volunteering, and any effects on their health participation may cause (Sarantakos 2005). The aspects of inconvenience, harm, and hazard were absent from this study. In accordance with ethical guidelines, participants were told that they could withdraw at any time from the study without any consequences (Sarantakos 2005). There was no such incident for this study. A letter was enclosed with each questionnaire to assure the receivers that all information would be treated in confidence (Sarantakos 2005). This research was conducted according to the ethical guidelines and review

processes of the University of Leicester. Ethical issues were considered thoroughly.

3.7. Limitations and positionality

Evaluation of cultural ecosystem services, as attempted as part of this study,poses a number of problems. Data on such issues is not widely available in Mongolia. Spiritual, religious, recreational, and educational services have not been assessed before in relation to wildlife conservation. . In addition, discussion of Saker Falcon conservation issues, trade, and foreign trappers was challenging in general. Due to political tensions in Mongolia, participants in some cases were only willing to provide limited information. This was particularly true for central government officers who gave very limited responses. There were also problems of access and consent, with reference to the buyers and trappers. Also the researcher had difficulty in communicating in the participants' language barriers (Arabic) and gender concerns. Additionally, financial and time constraints and long distance travel in the country restricted the overall number of face-to-face interviews. Central government officers were more accessible, being located in the capital, Ulaanbaatar, but local-level government officers were in remote, less accessible areas. Questionnaire surveys with herders involved over 110 participants, only responses of 73 herders had completed the majority of questions and the rest was missing response. During interviews and questionnaires within herders, it was also very difficult to speak to an informant alone. Typically, there were many other participants, such as family members or neighbours, adding or correcting information supplied by the interviewee.

3.8. Conclusion

The interviews conducted with all stakeholder groups have shown how there is a conflict occurring in Mongolia, a country in need of state revenue and yet tied to environmental agreements with other countries that have a direct impact on the economy of the country. In order to effectively present this debate, the chapter provides the details of the methodology that used for this research. In collecting data from all stakeholder groups in Mongolia, it is clear that there are two agenda operating in the country, and the conservation debate continues over whether the Saker Falcon can be conserved as well as traded, meeting the needs of all stakeholders in the country. This study used qualitative data collection methods and descriptive statistical data analysis and qualitative data analysis.

Chapter 4. The Mongolian Context

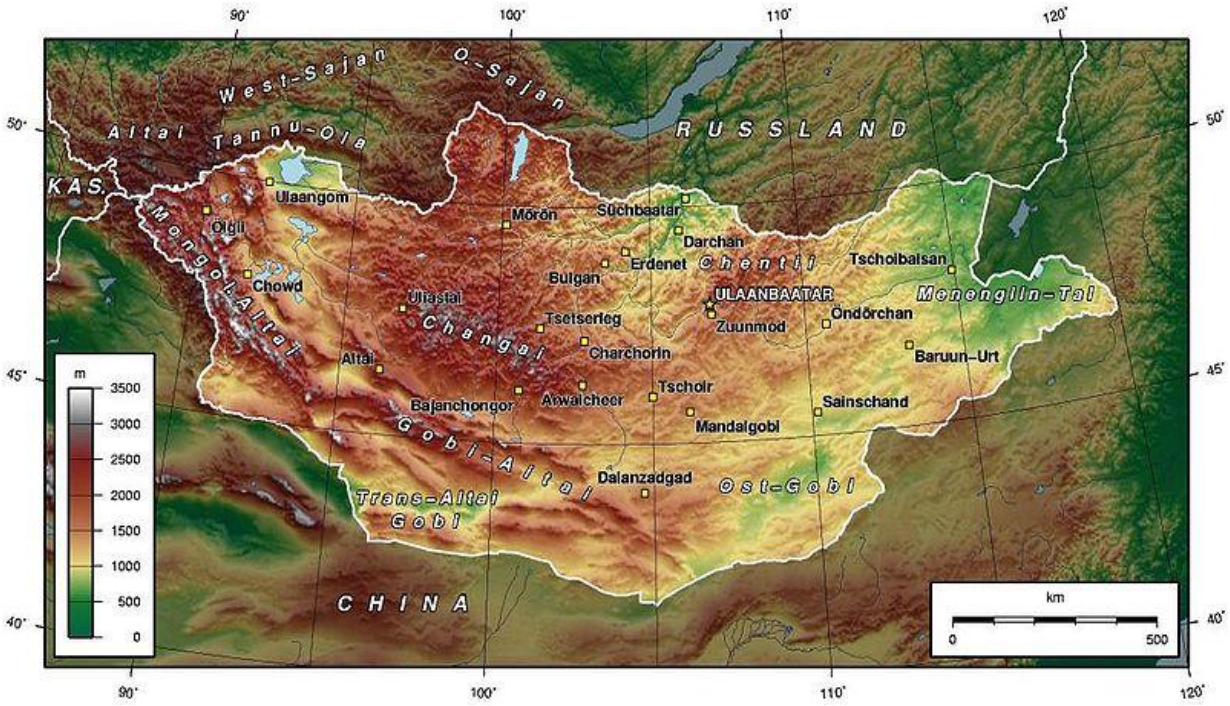
Introduction

This will provide the background for further analysis of nature conservation, through examining socioeconomic process and political reform of the country in last two decades. The chapter will also introduce a physical feature of Mongolia. This chapter will discuss the Mongolian context in seeking to establish coordinated conservation solutions for endangered and migratory species, especially the birds of prey and its prospects for supplementing the governance and trade issues raised by current practices. Accordingly, this chapter will explore the specific transformation process, economic, and governance structure of the country. The current natural resources management pursued to date, particularly for wildlife conservation will be presented in this chapter. Finally, the chapter will outline the prospects for the further development of Saker Falcon conservation, trade and governance issues in Mongolia.

4.1. Geophysical feature of Mongol

Mongolia is the world's most sparsely populated nation, home to vast areas of land only lightly touched by modern human enterprises. Mongolia (41^{o}35'-52^{o}09'N and 87^{o}44'E-119^{o}56'E) is located in Northeast Asia. It is home to a great diversity of wildlife, especially birds and mammals, across a wide range of biomes, from the Gobi Desert in the south to the southern edges of the Siberian taiga in the north. It borders with the Russian Federation and the People's Republic of China, and stretches for 2,392 km from west to east and 1,259 km from north to south (Figure 4). Mongolia is the seventh largest country in terms of territory in Asia and the 18th largest in the world.

Figure 5.Geographical map of Mongolia



Source: National Geo-Information Centre (NGIC) Database, 2012

4.1.1. Climate temperature

The climate of Mongolia is characterized by extremes and is continental—dominated by anticyclones centred over Siberia—with four sharply defined seasons. It has a short dry summer (June to middle of August) and a long cold winter (end of November to April) with spring (April to beginning of June) and autumn (end of August to end of October). The temperature range lies between -15^{o}C and -30^{o}C (-5^{o}F and -22^{o}F) in winter and 10^{o}C and 26.7^{0}C (50^{0}F and 80^{o}F) in summer (Encyclopaedia Britannica 2012). Due to the high altitude, the climate is also colder than other countries of the same latitude.

4.1.2. Topography

The topography of Mongolia, mainly consists of a plateau with an elevation ranging from 914 to 1,524m (about 3,000 and 5,000ft.) divided by mountain ranges in the north and west. The Altai Mountains in the southwest rise to 4267m (14,000ft) above sea level (MARCC 2009). The highest point is Khuiten Uul (Mongolian Altai Range, 4,374m) and the lowest is Khukh Nuur (Mongolian Eastern Steppe, 560m). The northwest and central parts have high mountainous regions, while the eastern part is a vast steppe region. The south is with semi-desert and desert ("the Mongolian Gobi"). Forests cover 11% of the country (State of Environment Report 2011).

4.1.3. Critical resources of Flora and Fauna

Mongolia's natural zones provide a refuge for abundant migratory and endemic wildlife species across the country. With respect to flora, there are there are some 348 tree and shrub species and 2095 species of herbs in Mongolia. There are also some138 species of mammals, 472 species of birds, 8 species of amphibians, 22 species of reptiles, 75 species of fish, and numerous invertebrates (Biodiversity Action Plan of Mongolia 2009, National Report on CMS 2012). According to the IUCN Red List of Threatened Species, 16% of Mongolian mammals are regionally threatened, of which 2% are Critically Endangered and migratory (CR), 11% Endangered and migratory (EN), and 3% Vulnerable (VU), and 10% of birds are threatened (Mongolian Red Lists of Mammals 2007 and Mongolian Red Lists of Birds 2010).

4.1.4. Administrative reform and structural change

The first democratic election of the State Great Khural[2] (Parliament) took place in July 1990 (Tsend 2002). The Parliament proclaimed the legitimacy of private property and determined new economic relations by adopting 35 new legislations and making amendments to others, while land and natural resource remained in state control. Under the new Constitution (1992), the political system opened up. The country transformed from a single party that had ruled under socialism, and replaced this by a semi-presidential and parliamentary political system. The election of the State Great Khural takes place once every four years and 76 members of Parliament are elected. Local (provincial and district) elections also take place once every four years (The Constitution of Mongolia 1992). A significant change was the recognition of the principles of freedom, human rights, religious rights, and civil liberty in the new constitution (The Constitution of Mongolia 1992). The country is now divided into 21 provinces (called Aimag[3]) plus the capital city, Ulaanbaatar, which has provincial status. The 21 provinces are also divided into 369 rural districts (called *soum*). Ulaanbaatar city includes 7 urban districts as of 2012. The population of Mongolia is unevenly distributed throughout the country.

Table 5.Economic regions and population shares in percentage

Economic Region	Province/Aimag	Rural (%)	Urban (%)	Residents (thousands)

[2]Khural means conference in Mongolian.

[3]Aimag can be understood as province in Mongolian. It is the first-level administrative subdivision of Mongolia.

Central	Darkhan-Uul	18.53	81.47	91.7
	Dornogovi	39.4	60.6	59.5
	Dundgovi	77.52	22.48	46.3
	Govisumber	37.96	62.04	13.8
	Omnogovi	65.76	34.24	51
	Orkhon	5.37	94.63	85.8
	Tov	82.6	17.4	90.2
	Ulaanbaatar	0	100	1151.5
East	Dornod	45.21	54.79	73.6
	Khentii	64.91	35.09	71.8
	Sukhbaatar	73.94	26.06	55
Khangai	Arkhangai	77.96	22.04	91.6
	Bayankhongor	66.89	33.11	85.1
	Bulgan	73.77	26.23	62.6
	Khovsgol	68.61	31.39	124.6
	Ovorkhangai	77.01	22.99	117.4
West	Bayan-Olgii	65.89	34.11	100.8
	Gobi-Altai	67.37	32.63	58.4
	Khovd	67.24	32.76	88.4

	Uvs	69.21	30.79	78.2
	Zavkhan	79.56	20.44	76.9

Source: National Statistical Office (NSO) Database, 2012

So far the attempt to establish the equal distribution of economic development and infrastructure has not been successful. According to the World Bank, this is mainly due to the fact that the majority of the rural population still has limited access to major services, including hospitals, universities, and schools. Furthermore, it also relates to the hierarchical pyramid structure that shares budgetary and development decision-making powers in central government. The top of the pyramid (a central government) had the main power in provincial and district level decision-making and budget control up until 2012. There are three levels of sub-national administration below the central government (Mearns 2004). This structure is also applied in natural resources management. Each district (*soum*) consists of 3-6 rural sub-administrative units (*bagh*) that include approximately 50-120 families. Each urban district has several urban sub-districts called "khoroo[4]". There is an elected assembly (khural) at each of the three tiers of sub-national government (Mearns 2004). The khural is responsible for decision-making for their relevant territory (Mearns 2004). Since the decentralisation policy is unable to create sufficient employment in rural areas, migration to urban

[4] A khoroo is an administrative subdivision of Ulaanbaatar, the capital of Mongolia. The term is often translated as subdistrict or microdistrict, although the latter might lead to confusion with khoroolols. A khoroo is below the level of a düüreg (district). There were 121 *khoroo* until 2007, when the number increased to 151 in 2013 (National Statistical Office 2013).

settlements increased after several harsh winters (*dzud*)[5] in 2001 and 2002 as well as 2009. During these winters, many herders lost their livestock and hence their livelihoods. Today, some 36.7% of the population still live in the countryside and their primary livelihood is livestock herding, while the remaining 63.3% live in Ulaanbaatar as well as other small towns spread throughout the country. After Ulaanbaatar, the second largest settlement is Erdenet (86,800 inhabitants), a copper mining centre in the north and followed by Darkhan (75,000 inhabitants), an industrial centre near the Russian border in the north. Both towns are connected to the Trans-Siberian Railway that runs from Russia through Mongolia to China (NSO 2012).

4.2. Economic transformation in 1991-2012

The economic transformation of Mongolia (1991-2012) was based on natural resources and thus has had significant impacts on the environment. Market forces, inherently commercial and utilitarian in perspectives, have restructured the relationship between nature and society. This new approach towards nature began with the economic transition. With the collapse of the Soviet Union at the beginning of 1990s, Mongolia suffered an economic setback equal to the loss of around half of the gross national expenditure.

This was followed by a rapid transformation of property rights, accompanied by administrative controls and price liberalisation (Pomfret 1993 and 2000; Boone 1994). In order to replace Soviet aid the country undertook neoliberal structural

[5] *Dzud* is defined as extreme climatic condition in winter. There are two kinds of *dzud*. First, a large amount of precipitation, which leaves livestock unable to find the grass beneath the snow and incapable of tolerating the freezing temperatures. Second, there is no snow in winter and due the extent of the cold temperature, there is no water available. Loss of livestock and wildlife is common in dzud.

adjustment loans. These loans stipulated adherence to a number of economic adjustments, including the transformation of property rights through privatising state assets. The privatisation process represented a radical version of shock therapy in Mongolia (Nixon and Walters 1999, p.149; Pomfret 1999). Deregulation of the planned economy, trade liberalisation, and financial liberalisation, with interest rates determined by the market, and competitive and convertible exchange rates resulted in the shutdown of all economic sectors and high inflation rates. Prior to the economic transition, in Soviet times, Mongolia never experienced inflation increases. The inflation rate reached 121.2% in 1991, jumped to 321% in 1992, and went back to 49.3% in 1996.

According to the ADB, the inflation rate "fell to 8.0% by [the] end of 2000, but accelerated again in the first half of 2001 partly due to higher electricity tariffs and a decline in domestic meat supplies due to severe winter weather" (ADB 2001 no page). The inflation largely affected the price of consumer goods. Shortages of food, clothing, and household goods resulted in dramatic price increases. Reduction in public expenditure, social security, unemployment and poverty created a desperate situation for many Mongolians. Since the national economy was shut down, the transition economy has relied on the value and exploitation of natural resources and on foreign aid. In the transition economy, the Mongolian government has prioritised fiscal discipline by choosing to curb budget deficits, and promote foreign investment. However, further economic progress has been curtailed due to high and persistent unemployment, poverty, and an economy reliant on a few outsourced sectors.

In addition, these problems undermine the Mongolian economy's competitiveness, which is rooted in a low share of the private economy, insufficient restructuring, flawed economic operation of monopolistic structures and limited access of information slow down the economic transformation. The development of the banking sector and improvements in the institutional and regulatory framework

for private entrepreneurship has, however, arguably placed the foundations for future competitiveness (World Bank Publications 2010, p.14). On the other hand, Natural resource rents, such as minerals, forest, wildlife, plants and other resources generate main the revenues of Mongolia, rather than tax collection. For instance, wildlife and forest resources contributed to the economy. The economy has gradually shifted into the exploitation of mineral resources from 2000. In 2010 the government identified large scale and strategic mining deposits as the foundation for future economic development.

Although extensive mineral deposits could transform the Mongolia's economy, there is no concrete investment and business plans except for Oyu Tolgoi and Tavan Tolgoi. The consequences of a mineral resource based economy have already become apparent in Mongolia, as the fluctuation of the metal price on the global market impacts not only the overall national economy, but also affects the daily lives of the people through the increasing prices of consumer goods and fuel. In addition, the mineral resource based economy of Mongolia has created a number of environmental concerns.

According to the World Bank, Asian Development Bank and other agencies, Mongolia's economy has a relatively better performance with improved employment; increase the contribution of private sectors, and development of service and mining sectors. It expressed with the Gross Domestic Product (GDP) averaged approximately 8.761 billion USD in 2011 (WB 2011). There are number of comments that point out that unlike economic growth, environmental pollution and environmental governance stay far behind the appropriate level of development (from the interview of 114; 115 in May 2011). Further, it is related that the environmental sector was afforded relatively low priority in the action plans of successive governments (e.g.: The government action plan 2000; 2004; and 2008), particularly in the case of non-mineral and renewable natural resources and their management. Thus forestry, fishery, and wildlife conservation have arguably been

given little consideration in large scale developments and infrastructure projects. However, although non-mineral and renewable natural resources currently generate relatively small incomes as contributions to state revenue, they could support more sustainable and diversified livelihoods for many individuals. In order to understand current issues and problems in the management of these resources, it is necessary to explore the historical transformation in environmental management in Mongolia.

4.3. Natural resources management

Mongolia's environment and natural resources are managed under a legal framework which includes national legislation, policies, international and regional environmental agreements. The environmental policy of Mongolia is deeply rooted in the old socialist system (Sengedorj 2008). In 1921-1989 socialist Mongolia adopted a number of laws and regulations controlling various aspects of resources and declared that all land and other natural resources should wholly be the property of the people. The Constitution of 1940 declared that natural resources within the territory are the property of the people and the state, which shall be managed and governed by the state (The Constitution of the People's Republic of Mongolia 1940). A contemporary legal framework for environmental management begins with the new Constitution of Mongolia, 1992. This new Constitution has determined that "In Mongolia the land, its subsoil, forests, water, fauna and flora and other natural resources shall be subject to people's power and State protection" (Article 6 in the Constitution 1992).

For environmental protection, the Constitution of 1992 ensures the right of citizens to live in a healthy and safe environment and declared state ownership of land and natural resources. With this respect, a government of Mongolia has a full mandate to protect the environment and conserve the wildlife. Beyond the

Constitution (1992), the Government has been actively developing a body of law designed to conserve its natural heritage, whilst at the same time responding to the demands of a newly-formed market economy (cited in the National Capacity of Self Assessment Report by Government of Mongolia 2007). On the foundation of the Constitution of 1992, the parliament of Mongolia passed a series of environmental laws providing the legal foundation for 'conservation and management of natural resources, maintenance of environmental quality, and mitigation of natural disasters' between 1994 and 2002 (Batjargal 2003). Between1992 to 2012 Mongolia passed 33 pieces of national legislations relating to the environment. The basis of environmental legislation in Mongolian is derived from the Law on Environmental Protection (1995) which sets out three principles to guide all environmental and natural resource laws in Mongolia: a) prevention of adverse impacts; b) creation of favourable environmental conditions for human life, labour and recreation, and; c) ensuring the development of a sustainable economy.

4.3.1. Forestry issues in Mongolia

Recent years have seen a significant level of development in Mongolia's forestry sector. These include changes to the Law on Forest 2012 as mentioned in section 2.1 that set up community-based management of forest resources, development projects focused on improving forestry governance and professional education, and Mongolia's joining the UN-REDD Programme (UN-REDD Programme 2011a). The focus of these efforts is primarily economic. The UN-REDD Program's focus is forest conservation and afforestation to combat carbon emissions, using monitoring of emissions reductions as the basis for carbon credit payments or participation in similar Payment for Ecosystem Service (PES) schemes (UN-REDD Programme 2011b).

The REDD Programme's strategy documents explicitly cite the need to include other environmental and social factors in the implementation of REDD+

activities, but research has shown that these issues are sometimes ignored in favour of emissions and market-oriented parts of the program (Anderson and Zerrifi 2014). The program has a great potential to benefit the poor and incentivize other conservation activities, but these ends can be impeded by weak governance and inequitable benefit distribution. Improperly implemented forestry initiatives, such as afforestation to absorb carbon dioxide (CO2), can have negative benefits on other ecosystem services. Consequently, Mongolia's involve in REDD+ efforts could run the risk of impeding wildlife conservation if wildlife does not take into account during program implementation.

4.3.2. Water conservation and source restoration

The river system passes through or near such main cities as Darkhan, Erdenet, and Ulaanbaatar. Selenge is the single largest inflow to Lake Baikal, and 66% of its watershed is within Mongolia (Stubblefield et al. 2005). They found that placer gold mining was the main contributor to increased turbidity, phosphorus, and total suspended solid (TSS) levels in the lower reaches of the river. Most such mining takes place in alluvial deposits on the lower levels of the river in Mongolia. They found that water quality was generally high above mining areas. However, conditions have likely changed in the past 13 years. A more recent study examined water quality and aquatic ecosystem health in the Kharaa river basin from 2006 to 2010 (Hofmann, Hürdler, Ibisch, Schaeffer, and Borchardt 2011). Water quality in rural Mongolia was primarily threatened by untreated sewage infiltration from urban areas that lacked treatment systems, and agricultural runoff. Livestock drinking directly from streams was a major source of both nutrient and fine sediment pollution. Fish populations were most threatened by a lack of mature individuals, and the primary pressure appeared to be illegal fishing. Benthic invertebrate populations were generally healthy, though species diversity was low in some areas. Their recommendations included better water quality monitoring, educating

herders about not watering their livestock directly from streams, and increasing use of wastewater treatment systems.

4.3.3. Soil degradation

Large increases in livestock populations in Mongolia since 1990 have led to overgrazing being the primary cause of pasture land degradation in the country. The switch to a market economy put livestock ownership in private hands, while the state retained ownership of the land. Consequently, herders are incentivized to maximize herd sizes, but not to sustainable use pasture land (Damdinsuren, Herrick, Pyke, Bestelmeyer, and Havstad 2008). The economic collapse also led to many more people practicing herding, many of whom were public servants under the socialist government and lacked the skill and experience to properly manage their herds (Mearns 2004). Due to Mongolia's limited market size and lack of transport infrastructure, it is difficult for herders to reduce herd sizes during dry periods when pasture is especially sensitive to overgrazing. Increasing off-road vehicle traffic and mining also pose threats to soil quality (Damdinsuren, Herrick, Pyke, Bestelmeyer, and Havstad 2008).

Damage to soil quality occurs both through trampling of the ground by livestock, and effects arising from reduced vegetation cover (Krümmelbein, Peth, Zhao, and Horn 2009). The trampling reduces pore size and volume, and combined with the reduced vegetation cover, reduces the ability of the soil to absorb and retain water. Heavily grazed soil also has lower levels of live and dead biomass, leading to reduced carbon content; increased risk of wind erosion; and higher evaporation rates. Intense grazing also affects how water and air move through the soil, which affects biological processes and ecosystem services provided by the grassland (Reszkowska, Krümmelbein, Gan, Peth, and Horn 2011). Increasing levels of grazing negatively affect vegetation cover, biomass, primary productivity, and plant species diversity (Zhao, Li, Zhang, Ohkuro, and

Zhou 2004). In a study in Inner Mongolia, eliminating grazing did not appear to significantly benefit the grassland versus low level grazing, and grazing at lower to moderate levels allowed sheep to gain more weight over 5 years than overgrazing did (Zhao, Li, Zhang, Ohkuro, and Zhou 2004). Degraded grassland can recover provided that continuing stress on it is sufficiently low, though the recovery period can be very long (Krümmelbein, Peth, Zhao, and Horn 2009). While sustainable pasture management was long traditionally practiced in Mongolia, a simple return to such systems is likely not adequate to address rangeland degradation due to climate change and alterations to grazing patterns caused by national borders and protected areas. Traditional management techniques should influence modern strategies, however (Bedunah and Angerer 2012).

Wildfires may pose a significant soil degradation threat in Mongolian forests. Erosion via wind and water can both pose a threat, leading to a removal of fine sediments and nutrients (Shakesby 2011). However, the level of impact from a fire is highly dependent on many factors, including the severity of the fire, the physical properties of the soil (chemical, biological, and mineralogical), rainfall levels, slope angle, degree of human disturbance, and direction of slope (north versus south). Fires tend to reduce the water infiltration and retention abilities of soil, leading to increased runoff, with higher runoff levels from more intense fires. Elevated runoff levels can remain for many years after the fire, depending on how quickly the vegetation recovers. Human influence on forest composition can affect fuel availability and existing nutrient levels (especially in the case of monoculture plantations), and human activity can lead to more fires being started (Shakesby 2011). Post-fire, harvesting of burned trees can also affect soil erosion, though this is dependent on the severity of the fire, the method of clearing used (hand versus mechanical) and how the slash is disposed of (scattering versus windrowing versus burning) (Fernández et al. 2007). Scattering slash minimizes erosion, while burning it has the most severe impact on increasing erosion (Shakesby 2011).

4.4. Wildlife issues in Mongolia

Overhunting, usually in the form of poaching, is the primary threat to wildlife in Mongolia, and has caused major reductions in animal populations since the end of socialist rule (Wingard and Zahler 2006). The end of socialist rule in 1990 led to massive layoffs of public employees as the government attempted a rapid conversion to a market economy (Mearns 2004). With the end of Soviet subsidies, the Mongolian economy collapsed, and the poverty rate rose rapidly during the early 1990s, from near 0% to over 30%. Many people immigrated to rural areas to raise livestock in an attempt to sustain themselves (Mearns 2004). This massive increase in poverty and economic difficulties is one of the main drivers of hunting in Mongolia. Animals are hunted for food, furs, and traditional medicine products, for personal consumption, local trade, and the international trade (driven by demand in China) (Wingard and Zahler 2006). A large portion of Mongolians relies at least partially on traditional medicine practitioners (Bernstein, Stibich, and LeBaron 2002). The burgeoning demand for wildlife products for traditional medicine in China has also created a market for parts from many animals, some of them endangered. This situation has led to massive declines in wildlife populations that threaten the future of the country's environment. Urgent conservation action, tied to community empowerment and economic development, is required to reverse these declines and ensure that the Mongolian environment remains healthy and productive for succeeding generations. According to a 2004 survey of rural residents of two soums in Selenge and Khentii aimags, the market value placed on wildlife combined with economic hardship were the main drivers of hunting (Pratt, Macmillan, and Gordon 2004). Hunters are often aware that their actions are illegal and their level of hunting unsustainable, but they feel caught in an economic situation that forces them to hunt wildfire before someone else comes and does so. The lack of enforcement capacity also means that even when legal hunting is allowed, most people do not purchase hunting licenses as it is money lost if not

enough kills are made. People essentially have open access to wildlife, though it is still limited to those who can afford the time, food, and weapons to hunt. However, this study and others (Kaczensky 2007) show that many Mongolians also have positive views of wildlife and place cultural and spiritual value of them. The small sample sizes of these studies add caution to these conclusions, however.

The same study generated recommendations from rural residents about how to tackle the wildlife-poaching crisis in Mongolia. These included a better definition of property rights and management responsibility for wildlife; changing and supporting the law enforcement system so that it is designed to deal with the challenges facing wildlife and rural residents; providing alternative income sources; and international action to address the wildlife trade (Pratt, Macmillan, and Gordon 2004).

In Mongolia, there are considerable gaps in knowledge about many species, their population, behaviour, ecology, and use by humans. Certain important species, such as the Siberian marmot, have been well studied. However, relatively little data are available for most. Lack of national population surveys and good data on poaching has made assessing the current level of threat to wildlife difficult.

The Siberian marmot is one of the most widely hunted species in the country (Wingard and Zahler 2006), being hunted by the most hunters, having the highest take per hunter, and having the highest take and total trade value of any species as of Wingard and Zahler's seminal 2006 report. This is of great concern as marmots are a keystone species in the steppe ecosystem (Reuter 2008). They bring soil to the surface when making their burrows, aerating the soil and recycling nutrients; their burrows provide shelter for many other animals; their selective grazing increases plant diversity; and they are a primary food source for several species of carnivore. They have long been hunted for their meat, fur, and organs for traditional medicine (Reuter 2008). They are also persecuted as people view

them as competing for forage with livestock, and they are carriers of the plague. However, evidence indicates that marmots and livestock can coexist peacefully without competition, and that the vegetation changes caused by grazing can benefit marmots. As marmots are prey for a number of carnivores, increased marmot populations can serve as a buffer for livestock, protecting them from predation and reducing human-wildlife conflict (Reuter 2008).

Hunters value marmot meat to supplement their diet, as it allows them to avoid slaughtering livestock (Pratt, Macmillan, and Gordon 2004). Demand for marmot meat among urban residents has been growing, and threatens to be a major driver of the trade as urban residents pays much more for the meat than its approximate rural value (Reuter 2008). As of 2008, the Mongolian government had raised the penalties for illegal marmot hunting to its approximate market value, making this begin to serve as an effective deterrent to poaching. However, this should be raised to also cover the ecological value of the marmot. Despite these issues, the marmot hunting ban put in place in 2005 appears to have allowed some marmot populations to increase, especially in the western mountains. Better population monitoring is needed to establish sustainable hunting quotas, which is especially important and difficult for a social, colony-based animal like the marmot (Reuter 2008).

Red and corsac foxes are among the most hunted species in Mongolia and are primarily targeted for their fur (Wingard and Zahler 2006). Less research has been done on them in Mongolia. A 2010 study in Ikh Nart nature reserve found that humans directly caused about 60% of fatalities among both species of foxes (Murdoch, Munkhzul, Buyandelger, and Sillero-Zubiri 2010). It was also found that domestic dogs were a significant contributor to red fox mortality, and that the first year of a ranger program set up in the reserve was ineffective at reducing poaching.

Several other species of carnivore have received some study in Mongolia. Pallas's cat was the subject of a comprehensive doctoral thesis by Ross (2009). Pallas's cat has targeted some by hunters, though its fur is not particularly valuable. It is sometimes shot when mistaken for a marmot, and killing of domestic dogs is also a major source of mortality. They primarily hunt Pika, and damage to this prey base threatens their survival. Like many other species, they rely on marmot burrows for shelter, especially during the winter. They have large home ranges, which makes conserving them difficult as large protected areas are required. Research on these three species of carnivore and a study by Young et al (2011) indicate that free-roaming domestic dogs pose a significant threat to Mongolian wildlife. Domestic dogs in Mongolia are often not fed at all and are free to wander, surviving off of wildlife (Ross 2009). Dogs kill wildlife and stress both their potential prey and other predators. It is also possible that they kill more livestock than wild predators, and their kill marks are usually indistinguishable from those of wolves (Young, Olson, Reading, Amgalanbaatar, and Berger 2011). Through opportunistic observation of dogs attacking saiga, argali, and Mongolian gazelle, Young et al (2011) found that dogs were a significant source of mortality for these species, especially argali. Dogs were seen far more often than wolves as well. They recommended more targeted studies be undertaken, and efforts to control domestic dogs through public awareness and changes in policy and enforcement used.

Two of Mongolia's large carnivores may be present in central Mongolia, though there is little recent confirmation of their presence. Snow leopards have not been scientifically confirmed in the central Mongolia since the 1960s (Clark and Javzansuren 2006). They are primarily threatened in Mongolia by killing due to human-wildlife conflict as their traditional prey base is eroded. They are also targeted for their skin and bones (Theile 2003). One study found that snow leopards in China rely on marmots for food as much as they do on ungulates, so

conservation of marmots may benefit snow leopards and reduce their predation on livestock (Reuter 2008). Brown bears may also be present, though the sources are equivocal (Clark and Javzansuren 2006; IUCN 2014). Bears are valuable for their traditional medicinal uses (Pratt, Macmillan, and Gordon, 2004; Lkhagvasuren, 2009). Poaching accounts for roughly 50% of their recent population decline. Hunting is usually opportunistic while hunters are looking for other species. Logging and human caused fires are also major threats (Lkhagvasuren 2009).

The Wildlife Conservation Society (WCS) has been taking a number of actions to combat poaching and wildlife trade and some progress reports from them are available. They have been working with media to both inform the public and reduce advertisements for wildlife products in the media (Wildlife Conservation Society 2009). A statement published in six newspapers in 2008 generated significant public discussion, much of it very positive. Letters sent to several newspapers on the rules about advertising wildlife products led to a large decline in advertisements for illegal wildlife. WCS had also been working with law enforcement to combat the wildlife trade. An important product of this work is a comprehensive set of guidelines laying out Mongolian wildlife law and detailing the powers and responsibilities of law enforcement officials of all levels with respect to wildlife (Wildlife Conservation Society 2009). They also identified several major gaps in law enforcement, including poor record keeping preventing the suitable punishment of repeat offenders, and a lack of facilities for storing and destroying confiscated wildlife products leading them to often be sold or returned to the offender.

WCS's monitoring of wildlife products in markets, restaurants, hospitals, and other locations in Ulaanbaatar showed a slight decline in products from 2008 to 2010, though they could not determine how much of that was due to an actual reduction in volume and how much was due to the trade going further underground

(Wildlife Conservation Society 2009). In these surveys, they found that marmot and wolves were the main species traded.

4.5. Wildlife conservation as regular monitoring

Any plausible conservation needs some form of monitoring to verify that progress is being made and to identify gaps. The institutional capacity to conduct biodiversity in Mongolia has long been limited (Wingard and Zahler 2006), and section 4.4 demonstrates the limited knowledge available on many species in Mongolia. Conservation work must necessarily have a focus broader than a single species, as each species is part of a wider ecosystem. Ecosystems are characterized by complex, non-linear interactions between species and the broader environment, making predictions about the effects of any intervention difficult. The more data available about any given species, the better (Sinclair and Byrom 2006).

A variety of tools and methods are available for conducting wildlife surveys and monitoring, however many require professional experience and large investments of time and money. One such project in Mongolia has been taking place at the Khonin Nuga research station in the Khentii mountains since 1996 (Mühlenberg, Hondong, Dulamsuren, and von Gadow 2004), using a variety of field survey methods to assess biodiversity in the area on an ongoing basis to understand the local forest ecosystem. As the authors note, such a comprehensive survey is very challenging to implement on a wide basis due to the cost.

For monitoring of some terrestrial wildlife, camera trapping is an efficient and cost effective method. The recently developed Wildlife Picture Index (WPI) uses camera trapping as the basis of a biodiversity indicator, cheaply obtaining population data on a variety of animal species, which are good indicators of the health of their ecosystems (O'Brien 2010). The WPI is designed to collect data in as systematic a manner as possible with the ability to aggregate it to assess

biodiversity at local, regional, and global scales. While the initial start-up costs are high to purchase the necessary equipment (100 cameras per 200 km2 is recommended), operations costs are low and the cameras can be installed and managed by relatively few people.

The Steppe Forward Program begins piloting, implementation of WPI in several test sites in Mongolia in 2009 (Townsend, Galtbalt, and Myagmar 2010). The survey was carried out in conjunction with point bird counts, mistnet trapping of birds, live trapping of small mammals, and acoustic monitoring for bats. The effort was largely successful, but faced the main challenges of theft of cameras and false detections due to vegetation moving in the wind.

4.6. General Status and Biological Data of Saker Falcon

Within the wildlife resources, the Saker Falcon has been exploited as a commodity by the Government in the last decades for Arabic falconry. In order to raise the science-based and the sustainable use discourse of wild Saker Falcon conservation and trade, it is important to understand this species biological and ecological data and general conservation status in Mongolia.

4.6.1. Distribution, population, and status of Saker Falcon

The Saker Falcon (*Falco cherrug*) is widely distributed throughout the Palearctic region from Eastern Europe to eastern China (Ferguson-Lees and Christie 2001). It breeds in many countries in Eurasia, including Mongolia (BirdLife International 2011). The Saker Falcon is currently considered endangered and migratory birds of prey. In 1990, the number of breeding pairs in China was estimated at 4,000-6,000 pairs, Kazakhstan 2,000-5,000, Mongolia 3,000-5,000, and Russia 3,000-9,000 respectively. By 2010, a total population of 9,600-17,000 breeding pairs was distributed between main population distributions as follows:

China 3,000-5,000, Kazakhstan 2,000-3,000, Mongolia 2,000-5,000 and Russia 1,854-2,542 (IUCN 2011).

4.6.2. Population in Mongolia

Mongolia is a breeding and wintering ground of Saker Falcons. The raptor is a partial migrant, with some adults and most juveniles migrating from the country in autumn (September to November) to wintering areas in China. Other birds remain in Mongolia for winter, some in their breeding territories and others in separate wintering ranges. Migrant Saker Falcons arrive back on their breeding grounds in March (Boldbaatar 2010 unpublished). Based on the national survey of Mongolia, using random sampling and line transect methods, the population trend of Saker Falcon was found stable. The estimated population was around 6000 birds in 2010. The comparison was made the Saker population data reported by Gombobaatar et al. 2007 for over the period 1998-2005 to the data from 2010 survey. It indicated that the Mongolian population of Saker Falcon has remained relatively stable. During the 2010 national survey, the population of Saker Falcon was found to be unevenly distributed in Mongolia. The population density is varied in relation to the availability of food. Previous studies have also suggested that fluctuations in the population of the Brandt's Vole (Microtus brandti) correlate directly with the distribution of Saker Falcon population in Mongolia (Shagdarsuren 2000; Bold 2002). There is a disagreement the researchers regarding the survey method. According to Dixon, Gankhuyag, and Nyambayar (2009), the 2010 Institute of Biology (IB), Mongolian Academy of Sciences (MAS) survey could not provide any biologically meaningful population estimates and information on population trends. Despite disagreement over the survey method, they agreed the recent estimate of the Mongolian population of Saker Falcon is relatively stable. Dixon (2009) estimated the number of breeding pairs at 2000-5000, based on breeding densities in survey areas monitored by Gombobaatar et al. 2007. He further concluded that the Saker population in central Mongolia was at least stable because a non-

breeding surplus exists in the region, which would not exist if the breeding population was in decline. This non-breeding surplus can be recruited into the Mongolian breeding population by the provision of artificial nests in nest site limited habitats.

4.6.3. Data on life history and description

In Mongolia, Saker Falcons generally lay their eggs in March and April in nests on cliff ledges and crags, tall trees, pylons and other man-made constructions. They do not build their own nests, but instead occupy nests of other raptors, such as ravens (*Corvus corax*), black kites (*Milvus migrans*), upland buzzards (*Buteo hemilasius*), and golden eagles (*Aquila chryseatos*) (Boldbaatar 2010 unpublished). Each clutch is normally 3 to 6 eggs. Incubation lasts approximately 30 days and is mainly carried out by the female, with the male bringing most of the food. The female usually does not hunt until the second half of the nesting period (Boldbaatar 2010 unpublished). Average fledging success in the central Mongolian study sites was approximately 3 chicks per nest (Dixon 2009). Fledging generally occurs after 40-45 days, and the young still depends on the parents for up to 30 days, at least amongst the Mongolian population (Boldbaatar 2010 unpublished).

4.7. Conclusion

This section concludes that as Mongolia moves towards the Age of Market and a mineral resource based economy, the environmental challenges like climate change, desertification, biodiversity loss, environmental pollution and degradation, and deforestation have become critical issues (MNET 2009). Mongolia has conducted various researches on how to mitigate and adapt to the impacts of the on-going climate change process. Otherwise, those impacts may cause severe economic loss for the country's development (Batima and Nandintsetseg 2007).

The concept of conservation has existed in Mongolia for thousands of years in subsistent use context. The contemporary concept of conservation has emerged with political and economic transformation since 1990. From the early 1990s, the concept of nature conservation has been successfully constructed in Mongolia, with a number of international conservation projects, programmes, international organisations, and civil society organisations.

The development of the concept of conservation has been strengthened by the wave of global conservation and environmentalism. While the concept is now, well-known and often expressed among the public, the solutions and sustainable use concepts are detached. Many formal and informal reports (e.g. CMS Report 2011; Audit Report on Wildlife Conservation 2008; National Biodiversity Action Plan 2012) and speeches, blame, and over-emphasise the anthropogenic impacts, associated with livelihoods, cultural and religious rituals, and customs for Mongolian ecosystems, beyond natural processes. Conversely, many failures of environmental policies could be linked to the lack of knowledge, governance, conservation mechanisms, and collaboration between actors. Nature conservation needs to find a balance between sustainable use of natural resources, while ensuring a certain protection through a close collaboration with humans and their communities, instead of protecting nature from humans. To this end, the Mongolian context is important to identify adaptive measures for nature conservation, which fits within the political and economic systems and society as a whole. This context leads to the core of the study as Saker Falcon conservation and trade in Mongolia.

The context of Mongolia showed that the primary pressure on many wildlife species, especially mammals, is overhunting by local people. This hunting is mostly carried out as an economic activity to supplement income, through directly providing resources such as food, and supplying wildlife products that can be sold for cash. Predation by domesticated dogs is also a major issue for some species.

Review of Mongolian Red List documents in section 5 show that threats also exist from larger scale development projects such as mining and hydroelectricity, and habitat loss through climate change, development, and grazing.

Because Mongolians who view it as an economic necessity do most hunting, it is clear that a successful conservation program will have to include some mechanism to generate alternative income for local residents. Successful projects in other countries have shown that the more directly conservation practices are tied to economic benefits, the greater the conservation benefits that can be achieved.

Chapter 5. Endangered and migratory species conservation: Saker Falcon threats and conservation in Mongolia

Introduction

This chapter will present the endangered and migratory species conservation in Mongolia, examining the policy and legal frameworks of Saker Falcon. In order to illustrate the conservation policy challenges, the major threats of Saker Falcon will be presented. The chapter will provide gaps and overlaps of the contemporary regulatory and policy frameworks in Mongolia. In addition, the chapter will explore the cultural dimensions of Saker Falcon in the conservation policy. The chapter will include the analysis of both international and national environmental policy documents, as the governmental and non-governmental reports, and reports of international programmes or organisations, press releases, national legislation, and national or international conservation programmes.

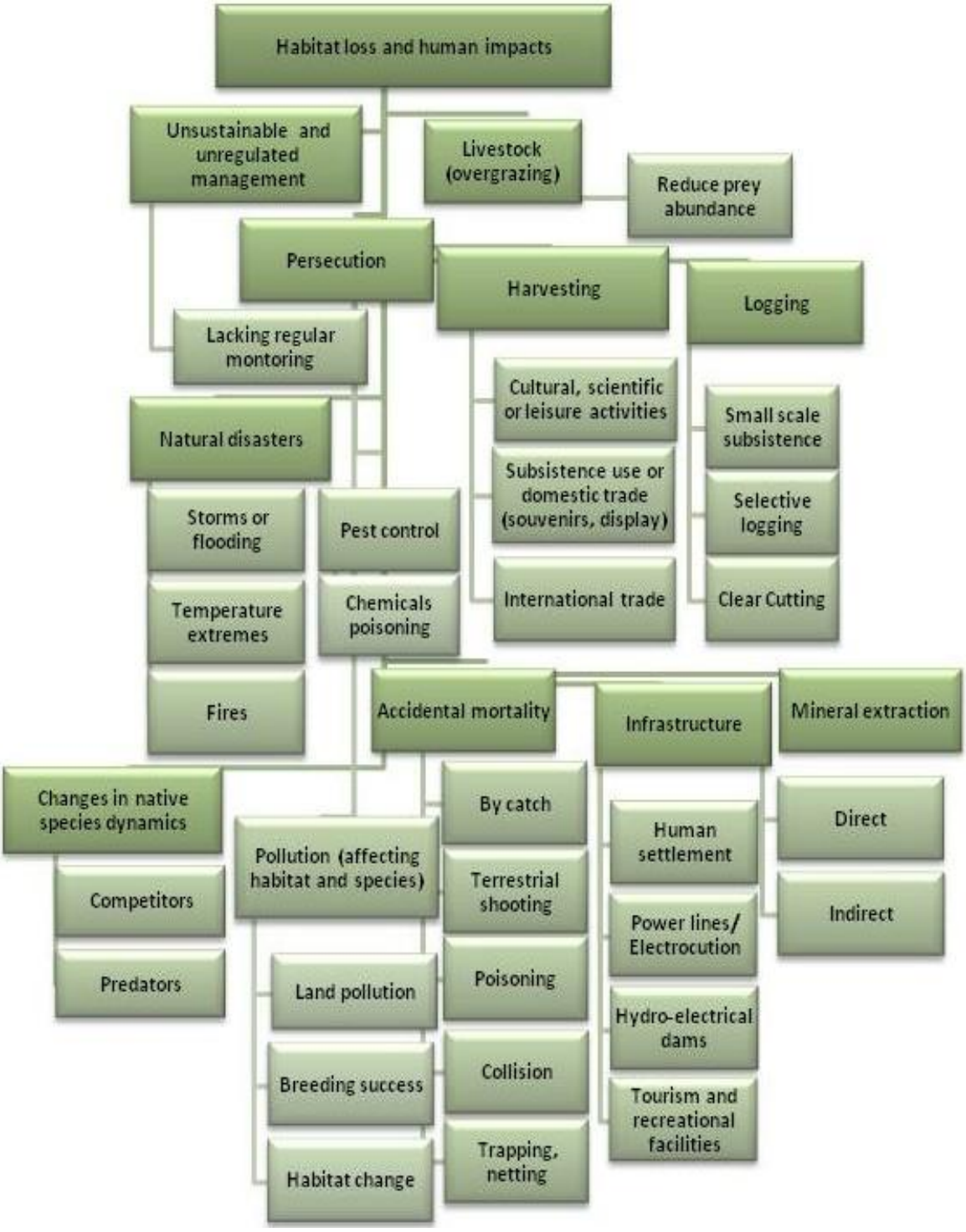
5.1. Major threats to Saker Falcon

The reason for the inadequate conservation status of Saker Falcon is a set of common threats in central Mongolia, including from unsustainable harvesting and unregulated trade for falconry purpose (Dixon et al. 2010). Other threats include: electrocution, chemicals and pesticide use, accidental mortality, persecution, and disease; habitat loss and degradation caused by overgrazing, logging, mining, and to some extent intolerance to human disturbance (Gombobaatar et al. 2010). While habitat characteristics change, the threats vary across its range in Mongolia. The complexity of the threats makes it difficult to draw a simple set of interrelations between the different threats and to identify underlying causes of the threats. As a result the hunting skills of most of the female Saker Falcon population, adds certain additional challenges to their conservation. The barriers to breeding (aside trappers, also human infrastructure, local habitat destruction, occupancy of important breeding and preying sites by herders and

others) reduce effective population sizes, cause genetic isolation and reduce access to suitable breeding or preying habitats. Over-harvesting causes the alteration of age and sex structure of populations and can have unfavourable impacts on the genetic composition of Saker Falcon populations (Purevdorj pers.comm on June 2012). In the central Mongolia a decline in size and number of trapped birds is reported (MAS 2012 unpub. report). Illegal trapping increases the mortality, and thus causes a decline of the population numbers (Chuluunbaatar personal comment on July 2012). Consequently, no systematic analysis has been done to establish, if this observed decline is significant or if the number of breeding pairs is reduced in the past and the present. The following common threats were observed from the interviews with policy makers in 2012 as shown in the Figure 6:

Figure 6. Electrocuted Saker Falcon in the central Mongolia

Figure 7. Tree of threats



When Saker Falcons come across the border of Mongolia they may encounter degraded habitat and electrocution, which can directly cause mortality. Reportedly, poachers use unsuitable methods during their migration and breeding sites in central Mongolia as targeted poaching.

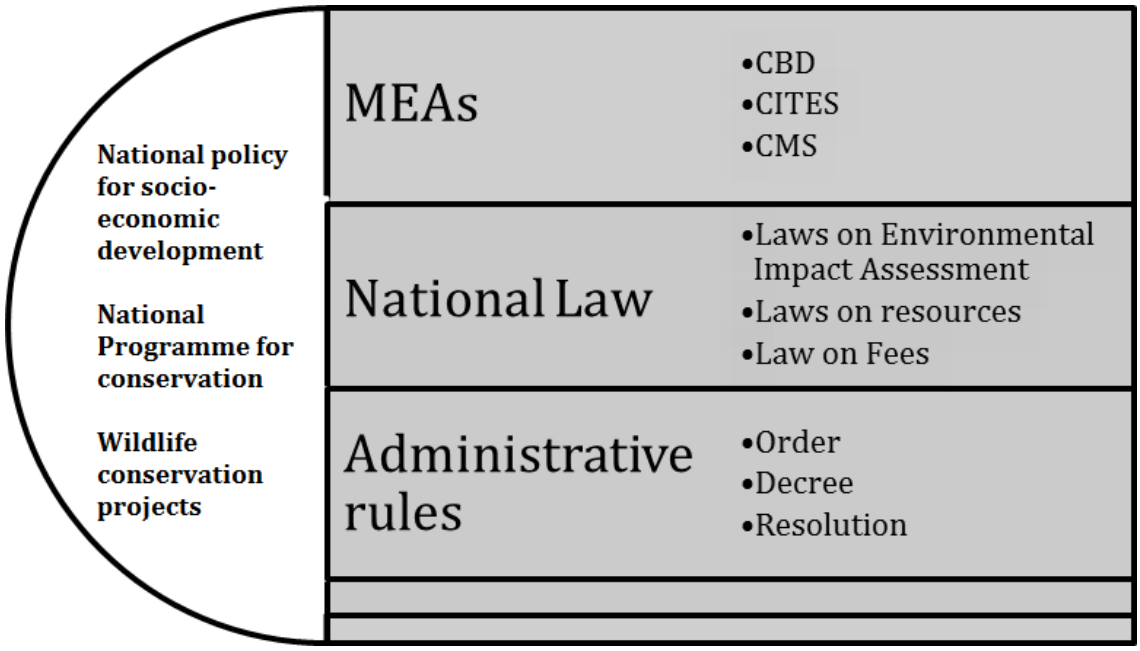
Illegal and legal harvesting, if not accompanied by measures ensuring the support of local people and in particular of hunters, guide, and rangers from local communities, can cause an increase in poaching pressure. In cases where local people feel deprived of their traditional rights, international trade of Saker Falcon can become a pretext or excuse for poaching by local people, which have neither the right to harvest nor receive any benefits from the international trade.

5.2. Legal framework for Saker Falcon conservation in Mongolia

The national legislative framework aims to strengthen decentralised the decision making and institutionalised the wildlife management under the CBNRM strategy, restrict the use of endangered and migratory or threatened species, and promote participatory conservation in Mongolia. Since Mongolia joined major MEAs, those MEAs become a part of the Mongolia's legal framework. MEAs, specifically CITES, CBD and CMS, include provisions that are relevant to the conservation of the Saker Falcon. At the international conservation status, Saker Falcon is listed in CMS Annex I, excluding the population of Mongolia, while the CITES includes the species in Appendix II and the CBD Strategic Plan for Biodiversity 2011-2020 as well. While IUCN and Birdlife International classified the species as 'Globally Endangered and migratory ' in 2012, Mongolia categorizes Saker Falcon also rare species, which requires a legal protection from disturbance, taking, and killing. Saker Falcon is protected as "Rare" under the 2001 revision (Mongolian Government Act No. 264) of the 2000 Mongolian Law on Fauna. General hunting of Saker Falcon has been prohibited since 2001. Under the MEAs,

such as CBD, CMS and CITES instruments are available to promote the cooperation across its range states, when implementation of conservation has undertaken at local context.

Figure 8. Structure of Saker Falcon legislation of Mongolia



The laws which regulate wildlife conservation and trade at international, national, and local levels can be subdivided into three different categories: laws for impact assessment, laws on resources, and laws on fees. Several different Mongolian laws come together to form the legal basis for conservation of wildlife and Saker Falcon in particular in Mongolia. It looks at the relevant parts of six Mongolian laws:

- The 1994 Law on Special Protected Areas

- The 1995 Law on Hunting Resource Use and Hunting and Trapping Permit Fees

- The 2000 Law on Fauna

- The 2000 Law on Hunting

- The 2002 Law on the Regulation of International Trade in Endangered Animal and Plant Species

- The 2004 Law on Environmental Protection

Mongolian Law on Fauna, 5 May 2000

The Law on Fauna, along with the Constitution of Mongolia, places ownership of all wildlife in the state (Article 10.1). Two categories of specifically protected wildlife are defined: Very Rare and Rare:

Very Rare wildlife "have a restricted capacity to recover, a limited distribution, no usable reserves, and are in danger of extinction" (Article 3.1.2). The list of Very Rare wildlife is included as part of the law (Article 7.1). Very Rare fauna may only be hunted or trapped for scientific purposes with authorization from the state, and all other hunting and uses are forbidden (Articles 7.2 and 7.3). Any proposed industrial or transport, construction occurring in the range of Very Rare fauna must first receive approval through an environmental impact assessment process (EIA) (Article 7.4).

Rare wildlife "have a limited capacity to recover, limited distribution, have a small population, and are potentially in danger of extinction" (Article 3.1.3). The state determines what species list as a Rare (Article 7.6), and the Saker Falcon is

included on this list (Clark, et al. 2006). Rare fauna may be hunted and trapped with a permit from the state for certain uses:

- Scientific, research, cultural, artistic, and medicinal (Article 7.5.1)
- After payment of special fees (trophy hunting) (Article 7.5.2)
- For regulating numbers and controlling infectious disease (Article 7.5.3)

With permission from the state, fauna other than those listed as Very Rare may be trapped live for certain uses (Articles 11.1, 12), so long as they are not harmed, nohealth hazards are caused, and their habitat is not destroyed. These uses include the extraction of animal products, such as antlers, musk, wool, and others that do not require killing the animal (Articles 13 to 15).

The state is responsible for establishing hunting quotas, organizing scientific research, protecting territory, and managing game reserves (Article 6). People and organizations are responsible for protecting fauna during production and economic activities (Article 6.1.7). Persons or organizations that cause damage to fauna are liable to pay the government twice their assessed ecological and economic value (Article 25), and also face administrative penalties (Article 27). Repeat offenses, as well as hunting Very Rare fauna or causing other harm to them, bring criminal charges (Article 27.2).

Mongolian Law on Hunting, 5 May 2000

The Law on Hunting states that hunting management activities are necessary to determine population sizes and extents and make sure that hunting is done sustainably (Articles 4.1 and 4.2). Hunting management is financed by the state, and is carried out by aimag and soum governments (Articles 4.4 and 4.5). They must carry out hunting management activities at least once every four years,

and every year following commercial hunting operations (Article 4.4). It is illegal to hunt in an area where hunting management has not been carried out in accordance with this schedule, even if hunting that species elsewhere is legal (Article 15.1.2).

Three types of hunting are defined: industrial, household, and special (Article 6.2). The state sets maximum hunting quotas for each species by aimag (Article 8.1), and then each aimag can set their own quota equal to or smaller than the quota approved by the state (Article 8.2). Soum governments can enter into contracts with companies for industrial hunting, which specify the number of animals that may be hunted. Such companies must use professional hunters, and have and be able to implement a management plan to ensure sustainable use of the wildlife (Article 9). Mongolian citizens may hunt and trap non-rare animals with a permit (Article 10.1). The permit has a specific validity period (5 days for mammals, 3 days for birds and fish) and specifies how many of what animal may be hunted (Articles 10.3 and 10.4). Special permits are issued for hunting for sport, scientific, cultural, artistic, and medicinal purposes, and maintaining herd size (Article 11). They can also be issued to foreigners. Permits for hunting rare animals like Saker Falcon can only be issued by the state, while for others can be issued by soums (Article 11.1).

The law also forbids certain hunting methods and activities, such as chasing wildlife by vehicle or destroying dens (Articles 14 and 15). Hunting seasons are also defined (Article 13). Rangers are given certain powers to prevent illegal hunting and confiscate related property (Article 16.3). Administrative penalties are applied for violations (Article 16.1), and repeat offenses or illegally hunting rare animals can lead to criminal charges (Article 16.2).

Law of Mongolia on Environmental Protection, 30 March 1995 (Amended 22 January 1998 and 22 April 2002)

The Law on Environmental Protection contains broad measures to prevent damage to the Mongolian environment. Of most importance to Saker Falcon are: that natural resource use and permit fees must be based on an assessment of the ecological and economic value of the resource (Articles 8.3 and 8.4); that commercial natural resource use requires EIAs and natural resource assessments (Article 7.2); that economic entities and organizations must monitor for harmful environmental effects and budget for environmental protection and restoration activities (Articles 25.1.2, 31.1.2, and 31.1.4); and that the government must carry out environmental monitoring and maintain a national database of monitoring reports, data, and statistics (Articles 10 and 12).

Law of Mongolia on Hunting Resource Use and Hunting and Trapping Permit Fees, 19 May 1995

This law specifies how hunting and trapping permit fees are determined, depending on who is doing the hunting and what purpose the hunting is for. There are both resource use charges, and permit fees (Article 2). Since the Saker Falcon is listed as Rare, only certain activities as mentioned above are permitted. For scientific, cultural, artistic, and medicinal uses, for a Mongolian hunter, the charge is 20% to 40% of the animal's economic and ecological value (Article 5.1.2). For foreigners, it is equal to the international market value, or 60% to 70% of the economic and ecological value (Article 5.1.5). The permit fee is 20% to 40% of their economic and ecological value (Article 5.2.2). Exemptions exist, such as organized hunting to balance populations or combat disease, or live trap-and-release for scientific purposes such as attaching tracking collars (Article 6).

Law on the Regulation of International Trade in Endangered Animal and Plant Species, 7 November 2002

This law enshrines Mongolia's international obligations under CITES into national law. Sale for profit of Appendix I listed species and their derivatives is banned (Article 7.1), and sale of Appendix II listed species and their derivatives requires a permit from the state (Article 7.3). It is required that legal trade will not threaten the survival of the species, and harm is not done to them in the future (Article 7.4). However, the Saker Falcon is presently listed under Appendix II of the CITES, the current thread of Saker Falcon has an insufficient regulatory mechanism to meet the international export requirement.

Mongolian Law on Special Protected Areas, 15 November 1994

This law defines four types of special protected areas (Article 3) and the activities that may be undertaken in them. The four types are:

- Strictly Protected Area
- National Conservation Park
- Nature Reserve
- Monument

All types of hunting, except for scientific research and maintaining population health, are banned in strictly protected areas and national conservation parks (Articles 12.1.3 and 18.1.1). Nature reserves allow traditional, sustainable, subsistence hunting (Article 21.1), and monuments only ban activities which would be detrimental to the historical or natural feature that the monument was created to protect (Article 24).

Strictly protected areas and natural conservation parks both have multiple use zones. In strictly protected areas, allowed hunting activities are only permitted

in the limited use zone (Article 11.1.4), and are banned in the conservation and pristine zones (Articles 9 and 10). The pristine zone allows essentially no human activity except for non-invasive scientific observation (Article 9). In national conservation parks, allowed hunting activities can be done in the limited use and travel and tourism zones, but not in the special zone (Articles 15 to 17).

Reforming the legal framework is an on-going process for wildlife management in Mongolia. Since the series of wildlife legislations adopted in the mid-1990s and 2000, some administrative rules and regulations, such as ministerial decrees, orders, or government and parliament resolutions have been updated and regulated the emerging concerns and general wildlife conservation and Saker Falcon conservation in particular.

5.3. Policy map for Saker Falcon conservation

Table 6 illustrates international and national policy processes since transition, as part of a policy road map for Saker Falcon conservation1994-2013.

Table 6. Policy Map for Saker Falcon management in 1994-2013

Year	Policy development	Problems
1994	The Mongolian Government begins to trade the Saker Falcon.	Before joining the MEAs. Lacking population data. No management plan.
1996	Mongolia joined CITES.	No capacity and knowledge among the domestic stakeholders on how to implement CITES.
1999	Mongolia joined CMS.	No training and knowledge about CMS among national government officials.

2001	Government Resolution No. 264 approved the list of rare species in Mongolia, including Saker Falcon.	According to Mongolian Law on Fauna, species are classified as common, rare, or very rare.
2002	IUCN Guidance For CITES Scientific Authorities Included checklist to assist in making non-detrimental findings for Appendix II exports (Rosser and Haywood)	Non-detriment finding has no implication for endangered species management in Mongolia.
2003	The Criminal Code of Mongolia amended Article 175 to protect the Saker Falcon against illegal taking and harvesting.	The identification manual and training were not provided for the law enforcement officials.
2003	Animal Committee 19 Geneva decided on inclusion of Saker Falcon in the Review of Significant Trade	There was no significant impact on Saker Falcon trade in Mongolia.
2003	Mongolian Government passed Resolution No.121 for the National Programme on protecting Mongolian Saker Falcons.	The programme did not provide a significant management and conservation plan as well as sustainable use.
2004	The Red List status of the Saker Falcon was up listed from Least Concern to globally threatened as Endangered status by IUCN.	Although Saker Falcon was uplisted by IUCN, this had no impact on Mongolia's endangered species category.
2004	IUCN, The Precautionary	Precautionary Principle was not

	Principle in Biodiversity Conservation and Natural Resource Management (Cooney).	applied for any species conservation in Mongolia.
2004	CBD, Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, UNEP	Sustainable use principle, not reflected in the national legal framework, particularly in wildlife related legislation.
2004	Ecosystem Approach was brought in under the CBD	Adaptive management and sustainable use concepts still not incorporated into wildlife legislation in Mongolia.
2006	While CITES notifies that the 9 Range States[6], including Mongolia, have suspended Saker Falcon export permits, while Mongolia continued exporting wild Saker Falcons.	There was no updated inventory of Saker Falcon and sustainable use plan; trade was continued.
2006	Mongolian Government Resolution No.171 updated the price for Saker Falcon exportation.	The export quota was set at 300 birds. The price per bird was set as USD.10000, which consists of USD.9000 for the payment of hunting

[6]Range state is a term generally used in zoogeography and conservation biology to refer to any nation that exercises jurisdiction over any part of a range which a particular species,taxon or biotope inhabits, or crosses or overflies at any time on its normal migration route ("Convention Text". Convention on the Conservation of Migratory Species of Wild Animals. Bonn, Germany. 23 June 1979. Retrieved 17 February 2012).

		and USD.800 for fees.
2007	Bilateral MoU signed between the MNE and EAD, UAE to implement the Artificial Nests project in Mongolia.	Initial steps were taken to improve the Saker Falcon conservation with the support of foreign funder and NGOs.
2007	Bilateral MoU signed between The State of Kuwait and Mongolia to establish the Kuwait Mongolian Research Centre for improving Saker Falcon conservation in Mongolia.	The investment agreement was signed, but there was no progress or clear management plan for the research centre, or how it would contribute to Saker Falcon conservation.
2008	The Croatian proposal to up-list the Saker Falcon to Appendix I of CMS was declined. Resolution 9.20 on the Saker Falcon was adopted by CMS COP9 Rome, Italy.	There were no conservation activities in Mongolia, but the trade was continued.
2009	CITES Standing Committee (SC) recommends that countries suspend trade in Saker Falcons with Mongolia.	Addressed the recommendation of CITES SC at the MNET and agreed to provide the progress report.
2009	Mongolia participated in a specialist meeting on the conservation of Saker Falcon Abu Dhabi illustrating the current development of conservation projects such as the Artificial Nest	MNET made attempts to compile existing data on Saker Falcon conservation and trade.

	Project.	
2009	Mongolia provides the CITES Animals Committee (AC) with a report related to the conservation programme based on artificial nests. The programme includes management plan for sustainable use of the Saker Falcon.	MNET prepared the first report on Saker Falcon management and submitted a sustainable use and conservation programme of Saker Falcon, based on artificial nests.
2009	The CITES Standing Committee withdrew its recommendation to suspend trade in wild Saker Falcons from Mongolia. An annual export quota of 300 wild, live birds is agreed for the years 2009 and 2010.	Mongolia continued the Saker Falcon trade with Kuwait, Qatar, and UAE. Harvesting was widespread in Mongolia. Harvesting took place in all but two of Mongolia's 21 provinces.. More than 100 foreign trappers visited and participated in the harvesting. No harvesting and monitoring regulations were put in place. Local community resistance began in several provinces.
2009	Resolution No.112 renewed the permit fees for exporting Saker Falcons.	The increase in permits and fees did not affect the local people and their livelihoods.
2010	The Ministerial Order No. A205 required specific licenses, permits, and tags for trappers and buyers intending to harvest wild	This rule made attempts to regulate harvesting, but did not have a substantial impact on or cause major changes in existing harvesting activities.

	Saker Falcon commercially. Examples of tags for the vehicle of trappers and rules and procedures of harvesting, transportation, and exportation are specified	The Saker Falcon conservation policy lacked a sustainable use strategy. Unlike the submitted conservation programme to the CITES Standing Committee, the policy has no development, but remains unsustainable.
2010	Mongolia signed a MoU with the Environmental Agency of Abu Dhabi, UAE in collaboration with International Wildlife Consultants (IWC, UK) to establish a joint programme for research and conservation of birds of prey in Mongolia. This MoU aims to develop sustainable harvesting and trading strategies to conduct further biological studies based on the artificial nest sites.	Although Mongolia made commitments to implement the sustainable use strategy through artificial nests with EAD, many other buyers and relevant stakeholders were not informed and lacked information regarding the on-going processes and programme.
2010	Birdlife International updated the estimation of the global population of the Saker Falcon.	MNET provided the funding to a number of research institutions to conduct the Saker Falcon inventory from the state revenue. This identified a population of 6800 birds. There was a disagreement on the result among the scientists due to different methodologies.
2010	The Red List status of the Saker Falcon was down listed from	The IUCN updated list did not affect the Mongolia's endangered species list.

	Endangered to Vulnerable status by IUCN.	Saker Falcon remains the same status in national legislation.
2010	Mongolia supports the registration of falconry for the Lists of Intangible Cultural Heritage of UNESCO.	Although the Ministry of Education and Sciences, Mongolia supported the registration; MNET had no significant knowledge and information regarding the event. MNET did not update the conservation policy of Saker Falcon in relation to the cultural significance of falconry.
2010	The amendment of the Law on Hunting set the Saker Falcon trapping and harvesting season in accordance with the Article 13.7.4 dated on 29 October 2010.	According to the amendment, Saker Falcon trapping season starts in Mongolia from 15th November for each year up until the 20th of June in the following year. It conflicts with the breeding season of Saker Falcon in Mongolia.
2011	The CITES Animals Committee undertook a review and endorsed the positive management regime for the Saker Falcon established by Mongolia, agreeing to an export quota of 300 live, wild birds.	Although erection of the Artificial Nests was completed in the planned areas, the national policy has no concrete amendments or changes to incorporate the development of the Saker Falcon management. These nests as well as the establishment of sustainable use mechanisms for the Saker Falcon trade.
2011	Following a proposal submitted by the European Union, the	While Saker trade continues, the Government holds back updates to the

	Saker Falcon is listed on Appendix I of the CMS at COP10 Bergen, Norway, excluding the Mongolian population, which is included in CMS Appendix II.	existing legislation and in relation to sustainable use mechanisms, such as regular monitoring, micro chipping, regulated harvesting, and local community involvement. There was more data and research available on electrocution in Mongolia.
2011	Resolution 10.28 on the Saker Falcon adopted in CMS COP10 Bergen, Norway, including the creation of the Saker Falcon Task Force.	Mongolia participated in the meeting and supported the establishment of the Saker Falcon Task Force. However, there were still no measures to implement sustainable use in country.
2011	CMS, Resolution 10.11 adopted, including Guidelines on how to avoid or mitigate the impact of electricity power grids on migratory birds in the African-Eurasian region.	Some baseline studies and independent research have been conducted in Mongolia with the initiative of NGOs to mitigate the electrocution and collision of birds.
2011	Instead of a National Programme on Saker Falcon conservation, the Mongolian Government passed the National Programme on Endangered Rare Species Conservation in 2011-2021, by the Resolution No. 277.	Without any implementation efforts, the National Programme on Saker Falcon conservation expired. However, the National Programme has two phases, such as the first 2011-2021 and second 2017-2021, there is no concrete provision or plan for Saker Falcon conservation.
2011	The National Committee for	Particularly, Article 3.3.3.8 of the

	Endangered and Rare Species has established to improve the conservation of the species listed in the CITES Appendices and CMS Annexes like Saker Falcon.	programme stated that the National Committee will facilitate the legal and socio-economic condition to prevent illegal use of Saker Falcon through sustainable use mechanism.
2012	Birdlife International's consultation on revision of the Saker Falcon from IUCN Vulnerable to Endangered.	The updated list of IUCN made no impact on the existing list of Saker Falcon in Mongolia.
2012	The Red List status of the Saker Falcon was revised from Vulnerable to Endangered by IUCN using the precautionary principle.	Saker Falcon remains as listed as a rare species in Mongolia. The National legislation has been updated through the Law on Fauna, which contains several important provisions related to Saker Falcon conservation.
2012	1st Meeting of the Saker Falcon Task Force, Abu Dhabi, UAE to agree and adopt an approach to developing the Saker Falcon Global Action Plan (SakerGAP).	Change in the Mongolian Government after the Parliamentary election affected wildlife conservation policy, particularly Saker Falcon conservation.
2012	1st Meeting of Signatories (MoU) of the UNEP/CMS Raptors MoU, Saker Falcon side event, Abu Dhabi, UAE.	The newly established Government of Mongolia prepared a proposal to ban the trade.
2012	From the 63rd meeting of the cabinet, the Government passed the Resolution No. 101 declaring	The event becomes politically and culturally significant rather than improving current conservation of Saker

	the Saker Falcon as a National Pride Bird of Mongolia.	Falcon. Unlike the support of falconry in 2010, the Saker Falcon itself is highlighted as a national symbol with prohibitions against international trade and hunting.
2013	Saker Falcon trade has been banned for five years by the Government of Mongolia.	With the Saker Falcon trade ban, controlled, legal, and sustainable trade concepts have stopped in the Saker Falcon conservation policy. Regarding the impacts of trade ban or illegal trade, there were no progress and updates made so far.
2013	The Government Resolution No.92 allows hunting 20 Saker Falcon, based on the Article 26.3 under the Law on Fauna.	Nonetheless, there was no regulatory updates made for Saker Falcon conservation and sustainable management, the hunting is continued in Mongolia.
2013	The Government Resolution No.297 amended the word hunting into harvesting.	However the word of hunting is amended as harvesting in the regulation, there is no conservation impacts.

5.4. Institutional arrangement and mechanism to improve the Saker Falcon conservation

In addition to these general legal basis, a particularly significant development under institutional reform in Mongolia has been the elaboration of

distinct conservation and management for Saker Falcon. Indeed, Saker Falcon conservation is governed under the national and international regulatory mechanism, the diminished numbers of Saker Falcon in the central Mongolia, the Tov, Dundgobi, and Khentii provinces are of particular concern. As a priority action, Mongolia needs to establish clear, coherent conservation targets for Saker Falcon conservation. As discussed, creating a biological and ecological recovery is not the only option. One of the alternatives would be about focusing on revising, improving and operationalising institutional arrangement and mechanism and work in the priorities for Sake Falcon conservation and collaboration. This alternative does not exclude setting up an institutional arrangement inclusive of government, non-governmental or private sector, scientific and local communities and does not exclude either the decision at a later stage to propose the Saker Falcon conservation strategy and specific management details. In that context, for Saker Falcon conservation there is established institutional arrangement and mechanism, which include government, non-governmental or private sector, scientific and local communities, according to the current legal framework (Banzragch personal comments on July 2011). Each institution has a competing interest and priority in the situation of Saker falcon conservation in Mongolia (Banzragch personal comments on July 2011). However, the central government made an effort to optimise the Saker Falcon conservation within its responsibility and capacity (Banzragch personal comments on July 2011). From 2009, number of central government and local government officials note that the policy framework has been improved to organise and implement the wildlife conservation in Mongolia (Luimed pers. comm 2011). However, others were concerned that a national policy of wildlife conservation needs to be updated within the term of 2008-2012. At this point, "in the course of the 2011 Strategic Environmental Policy Reform, there was the obligation to establish the National Programme for Endangered and Rare Species Conservation" (Luimed pers. comm 2011). For this purpose, the National Committee was established under the Government Resolution No.277 in 2011 as

an institutional unit to strengthen endangered and migratory and very rare species conservation in Mongolia (GoM 2011). The main responsibility of the National Committee is to engage the decisions and policies of other ministries and improve the consistency of conservation policy through an inter-sectoral approach. It can be considered as a major progress that brings an opportunity oversees the most coherent wildlife management policy in Mongolia.

5.4.1. Central government and MNET (2008-2012)

With the creation of a special government agency, the Ministry of Nature and Environment (MNE) in 1989 was the formal and specialised government agency established to deal with Saker Falcon conservation at national and international level. However, the name of the Ministry has been changed several times, the major role and function remains the same. The current one was 'Ministry of Nature, Environment and Tourism' in 2008–2012, and from 2012 it was renamed the 'Ministry of Environment and Green Development' (MEGD 2012). The MEGD is a central government agency, to administer the Saker Falcon conservation policy at the national level and international level. The current MEGD or the preceding MNET has the full mandate and power, according to the national legislation, e.g. Constitution of Mongolia, Law on Government, Law on State Administration, Law on Ministries, and the Law on State Budget. The structure of the central government agencies has changed over the last two decades. Depending on the structural change, the number and responsibility of the ministries were set up. For instance, the Ministry of Nature and Environment was merged with the tourism sector from 2008–2012. This agency had mandates and responsibilities specified as follows:

- To report the state of the environment, and to develop policy to ensure ecological security. The MNET used to have a monitoring mechanism for

the policy implementation, and compiled report that released bi-annual basis.

- To develop and update environmental legislations: Since majority of environmental legislation outdated, MNET has undertaken Strengthening Environmental Governance Project with the collaboration of UNDP. This project aims to update major environmental legislation and submit to the Mongolian Parliament.

- To create a policy on protection and prevention of pollution in the air, water, land, and the environment: MNET takes the lead to reduce the Ulaanbaatar City Air Pollution and Air Pollution Fund has been established with the collaboration of the City Mayor's Office.

- To assess the environmental impact assessment, the introduction of an environmentally sound technology and clean development mechanism: MNET established the sub-unit for science and technology. This Unit promotes environmentally sound and green technology transfer to Mongolia and support the domestic clean technology (GoM 2008-2012).

Decentralising decision-making power in the central government, including reducing staff and ministry numbers was the priority of the coalition government in 2008-2012. At the central apparatus, there were only 54 permanent professional staffs in 6 departments and 2 divisions, and fewer service personnel such as drivers at the Ministry of Nature, Environment and Tourism (MNET) have In addition, approximately 10–15 people were hired on temporary contracts in 2008–2012 (Dar personal comment on July 2011).

5.4.2. MEAs' implementation relevant to Saker Falcon conservation

The MNET actively plays an active role in international decision making processes with regard to wildlife management and particularly Saker Falcon conservation. For instance, the MNET participated in regular and occasional meetings of MEAs, and appoints the National Focal Points for the MEAs. The National Focal Points are responsible for facilitating the full implementation of their respective MEAs at the national level. However, there is no funding or paid staff specifically assigned to these activities, the implementation of MEAs has often been insufficient and inconsistent at national level. Although beyond the lack of capacity, the domestic institutional structures have been poorly designed. Clarifying the functions and responsibilities of the focal points and enabling more effective implementation of various MEAs' new decisions and resolutions supposed to be regularly informed to the decision makers were absent in Mongolia.

Therefore, the challenges remain in the implementation and compliance mechanisms of major MEAs at the national and sub-national scales in Mongolia. Based on the interviews with central government officials, the focal points were rarely operated in the past except the CITES. When CITES operates through the National CITES Secretariat, which created with two units, such as Management Authority and Scientific Authority within the MNE in 2001, staffs were kept changing and the compiled data have often been missing. Currently, the MEA focal points are led by the directors of the departments of the MNET. They do not have a sufficient time and resources to commit the MEAs implementation as focal points. Focal points do not have any funding or ability to organise extra activity within their responsibilities and capacity (Interviews of 115 and 120 on July 2011). In contrast, some interviewees were concerned that the focal points of the MEAs should have more power in terms of conservation activities rather than acting as ministries functional unit (Interviews of 115 on July 2011).

Table 7. CITES National Management Authority

CITES Scientific and Management Authorities of Mongolia	Scientific Authority (SA) -Institute of Biology, Mongolian Academy of Sciences (MAS) and Management Authority (MA) – MNET
SA	The SA has five members, headed by the Chairman of the Institute of Biology, Mongolian Academy of Sciences. The Ministry of Nature, Environment and Tourism has a power to appoint the head and members of the SA of Mongolia. The SA consists of 3 members from Ins. Biology, AC and 2 members from the National University of Mongolia. Their background is on 3 zoologists, 1 ecologist, and 1 botanist. They must provide a scientific advise for the decision makers.
MA:	The MA has MNET officials from different departments. The functional duty of MA for CITES is not served as full-time position in addition to the regular job.
Function:	The SA has to give advice about 10 or 15 different issues per annual meeting. An annual meeting is held once or twice in a year. Over 70 percent of the permit discussion is focused on animals, while the remaining is related to the plant specimen. MA

	organise occasional meetings regarding the emerging issues of the CITES species or management. Since all export quota is set by the Government based on the SA provided data, this unit organises the trade and enforcement related activities.
Projects:	There is no specific project identified for particularly CITES implementation in Mongolia. There are a number of species, regional or special protected areas, wetland, and timber species conservation projects run by the local and international NGOs and the universities, collaborating with the central and local government agencies.

They have a power to '… endorse all wildlife related projects and set priorities in policy formulation' (Interview of 114 May 2011). Regarding the funding, they should not be a shortage if they spend enough time and energy to connect the project outcomes and policy formulation (Interview of 114 July 2011).

During the study, the central government policy makers responded the questionnaire to assess their knowledge of the MEAs, such as CITES and CMS. The respondent selected from the multiple-choice responses to identify the proper agency. There were 6 responses, such as 'MNET', 'CITES National Secretary', 'State Special Inspection Agency' (SSIA), 'Local governments', or 'All those agencies', and 'I don't know'. There were 9 people pointed out MNET, 7 people mentioned only national focal points of those MEAs and one person said all agencies, and one responded I don't know. The following question of the questionnaire was to evaluate the degree of MEAs implementation.

Table 8. Views of policy makers towards level of MEAs implementation level

		Response					Total
		excellent	sufficient	medium	insufficient	bad	
Central.gov	Count	5	4	1	3	1	14
	% within Stakeholder	35.7%	28.6%	7.1%	21.4%	7.1%	100.0%
Total	Count	5	4	1	3	1	14
	%within Stakeholder	35.7%	28.6%	7.1%	21.4%	7.1%	100.0%

Thus, challenging the success of Saker Falcon conservation activities is the fact that Mongolia does not have the appropriate institutional arrangement to manage the species.

5.4.3. National Committee on Endangered and Rare species conservation

In general, to improve the wildlife conservation MNET has created a new unit such as the National Committee for Endangered and Rare Species (NCERS). The aim of this unit is to introduce an inter-sectoral approach to endangered and migratory species conservation policy, inclusion of scientific research. A strategic planning of NCERS has developed into long, medium, and short-terms. However NCERS has an ambitious plan and responsibility tackling inter-sectoral interests in wildlife conservation, there are only two full-time and regular staffs and relatively small funds allocated. It may affect the scope and operation of this unit

(Chuluunbaatar personal comment on July 2012). In addition, the major responsibilities of this unit for endangered and migratory species conservation were found similar to the departments of special protected areas, the department of environment and natural resources management, and minister's advisory council of the MNET. These administrative as well as policy making units play the key role in the decision making. Thus, these overlapping responsibilities and roles in policy and decision making may lead to dysfunction the units and agencies overall. Most likely many of those units have an interest to involve flagship species conservation and issues of economically significant species like Saker Falcon only, beyond improving overall habitats and ecosystems.

5.4.4. The Environmental Protection Fund

Another administrative unit relevant to Saker Falcon conservation is the Environmental Protection Fund, which was established in 1998 by the Government Resolution No.188 in accordance with the Article 26.3 of the Law on Government Special Funds. This sub-unit of the MNET gets funds from state revenue in addition to 50% of environmental taxes and hunting or harvesting permits. The Environmental Protection Fund never receives the 50% of the total environmental taxes. However the Fund needs considerable amount of funding for wildlife conservation, which has never been available in the past. The Fund has a shortage of finance for wildlife conservation projects up until 2012. The Fund does not have a business plan and selection criteria for conservation project proposals, but the unit has 4-5 full-time staffs. Nevertheless, the Fund is managed by the Minister of Environment and able to directly invest the wildlife conservation, this financial mechanism fails to promote the wildlife conservation due to lacking capacity and relevant skills. The board members of the Fund consist of the head of the MNET sub-agencies and directors besides the Minister.

5.4.5. Incentive mechanism

Another wildlife conservation mechanism is allocated budget from the state revenue to the provincial and local sound governors' office and their environmental units. From 2010, 10% of the fees and taxes from Saker Falcon trade remained in the respective local government budget, ostensibly to improve local livelihoods and promote conservation activities. However, this additional funding is not always used for wildlife conservation, with actual, allocations often opaque. Also, with local government officials suggest that although this fund is supposed to be available for the soums, where the harvesting takes place and for which permits issued, this rule is typically not applied.

A number of ineligible provinces and soums have received money from this fund, while many of the actual harvesting areas have not. According to the legislations, wildlife conservation requires the support of both formal and informal institutions. Moreover, there was no direct mechanism in place for collaboration with local people until 2010. One of the central government policy makers commented that ‘since local people have lack of knowledge in wildlife conservation, we begin to recruit voluntary rangers in sound level. Those people should work as our local eyes and legs in the field’ (Interview 114 on June 2011). However, it is an early development of informal institutional mechanism such as recruiting local volunteers to protect the wildlife, there is a certain limitation.

The Ministerial Order No. A115 on 27 April 2010 passed and approved the rules and procedure of recruiting volunteer rangers in Mongolia. It specifies a term of condition and responsibilities of volunteer rangers, with the assigned term set for 4 years. It allows hiring of an individual, who has initiative and ambition to protect and conserve the environment, including wildlife and who is able to contribute to monitoring and inspection activities in rural areas. Another criterion was it requires an individual, who has a good-reputation and is well-respected by his or her

community and has a strong ability to communicate and organise public awareness activities in their soums. According to this Ministerial Order, a volunteer ranger will receive an incentive from the Environmental Protection Fund.

The amount is equal to 20% of all fines and fees that they imposed for illegal activities, environmental crimes, such as illegal logging, illegal hunting, and illegal mining. In addition, if a volunteer ranger found and investigated environmental crimes, all involved penalty fees and fines will be rewarded as an incentive. Up to 10 volunteer rangers will also be awarded a special reward based on their achievements and functional performance by the Minister of Environment on an annual basis. However, although these efforts of the central government are potentially valuable for wildlife conservation, how they are actually implemented in practice is the most important.

5.4.6. Role and contribution of scientific community

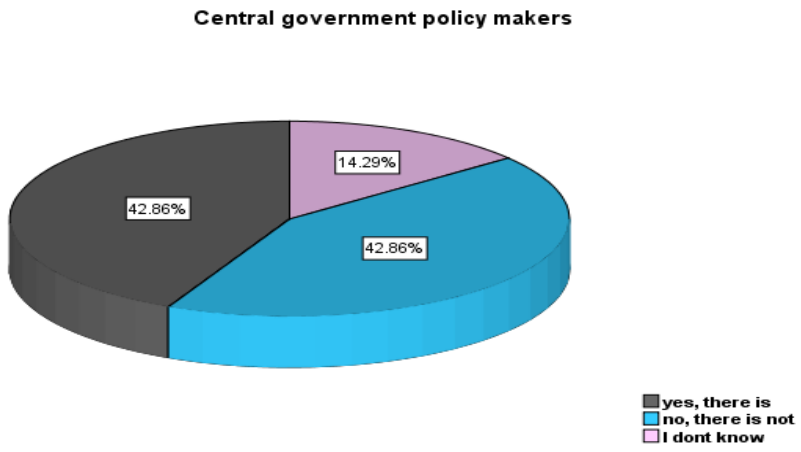
For Saker Falcon conservation, there is a government-funded independent scientific and research institutions, such as the Mongolian Academy of Sciences and Mongolian National University. Their responsibility is to contribute to the research and studies of Saker Falcon conservation. In some occasions, these institutions are invited by the policy makers to advise or resolve the wildlife related issues. This kind of collaborative mechanism is a common for Saker Falcon conservation and trade issues. The Institute of Biology of the Mongolian Academy of Sciences, the relevant departments of the National University of Mongolia, and some representatives of environmental NGOs (ENGOs) often participates in such activities. However, this collaboration and interactions often take place, this study observed that the collaboration of the scientific community is limited and often lack the communication and information sharing, which decrease their importance in decision making.

5.5. Non-governmental organisation for Saker Falcon conservation

Some of the interviewees pointed out that there is improved involvement of non-state actors for wildlife conservation in Mongolia. For instance, from 2009 the Ministry of Environmental supports to hold environmental NGO (ENGO) forum in Mongolia for bi-annual basis. The total number of local ENGO reached over 500 in 2011. But there is a general criticism regarding the ENGOs and its legal environment. ENGOs impact on policy making and implementation is still limited in practice. Many of the ENGOs are not well-qualified and lacking expertise in the area they would like to work (from Interview 122 on Sept 2011). In contrast, these ENGO usually located in the capital city of Mongolia and rarely work with local community and local governments. They mainly seek funding to finance themselves from a project to another project and hardly been present within the environmental sector. The logic about ENGOs was local government and local community do not have a capacity to manage the e.g. wildlife such as Saker Falcon. In rural Mongolia the priority is livestock breeding not wildlife conservation (Purevdorj pers.comm on August 2011). Majority of provincial and soum level governors focus on agricultural development and livestock increase. But they address the overgrazing and degradation, not the wildlife habitat conservation in general (from Interview 115 on July 2011).

For the question of 'Do you think that there is any institutionalised mechanism to involve the local communities directly or indirectly involve the policy formulation and implementation?' From the sampled central government policy makers (N=14), a considerable number of policy makers (42.8%) responded that there is an institutionalised conservation mechanism to involve the local communities and equal number of policy makers pointed out there is not mechanism in place. Only few of them (14.2%) showed the no knowledge about the institutional mechanism.

Figure 9. Assessment on the knowledge of policy makers for engaging non-state actors in policy formulation and implementation in Mongolia



5.6. Local community involvement in wildlife conservation

Overall, insufficient levels of funding and inadequate levels of collaboration have created profound problems in the implementation of wildlife conservation policies in general. As noted by central government policy makers, informal and formal institutional collaboration was enabled through the Law on Environmental Protection and the Law on Fauna (2012). These both encouraged community and individual participation in wildlife conservation. However, although these legal provision states that citizens should be given economic incentives for contributing to environmental and wildlife protection, this is rarely implemented in practice. A level of illegal wildlife trade and legal trade has much lower control and monitoring in hunting and poaching fields. Since rewards, even where offered to citizens in accordance with the relevant legislation, are unable to cover the cost of living in

rural Mongolia, wildlife conservation will not directly improve livelihood of many rural communities. Therefore, more appropriate measures need to be identified for effective wildlife conservation and the involvement of local communities therein.

Since 1997, to improve the situation and based on recommendations of the donor agencies regarding the natural resources management, a cabinet and parliament started an intensive and iterative process, including defining civil society organisations and their policy priorities, and collaborating with non-state actors in wildlife conservation in general. The non-government sector also referred to as civil society and non-governmental organisations (NGOs) became a third actor for wildlife conservation after the adoption of the Law on NGOs in 1997. This legislation allowed the official registration of NGOs in general and wildlife conservation purposes as well.

As Tortell et al. (2008, p.27) stated, there are "three main exponents of environmental governance– the NGOs which range from large international organisations to small local community level institutions; the more loosely organized community groups (CBOs) and including the general public; and the private sector companies which can also range from large multi-nationals to smaller local companies". Despite recent legislation provided an opportunity to participate in conservation, there is no concrete mechanism in place to implement the public and private partnership or civil-society involvement in Saker Falcon conservation. Such inadequate mechanisms, according to Ykhanbai (2012), caused local government and citizens have often lacked the constitutional rights to use and manage the natural resources on which they depend for their livelihoods.

To improve this situation, Ykhanbai (2012) suggests that co-management approaches, for example by creating forest user groups to manage local resources, could be one solution to environmental conflicts and resource management dilemmas in Mongolia. The co-management approach was supported by

government policy makers as a useful mechanism to promote the institutional development of non-state actors' involvement in conservation and improved rural community livelihoods. The concept of user groups could be more efficient and applicable not only forest management, it can be useful for other areas such as Saker Falcon management. The updated Law on Environmental Protection on May 2012 specifies how local communities can manage and benefit from natural resources through a co-management approach, as stated in Article 45. Under this update, multiple-stakeholders, such as local people organised as a "*nohorlol"* under Provision 11, Article 3.2, and all levels' of local government, a specialised and professional organisation operating in specific areas, and environmental, civil society organisations and private enterprises can be all legally recognised as a conservation stakeholder to institutionalise the wildlife management (Law on Environmental Protection 2012). These stakeholders can collaborate in the co-management of wildlife resources.

As recognised in the legislation, the private sector has become increasingly prominent as a non-state actor for Saker Falcon conservation in Mongolia. For commercial use of natural resources, such as medicinal plants, timber, and animals for the trophy or sport-hunting, started from the early 1990s, private enterprises have increasingly contributed to conservation activities by implementing projects or providing funding with the collaboration of government agencies (MNET 2010). The private sector is involved with wildlife conservation by providing specialised services, such as detailed environmental impact assessments, which evaluate and predict the probable outcome of business activities, e.g. mining, tourism, infrastructure development, and industry. Under the Law on Environmental Impact Assessment, 1998, updated in 2012 and the Law on Environmental Protection, 1995 the private sector can provide services for rehabilitation and restoration, mainly to in relation to mining. A sound legal basis for promoting both public and private sector participation is currently lacking in

wildlife conservation in Mongolia (USAID 2011). In general, non-state actors lack the financial resources to operate independently of the government or development agencies; however, non-state actors can facilitate multi-level and multi-scale governance for wildlife conservation.

5.6.1. Local community view on Saker Falcon conservation

Since Saker Falcon conservation is not only conservation project in the central Mongolia. It has not formal organisation and implementation at the community level, the assessment question was interested in general, the wildlife conservation term rather than Saker Falcon. Amongst herders interviewed (n=70), (15%stated that they were involved in wildlife management, but the majority of them, did not consider themselves to be involved. In addition, 10 environmental officers and 30 Bagh governors were also sampled (n=40). A substantial number of bagh governors and more than half of environmental officers (n=32) stated that they were involved in wildlife management, while one fifth of the total 40 respondents (n=8) stated that they do not participate in wildlife management. The data were analysed using chi square test. The null hypothesis was rejected, χ^2 (2) =30. 47, p≤. 001. There is a strong evidence of a relationship between the current position of individuals and the degree of involvement in the wildlife management.

Table 9.Chi-Square Tests for local government and herders view of decision making

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.476[a]	2	.000
Likelihood Ratio	31.434	2	.000
Linear-by-Linear	3	1	.000

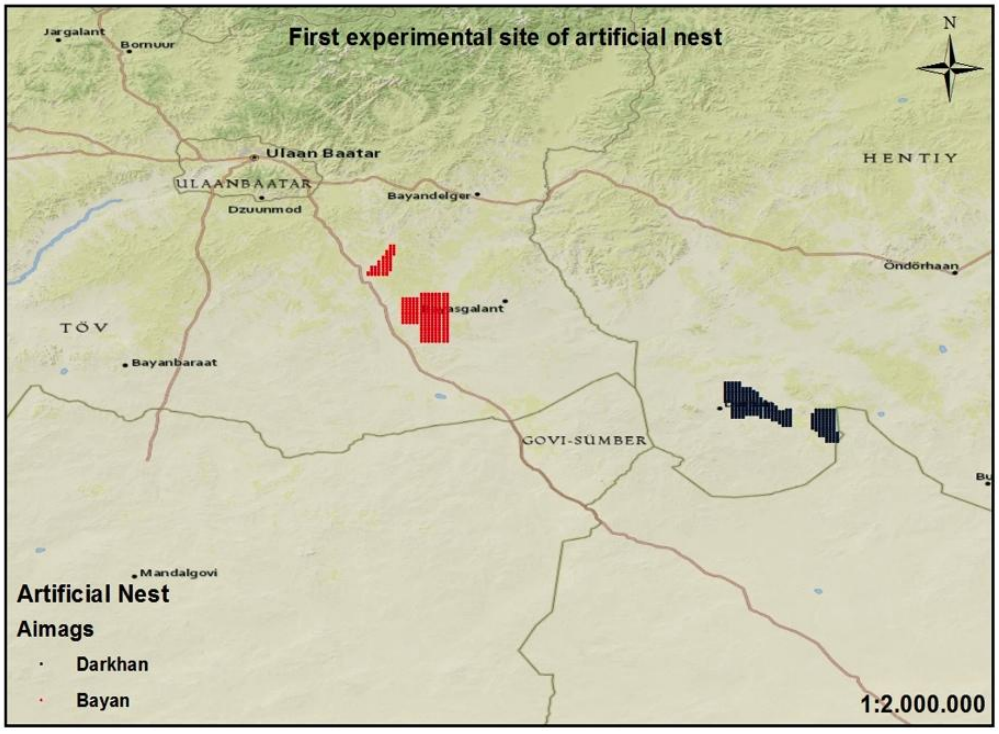
Association	0.197		
N of Valid Cases	110		
a. 1 cell (16.7%) has expected count less than 5. The minimum expected count is 4.00.			

This illustrates that formal institutional mechanisms, namely are operating to a certain degree, but the lack of involvement of herder remains a major gap in wildlife conservation. Lack of involvement of the herders indicates that informal institutional mechanisms, such as volunteer rangers in wildlife management, remain weak in Mongolia. Local people do not participate in the management of their own areas as well as wildlife conservation. This causes tensions and lack of information exchange, particularly among those with potential competing interests in landscape use. Overall, insufficient levels of funding and inadequate levels of collaboration have created profound problems in the implementation of wildlife conservation policies in Mongolia. As noted by central government policy makers, informal and formal institutional collaboration was enabled through the Law on Environmental Protection and the Law on Fauna (2012). These both encouraged community and individual participation in wildlife conservation. However, these legal provisions stated that citizens should be given economic incentives for contributing to environmental and wildlife protection, this is rarely implemented in practice. A level of illegal wildlife trade and legal trade has much lower control and monitoring in hunting and poaching fields. Since rewards, even where offered to citizens in accordance with the relevant legislation, are unable to cover the cost of living in rural Mongolia, wildlife conservation will not directly improve livelihood of many rural communities. Therefore, more appropriate measures need to be identified for effective wildlife conservation and the involvement of local communities therein.

5.6.2. Artificial Nests for Saker Falcon conservation in Mongolia

In 2005, 250 artificial nests were erected within the boundaries of two different soums, such as Bayan at Tov and Darkhan at Khentii Provinces of Mongolia. The experimental project expanded in 2009, and an additional 5,000 artificial nests have since been erected in 20 soums of 5 provinces in Mongolia. The aim of the Artificial Nest project was to increase Saker Falcon populations through facilitating new nest sites for non-breeding birds in central regions of Mongolia, where there is abundant prey availability. Although this in-situ conservation measure has controversial scientific views among the biologists, the project has undertaken with the support of national government and international stakeholders.

Figure 10. Map of the first experimental sites of Artificial Nests



The adverse view on increasing Saker Falcon population through artificial nests was related two major issues. The interviewee from the National University stated that“artificial nests in desert steppe and steppe ecosystems are dangerous. Erecting nests means changing the landscapes in non-natural way. Non-breeding sites are the refuge of many other endangered species, including small mammals and small birds. If Saker Falcon and other birds of prey occupy that kind of landscape, these birds have a power to remove all other species. Raptors including Saker Falcons are a biological weapon towards other species. It may contribute to the intense desertification process in Mongolia (Gombobaatar pers.comm on May 2011).

There could be some 5250 artificial nests (from an interview of 129 on 29 June 2011). However, despite some concerns, the project has been important for Saker Falcon conservation and trade policy development in Mongolia. The project offered a plan and detailed data to the central government. For example, project staff does regular monitoring and inspection of nests every year in May when most Saker Falcon breeding occurs. The new nest sites, begun in 2009, demonstrated that the occupancy and productivity levels of the Saker Falcon may enable a sustainable Saker Falcon harvest. The project team recorded and reported that the number of breeding pairs had the possibility of producing an estimated 1,150 to 1,650 fledglings per annum. (Dixon et al. 2011). The biologists who have studied the artificial nests programme have reported the following data on the nest preferences of Saker Falcon breeding pairs and productivity:

- Saker Falcon preferred the closed box design—boxes with tops on
- Saker Falcon lay an average of 4.4 eggs

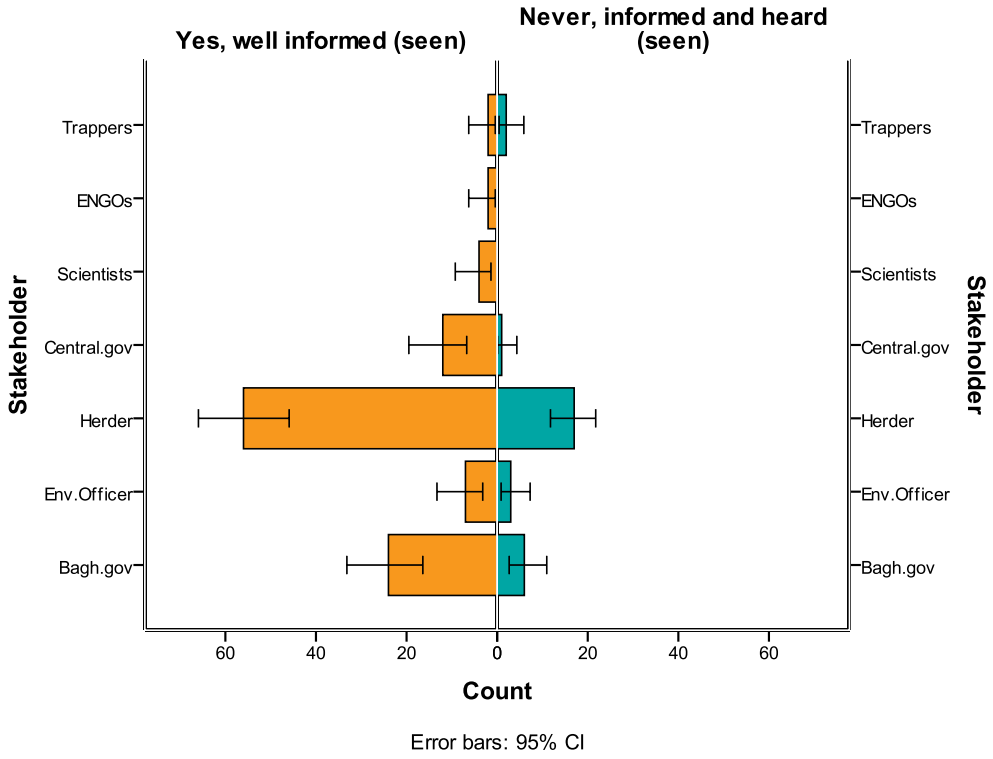
- Hatched an average of 3.7 eggs
- Fledged an average of 3 chicks
- Saker Falcon occupancy increased year on year with an upper limit being determined by local food availability
- Research results suggest that approximately 10 per cent of the 5000 artificial nests will be occupied by Saker Falcons by 2015.
- In areas with low rodent density, Saker Falcons lay later, produced fewer eggs, and fledged fewer young than those breeding in areas with a high rodent density
- The favoured prey of Saker Falcons in central Mongolia is small rodents, especially Mongolian Gerbils and Brandt's Voles (Dixon et al. 2009).

These data need to be considered in the development of a holistic management plan for Saker Falcon conservation in Mongolia. On the other hand, since the project has a controversial view among the stakeholders, this study was aimed to evaluate how diverse groups responded to the development and implementation of the artificial nest programme.

The first variable provides two options as 'Yes, well informed (seen)' and 'Never, informed and heard (seen)'. Since majority of the participants were pre-selected areas, where the artificial nests erected, a great number (78.6%) of total participants reported their awareness of artificial nests. Only a small number of people (21.4%) demonstrated as not aware of the nests. A highest among the knowledgeable stakeholder was the policy makers (92.3%), while lowest one was environmental officers (70%), which still occupied more than half of its category. A considerable number of herders (76.7%) and Bagh governors (80%) expressed

that they are aware of artificial nests. Only one policy makers (7.7%) admitted that he has not informed about this conservation project, when around one third of the environmental officers shared the same answer ‘No’ with him. A small number of bagh governors (20%) and herders (23.3%) pointed out they are never informed and saw the artificial nests. However, the main trappers visited in Mongolia have informed that they have seen the artificial nests, it was not officially introduced and formed for them by the Mongolian government the purpose of this project. In addition, all scientists and ENGOs relevant to Saker Falcon conservation have the knowledge and information about the projects from media.

Figure 11. Stakeholder knowledge of Artificial Nest project



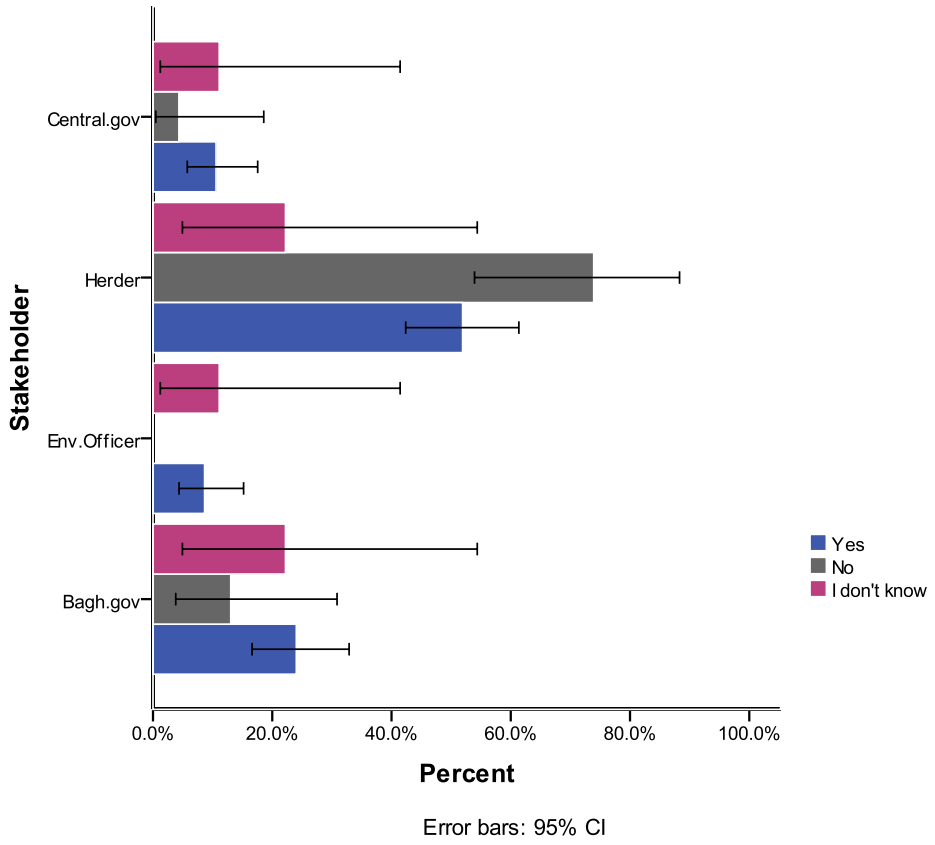
Result of chi square test was $\chi 2$ (3) = 2.079, p≤. 556. It illustrates that there is no evidence supporting the relationship between the stakeholders and knowledge about artificial nests.

Table 10. Chi square tests

	Value	df	Asymp.Sig.(2-sided)
Pearson Chi-Square	2.079a	3	.556
Likelihood Ratio	2.403	3	.493
Linear-by-Linear Association	.160	1	.689
N of Valid Cases	126		
a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.14.			

When asked whether they thought the artificial nests were successful in conserving the Saker Falcon. A significant number (78.6%) of all participants considered the artificial nests to be an efficient conservation measure, while 17% disagreed (and the remainder could not comment. Among the stakeholders, the highest percentage who believed the artificial nests to be efficient were the environmental officers (90%). This view was shared by a considerable number of policy makers (84.6%), Bagh governors (83.3%) and herders (74%). A small number of Bagh governors (10%), herders (23.3), and policy makers (7.7%) expressed artificial nests are an inefficient way to conserve the Saker Falcon. Only few environmental officers (10%), Bagh governors (6.7%), herders (2.7%), and policy makers (7.7%) responded as 'I don't know'.

Figure 12. Stakeholder opinions on effectiveness of Artificial Nest project in Saker Falcon conservation



Result of chi square test was χ2 (6) =7. 191, p≤. 304. There is no evidence supporting the relationship between two variables, such as stakeholders and perception of artificial nests efficiency.

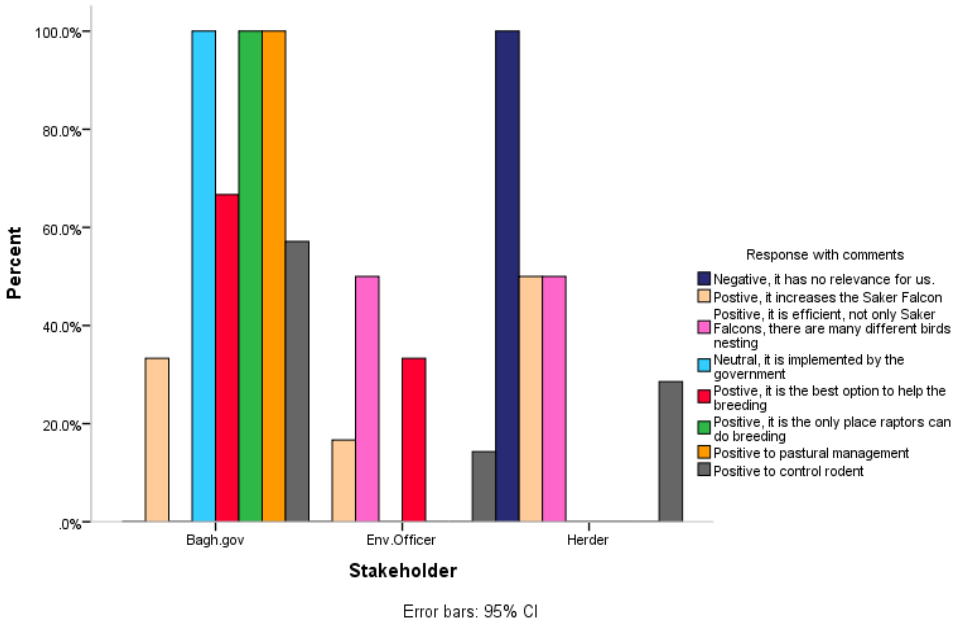
Table 11. Chi square tests

	Value	Df	Asymp.Sig.(2-sided)
Pearson Chi-Square	7.191[a]	6	.304
Likelihood Ratio	8.843	6	.183
Linear-by-Linear	.109	1	.741

Association			
N of Valid Cases	126		
a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is.48.			

Among the Bagh governors, environmental officers, and herders 64 results of this variable has been assessed in the contexts of ‘Negative, it has no relevance for us’, ‘Positive, it increases the Saker Falcon population’, ‘Positive, it is efficient, not only Saker Falcons, there are many different birds nesting’, ‘Neutral, it is implemented by the government’, ‘Positive, it is the best option to help the breeding’, ‘Positive, it is the only place Raptors can do breeding’, ‘Positive to pastoral management’, and ‘ Positive, to control rodents’

Figure 13. Frequency ranking of comments from 3 stakeholders



From the bar chart, Bagh governors provided many different comments, while herders mainly focused on the pastoral management and rodents control perspectives. Environmental officers considered the benefits of the artificial nests as conserving and increasing biodiversity, whereas a significant number of herders argued that this Artificial Nest project is not relevant to their livelihoods.

Table 12.Stakeholders' view on responsibility of protecting artificial nests

		Responsible persons, as identified by stakeholders					Total
		Central Gov	Local Gov	Local people	Other	I don't know	
Bagh. Gov	Count	0	10	2	6	7	25
	%within Stakeholder	0.0%	40.0%	8.0%	24.0%	28.0%	100.0%
Env. Officer	Count	0	3	2	1	3	9
	%within Stakeholder	0.0%	33.3%	22.2%	11.1%	33.3%	100.0%
Herder	Count	7	3	1	11	32	54
	%within Stakeholder	13.0%	5.6%	1.9%	20.4%	59.3%	100.0%
Central. Gov	Count	0	3	1	3	4	11
	% within	0.0%	27.3%	9.1%	27.3%	36.4%	100.0%

	Stakeholder						
Total	Count	7	19	6	21	46	99
	%within Stakeholder	7.1%	19.2%	6.1%	21.2%	46.5%	100.0%

Over one third of Bagh governors (40%) and soum environmental officers (33.3%) thought that protection of artificial nest is the responsibility of local government, whereas the less than one third of policy makers agreed with them. However, all herders answered to this question was positive approach, more than half of them (59.3%) responded as 'I don't know'. Surprisingly, more than one third of the policy makers and nearly one third of the bagh governors also answered as 'I don't know'. In contrast, few numbers of herders (13%) pointed out the central government should protect these nests and some of them (20.4%) also argued that others, particularly those who had made the nests should take care of them. Only a very small number of herders (1.9%) and few policy makers (9.1%) considered local people could be option to protect the nests. However, the relatively higher number of environmental officers (22.2%) and a small number of bagh governors (8%) indicated that local people were key to the effective protection of the nests.

5.6.3. Non-material and intangible values of Saker Falcon for falconry

Non-material and intangible aspects of cultural dimension is essential to improve the wildlife conservation. There several intangible cultural heritage that relates to wildlife conservation. This list includes Mongolian language (e.g. Proverbs, poems, folk tales, etc.), folk art forms (e.g. Folklore, long songs, throat singing, etc.), traditional festivals and rituals (e.g. Naadam festival, Lunar New

Year, Falconry Festival, traditional horse racing, etc.), traditional knowledge of nature and ecosystems (e.g. Mongolian traditional medicine, producing dairy products, producing felt, calculating lunar calendar and astrological science, traditional knowledge of forecasting, climate and weather condition, recording family tree, traditional veterinary with acupuncture, traditional knowledge of protecting nature, traditional knowledge of education and disciplines, etc.), and traditional artisanry (e.g. Traditional clothes and shoes, traditional wrestling clothes, producing traditional hunting equipment, bow, and a gun, producing sculpture, a wood craving, paintings, silver cup, knife, traditional wooden saddle, producing traditional Mongolian ger, etc.).

In relation to Saker Falcon, the central Mongolia has a little practice of falconry in modern times. However, in order to augment the conservation value of Saker Falcon, Mongolia made an effort to register the falconry as an intangible and a living human heritage at the UNESCO World Heritage in 2010. Later, Mongolia in 2012 declared the Saker Falcon a National Pride Bird. Saker Falcon is considered as a symbol of unity and pride of Mongolian people (132 personal comment on Dec 2012). Shortly after identification of this intangible value, Saker Falcon trade has banned. This bird is protected from the international trade according to the decision of the Mongolian Government (GoM 2013). On the other hand, regarding the species heritage value to Mongolia is very little documented. There is no cultural significance between Saker Falcon and falconry. Despite of western Mongolian Kazakh people still do practice falconry by Golden eagle.

5.7. Discussion

This study has found that threats and conservation of Saker Falcon in Mongolia are strongly linked to the institutional reform, management, and cultural aspects. The country has a limited capacity, whether conservation should take

place in large areas or to carry out sophisticated research and monitoring activities over time. The country has not successfully defined a role for the sustainable use of the species and justified its value in the context of the conservation of the Saker Falcon, and not communicated in a satisfactory way at a local, national level and more so at international level. Mongolia doesn't have a coherent system of laws that defines what is permitted and where it should take place. In addition, the Saker Falcon conservation efforts have not been reported in various studies. The results of this study suggest that Saker Falcon conservation in central Mongolia is a fairly significant benefit to local people, by organising and managing the artificial nest sites. About half of the study the central government officials adjacent to Saker Falcon conservation policy were in far from the artificial nest sites. Alternatives to the current development of Saker Falcon conservation is an NGO-led conservation programme, targeting education, awareness raising, and incentive mechanism for local community surrounding Artificial Nests and harvesting sites. But there is a concern that in the absence of a central government involvement, this project cannot maintain the political engagement or remind stakeholders to implement their responsibilities. NGO-led initiative may more under risk of being unsustainable in the long-term. Based on discussions with stakeholders, there are political reasons why institutional arrangements and cooperation may be harder to develop for Saker Falcon conservation. Lack of trust and difficulty in communicating are cited as reasons for a unanimous preference for a policy maker by the central government and representatives of the scientific community. Some stakeholders expressed the view that Saker Falcon conservation could provide the much needed, specifically the science and methods and accountability for some of the human-caused threats that species suffers from (harvesting and unregulated trade for example).

5.8. Conclusion

In Mongolia Saker Falcon trade and sustainable use or falconry is not positively regarded and the general view is that protection is the only long-term option for the species conservation. Other than trade, there are more objective grounds that make the anti-harvesting and international trade sentiment more objectionable. When initially developed, the 1995 Law on Hunting discussed sport hunting, but limited its application to foreign hunters. With Mongolia's improving economy, a growing number of people concerned the Saker Falcon trade should stop. The current system has major flaws, for example, there are no restrictions on where legal harvesting can take place, and how it can be monitored, and at what degree local people benefits, and Mongolia's CITES implementation regulation is in contravention of the convention by granting the management body the authority to exceed harvest quotas (Wingard and Zahler 2006). Moreover, under the Law, revenue generated from Saker Falcon is divided as follows: 90% to the central government's general funds; 10% to the rural district (soum). None of this money benefits local people or conservation of the species. Since local governments generally receive no additional revenue from Saker Falcon harvesting (the central government simply reduces contributions to local governments that receive harvesting permits), many local governments are taking a protectionist approach to prevent further harvesting. Recent proposals for community-based wildlife management programmes have not been successful so far, in part because community-based organizations are not entities recognized by the Mongolian legal system (Wingard and Zahler 2006). Moreover, since the current scheme for distributing revenue from the sale of the permits does not include a percentage for local communities, some sources cite that it is hard to clearly articulate the economic incentives argument of sustainable harvesting (Dixon pers.comm 2012).

Chapter 6. Towards sustainable wildlife management and Saker Falcon trade in Mongolia

Introduction

Sustainable conservation of Saker Falcon has been one of the core objectives of conservation stakeholders in Mongolia. Major threats to Saker Falcon populations in Mongolia face legal and illegal trade and harvesting. The issues of Saker Falcon trade expose tensions among the stakeholders. This particular case indicates the problems of formulating and implementing sustainable wildlife management in a developing country, especially a post-Soviet country like Mongolia. Sustainable Saker Falcon management is given particular resonance by the fact that the global Saker Falcon conservation problem could be ameliorated to a large extent solely by reducing regulated trade and sustainable management strategy of the 45% of the global wild Saker Falcon population which is found in Mongolia, besides its electrocution problem. In order to improve the breeding ground, create a surplus population from the existing non-breeding population, and establish a sustainable use mechanism for Saker Falcon conservation, the Artificial Nest project has been implemented in Mongolia since 2008. Unfortunately, as shown in Chapter 5, the key stakeholders have inconsistent information or lack knowledge regarding the project and the overall conservation process of Saker Falcon. As a result, Mongolia has made a little progress in effective implementation of sustainable Saker Falcon management. This chapter will provide the details of trade and economic aspects within the overall objective of sustainable use and conservation of Saker Falcon. Thus, the chapter will explore the key problems, such as analysing the current ecological and economic evaluations of Saker Falcon conservation and the question of the financial sustainability of a possible the Atrificial Nest project.

6.1. Political implication of Saker Falcon trade in Mongolia (1994-2012)

The collapse of the Soviet Union and the impact of the subsequent domestic political and economic reforms compelled Mongolia to reconsider its future development trajectory. It embraced a free market economy and seized the opportunity to be integrated into the global economy. This change has enabled the emergence of market environmentalism, through which the market is positioned as a solution to the failures or problems of the environment (Polanyi 2001; O'Connor 1998; Harvey 2003). This market approach was completely new within the transition socioeconomic, legal and institutional structures of Mongolia in the early 1990s. Prior to 1994, a number of significant state owned business based on the commercial value of wildlife had operated in Mongolia, but the commercial use of Saker Falcon was non-existent.

During the hardships of economic transition, up until 2010, the state needed to generate revenue from immediate sources, such as wildlife and mineral resources. Initially, the Saker Falcon trade was not considered as market environmentalism, aimed at mitigating and reducing the threats or mortality of the species, but rather was focused solely on generating revenue. The state requires an urgent need of foreign currency and immediate financial aid to establish the international trading partners. Prior to the commencement of the Saker Falcon trade in 1994, a number of studies had been conducted on the wild population (e.g. Shagdarsuren 1964, 1983; Baumgart 1978, 1980, 1991; Ellis 1995; Tsengeg 1996; Bold 1990, 2005a; Shardarsuren 2000; Gombobaatar 2007).

The historical and background data on Saker Falcon populations, including their biology, ecology, and morphology have been obtained from the existing research. However, precise data on the distribution and size of the Mongolian population was lacking from the beginning of Saker Falcon trade. A rough population estimates recorded around 10000 individuals in Mongolia (unpublished

report of MNE 1994). The Saker Falcon trade intensified in 1996-2001 during Mongolia's economic hardship. This unregulated trade was not justifiable and sustainable use of conservation. Meantime, the country has even joined the relevant MEAs. However, a consistent pressure for improving the conservation and legal trade of the Saker Falcon was given by the MEAs and international conservation community, the government has lacked the necessary knowledge and political will to promote effective conservation policy for sustainable Saker Falcon management. In addition, the Saker Falcon market did not offer a solution to conservation, but rather became a severe threat to the species survival in Mongolia.

On the other hand, the Saker Falcon trade also needs to be seen in a larger context, such as development of diplomatic and economic relations. From the early 1990s, Mongolia's priority of establishing and extending business and economic partnerships with Kuwait, UAE, Qatar, and Saudi Arabia has been achieved through the Saker Falcon trade. Simple trade ties have been extended through extensive diplomatic relations, including regular visits of high-level officials and political figures. Prime Ministers, Presidents, Ministers of Mongolia, the Sheikh of Kuwait, and other Sheikhs and Crown Princes from UAE, Qatar, and Saudi Arabia have visited each other multiple times to discuss a variety of investments. These investments, such as grants and long-term loans with low interest rates have been beneficial primarily in the development of Mongolia’s infrastructure, agricultural, and mining sectors. Some funding also contributed to the environmental sector, including Saker Falcon conservation.

In all these discussions, negotiations, and agreements, the Saker Falcon trade has served as a facilitator between Mongolia and the Gulf states. Recently, and in order to intensify economic relations with the Gulf states, Mongolia has opened its second embassy in the region, in Kuwait in 2009, with the first opens in Egypt in the 1970s. The State of Kuwait has also opened its own embassy in

Ulaanbaatar in July 2009.In this context, the market environmentalism comes to Mongolia as a political capital, not just a regular trade of Saker Falcon. However, these political developments are significant, the international trade insecure Falcon (both legal and illegal) presents a severe threat and conservation challenge for the species, unless regulated effectively with the collaboration and support of the buyer and seller countries.

6.1.1. Mongolia and Kuwait relations in Saker Falcon conservation and trade

The first buyer of Mongolian Saker Falcon came from Kuwait in 1993. Ever since the Saker Falcon trade has been activated between Mongolia and the Gulf States, particularly with Kuwait (from interviews of 134 and136 in September 2011). Kuwaitis is known to be skilled falconers around the world. According to the assessment of the international trade in falcons and their use in the State of Kuwait by Behbehani (2010), falconry is an important hobby with as many as 15% of the Kuwaiti population[7] being active hobbyists, which creates a considerable demand for Saker Falcon. Since hunting is prohibited in the State of Kuwait, many falconers face a challenge to practice their hobby outside of their country and using the captive and wild sourced falcons supplied from the outside. At the same time, the State of Kuwait is an important falcon trade centre for importing and exporting. The country imports the following falcons in descending order of importance: Falco hybrid, *F. Peregrinus, F. Rusticolus* and *F. Cherrug*, while the four most exported species from Kuwait are *F. cherrug*, Falco hybrid, *F. peregrinus* and *F. rusticolus* (Behbehani 2010, p.26). This illustrates that Saker Falcons exported from Mongolia to Kuwait are mainly purchased by Kuwaitis to use and re-export or re-sell to other

[7]Kuwaiti population is 2.7 million in 2010. The 1.4 million are the citizens and the rest of them are migrant's workers and non-citizens. She has not specified the citizens or non-citizens. If it is 15% of the total citizens, it equals 210 000 falconers. If it is all population the number will be doubled.

neighbouring states in the Gulf. Kuwait imported from Mongolia almost half as 44% that means 1467 specimens in 1996-2012.

Since Kuwait is the largest buyer of the wild caught Saker Falcon from Mongolia, it is pertinent to investigate how they have contributed to conservation. In this respect, several Memorandum of Understandings (MoU) has been signed between the State of Kuwait and Mongolia during the visits of high-level officials. In those meetings, the Government of Mongolia has highlighted environmental concerns, such as desertification, climate change, loss in biodiversity, and environmental pollution (MNE 2007). 'His Highness Sheikh Mitab Jaber Al Ahmed Al Sabah the Amir of Kuwait expressed his interest in assisting the Government of Mongolia in establishing a Kuwait-Mongolia Scientific Center (KMSC), following field visits by Kuwaiti scientists of the Kuwait Institute for Scientific Research (KISR) in June 2007. The MoU was subsequently signed in the field of environment protection and conservation between the State of Kuwait and the Government of Mongolia, on 28 November 2007' (Interview of 133 on May 2011). Following this agreement, a separate MoUhas been concluded between the Ministry of Nature and Environment in Mongolia and KISR, March 2010 (from an interview of 133 in May 2011). The purpose of the MoU was to collaborate in rangeland and biodiversity conservation and monitoring.

The expected KMSC was planned to be a future environmental research centre for rehabilitation of degraded land, environmental pollution, such as air, water and soil contamination. This centre was planned to be the base for training and exchange of scientists to develop strategic plans for conservation and management of renewable natural resources and to transfer tissue culture technology for consumer and commercial plants. Therefore, '… the future KMSC has no wild Saker Falcon conservation plan, but the centre aims to contribute other environmental issues in Mongolia. However, the construction work on KMSC started in 2009 at the cost of around 2 million USD and in the special protected

area of Bogd Khan Mountains and has recently been completed, the centre has been unable to operate as yet due to changing research priorities, plans, and staff in the last 3-4 years' (Interview of 131 on August 2011).

In 2009 and 2011 CITES meetings, e.g. AC[8] 24, AC25, and SC[9]58, Kuwait representatives formally expressed their opinions regarding the Saker Falcon trade and conservation in Mongolia. They have often encouraged the on-going trade and promised to support the sustainable Saker Falcon management. Following up on this commitment, in 2011 the KMRC updated their previous research plan by proposing a Saker Falcon conservation project in Mongolia. The project proposal and…to establish farming of Saker Falcon in Mongolia' (from Interview of 131 on August 2011). However In May 2011, a Kuwaiti falconer and experienced buyer of Saker Falcon from Mongolia stated that "... the main reason for buying Saker Falcon from Mongolia and spending lots of efforts and money is simply that falcons in Mongolia are not farmed.

There is a huge difference between wild and captive falcon. If Mongolia begins farming, a falconer like me is not interested and please understand it is not good for all e.g. falcons, buyers and sellers" (from an interview of 134 in September 2011).He also stated that he had contributed to a population survey of Saker Falcon of Mongolia in the past. So, up to this point, there is no direct contribution to Saker Falcon conservation from the biggest buyer of Saker Falcon from Mongolia. But it is fair to note that there are often donations given for many other sectors, 'e.g. 12 million USD for new Parliament Palace in Mongolia in 2008 and the most recent one is 210,000 euro for Khentii Provincial Hospital improvement in 2012' (Interview of 133 on August 2011). This funding has come

[8]AC stands for Animal Committee in CITES as expert group.

[9] SC refers Standing Committee in CITES as political and decision making group meeting.

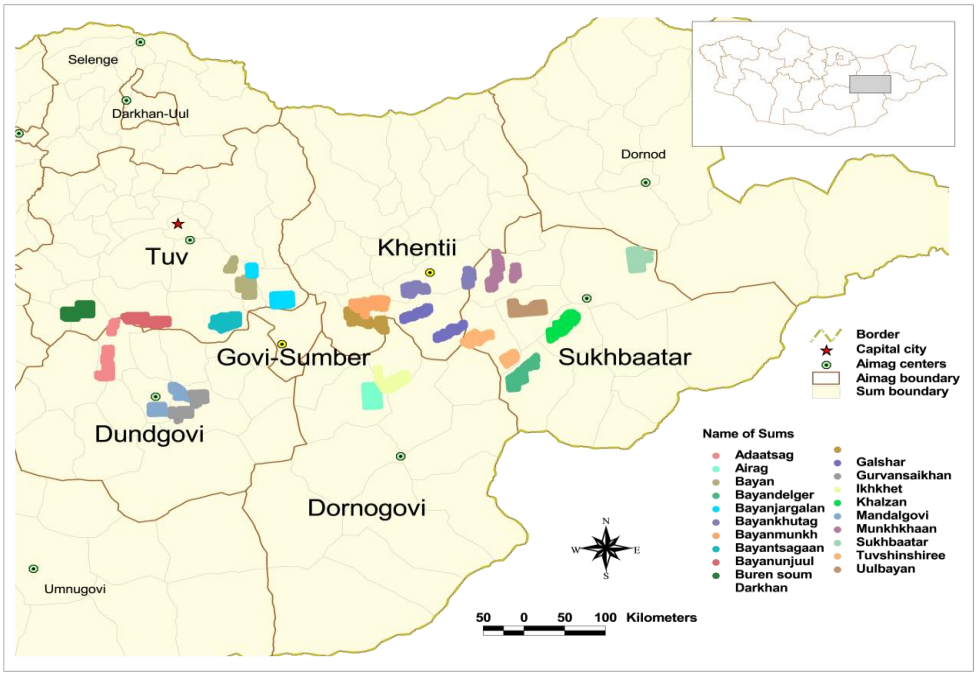
from Kuwait to Mongolia as a result of the wild Saker Falcon trade over past two decades.

6.1.2. Contribution of the United Arab Emirates to Saker falcon conservation in Mongolia

Between 1996- 2012, the United Arab Emirates bought 203 wild caught Saker Falcons from Mongolia. However, the UAE has a significant demand for Saker Falcons; they mainly use captive-bred falcons from Europe and US. From 1999 the EAD (formerly ERWDA) sets its priorities for the conservation of the Saker Falcon and Houbara Bustard in direct relation to the conservation of Arab traditions in the modern world.In this context, UAEcontributes to Saker Falcon conservation in many places, including Mongolia.One conservation initiatives were research undertaken within the framework of a Memorandum of Understanding signed between the governments of Mongolia and Abu Dhabi (UAE), and funded by Abu Dhabi. Under this agreement, the UAE funded the field study project in Mongolia proposed by the IWC in 2007. The study selected two sites and erected a grid of 100 artificial nests of four different nest box designs, spaced at 2 km intervals to determine which design best suited Saker Falcons' (IWC 2012). The researchers of International Wildlife Consultants (UK) Ltd and their Mongolian research partners, the Wildlife Science and Conservation Center have tested different nests and collected data on occupancy levels and breeding success in every breeding season (IWC 2011). From 2010, the project has been prolonged to 2015 with the continued funding of the Environment Agency Abu Dhabi UAE. It has been expanded to include the erection of an extra 5,000 artificial nest in 20 soums across central Mongolia, to regular monitoring to record levels of occupancy and breeding success of Saker Falcons and other raptors, and to an educational programme component for public awareness. The overall aim of the project is to improve the current management of Saker Falcon in Mongolia and to establish a long-term Saker Falcon conservation programme through sustainable use, such as

international regulated and controlled trade. To achieve this objective, the project aims to provide sound scientific data on Saker Falcon and especially on the productivity of the Artificial Nests to Mongolian authorities. Currently, there is no consistent system or management policy in place.

Figure 14. Areas where artificial nests have been erected in Mongolia



Source: http://www.savethesaker.com/manp.asp

Through combining productivity and analysis of trade demand the project aims to contribute to long term species conservation through valuing nature of nature in Mongolia. However, UAE and IWC technical expertise has made some contributions to conservation of Mongolian Saker Falcon over the last decade, a lack of political will and the socioeconomic transformation process of Mongolia has

acted as a barrier to further progress. In particular, this study showed these two problems to be both central to conservation practices and outcomes and to be interlinked. All these efforts have often blurred in this process. Since there is strong evidence regarding the productivity of the artificial nests, it can be directly used for reducing mortality of Saker Falcon and other birds caused by electrocution and collision.

6.1.3. Other international users of Saker Falcon from Mongolia

A request to be involved in the Saker Falcon trade first came to Mongolia from Saudi Arabia in the late 1980s through the Mongolian Embassy in Moscow. As commented by the former diplomats who worked there, the request proposed a form of long term contract, as part of which large grants would be offered to Mongolia. However, Mongolia was under the socialist regime, the country has the interest of earning foreign currency. When political change began in the 1990s, this request could not be implemented and was not followed up (from an interview of 133 in 5 August 2011). There is limited information available to other buyers of Saker Falcon from Mongolia. In 1996-2012, Mongolia exported 731specimen to Saudi Arabia, 511specimensto Qatar, 358 specimens to Syrian Arab Republic, and 5 specimens to the United States. Of these countries, the trade with Saudi Arabia is declining, while trade with Qatar has increased in the last 5 years. In 2011, Qatar contributed some used vehicles for rangers in Mongolia (from an interview of 133 in August 2011). Before that, Qatar initiated a Saker Falcon release programme in collaboration with MNET in 2010. Through this, twelve birds previously used for falconry in Qatar were transported to Mongolia (MNET 2011). As Mongolia did not have any suitable facilities, such as a rescue centre or rehabilitation centre, the birds were kept a few days in the border customs office without food and some died due to slow administrative process (from an interview of 117 in July 2011). In addition to this incident, this release programme was also questioned by scientists. Since these birds already lost their ability and kept as captives, it was a wrong

approach to release them in the wild, where they unable to survive. In addition, those specimens had already been in contact with humans, so concerns were expressed that this kind of release could spread infectious diseases to wild populations. The programme was unsuccessful and stopped (from an interview of 115 in July 2011).

6.2. Total economic values (TEVs) to sustainable Saker Falcon conservation

Saker Falcon conditions present in Mongolia, a successful conservation project faces some major challenges. The attributes of Saker Falcon management show mixed indicators for success. Saker Falcon in Mongolia seems to mostly lend itself well to successful CBNRM approach. The total economic values may indicate that policy makers are aware of their impact on Saker Falcon trade and want to set up sustainable use this resource, but are constrained by economic hardship and a lack of government enforcement. The current governance regime for Saker Falcon trade in Mongolia likely makes devolution of management powers to a local level difficult if not impossible. Careful project design to deal with the power devolution challenges, and inclusion of local culture and beliefs, and monitoring and evaluation of economic and ecological outcomes will be key to ongoing success. Moore (2011, p.53) stated that total economic value (TEV) “calculations will identify the full range of opportunities associated with any resource”. As she did for conservation of the elephant in Namibia, this study attempted to estimate the TEV of Saker Falcon conservation in Mongolia, focusing on “use value, option value, and existence or passive-use value” (Moore 2011, p.53).

While use values indicate a direct use of the wild Saker Falcon for falconry, option values can imply a resource that has future use as trade ban. Existence values refer to the presence of Saker Falcon in ecosystems of the central

Mongolia. From the data, there have been conflicting preferences expressed by different stakeholders for conservation benefits of Saker Falcon. It relates to differing economic values and their justification to perceive the Saker Falcon management in Mongolia. To provide general assumption, Table 13 shows use and non-use values of the TEV related to Saker Falcon.

Table 13. Dimensions of Total economic Values (TEV) of Saker Falcon

Use values		**Non-use values**	
a. Direct value	b. Indirect value	c. Option value	d. Existence value
Trade for falconry **Biodiversity (genetic material)**	Recreation/ bird watching tours; Education; Ecological function (rodent control, diversify steppe ecosystem, reduce/replace chemicals and pesticides for rodent control, support health pasture land); Science/Research;	Future use of (Possible uses as per a. and b.);	The intrinsic value of Saker Falcon regardless of actual use, such as cultural heritage bequest and aesthetic value; Biodiversity;

Sources: Adapted from Barbier (1998), 313

The hypothetical assumptions support the ‘surrogate market’ of Saker Falcons that indirectly allows economic value to non-marketed environmental assets. However, based on willingness to pay, economists can set economic values for environmental assets (Pearce 1999a; see also Barnes 1996). The result is framed according to McNeely’s (1988) classification of the use values of nature:

- Direct value, which indicates benefits received from consuming the resource, and

- Indirect values concerning those aspects, which bring benefit to the society without harvesting or destroying the resources.

The current Saker Falcon trade only brings direct economic benefit expressed in monetary values through the export payments and fees to the central and local governments, while the other stakeholders receive no monetary return. Although Saker Falcon management has a potential to optimise the TEVs with other values such as direct-use values (recreational/tourism), indirect values (ecosystem function/service), and existence values (cultural heritage, bequest, and aesthetic values), the current process is only linked with exclusively trade from the Mongolian context. Identifying the benefits and setting benefit sharing mechanisms are crucial for the sustainable management of Saker Falcon in Mongolia, where there is a lack of transparent governance. The benefits of Saker Falcon trade have been examined here through data obtained from the relevant stakeholders such as central and local government officers, ENGOs and herders. Under the current management policy, the stakeholders have benefitted from Saker Falcon as shown in Table 13. But many of these benefits are complicated and unable to be expressed in monetary terms.

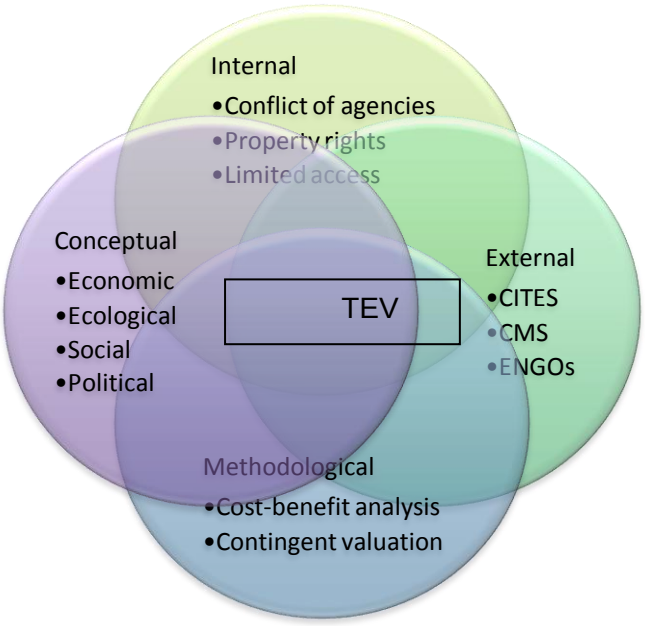
Table 14. Benefits and values of Saker Falcon conservation

			Use value						Non-Use value	
			Direct value		Indirect Use				Option	Existence
			Export	Biodiversity Genetic	Recreation Tourism	Education	Science Research	Ecological function	Future use (possible uses as per a. and b.)	Intrinsic value
Benefits	Stakeholders	MNET/ central government agencies			x	x	x	x	x	x
		MAS/NUM			x	x	x	x	x	x
		Provincial/Soum Government								x
		ENGO			x					x

		Herders			x					x
	Environment	Animal and Plant communities								

The interviewees specified that these complexities are growing due to both internal and external factors, plus methodological and conceptual issues associated with economic valuation of the Saker Falcon.

Figure 15.TEV challenge



To tackle these complexities, as Brown highlighted: ‘promoting sustainable use of resources is the most effective way to equitably contribute to household livelihoods, economic empowerment, rural and national development and social stability’ (Brown 2004, 2005; Moore 2010). The findings of the interviews revealed that the practice of estimating the TEV of the Saker Falcon is required sustainable use approach to resolve this complex, inflexible management practice, which has no correlation to the current market demand. Therefore the suggested sustainable use mechanism involves artificial nests may assist to overcome these complexities.

6.3. Hunting fees and payment in Mongolia

Since the revenues generated through fees and payments are the only clear benefit, the stakeholders have conflicting monetary interests in Saker Falcon conservation. For instance, MNET and other central government agencies consider that this species conservation faces immense pressures of isolated and remote demographic development in the central region of Mongolia, particularly along the fringes of artificial nests. Interviews with local herders, confirmed that the demographic structure of local community found as unstable and keeps changing along the fringes of the artificial nests that will affect the further sustainable use mechanism. In addition, over 30% of the herders interviewed expressed concern that the artificial nests overlapped with ecologically sensitive pasture land and other species habitats, instead of seeking recreational and educational benefits. They claimed that their soums and local governments needed to facilitate and to coordinate the pressure, if the nests remain for conservation purpose. The representatives of researchers note that since Saker Falcon has no domestic, subsistence, and cultural use in Mongolia, Saker Falcon's benefits were few. Saker

Falcon has rarely been used for scientific research, museum, exhibitions, or collections in Mongolia (from an interview of 130 in August 2011).

Hunting fees and payments have been updated several times in the past. The last update was made under an MNET funded project "Ecological and economic valuation of wildlife" in 2011. The project team included many scholars and researchers from the Institute of Biology, Mongolian Academy of Sciences, and staff of the Ministry of Nature, Environment, and Tourism. Mongolian Government Resolution No.23 was passed to approve the updated fees and payments for Saker Falcon harvesting, based on Article 5, section 3 of the Law on Hunting Reserve Use Payments and on Hunting and Trapping Authorisation Fees 1995. The project team assigned a monetary value to the Saker Falcon based on estimates of ecological and economic values in accordance with the growing cost of conservation (from interview of 115 in June 2011).

The project report highlighted that price is a main attribute to determine monetary value per individual wildlife specimen in general. Pricing policy of wildlife species constitutes the form of ecological-economic values, while this attempt aims to express the changes in decreasing wildlife resources and to use as a conservation tool. This concept was applied to Saker Falcon as well as other endangered and migratory species. Price of Saker Falcon was set by and justified according to the available reserves for a certain period (e.g. in last 10 years). Pricing policy of wildlife expressed in tugrik[10] that can be converted into foreign currency for each individual specimen of Saker Falcon. There are several key factors identified to affect a price. Price of individual specimen consists of the following key factors:

[10]Tugrik is Mongolian currency. Exchange rate often fluctuates. In last 5 years, the exchange rate from Mongolian tugrik into US dollar was 1300-1700.

- "...Relevance between auto-ecology[11] and reverse-ecology[12];

- Market demand and commodity value;

- Internal demand of species numbers, related to sexual ratio, reproduction, supporting, protecting, collaborating with each other, competing for survival, and domination among themselves;

- Not to influence the balance between the species by implementing sustainable use, conservation policy of endangered and migratory and rare species, domesticating or rehabilitating very rare species, preserving the genetic sources;

- Sexual ratio to maintain the species internal population, reproduction, survival, competition, etc.;

- Price fluctuation correlates inflation and exportation will be paid in foreign currency;

[11]Auto ecology means according to Britannica Encyclopedia, "...also called Species Ecology, the study of the interactions of an individual organism or a single species with the living and nonliving factors of its environment. Auto ecology is primarily experimental and deals with easily measured variables such as light, humidity, and available nutrients in an effort to understand the needs, life history, and behaviour of the organism or species" (http://www.britannica.com/EBchecked/topic/44607/autecology)

[12] Reverse ecologyrefers to the use of genomics to study ecology with no a priori assumptions about the organism(s) under consideration. It is—an emerging new frontier in Evolutionary Systems Biology—aims to extract this information and to obtain novel insights into an organism’s ecology (Levy and Borenstein 2006).

- Taking account of international conservation mechanisms for species conservation;

- Considering the above factors, monetary value must be determined to maintain the species ecosystem balance, abundance, and availability (rarity) through policies of sustainable use and conservation..." (Amgalan et al. 2011, p.34).

6.3.1. Legal and regulatory indicator to set a price for birds in Mongolia

To set a price of birds in Mongolia, the project report highlighted legal conservation status of the wild bird specimens as a significant indicator. For instance, 242 birds were included in CITES and CMS like I and II out of the total 472 species in Mongolia. These birds (242 species) were found 26 resident birds and 216 migratory species. From 216 migratory birds 133 had breeding ground in Mongolia in the spring and summer seasons. 32 were transiting through Mongolia in spring and autumn, 7 of them stay in summer without hatching, 3 of them come for wintering, and 41 species were occasionally found in Mongolia. According to the conservation status in the Red list of Mongolian Birds, there are 30 birds included in the Red list, and 8 species were listed as very rare, 22 were rare. 33 species were listed in the red lists of Asian and our neighbouring states. 14 species were included CITES Appendix I and 57 were in the Appendix II. 7 species were in CMS Annex I and 61 birds were in Annex II of CMS.

6.3.2. Ecological indicator in price setting

The Government of Mongolia utilizes the next important indicator is for setting price. It is ecological indicators of the Saker Falcon that have been evaluated through 1-5 scores scale. The score 1 is the highest concern of

conservation, while the score at 5 indicates the lower threats. The indicators include the following aspects:

- Depending on the type of living such as resident or migratory;
- Distribution;
- Population;
- Diet;
- Negative and positive impacts due to human influence;
- Negative impacts for flora and other species survival;
- Infectious disease status;
- Aesthetic aspects for urban settlement and threat level to urban green zones(Amgalan et al. 2011).

6.3.3. Economic significance in price

Economic indicator is another significant aspect of setting price in the same 1-5 score evaluation. In order to set a price for wildlife, specifically for Saker Falcon the following issues reviewed:

- Fur, skin, feathers, wool or cashmere purpose;
- Meat purpose;
- Traditional and religious, customary rituals or medicines;

- Use in live: In this category, species are used to live for the purpose of rehabilitation, scientific research (through radio or satellite transmitters, microchipping, ringing, marking, etc.) and domesticating (pet, ornamental, etc.) or re-trading; and

- For museum, exhibition, and collections.

- According to the Government Resolution in 2011, No.23 Saker Falcon has an ecological and economic value 16 000 000.00 Mongolian tugruk as approved in Annex 1 and hunting fee is 3200 Mongolian tugruk annex 2.

Based on these indicators, a live Saker Falcon is priced by the Mongolian Government as shown in Table 15:

Table 15. Saker falcon ecological-economic value in Mongolian currency

Species	**Ecological value (E.V)**	**Market Price (M.P)**	**Eco-economic value (E. V+ M.P)**	**Inflation**	**Base price for eco-economic value**
Saker Falcon	33476.19	6 500 000	6 533 476.19	8049 242.7	16 098 485.33

6.4. Saker Falcon trade for income generation of Mongolia

A When Mongolia's foreign trade reached 11,307.2 billion USD in 2011, this represented a 83. 1 % increase compared to the previous year (NSO 2012). In total 216 specimens were exported in 2011 and generated 2,592 million USD incomes to the state revenue. However, this increased income from trade and other increases in the state budget for environmental expenditure did not directly affect the overall conservation and trade policy for Saker Falcon and the conservation activities remained limited to occasional inventories.

Table 16. State revenue and expenditure in 2011-2012 (mil/tugrik)

Types of revenues and expenditure	Central. Gov	Central. Gov	Local. gov	Central. Gov	Central. Gov	Local. gov
Total Revenue/Grants	4,468,198.0	3,351,389.0	580,016.5	4,968,254.7	3,458,807.6	856,571.4
Income from permits/fees for hunting	459.2			3,634,7		
Forest, other Environmental expenditure	4,885.1	4,885.1		5,229.8	5,229.8	

Sources: National Statistical Office, 2012

According to the information given by an interviewee of the central government, over 3500 Saker Falcons were officially exported between 1996 and 2012, generating around 11 million USD for state revenues (from an interview of 116 in July 2011).

Table 17. Income generated by Saker Falcon in 1996-2012 (USD)

Year	Saker Falcons Exported	Direct Payments	Fees	Total Revenue
1996	25	85,000	88.5	85,088
1997	154	520,000	545	520,545
1998	25	85,000	88 50	85,088
1999	61	200,000	215	200,215
2000	50	170,000	180	170,180
2001	187	712,350	641.4	776,490
2002	303	1,155,945	1,073.10	1,263,255
2003	403	1,345,932	1,430.80	1,826,096
2004	385	-	-	1,826,096
2005	360	-	-	1,826,096
2006	167	1,449,000	128 ,800	1,449,000
2007	241	1,872,000	166,400	2,038,400
2008	273	2,447,200	212,800	2,660,000
2009	308	3,110,400	230,400	3,340,800
2010	229	2,354,400	174,400	2,528,800
2011	209	2,257,200	167,200	2,424,400
2012	150	1,620,000	120,000	1,740,000
Total	3,530	10,384,427	1,075,374	11,000,000

Sources: MNET, 2012

The second interviewee from the same organisation expressed his disappointment with almost two decades of wild Saker Falcon trade during the

previous governments, which had caused severe decline of the Saker Falcon (114 interview on 11.09.2011). He stated that the numbers of falcon had fallen by up to 59% in 2010 inventory, compared to 1990 levels. It was promoted by the export and international trade (from an interview of 118).

Stakeholders were also concerned with how funding allocated for Saker Falcon conservation had been spent. The 1995 Hunting Fee Law required that 10%, this increased to 50% in 2009, of “hunting reserve use fees” paid to the central budget be transferred to an Environmental Protection Fund, managed by the MNET. From 2009, as mentioned earlier, another 10% goes into local governments and collected their general budget, not for the conservation of the species (from an interview of 118 in July 2011).

6.5. Saker Falcon trade in relation to CITES

Saker Falcon is a CITES Appendix II listed species, because of its endangered status. Issues related to nomenclature (as it affects the status of the species in the Appendices) and export permits of Saker Falcon trade are in the statute of the Convention, since the goal of the convention is to assure the international trade in the species is not detrimental to its conservation status. Under the MoU between the CITES and CMS Secretariats, there are a number of activities to be undertaken jointly: under the joint action plan for the period 2012-2014, the activities of relevance include harmonization of taxonomy and nomenclature, and joint actions for the conservation and sustainable use of shared species, such as Saker Falcon (UNEP/CMS Secretariat 2011). Mongolia has joined one of this harmonisation process, such as Saker Falcon Global Action Plan (SakerGAP) in 2011 under the CMS initiative. Of relevance is the fact that Mongolia was the only country aims to establish the sustainable Saker Falcon

management within the range states, but this work in that direction is underway with the ongoing artificial nest project.

6.3.4. CITES non-detriment finding for Saker Falcon management in Mongolia

Including Saker Falcon as White et al. (1994) noted there are 44 species of falcons in the family *Falconidae*. Falcons (*Falconiformes spp*.) listed in the CITES Appendices, to ensure that international trade in specimens of such species does not threaten their survival. Globally, falcons are much demand for falconry purpose and they are traded internationally in significant numbers (CITES Trade Database - UNEP-WCMC 2012). Among them, Saker Falcon is used in many parts of the world as a game bird.Regarding the export of Saker Falcon from Mongolia, the CITES criteria materially require Mongolia to produce a corresponding export permit. Saker Falcon is listed under Appendix II of CITES (i.e. species for which trade must be controlled in order to avoid utilisation incompatible with its survival). Perhaps more significantly, for the introduction of the Appendix II species there is no requirement that such specimens are not to be used for "primarily commercial purposes, with the state of introduction obliged only to demonstrate that receipt of the specimen is not detrimental to the survival of the species and that the necessary care and accommodation will be provided for live specimens.

The Working Group (WG) at Animal Committee (AC) 19 of the CITES agreed that, Saker Falcon conservation was a serious issue, and should be addressed as a matter of urgency as per Resolution Conf. 12.8 paragraph C, to which an issue both of illegal trade and of Article IV (non-detriment findings). In accordance with paragraph D of Resolution Conf. 12.8, the Secretariat requested comments on the status of the implementation of Article IV for the exportation of specimens of *Falco cherrug* in the range States, including Mongolia that have breeding populations. At AC21 (Geneva, 2005) *F. cherrug* was categorised as 'of

urgent concern' in nine range States (the Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, the Russian Federation, Saudi Arabia, Turkmenistan and Uzbekistan), and 'of possible concern' in a further 26 range States. (CITES, AC9.2). The AC recommended that range states confirm that exports of *F. cherrug* were not permitted, unless these range states provide:

- Justification for and details of the basis of making non-detriment findings
- Information on the distribution and conservation status of *F.cherrug*
- And information on the number of captive-breeding operations for *F. cherrug* in the country and existing controls in accordance with Notification No. 2006/061 of 14 November 2006.

While these policies took place in the international arena, Mongolia continued their international trade of Saker Falcon through 2008, despite ensuring CITES requirement that no further export permits would be issued. At SC57, the Standing Committee agreed that, if Mongolia did not comply with the recommendations of the Animals Committee in full, by 31 December 2008, it would recommend that all Parties suspend trade in *F. cherrug* with Mongolia. Subsequently, Mongolia supplied a response to the recommendations of the Animals Committee, specifying the artificial nest project being developed in Mongolia for the conservation and sustainable use of this species. It was supported by the parties as an interesting and innovative conservation initiative. For example, at SC58, the Secretariat suggested that, in line with the paragraph U of Resolution Conf. 12.8 (Rev. CoP13), the Committee withdraws its recommendation to Parties to suspend trade in specimens of *F. cherrug* from Mongolia. The conditions were Mongolia "maintains an export quota of 300 specimens for the years 2009 and 2010 and before establishing a quota for 2011, reports at the AC25 and takes advice about the development of the programme" (SC58 Rev.CoP13).

The Mongolian government also agreed to demonstrate to CITES that their harvest had a non-detrimental impact on the wild Saker Falcon population in 2011. The SC59 in 2011recommended retaining its recommendation to suspend trade with Bahrain since the concerns that led to the original suspension have not been addressed. Justifying the trade without accurate data on the size of the population and supporting evidence of recording any information on the age and sex of wild caught Saker Falcon made it challenging for Mongolia to provide the required non-detrimental finding report by the Ministry of Nature, Environment and Tourism in 2011. Despite this lack of detailed information, Mongolia at first time provided the general information about the ongoing conservation work as artificial nest project and its potential to provide for sustainable harvesting in the future. The CITES secretariat recognised the potential for resolving the problem of wild Saker Falcon through artificial nests. It was proposed by the IWC and WSCC as a potential solution to the unregulated trade problem and as a way of demonstrating a 'sustainable harvest' in 2005. However Mongolia did not have a sufficient conservation measure, there were initial experimental sites of artificial nests established.

Using this project outcome, the non-detrimental finding report (2011), it was able to demonstrate the potential for developing a sustainable trading scheme linked with the Artificial Nests Programme in the near future. Subsequently, for 2009 and 2010, the parties of CITES allowed to Mongolia to export a maximum annual quota of 300 birds based on the proposed initiative of artificial nests and sustainable use in Mongolia. This maximum quota was reviewed in 2011 through CITES AC 24. Mongolia submitted the non-detrimental finding report to AC 24. Since the report informed CITES of the steps that had been taken towards developing a sustainable harvest, can be a main reason for further export from Mongolia. From 2011 Mongolia was free to set its own harvest quota for Saker Falcon as same as an Appendix II species of the CITES.

6.3.5. Implication of Artificial Nests for Saker Falcon trade

In this respect the artificial nest project will be used as an ideal scenario for Saker Falcon conservation. Since non-detriment finding report was presented to the CITES and range states, the outcome of an Artificial Nest project would be important. Through artificial nests, a new population of Saker Falcons has been produced. Produced in Mongolia in-situ c. With this value-added population the current trade was able to continue through legal supply chains to the Gulf market. Thus far, attempts to develop a sustainable use mechanism has only been confined to linking buyers and sellers. However, expected to enable further conservation measures for the benefits of Saker Falcon, such as establishment of target populations, quantification of harvest level, justification of harvesting protocol (instead of taking natural nests, using only artificial nests and microchipped birds), and improved enforcement through training, recording, monitoring, and establishment of a database.

In 2011, the trade quota of Saker Falcon was set at 240 by the Government; in other words the same level as throughout the last decade. With regard to revenues and trade, some interviewees expressed concerns that "the current price is too low, while the buyers from Mongolia re-sell the Saker Falcon in higher price in the Gulf markets. Mongolia needs to trap the falcons and directly export to buyers" (from interviews of 119 and 120 on 01.07.2011). Therefore, 40% remains in the central government, 50% goes into the Environmental Protection Fund, and 10% allocates to local governments. Such distribution does not have positive implications for Saker Falcon conservation activities. In fact, there were controversial views towards Saker Falcon trade. Some of the interviewees expressed that "Saker Falcon trade must stop urgently. Mongolia should not trade and export any wildlife and natural plants for the next decades. Wildlife including Saker Falcon has critically declined as never has been before in Mongolian history. Mongolia has sufficient livestock and mineral resources, from which the country

makes lots of profit. This should be enough" (Interview 134 on Sept 2011). After major conservation ENGOs and the public criticised the continuation of the Saker Falcon trade, the central government banned the trade for five years starting from 2013. Although the trade has been stopped from 2013, in the same year the Mongolian government has allowed the harvesting of 20 Saker Falcon by Gulf trappers as a gift. This recent measure impacts on Saker Falcon conservation and management at both national and international levels. Basically, the progress made through Artificial Nest project towards establishing a sustainable use mechanism was disregarded in the current conservation policy. The reasons for these recent developments are explored further below.

The assessment of the current management and seeking to establish a sustainable use policy , the policy development and outcome of the Artificial Nest project have not been considered in the conservation policy of Saker Falcon. This process to develop a sustainable use needed to be reinforced to Mongolia particular. Non-detrimental finding report is urgently needed for Saker Falcon population in Mongolia.

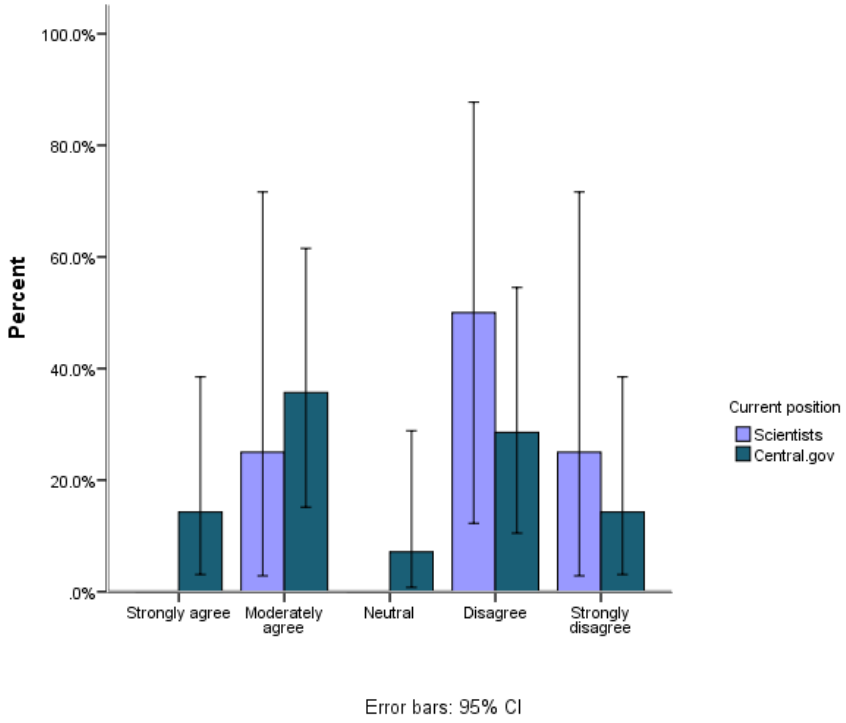
As part of Mongolia's efforts to comply with and implement CITES regulations related to international trade in Saker Falcon, the central government has undertaken several administrative and legal procedures. According to the interviewee, a total of 20 personnel are responsible for implementation of CITES-related matters (from an interview of 115 on Jan 2011). Of those, 20 are with the central government agencies. These staff usually works in three areas: policy development, monitoring and enforcement, and technical support. However, only those personnel who are working in the policy development are in charge of implementing CITES regulations with regard to the trade in Saker Falcons. Four Departments of the central government agencies collaborate in the control of the trade in Saker Falcons. These are the Department of Environment, Natural Resources Management, MNET, Department of Environmental Protection, State

Special Inspection Agency, the Animal Health Department, State Veterinary Lab, and Custom and Border Agency. The CITES permits for Saker Falcon are issued by the CITES Management Authority, while export permits are issued by the Department of Environment, Natural Resources management, MNET. The Customs and Border Agency has quarantine areas that are in charge of receiving Saker Falcon shipments at the Airport. The number of personnel at the State Veterinary Lab in charge of issuing Saker Falcon health certificate is not more than two employees. The employee in charge of issuing CITES permits is CITES Secretary. Also, only a few personnel in the Quarantine areas are in charge with handling Saker Falcon.

6.6. Regular monitoring and scientific data in Saker Falcon management

Regular monitoring and scientific data were essential to establish a sustainable use management plan for Saker Falcon. The current policy on Saker Falcon conservation also includes the provisions of monitoring before setting trade quota. The main debate comes with this monitoring activity, how this monitoring has been conducted and how valid scientific data collected. The central government policy makers and relevant scientists were asked by the international researchers and range states of Saker Falcon to explain current statistics, management plan, and conservation activities in Mongolia and how international trade can be monitored and valid. In order to provide a scientific base and sufficient evidence that supports the proposed trade quota, the appropriate discussion is necessary among those stakeholders. Since, the reports of monitoring and scientific data on Saker Falcon conservation found available to policy makers and scientists, the study aimed to evaluate the opinion of those people.

Figure 16. View of policy maker and local governance regarding the available data of Saker Falcon and scientific judgment for policy



More than half of the participants justified that current management is not based on scientific judgement. Prior to the Artificial Nest project, the MNET had no comprehensive database and monitoring system, although the Saker Falcon trade continued despite this. The challenge of establishment of regular monitoring and data collection of Saker Falcon was not coordinated by the relevant agencies.

Table 18. Stakeholder's view on scientific dimension for policy making

	Valid	Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly	2	11.1	11.1	11.1

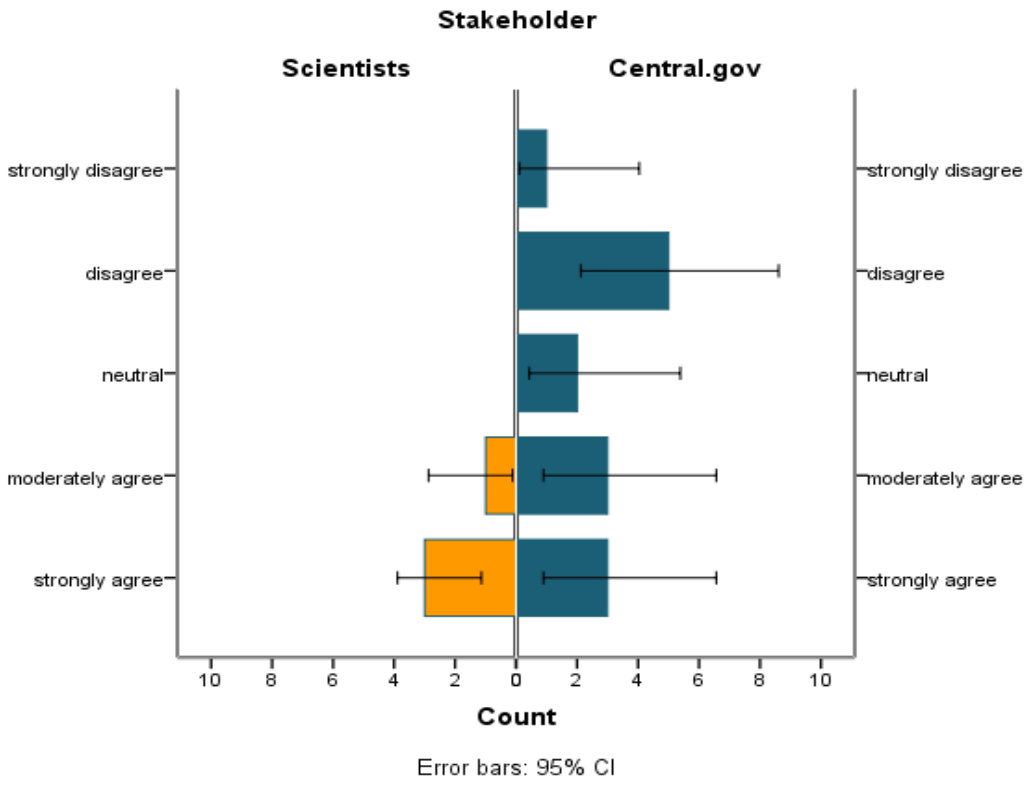
	agree				
	Moderately satisfy	6	33.3	33.3	44.4
	Neutral	1	5.6	5.6	50.0
	Dissatisfy	6	33.3	33.3	83.3
	Strongly dissatisfy	3	16.7	16.7	100.0
	Total	18	100.0	100.0	

To address these problems,the artificial nest team proposed microchipping of the young birds in artificial nests, in conjunction with feather samples from juveniles, and feathers left in the nest by adults to be used as a source of DNA. In this way the identification of individual birds and their sex would be possible (Dixon et al. 2011). Samples of the feathers can be used for genetic identification of individuals as well as evaluation of the extent of breeding dispersal across the network of artificial nests, and the success of recruitment of the breeding population to the artificial nesting sites. Since 2007, the project scientists have been able to identify individuals that bred at artificial nests using both genetic and visual markers. This process has continued and expanded in order to provide a proxy measure of survival rates of the juveniles born in the artificial nests. The data collection and regular monitoring of the artificial nest sites are the only conservation sites of Saker Falcon that enables to justify the regulated trade. Although the project made efforts to disseminate monitoring data, this information was not used to inform the current management policy.

The fact that monitoring process was not regularly undertaken by the relevant agencies (e.g. The National Programme for Saker Falcon conservation has not been sufficiently implemented for decades and finally concluded in 2012.

Prior to the artificial nest programme, there was no monitoring and evaluation system in place to re-enforce the implementation of national conservation programmes (from an interview of 119). However, monitoring is not only required for the policy arena, but it is vital to several other areas such as harvesting, exporting, and enforcement of illegal trade to improve current conservation. For a legitimate Saker Falcon harvest, the Artificial Nest Project team, particularly the IWC, has taken the initiative to put controls into place that would eliminate illegal trade (Dixon et al. 2011). This is because the Illegal trappers would be in direct competition with the legal trappers who have purchased a permit; legal trappers need to have some type of incentive to prevent illegal trappers from working in the same area. The question was asked to policy makers (N=14) and scientists (N=4) regarding the harvesting control.

Figure 17. View of policy maker and local government regarding the harvesting strategy and sustainable use



A greater number of participants expressed that they agree on inadequate monitoring in Saker Falcon harvesting season as well as local community involvement as absent. At some point, policy makers also disagree that, in fact monitoring and inspection is regularly undertaken. To regulate harvesting and reduce the risk of illegal trappers, the 2010 regulatory system implemented by the MNET with the collaboration of the Artificial Nest project team, required trappers to register with local officials in the areas where they trap. Legal trappers have a permit for their vehicles that clearly marks them as legal trappers (Dixon et al. 2011). This identification works well in all areas except in sparsely populated ones.

In the sparsely populated areas where there are constraints to law enforcement, locals as well as legal trappers are allowed to police their own areas in order to prevent illegal trappers from working in that area. However, these locals also need some type of incentive to guard the artificial nesting sites (Dixon et al. 2011).

Table 19. Monitoring scale of Saker Falcon management

Stakeholder	Current monitoring	Regularity	Where
MNET	• Policy implementation; • Coordination; • Insufficient funding for regulating and controlling • Facilitating annual harvesting, exporting, and unsustainable management • No paper or electronic database and archive	Occasional monitoring; Annual harvesting monitoring selected areas	• Across the relevant agencies; • Local and national activities of relevant stakeholders, trappers, and conservationists • Monitoring reports and information are not accessible for public and ENGOs regarding the Saker Falcon harvesting and exportation.
State Special Inspection Agency	• Enforcement of legal activities for trapping, exporting, and transporting	In every harvesting season	• Selected trappers' camps who obtained the licenses and permits, relevant

	• No monitoring reports, electronic and paper database about the monitoring		stakeholders, such as local governments in harvesting areas, and exporting areas via customs and border points • No inclusion of representatives of public and ENGO for monitoring team and no access information
Police and Intelligence Agency	• Law enforcement for illegal activities, such as trapping, taking, transporting without relevant permits and license • Investigate illegal taking in forbidden season • No reports, electronic and paper database about the illegal	Daily/Regularly and Seasonal	• Collaborating public, central and local government, international and regional/cross border agencies and ENGOs stakeholders • No access information

	activities		
Mongolian Academy of Sciences/ National University of Mongolia	• Research and scientific data collections, including biological and ecological data, population size, abundance, distribution, migration etc • No electronic and paper database for Saker Falcon • No published reports	Occasionally in 2002 and 2010 Depending on the availability of funding, seasonal monitoring takes place	• Saker Falcon artificial and natural nest sites • No information for public access
Local government	• Enforcement of illegal and legal activities, • Support and facilitate the conservation activities, inventories, artificial nests, microchip ping etc • No monitoring reports regarding	Regularly/ Seasonal	• Collaborating and facilitating monitoring the activities in Saker Falcon artificial and natural nest sites

	the legal and illegal harvesting in all 12 soums		
ENGOs and private sector	• Monitoring and scientific data collection; • Initiate and implement the conservation activities	Regularly/ Seasonal	• Saker Falcon artificial and natural nest sites, collaborate with of central and local governments and relevant stakeholders • Some data and information available in online and paper related to Artificial Nest project
Local people	• No support for enforcement and conservation activities • No information sharing about Saker Falcon harvesting	Regularly/ Seasonal	• Saker Falcon artificial and natural nest sites, collaborate with of local governments and ENGOs • Some data available in paper related to Artificial Nest project

According to the results of follow-up interviews after the implementation of the regulatory system, a number of interviewees in the policy arena expressed the view that the MNET has failed the enforcement tasks for harvesting areas of the Saker Falcon in terms of collaborating with the local governments and rural people. Monitoring activities of harvesting were not adequately implemented in 2010 and 2011. Furthermore, it was suggested that the Government has not taken any steps towards developing an incentive mechanism, since there is no legal basis (from an interview of 114 and 121 in June and July 2011). The interviewees noted that the upcoming wildlife legislation updates may consider to promoting incentive mechanism for wildlife conservation. The monitoring process and related information were limited to access by public and ENGOs. There was no legal mechanism to include the representation of public or civil society in the monitoring team (from an interview of 13 in May 2011). Options to improve monitoring were highlighted by respondents as follows:

Table 20. Stakeholders' view on potential improvement of monitoring

Stakeholder	Improvement option	How often	Which areas
MNET	• Monitoring policy-making/ implementation; • Provide coordination to stakeholders; • Monitoring of regulated and controlled	Daily/Quarterly/ Annually	• Across the relevant agencies; • Monitor and evaluate the performance of relevant stakeholders in local, national, and international level • Establish a website linked with the central

	harvesting/ trade • Facilitation harvesting, exporting, and to set holistic management • Establish electronic database and archive		government/key agency website • Public and ENGO access for monitoring reports
State Special Inspection Agency	• Monitoring for the enforcement of legal activities for trapping, exporting, and transporting	Daily/Regularly	• Trappers, relevant stakeholders in harvesting areas, and customs etc. • Available electronically for public access of monitoring reports
Police and Intelligence Agency	• Enforcement and illegal activities, such as trapping, taking, transporting without relevant permits and license or find trapping or taking in	Daily/Regularly and Seasonal	• Limited access available data for public and ENGO on illegal activities of Saker Falcon • Information network via telephone and social media regarding the wildlife crime

	forbidden season		including Saker Falcon
Mongolian Academy of Sciences/ National University of Mongolia	• Research and scientific data collection, including biological and ecological data, population size, abundance, distribution, migration etc • Establish database or website or social media for professional and conservation debates • Contribute public awareness and educational activities to re-orient the public	Regularly/ Seasonal	• Saker Falcon artificial and natural nest sites • Establishing updated websites and social media network promoting Saker Falcon conservation and reducing threats etc
Local government	• Monitoring for enforcement of illegal and legal	Regularly/ Seasonal	• Saker Falcon artificial and natural nest sites, monitoring the

	activities, support and facilitate the conservation activities • Conducting local government monitoring report • Provide public awareness and educational activities		activities of trappers and relevant stakeholders • Monitoring and controlling the harvesting activities in their respective territories • Information sharing and exchange of monitoring outcomes to other agencies and local communities
ENGOs and private sector	• Research; scientific data collection; • Enforcement of illegal and legal activities; • Continued support and initiatives for implementing the conservation activities in the field	Regularly/ Seasonal	• Saker Falcon artificial and natural nest sites, collaborating with of central and local governments, communities, and other relevant stakeholders

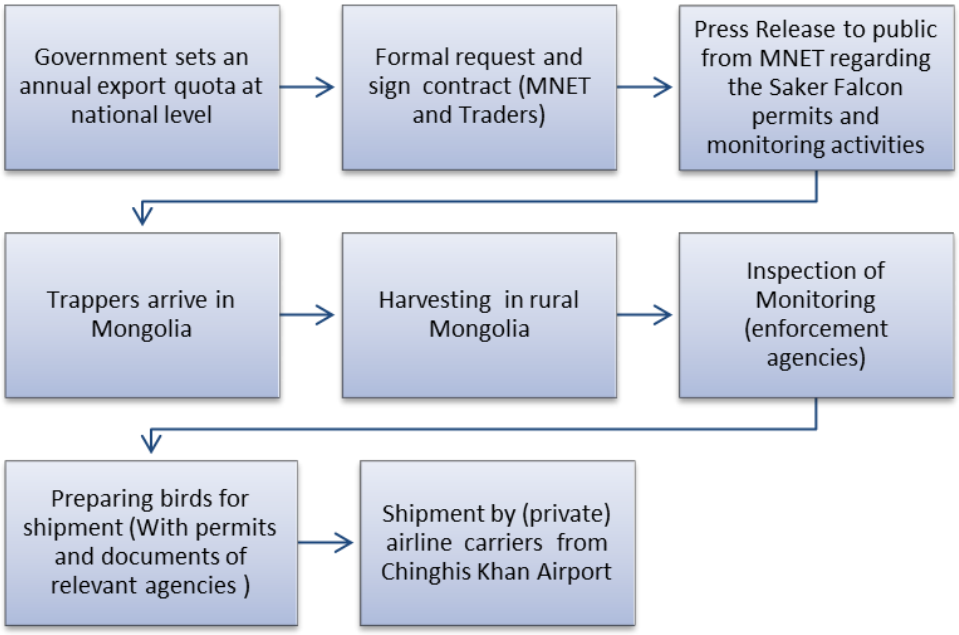
Local people	• Enforcement and information sharing on Saker Falcon harvesting areas • Contribution of paid and volunteering jobs in the conservation	Regularly/ Seasonal	• Saker Falcon artificial and natural nest sites, collaborate with of local governments and ENGOs • Establishment of communication via mobile phones and in limited areas electronically

Beyond the harvesting sites, the problems found in the border points of Mongolia, the data collection and recording has been lacking for the birds leaving the country. The CITES Management Authority and other relevant agencies do not have any recorded data regarding the sex and age of the Saker falcon exported from Mongolia. Thus, Mongolia has been unable to justify and provide the evidence of all birds exported from the country was female or males as well as the remaining populations were not detrimental from the trade.

The main monitoring is necessary set in place for the export process through the airport. The responsible agencies and number of staffs found. According to the interviewee, a total of 20 personnel are responsible for implementation of CITES-related matters (from interview of 115 on January 2011). Of those, 20 are with the central government agencies. These staff usually works in three areas: policy development, monitoring and enforcement, and technical support. However, only those personnel who are working in the policy development are in charge of implementing CITES regulations with regard to the trade in Saker Falcons. Four Departments of the central government agencies collaborate in the

control of the trade in Saker Falcons. These are the Department of Environment, Natural Resources Management, MNET, Department for Environmental Protection, State Special Inspection Agency, the Animal Health Department, State Veterinary Lab, and Custom and Border Agency. The CITES permits for Saker Falcon are issued by the CITES Management Authority, while export permits are issued by the Department of Environment, Natural Resources management, MNET. The Customs and Border Agency has quarantine areas that are in charge of receiving Saker Falcon shipments at the Airport. The number of personnel at the State Veterinary Lab in charge of issuing Saker Falcon health certificate is not more than two employees. The employee in charge of issuing CITES permits is CITES Secretary. Also, only a few personnel in the Quarantine areas are in charge with handling Saker Falcon. The personnel at the State Veterinary Lab in charge of issuing Saker Falcon health certificate is not more than two employees. The employee in charge of issuing CITES permits is CITES Secretary. Also, only a few personnel in the Quarantine areas are in charge with handling Saker Falcon.

Figure 18. Process of Saker Falcon exportation from Mongolia



6.3.6. Microchipping challenges

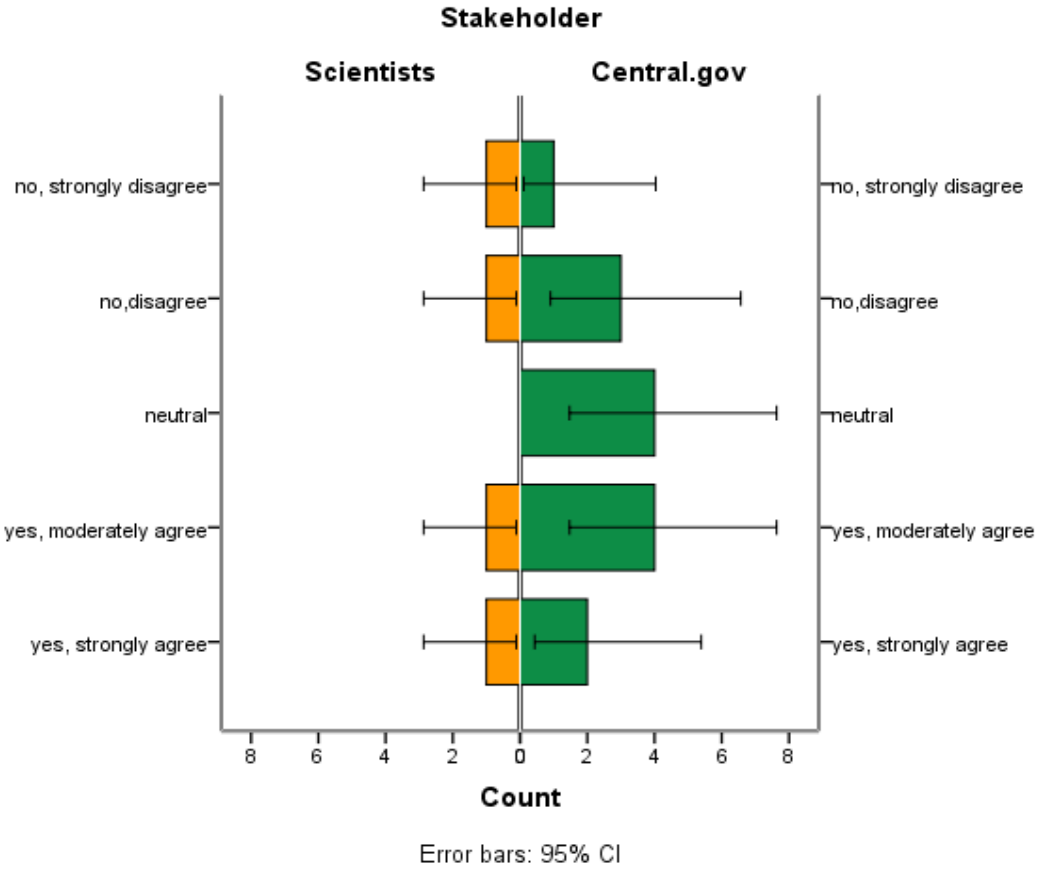
In some areas Saker Falcons are becoming increasingly rare in the wild and, therefore, illegal and unregulated trade in those areas could be increased in Mongolia (from an interview of 73 in June 2011). Saker Falcon has become more profitable. Smugglers and illegal trappers more often target the most remote areas of Mongolia. Saker Falcons are the most targeted wildlife species on the black-market. One of the border inspection challenges in northern and southern borders relates to illegal wildlife such as Saker Falcon (from an interview of 125 in July 2011). The illegal trafficking in Saker Falcons is very difficult to trace for the central and local governments and to quantify accurately the total number of Saker Falcon illegal taking and smuggled or traded. To reduce illegal trade and quantify the legal

trade in Saker Falcon by Dixon et al. 2011has also initiated a microchipping programme at the artificial nesting sites. They also proposed to implement a microchipping plan of all exported and trapped birds. It will also help Mongolia to ensure more effective compliance with CITES requirements. The purpose of the microchipping process is to help keep track of the new juveniles. The microchip number can be added to the permit so that it is clear to authorities, whether or not the birds leaving the country are being taken legally. The microchipping along with the collection of both the feathers from the juveniles and the feathers left in the nests by the adults will give scientists information and data that will allow for better tracking of the Saker Falcons. As Saker Falcons are mostly trapped from July to December, some of the birds harvested will not be the ones produced at the artificial nesting sites. Those birds will be microchipped when they are captured for trading so that the number of Saker Falcons taken that was not raised in artificial nesting sites can also be controlled. The scanning of all Saker Falcons for the presence of a microchip prior to the bird leaving the country will help conservationist and government officials keep track of the birds' origin and help provide more data about what proportion of the birds being traded are from the artificial nesting site or from the natural breeding grounds of the Saker Falcon. Dixon et al. 2011 suggest that as the programme is developed, it will be possible to ensure that only Saker Falcon from the artificial nesting sites are sold, allowing the birds that bred in more traditional breeding sites to continue to grow in number, thereby ensuring a number that can be sold while the Saker Falcon population is also being maintained in Mongolia. Dixon et al. 2011 cites how microchipping will support a sustainable Saker Falcon population and also alert authorities to birds that were illegally taken from the country:

'In 2011, we shall work with MNET and the falcon trappers to introduce a microchipping program. All trapped falcons, prior to export, will be scanned for the presence of microchips to detect birds that have fledged from the artificial nests.

Any birds that do not have microchips will be implanted and the microchip number recorded on the CITES export permit, which can be used by the purchaser as proof of wild Mongolian origin. Falcon hospitals in the Middle East will be provided with all the microchip numbers used in Mongolia and any Saker Falcon detected during admission to hospital can be reported via the Middle East Falcon Research Group. In this way, we can determine whether or not the microchipped individuals have arrived in Arabia via the CITES regulated trade route or not, which will enable us to estimate the scale of any illicit trade from Mongolia.' (Dixon et al. 2011, p.369) Following this comment, central government policy makers and scientists were asked their opinion on microchipping.

Figure 19. View of policy maker and local government on microchipping



Microchipping was supported by nearly half the key stakeholders. However, it has not been implemented in practice. From the interviews of the experienced trappers, they informed that "...The microchipping has not been proposed and made by Mongolian government", when trappers requested the permits (from interview of 134 and135). In fact, "microchipping would affect the price of the bird on the market. After the purchase owner would prefer to microchip the bird by himself at the Falcon Hospitals. From the certificates of origin, they pointed out the majority of the Saker Falcon they trapped were come from the non-artificial nest sites, such as Ogii Lake, Arkhangai Province" (from interview of 134 and 135 in August 2011).

Table 21. Stakeholder's view on microchipping of harvested Saker Falcon

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes, strongly agree	3	16.7	16.7	16.7
	yes, moderately agree	5	27.8	27.8	44.4
	neutral	4	22.2	22.2	66.7
	no, disagree	4	22.2	22.2	88.9
	no, strongly disagree	2	11.1	11.1	100.0
	Total	18	100.0	100.0	

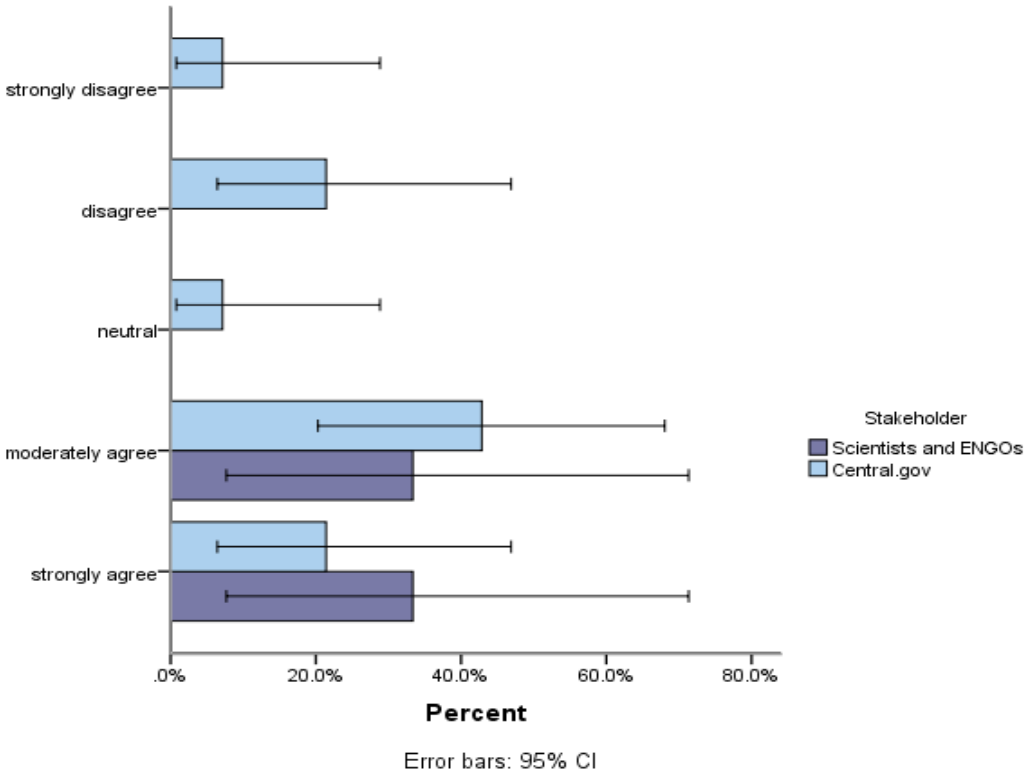
The trappers also informed that they equipped with microchip scanner, when they trap the bird, they make sure the bird was not microchipped. From the

views of policy makers, they considered that the microchipping is an unrealistic proposal. There are insufficient researchers and funding to microchip all juveniles in the field and the officials of the customs and border points have no training in inserting a microchip and no scanner. There is also no regulation and rule to enforce microchipping of birds destined for export. Thus, if it takes place on the border points, it could be a voluntary action (from an interview of 115 and 126 in June and July 2011). In addition, the inspection officers and officials highlighted that trappers often hesitate to individually show the bird. Since the permits and trade agreement have not specified about the microchipping, the policy needs to be updated in this area.

6.3.7. Sustainable use mechanism of Saker Falcon in Mongolia

For recent decades, Saker Falcon has been utilised for commercial purposes. Thus, wild Saker Falcon populations are increasingly subjected to severe pressure, which threatens their existence and sustainability. Since most local communities have a historical link with the habitats of Saker Falcon, efforts to ensure sustainability have been focusing on involving local people in conservation. Examining the adopted a participatory approach to conservation as a result of pervasive loss of Saker Falcon and the study made the effort to find the result. Through the artificial nests, there are some specific conservation elements, such as establishment of monitoring and microchipping. Overall, the most important part is progressing towards establishing sustainable use mechanism with regulated trade. To this extent, investigating the opinions of relevant stakeholders on wasinteresting.Central government policy makers, ENGOs, and scientists (N=20) were asked the question, ‘If surplus wild Saker Falcon population, which produced in the artificial nests begin to be traded, it generates income to maintain the nests and other conservation activities, and do you agree it is a sustainable use?’

Figure 20. Stakeholder's view on surplus wild Saker Falcon population produced in artificial nests for trade



Central government policy makers are more likely to report that sustainable harvest could be useful as a management tool than a scientist and ENGOs. Likelihood of central government officials suggesting it will work only selected areas (e.g. Khentii, Dundgobi, Tuv provinces), where artificial nests and trapping take place. The likelihood of reporting sustainable use could be useful in Saker Falcon management is higher for central government than the other stakeholders. The role of the central government sometimes conflicts with this position and noted the issues of the process of policy updates and amendment in Mongolia.

The second question for sustainable use was 'For better conservation purpose, how do you like the idea of Saker Falcon bred and harvested from this

area to give you direct benefits through trade?' asked to local government officials and herders. This question has 4 options, such as' Yes, it is workable and I fully support it', 'it is not workable', and 'it should work for conservation purpose' and 'other opinion'.

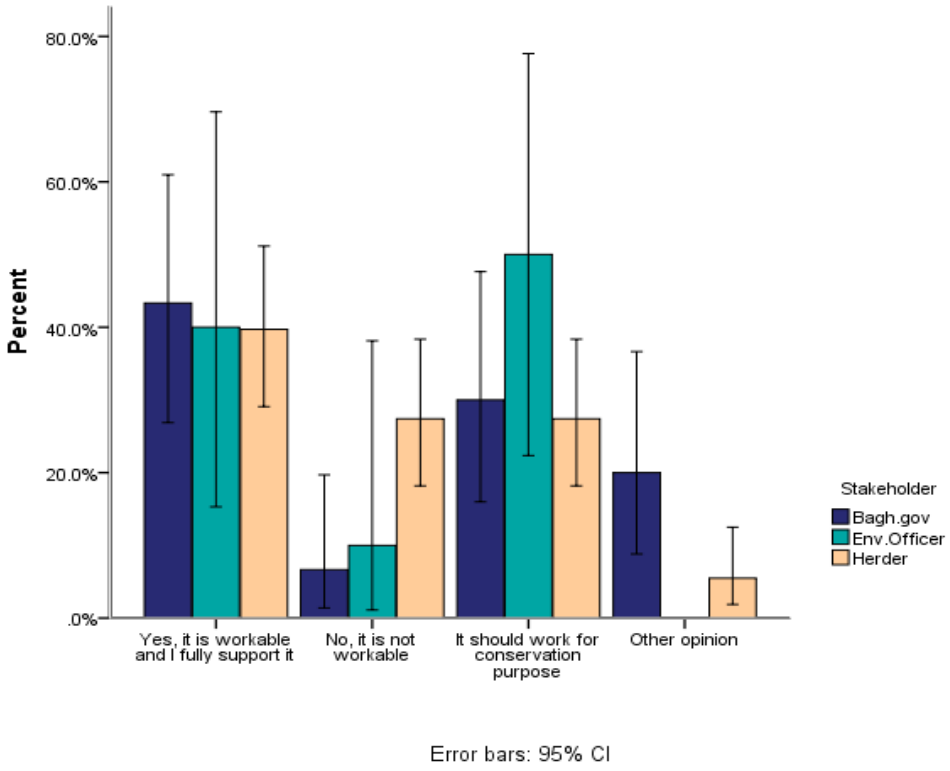
Table 22. Stakeholders' view on sustainable use of Saker Falconthrough regulated trade

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stakeholder*For better conservation purpose, how do you like the idea of Saker Falcon bred and harvested from this area to give you direct benefits through trade?	113	82.5%	24	17.5%	137	100.0%

Half of the environmental officers (50%) indicated sustainable use through trade should serve for further Saker Falcon and other wildlife conservation purpose. However, only 43% of the Bagh governors and 40% of herders supported the sustainable use as a conservation activity that should possibly for their everyday life. It means they can help to patrolling the artificial nests around their home and grazing areas. It should be allocated and handed to the responsible

herders and Bagh governors for each soum. Those people become responsible for the nests. They can be paid on a quarterly basis from the income generated through Saker Falcon trade. On the other hand, remaining herders were divided into two equal groups as it is not workable idea (27.4%) and it should be for conservation purpose (27.4%) respectively. The herder group has a doubt about getting paid regularly. The people may gain the benefits from this project would be the people who sell the birds, rather than people live nearby. There are many conservation projects were implemented by various organisations, but it never reached the herders from the practice. While some of environmental officers (40%) voted for this idea as workable, remaining few of them (10%) and a small number of beach governors (6.7%) considered it is not a workable idea. Nearly one third of the Bagh governors (30%) expressed trade money must spend for conservation, whereas one third of the same group (20%) had a different opinion.

Figure 21. Stakeholder's view on sustainable use



Result of chi square test was χ2 (6) =12.663, p≤.049. There is no evidence supporting a relationship between the stakeholders and their interest of engaging sustainable use through trade of Saker Falcon.

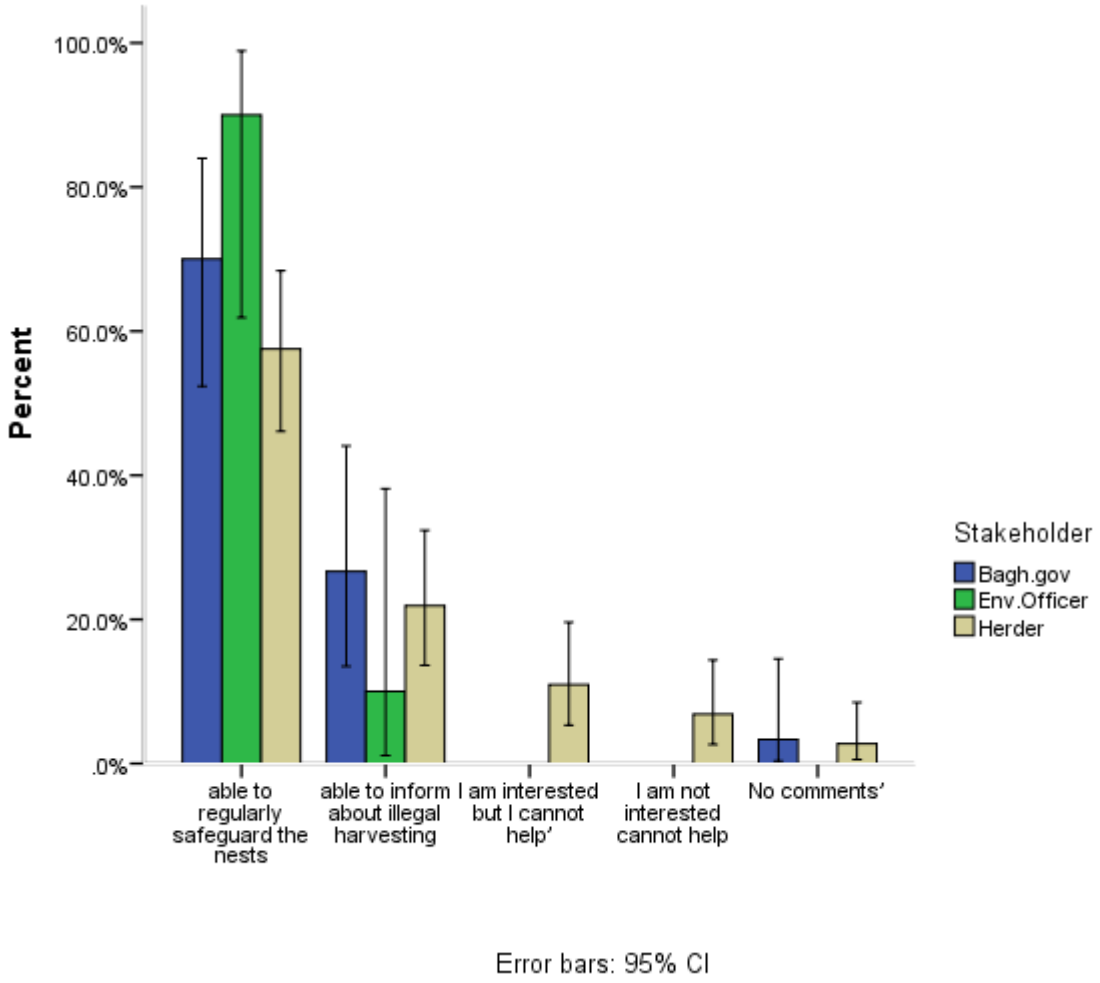
Table 23.Chi square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.667 a	6	.049

Likelihood Ratio	13.296	6	.039
Linear-by-Linear Association	1.570	1	.210
N of Valid Cases	113		
a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .88.			

The last question was ‘How or what can you contribute to the conservation of Saker Falcon?’ asked to Bagh governors, soum environmental officers, and herders. A reason included local government officials were, however, these people related to Saker Falcon management through their position and work, there is no incentive or reward. Thus, those officials participated as a local community member. The answers have been categorised as ‘able to regularly safeguard the nests’, ‘able to inform about illegal harvesting’, ‘I am interested, but I cannot help’, ‘I am not interested cannot help’, ‘No comments’. A greater number of environmental officers (90%) and Bagh governors (70%) as well as more than half of herders (57.5%) indicated they can safeguard the artificial nests. Less than one third of the Bagh governors (26.7%) and herders (21.9%) expressed they can inform about illegal harvesting, while the remaining number of environmental officers (10%) is able to inform about illegal harvesting. Very small number of Bagh governors (3.3%) and herders (2.7%) has no comments. The herder had a more scattered answers and undecided position. Some of them expressed their interest about conservation, but unable to help (11%) and another portion of them was no interest in conservation (6.8%).

Figure 22.Stakeholder's view on willingness to conserve Saker Falcon



6.3.8. Saker Falcon market and harvesting

The market demand of Saker Falcon is met through captive and wild-caught birds. While captive-bred Saker falcon cost around 3500 USD, the wild caught can be 5-20 times more. Wild caught Saker Falcon is more attractive to Arabic falconry, because of large body size, excellent hunting skills, and adaptive nature. Females

are especially sought, since they are the ones used in hunting. Young 2-3 years older adults may reach a higher price and have higher market demand than male specimen (from an interview on 134 and 135). Trappers also noted that birds checked and microchipped by veterinarians, but they did not want to harvest the already microchipped and kept-captive birds from Mongolia. Since, they knew about conservation issues in Mongolia, they did not want to keep Saker Falcon longer and no interest in domestic breeding (from an interview of 134 and 135 in August 2011). On the other hand, the wild Saker Falcon trapping involves lot of efforts and the large cost, which affects the market price in the Gulf. The trappers commented that the permits and fees of trapping in Mongolia are increasing with every year. The latest cost of permits and fees is around 12 000 USD per bird. In addition, the MNET issued the permits of 5 pigeons to trap for each Saker Falcon that costs around 4.00 USD per pigeon. Beyond the permitted and paid pigeons, the trappers use many wild birds, such as quails and partridges (e.g Willow Ptarmigan Lagopus lagopus, Rock Ptarmigan Lagopus muta, Black-billed Capercaillie Tetrao parvirostris, Eurasian Capercaillie Tetrao urogallus, and Pallas Syrrhaptes paradoxus) from the steppe. Per trapper's camps have 5-15 vehicles (e.g. SUVs such as Toyota Land Cruiser, Mitsubishi Pajero, and Land Rover Discovery) and at least 12 service people, including interpreters, drivers, chefs, veterinarian, and medical doctors involved, beyond 5-6 trappers or more. Fuels and camping expense in remote areas, later feeding and keeping the trapped Saker Falcons, some administrative fees for required paperwork to transfer the birds (e.g. State Veterinary Lab Inspection and Certificate of Origins etc.) and final shipping by private jets are other factors of the current market price in the Gulf. However, it involves losing of cost; they were not concerned about reducing access to wild Saker Falcon. A rough estimate of a wild caught Saker Falcon can be at least around 25 000 USD and up to 150000 USD (from interview of 134). In addition to these financial resources, trappers also need to be skilled and well-trained to catch the bird without injury, using technique a pigeon as live bait

(pigeons are favoured by falcons). It is called “Mishbak Alhamama”. (From interview of 134 and 137 in September 2011). Nonetheless, there are about 7000-8000 Gulf falconers and hobbyists, who practice falconry for each year, the availability of wild caught Saker Falcon is relatively low (Dixon pers.comm 2011).

6.7. Discussion

Rural economy of Mongolia is not becoming diverse with a range of income sources, except the livestock farming and natural resources (Wingard and Zahler 2006). Livestock remains a predominant livelihood activity (Fernandez et al 2006). In a situation where livestock provides low economic returns, natural resources become the second main source of income (Butler 2006). However, the study reveals that the sustainable use concept is often too vague for practical management decisions and their implementation. Moreover, some scientific research projects of Saker Falcon are not always directly linked to conservation aims and objectives. In complex Saker Falcon trade policy, focusing for example on development of secondary school curricula about Saker Falcon conservation and broader habitat conservation, issues related to the conservation and community participation are sometimes not of the highest priority. Another problem is that successful, sustainable wildlife management projects are rarely known in Mongolia. Last but not least, project activities of one organisation active in Mongolia are not necessarily connected to each other in a satisfactory way. It is possible with the cooperation of all stakeholders to achieve the delicate balance between conservation and trade. It may even be possible to get trappers who are now illegally trapping to become engaged in the legal management of harvest of the Saker Falcon, and the supply of legitimate falcons may reduce the demand for illegally traded ones, particularly in the Middle East states. Environmental governance needs an inclusive process of multiple stakeholders. The participation needs to be underpinned by an attitude that emphasises empowerment, equity,

trust and learning. The stakeholder's setting and view of participation can be as a process that emphasises the need for flexibility, adapting to different and consistent conservation strategy. Providing the various choices of tools and process designs that are available, and the need to tackle rapidly to dynamic contexts, a strong underpinning is necessary to guide the policy development and conservation process. Scientific inputs to inform stakeholder deliberation and policy-making have been identified by many authors as a substantial account in any participatory process (e. g. Chess et al. 1998; Johnson et al. 2004; Chase et al. 2004; Webler and Tuler 2006; Fischer and Young 2007; Tippett et al. 2007) in endangered and migratory species conservation in specific. There was a significant disagreement between the stakeholders in several issues that related to conservation policy and management of wildlife, especially Saker Falcon management and overall environmental governance in Mongolia. Policy making and implementation, identifying significant threats of Saker Falcon, and identifying conservation difficulties were the main differences. Scientific inputs and ENGO contribution towards the wildlife conservation were found as the central gap of the policy implementation and management. Institutional and incentive mechanism has been viewed differently among the stakeholders. Policy makers consider that there is an adequate mechanism in place, while it is least shared by the scientists and ENGOs. However, the scientists agreed that the policy is improved at some point to manage the wildlife, such as Saker Falcon; the policy implementation is greatly lacking. Conservation issues of live endangered species trade are significant. Poaching, illegal trade, cooperation in sustainable use and others are not yet addressed in a way and an intensity necessary to achieve results for the long-term conservation of Saker Falcon in Mongolia.

6.8. Conclusion

As mentioned in Chapter Five, the rapid decline in the numbers of Saker Falcon, particularly in its central Asian breeding grounds, has involved the wild-caught live Saker Falcon trade from Mongolia. The decline was brought about by its inadequately controlled capture for the falconry trade (Birdlife International, 2006). The Saker Falcon trade may impact the further decline of wild populations in Mongolia. However, current harvesting of the Saker Falcon may lead to immediate or gradual degradation of local ecosystems, which may ultimately lead to local discontent as well as national or international opposition to valuing nature in Mongolia. In many developing countries where regulations on the environmental and social impact of the wildlife trade are not enacted or not well enforced by central and local government institutions, local and people often face a wide range of environmental threats and health risks (Evans et al. 2002; Newell and Wheeler 2006).

In fact, the last 20 years have been decades of incredible changes and challenges. Mongolia is only now beginning to create a policy that will allow for the conservation of its natural resources. The problem is based on the premise that there needs to be some harvesting of natural resources in order to have a viable economy in Mongolia. However, if the harvesting of natural resources is not kept to sustainable levels, there will be an environmental impact on both the country economically and ecologically. The correct balance must be achieved in order to conserve the wildlife while still trading those natural resources.

Since 1996, when Mongolia became a party to CITES, there have been conflicting stakeholders' interests over the trade and conservation of the Saker Falcon. The huge demand for the Saker Falcon in the Middle East has fuelled illegal sales of the bird and has led to corruption in central and local government because of the high prices that Middle Eastern Royalty are willing to pay to

possess one of these birds of prey. In the early 2000s, CITES stated that the Mongolian government was not carefully following trade numbers allowed on a yearly basis.

It took until 2010 for the Government in Mongolia to develop a plan that would begin to address the issue of both saving the Saker Falcon while allowing for its export. The implementation of an artificial nesting programme and the effort to microchip both Saker Falcons bred in the artificial nests and other birds that are legally caught for trade has the potential to halt illegal trading in this species, thereby ensuring its future. All stakeholders from the local population to government officials and legal trappers need an incentive to close down the illegal smuggling of these birds. If a programme can be decided for offering these types of incentives at each step in the implementation of safeguards, it may then be possible to achieve a delicate balance between conservation and trade. As Dixon et al. (2011) noted, there are other reasons for studying how to achieve that balance:

‘The principle of managing a falcon population so that it can support a sustainable harvest can be applied to other species elsewhere. Management can be the protection of the birds and their habitats and/or the manipulation of factors that limit population growth, such as nest site availability, predation, or food supply. In the USA, management has involved the re-establishment of Peregrine populations through reintroduction, together with the introduction of legislation to restrict the types of pesticides that caused the initial population decline and strict protection coupled with effective enforcement. This management has contributed significantly to the current healthy state of the Peregrine Falcon population in North America and has enabled a limited sustainable harvest for falconry to be permitted.’ (Dixon et al. 2011, p. 370).

Representatives of environmental non-governmental organisation also agreed that the policies have been made a growth in last 3-5 years, but to the degree of implementation they share the same views as scientists. The study also found that significant differences among stakeholders in identifying significant challenges to conservation, sustainable use through trade, scientific inputs and stakeholder involvement in policy formulation and implementation, and impact of cultural values in conservation. Since the policy processes designed as a rigid top-down pattern, the ongoing processes are mainly non-inclusive many key stakeholders. Central government policy makers and local government officers differed in their views with ENGOs and conservation scientists in the field.

Chapter 7. Local approach in Saker Falcon governance for in Mongolia

Introduction

The preceding chapters have examined the major challenges of Saker Falcon conservation and trade issues to develop a sustainable management strategy in Mongolia. This chapter will provide an analysis of the local approach to the ongoing development of Saker Falcon conservation and how they are linked to endangered and migratory species conservation. Especially for the sustainability of the Saker Falcon conservation, local approach needs to be examined in the context of knowledge and information sharing, communication and stakeholder's mechanism in Mongolia. A strong argument for using a current conservation project like artificial nests is facilitated that the opportunity. The chapter will also discuss how these issues can be assessed and integrated into wildlife conservation planning, particularly in Saker Falcon management. The chapter will present case studies of two Saker Falcon conservation sites to shed light on the assessment process. First case study of Gurvansaikhan will combine the analysis of cultural heritage values in landscapes and Saker Falcon habitats. A second case study from Bayan-Onjuul that will assess the priorities of the local environmental concerns at the steppe landscape. Since, MEAs from Ramsar through to the CBD explicitly acknowledge a broad range of conservation, such as ecosystem service and its sustainable use principles. For such a broad context of Saker falcon conservation, it is important to examine how stakeholders, such as ENGOs, scientists, individuals and intergovernmental organisations, skilled issue-detectors, and agenda-setters concerned the Saker Falcon values and current governance mechanism. The stakeholders suggest that increasing participation brings the results in the diversification of endangered and migratory species values. The contemporary approach of the cultural dimension is considered, it will add a value to wildlife conservation. This demonstrates that the methods for cultural heritage conservation provide tools for the analysis of non-material values as well as

historical drivers of change in particular landscapes. It can add temporal dimensions to more spatially focused ecosystem assessments. The proposed methods for valuation of cultural heritage and identity in the landscapes are integrated into assessments of ecosystem services to inform policy making and endangered and migratory species conservation planning for the purposes of sustainable management. This could also provide a method for bringing about integrated implementation of conventions and instruments from the environmental and cultural heritage fields, respectively. For endangered and migratory species conservation, cultural ecosystem services are a new dimension as intangible with 'classic' market goods and services, is thus to increase their visibility (Daily et al. 2009; Plummer 2009).

7.1. Stakeholder's evaluation of landscape

The cultural dimension of wider ecosystem services is defined by Daily et al. 2009 as the psychological, cultural, and social relationships that influence people's connections to biodiversity and landscapes as well as the benefits they consider useful and relevant. Yet to meet the challenge of understanding Saker Falcon conservation in different landscapes, such as 12 rural soums selected to examine their governance and landscape values including Saker Falcon. The majority of rural community shares a common emphasis and experience of their natural landscapes. For instance, in Saker Falcon's key habitats in the central region of Mongolia, local communities have significant, multiple cultural values. According to the local people value that landscape linked number of cultural and economic values. The impacts the question of synergies and trade-offs for biodiversity conservation, as well as scenarios for comparing "... against one another as more or less important, more or less 'valued' or more or less subject to protection, loss, or gain" (Chan et al. 2012, p.9). It requires making a choice.

In other words, questions arise as to whether the central region of Mongolia should remain as a single purpose landscape, as pastoral land for local herders, or should become a key breeding ground and natural habitat of globally endangered and migratory species like Saker Falcon, or whether these uses can work in harmony and provide additional income sources for locals.

In order to explore these issues, relevant stakeholders, such as twelve soum officials and herding community members' were asked by me the questions about habitat and landscape, and their current status of natural habitats (e.g. habitat condition, wildlife species abundance, degradation or desertification). These questions aimed to identify and explore differing values and priorities amongst local government officials and herders. For this study, three different questions posed to the herders and local government officials. In Table 24, the samples presented as descriptive statistics for further analysis. The first question was aimed to investigate the impact of overall environmental change in the local community. Stakeholders (N=113) were asked ‘what is your opinion about this area, whether it becomes better or worse for wildlife in last 10-15 years?’ It has 3 choices, such as ‘better’, ‘worse’, and ‘no change’. A considerable number of Bagh governors (70%) and environmental officers (90%) considered the ecosystem as degraded and getting worse than before, while over half of all herders (56.2%) shared the same view (see. Table 24). Only a small number of herders (17.8%) and Bagh governors (10%) indicated ecosystem becomes better, whereas less than one third of the herders (26%), Bagh governors (20%), and remaining few environmental officers (10%) stated as no change. To the second question has a majority of all participants (71.7%) agreed the intense degradation and wildlife decline occurred in last 10-15 years.

Table 24. Descriptive Statistics

		Statistic	Bootstrap[a]			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
What is your opinion about this area/landscape whether it becomes better or worse in last 10-15 years?	N	111	0	0	111	111
	Min	1				
	Max	3				
	Mean	2.11	.00	.06	1.99	2.22
	Std. Deviation	.593	-.004	.038	.512	.660
Has the wild animals around this area, increased, decreased, or remained the same in last 10-15 years?	N	111	0	0	111	111
	Min	1				
	Max	3				
	Mean	2.07	.00	.05	1.96	2.17
	Std. Deviation	.517	-.003	.041	.429	.592
Has the rodents and desertification process around this area increased, decreased, or	N	111	0	0	111	111
	Min	1				
	Max	3				
	Mean	1.49	.00	.0	1.36	1.62
	Std. Deviation	.699	-.003	.047	.595	.782

remained the same in last 15 years?						
Valid N (listwise)	N	111	0	0	111	111
a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples						

Table 25.Group Statistics

	Current position		N	Mean	Std. Deviation	Std. Error
What is your opinion about this area, whether it becomes better or worse for wildlife in last 10-15 years?	dimension1	Local.gov	0	2.10	.496	.078
		Herder	3	2.08	.662	.077
Has the wild animals around this area, increased, decreased, or remained the	dimension1	Local.gov	0	2.08	.526	.083
		Herder	3	2.04	.538	.063

same in last 10-15 years?						
Has the rodents and desertification process around this area increased, decreased, or remained the same in last 15 years?	dimension1	Local.gov	0	1.53	.716	.113
		Herder	1	1.46	.693	.082

Only few herders (16.4%), bagh governors (20%) and environmental officers (10%) believed that there is no significant difference over the last decade in terms of degradation and wildlife loss. All remaining participants (11.5%) expressed that habitats are improving and wildlife increased. Regarding the third question, whether the rodents and the desertification process increased, decreased, or remained the same. More than half of all participants (63.1%) indicated it has increased in last 10-15 years. Only a small number of them (11.7%) expressed that there is no change, and the remaining people (25.5%) stated as decreased. For these 3 questions, independent t-test used to compare the means of a normally distributed interval dependent variable for two independent groups, such as local government and herders. It tests whether the mean for ecosystem change is the same for local government officials and herders. In the first case, because the standard deviations for the two groups are similar (.496 and .662), it used the "equal variances assumed" test. The results indicate that there is a statistically significant difference between the mean of opinion for habitat degradation score for

local government official and herders (t =. 149, p =. 882). In other words, local officials have a statistically significantly higher mean score on (2.10) than herders (2.08) (see. Table 25). In the second case, two groups, such as local government officials and herders were compared.

Table 26. Independent samples test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
			Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
What is your opinion about this area, whether it becomes better or worse for wildlife in last 10-15 years?	Equal variances assumed	.711	057	149	11	882	018	120	.219	255
	Equal variances			162	00.389	872	018	110	.201	236

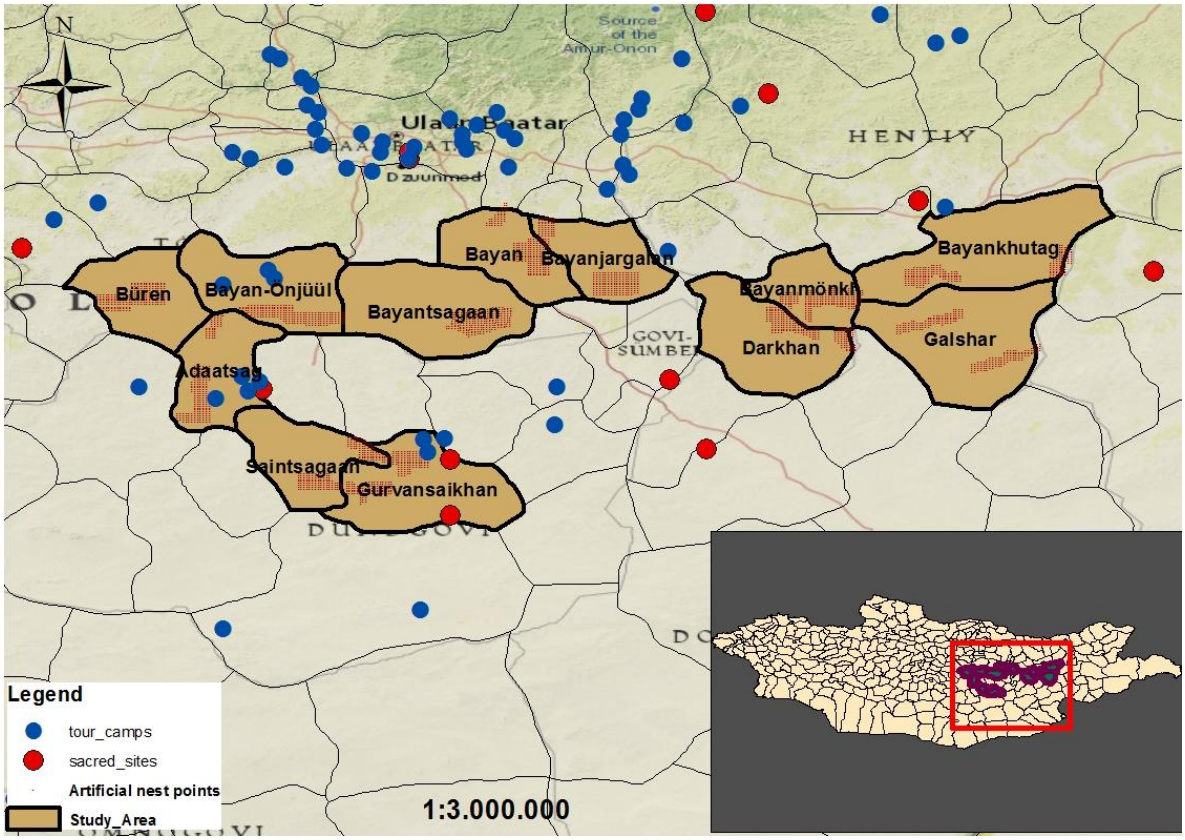
Has the wild animals around this area, increased, decreased, or remained the same in last 10-15 years?	Equal variances assumed	010	920	323	11	747	034	105	.174	242
	Equal variances not assumed			325	2.054	746	034	104	.174	241
Has the rodents and the desertification process around this area increased, decreased, or remained the same in last 15 years?	Equal variances assumed	179	673	434	09	665	060	139	.215	335
	Equal variances not assumed			430	8.875	668	060	140	.218	339

The fact that the standard deviations for the two groups are again similar (. 526 and. 538), the "equal variances assumed" test was taken. The results determine that there is a statistically significant difference between the mean of wildlife status for local government official and herders (t =. 323, p =. 747). Therefore, local officials have a statistically higher mean score (2.08) than herders

(2.04). In the last case, the standard deviations for the two groups are again similar (. 716 and. 693), the "equal variances assumed" test was selected. The results determine that there is a statistically significant difference between the mean of a response desertification process for local government officials and herders (t =. 434, p =. 665). Therefore, local officials have a statistically higher mean score (1.53) than herders (1.46) (see. Table 26).

These results indicate that local government officials and herders have different evaluations of ecosystem and environmental changes. According to local government officials, they evaluated the current status of natural ecosystems from a multi-functional landscape point of view, including issues such as livestock herding, pastoral reserve land, wildlife conservation, and ecotourism. Herders put forward economic point of view to the assessment. Whilst multiple functions herders mainly use those landscapes as pastoral grazing area and a water source to fatten the livestock and sell it in better price. Thus, herders' evaluation is based on pastoral land degradation, increasing cost of purchasing hays and travelling to reach water sources.

Figure 23.Tourist camps and sacred sites in study areas



Case study 1. Gurvansaikhan soum

As defined by the MA, cultural identity refers to the present cultural linkage between humans and their environment (MA, 2005). Contemporary landscapes can be distinguished due to the cultural diversity, which is a product of place specific languages and traditional knowledge systems. In this context, Gurvansaikhan soum is selected as the cultural heritage landscape. A focus group of Gurvansaikhan some, including local government officials and herders identified the following types and categories of landscapes:

Table 27.Type of Gurvansaikhan soum cultural landscape

Type these seem to be types of land or site rather than landscapes	Level	Activities	Temporal	Who can access
Pasture land	Bagh level	Grazing	Seasonal rotation	Herds belong to certain Bagh
Wintering ground	Household level	Grazing and winter refuge	Once in a year	Allocated by the local government or inherited from the ancestors
Sacred places	Local community Soum Provincial State	Randomly organised festivals by local government, community council Celebrated every 2 years Celebrating in every 3 years Celebrating in every 5 years	Spring, Summer, or late autumn Summer Summer and autumn Early summer	However, there is no limitations, this kind of event is suitable for people share the same identity and same family background. Only state level activity is open to all.
Public places	Open access	Able to undertake		All (e.g. Local people, ENGOs,

		wildlife conservation projects and access resources with local governor's permit	Anytime	scientists)

Beyond these categories, many large families have begun to organise 'family tree event' within their community level, using sacred places (71 pers.comm). Such event takes place in rural Mongolia, when the number of grand-children increase, usually elder or aging grand-parents officially introduce them to each other. However, it looks like a large family reunion, in Mongolia such family events organised in their worship places, like sacred mountains, hills, and some unique landscapes. This kind of cultural event helps the youngsters to build their genuine sentiments and feeling toward nature or such landmark to protecting the wildlife (species), water, and some trees.

Regarding cultural heritage landscapes, the majority of Mongolian people have a special connection with their birthplaces[13]. Such strong sense of place serves as an identity and gradually facilitates their social connections. This typology of cultural ecosystem services was a common in two decades ago, where

[13]Birthplace was used to be a special place for Mongolians. They were usually not born in hospital. In case of sickness and uncomfortable incidents, they often go to their birthplace and lay down on the soil, where they born. They believe this will give some purification effect and get energy from the land where they born. There is also tradition; they kept 3 small stones from their birthplace for memory and connection (from interview 51).

people born in nomadic ger[14]. Now, this condition remains and preserved in herder communities along with the nomadic culture. Herders have a strong intangible connection with their own birth places and pastoral herding areas. Among the pastoral land, for instance their 'wintering ground' and 'local sacred places (e.g. Mountain, hill, rock, tree etc.)' have important cultural heritage values for herders(73 pers.comm). Some of them '… do practice acertain ritual (e.g. Offering and worshipping in a form of song and dance or small scale cultural festival, asking to stop the drought or prevent other natural disasters) or follows a strict traditional customary rule, such as 'do not pollute water' with milk and other food waste, and cannot touch, catch, hunt, and trap wild animals in sacred places…" (75 pers.comm).A focus group of Gurvansaikhan however concerned the lacking productivity of pastoral land, equally concerned disappearing spiritual and sacred places through mining.

7.1.1. Stakeholders and Saker Falcon values

The second factor to determine the cultural heritage values is provided by the MA as a culturally significant species. As noted by MA, heritage values sare necessary to remind to us of our collective and individual ancestral roots, and to make connections between natural and cultural issues (MA 2005b). However, heritage is closely interpreted as landscape-context from the past cultural linkage into contemporary world, it attempts to express this heritage through characteristics of culturally significant species like Saker Falcon (MA, 2005). In this respect, stakeholders valued the Saker Falcon in different terms. The question of 'What is the main value of Saker Falcon to you?' was asked to the stakeholders (N=125). The response to the question has sub-variables. Taking into account the binary nature of the responses, multinomial logistic regression used the SPSS in different

[14] Ger is Mongolian traditional mobile housing. Shape of ger is round like a tent. It is made of wood and felts, and does not use any nails.

stakeholders (see. Appendix: Table 60). Nearly half of the all participants valued Saker Falcon in economic context, while less than one third (e.g. the combination of the sacred or spiritual, education or science, and other values) of the respondents preferred the non-use and non-material values. Another portion of the participants referred to the ecological values (24.5%) of Saker Falcon as important, whereas only a small percent (1.6%) indicated it has no value.

Table 28.Values and stakeholders' view for Saker Falcon

		N	Marginal Percentage
What is the main value of Saker Falcon to you?	Economic values	62	49.6%
	Ecological values	31	24.8%
	Sacred and spiritual values	21	16.8%
	Educational and scientific	5	4.0%
	Other value	4	3.2%
	No value	2	1.6%
Stakeholder	Bagh.gov	29	23.2%
	Env.Officer	10	8.0%
	Herder	73	58.4%
	Central.gov	13	10.4%
Valid		125	100.0%
Missing		12	
Total		137	
Subpopulation		4	

Since the economic value of Saker Falcon has been examined in the previous chapters. Ecological and cultural contexts of the Saker Falcon have been explored in the case study.

Case study: Bayan-Onjuul soum

Bayan-Onjuul soum is a site of scientific research field for various terrestrial species by whom? There are sacred places, along with eco-tourism and recreational developments. The soum governor's office has been actively involved in endangered and migratory species conservation, for example through Argali (*Ovis ammon*) (Argali refers wild sheep) research and Saker Falcon conservation through artificial nests. Their position towards valuing Saker Falcon was preferred non-use and non-market values, promoting ecological and educational aspects along with cultural heritage values of Saker Falcon. This soum's economy is relying on livestock only. Although there is no alternative income source, the majority of the population has a medium to high-income level. However, intense desertification processes, with significant loss of wildlife habitats, have affected this soum. In this regard, identification and initial prioritisation of habitat degradation problems gathered, including information about ecosystem services and human well being related to Saker Falcon in Bayan-Onjuul soum.

Table 29.Value, benefits, and services within cultural ecosystem services

	Supporting Ecological Function	Recreation	Eco-tourism	Sacred/ Spiritual	Education/ Scientific

Value	Saker Falcon underpins ecological function as an important predator that controls the small mammals.	Artificial nests for Saker Falcon have a conservation value, which facilitates visits of bird watchers and school children.	Saker Falcon has monetary and market values to promote the tourist camp.	Saker Falcon from the sacred mountain will be concerned as sacred value.	Saker Falcon conservation through artificial nests has in-situ conservation value. It has tested sustainable use scientific model with a wide range of public awareness dimensions, such as secondary school networks and occasional monitoring field data collection.

Benefit	Herder's benefits from the outcome of biological pasture land control.	Local people, tourists, school or university students gain the non-material and non-use benefits from the existence of Saker Falcon in the site.	Tourist camp, employed local people, local government through tax collection	Natural Nests will be untouched and no human disturbances	Updated biological and ecological data, including population census of Saker Falcon of international and national agencies and organisations.

Service	Saker Falcon is environmental indicator. Regulating service is provided through Saker Falcon to maintain healthy ecosystems.	There is a future use and opportunity to establish a local conservation site that can generate incomes.	Adventure and specialist (photographer's) tourism with inspirations and aesthetic scene involves Saker Falcon		Supports knowledge and educational services

One Bagh governor from Bayan-Onjuul soum argued that "In the past we have allowed Saker Falcon trapping from this soum. There was no great material benefit from this hunting. Small amount of cash comes from the Saker Falcon trade, but the loss is always higher than what we get. Our soum has a sacred mountain, where we are unable to touch its resources. We prefer that mountain and its surrounding animals live without disturbance"(from an interview of 84). In contrast, a second bag governor from this soum indicated that Raptors including Saker Falcon were important locally. He said 'although this bird has economic significance, I believe its ecological contribution towards already ecosystem has a direct impact on us. Our pastureland has been severely affected by the invasions of small rodents', seasonal Mongolian gazelle migrations, and the number of migrant Gobi herders in last 5 years. These constantly suppressed grassland productivity. Since nobody removes these threats from the grassland, I support improving? Ecological functions through increasing the number of Saker Falcon in

my area. We can better control and manage the pasture with Saker Falcon' (from an interview of 82). A third interviewee working at the tourist camp stated that "Since I work with this tourist camp on contract, I have extra cash for my kids, studying at the soum secondary school. This camp receives lots of tourists travelling to the South Gobi or returning from the Gobi into Ulaanbaatar. Many Japanese and western tourists, who bring a big camera are interested in Raptors. Probably the artificial nests can serve as a special destination of photo or eco-tourists in the future. As long as they visit this camp, I make my living better" (from an interview of 85). The last interviewee was provided the information regarding the compitetor problems of Saker Falcon. He notes, "In Recent years, the number of larger sized Raptors has increased in this area. I recognised the vulture, but those Raptors are not vultures. These birds have a very negative impact on livestock. Particularly the small and newborn sheep and goats are often killed by this kind of birds. Saker Falcon is different however as they do not pose direct threats to livestock and human. I prefer that Saker Falcon populations are increasing instead of those other birds" (from an interview of 89). From these interviews, the case study identified the local approach and concerns for raptors. It is useful to understand the attitude of local people how they may involve the Saker Falcon conservation. It also helps to detect a potential conflict between wildlife and local community in Saker falcon conservation sites.

In addition to above stakeholders, representatives of buyers and trappers from abroad were interviewed regarding the value of Saker Falcon in Mongolia. The interview of 134 states that:

"I have been a buyer of Saker Falcons from Mongolia for many years. I know that compared to other buyers, we share over half of the annual export quota from Mongolia. Mongolian people are welcoming and warm people, and the natural landscape are beautiful. We are happy to pay the fees and payments related to legal permits. We believe these payments and fees helping your country's

economy, while we also assume this fund contributing towards the wild Saker Falcon conservation. On the other hand, we value the Mongolian wild falcons the most. They are special. Compared to other captive-bred birds, wild Saker Falcon can give you a completely different experience and feeling…" (From an interview of 134 in Aug 2011).

The second trapper from Kuwait also valued the Saker Falcon as a highly valuable item. He confirmed the information obtained about Artificial Nest projects. The interviewee commented as follows:

"I have been visiting in Mongolia in every year for the last 15 or 16 years. But we are not interested in birds from artificial nests. Because the Saker Falcon we need is becoming rare now, we travel very long distances compared to previous years. Another factor for rarity: the permits are not issued proper season. Our trapping starts late this year" (from an interview of 135).

From the interviews of trappers, the aesthetic values of Saker Falcon have been dominant among the falconers, compared to other stakeholders. They express that their interest to be a part of Saker Falcon conservation and willingness to pay for conservation. However, there is a very little constructive comment on sustainility and conservation of Saker Falcon in Mongolia from the trade point of view.

7.1.2. Stakeholder perspectives in Saker Falcon management

Stakeholder analysis is important for Saker Falcon governance in Mongolia as a way of understanding current management. There was ambiguity among policy makers about sustainable use principles in Saker Falcon conservation in Mongolia. The current policies required being more effective in conservation and the process of making policies needs to have wide participation. Involving all stakeholders will improve the general knowledge for Saker Falcon conservation in

Mongolia. This analysis attempts to examine the views, interests and objectives of the relevant stakeholders regarding the trade, sustainable use, and conservation aspects of Saker Falcon. The study found significant differences among stakeholders. Two main points were investigated: major threats to Saker Falcon population as perceived by diverse stakeholders and their views on the major governance challenges.

7.1.3. Stakeholders' approach about the threats to Saker Falcon population

There were 5 questions asked to the relevant stakeholders. Since the analysis was required to examine the current governance challenges, scientists, ENGOs, and trappers excluded.

Table 30. Stakeholders' view on major threats of Saker Falcon

	Stakeholders' view on trade and harvesting of Saker Falcon			Do you see that foreigners, tourists, and bird watchers are the main threat to Saker Falcon population decline?			Are the local people as the major threat to Saker Falcon population decline?			Poaching and illegal trade is the main problem?			Has the unsustainable harvesting of Saker Falcon caused the main mortality?			
Central.go	1			2						0			4			

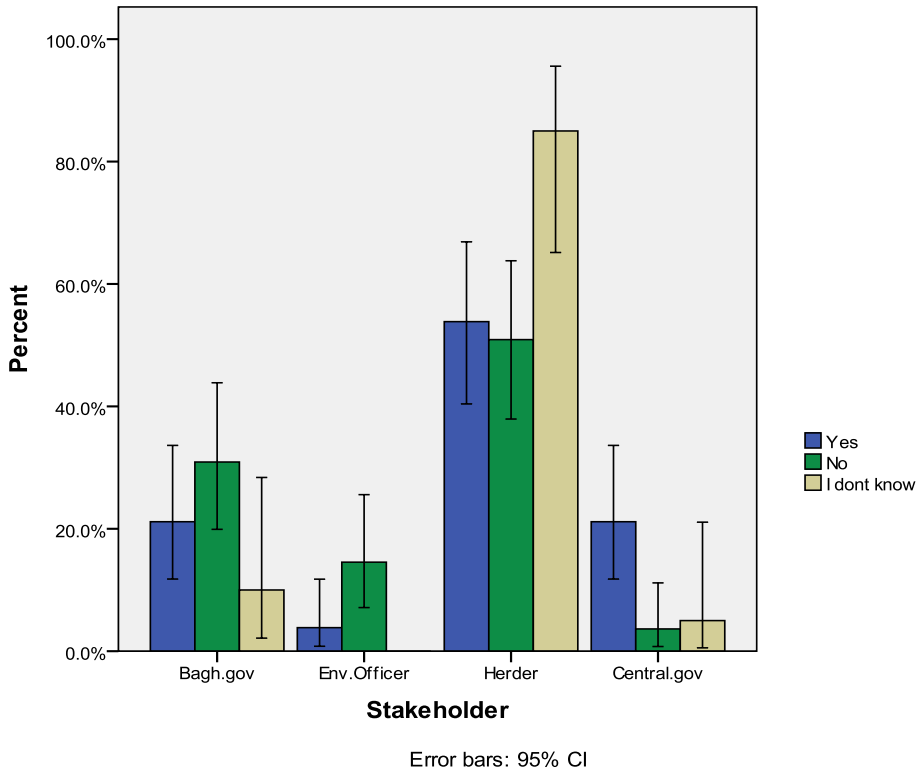
Local.gov.	3	5		4	2		9	8			5		7	5	3	
Herder	8	8	7	8	7		2	4		5	3	5	0	6		
Total	2	5	0	4	9	4	8	8	1	4	1	2	1	1		2

Note of Coding: 1-yes; 2-No; 3- other reason; 4- I don't know

For the first question on "Do you agree hunting and trade caused the decline in Saker Falcon population?" 4 different stakeholders provided 'Yes', 'No', 'I don't know' answers. In Table 10, 4 stakeholders converted into 3 different categories, such as central government policy makers, local government officials, and herders. Out of all responses 43.3 % was considered the current trade and hunting has not much impact on the decline of Saker Falcon population, while another 40.9% considered that Saker Falcon hunting is the main threat. 15.7% responded, as 'I don't know'.

From Table 12, herder group gave the most 'I don't know' responses, while the majority of the central government policy makers considered the current trade and hunting is the main threat to Saker Falcon population in Mongolia. In contrast, more local government officers perceived that current hunting and trade is not impact the declines of Saker Falcon population. However, slightly bigger percentage of all participants has got the positive views on Saker Falcon trade and hunting, in order to see the knowledge gap it is also important to revise the responses of each group that may provide more insight.

Figure 24. View of stakeholders of the threats for Saker Falcon decline as harvesting and trade

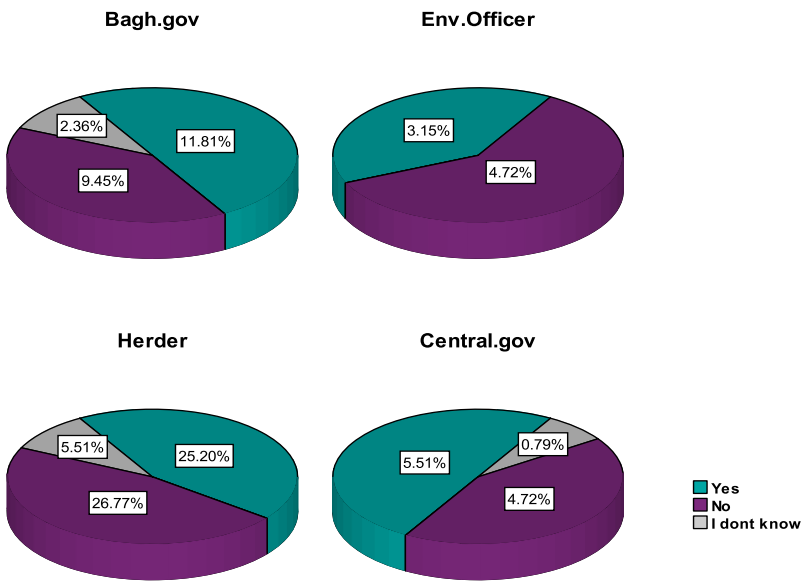


The bagh governors and central government policy makers considering this as an important threat to Saker Falcon population is more than that of a herder and environmental officers is statistically significant between the bag governors and central government policy makers (p = 0.001; Table 1). The null hypothesis was rejected, and χ^2 (4) =18.323, p≤.001. Approximately one third of the (32.5 %) of the 40 local government officials see hunting and trade as the threat, compared with 78.6% of the 14 central government policy makers identified this threat. About the herders 38.4% of 73 herders agreed the Saker Falcon threat as hunting and trade,

while equal percentages of herders disagreed and remaining 23.3% responded as ‘I don’t know’.

The second question on threat was also asked to all 4 stakeholders. It has the 3 choices, such as ‘Yes’, ‘No’, and ‘I don’t know’.

Figure 25. Stakeholders' view towards foreign tourists and bird watchers for Saker Falcon decline



For the ‘Yes’ and ‘No’ answers all participants divided into two equal (45.7%) percentage, and only 8.7% gave ‘I don’t know’ response. Evaluating 3 categories, a half of central government policy makers and nearly half (47.5%) of local government officers identified the major threat of Saker Falcon is the foreigners and tourists, while significant number of herders (43.8%) shared the same view. the null hypotheses rejected, and the chi square test was χ^2 (4)

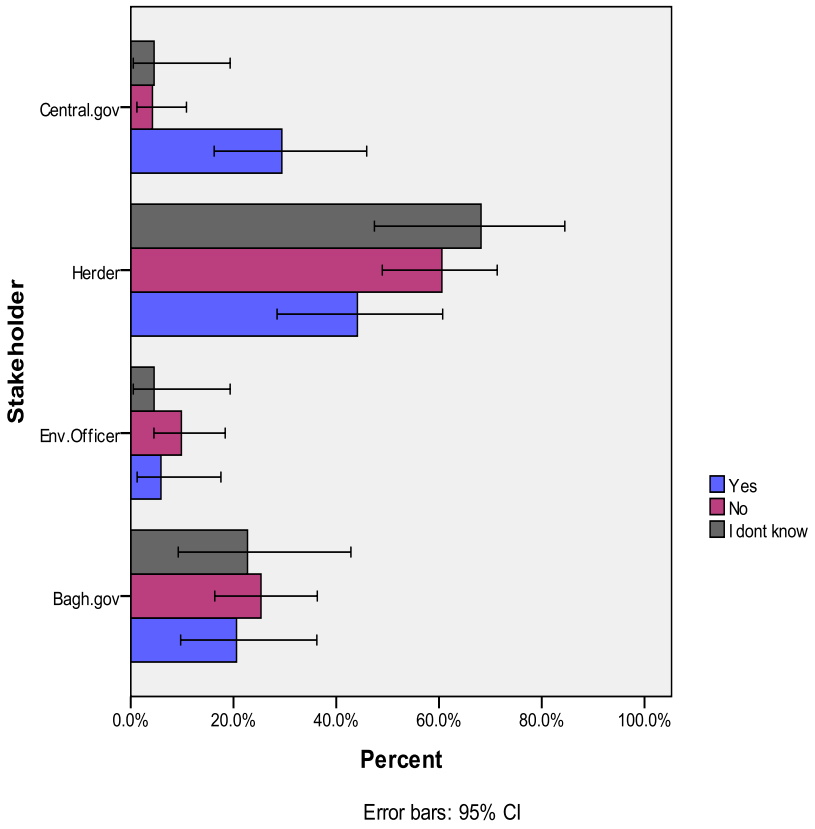
=13.115, p≤.011. It means again there is a statistically significant difference between the two conditions.

Table 31. Chi square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.115[a]	4	.011
Likelihood Ratio	18.173	4	.001
Linear-by-Linear Association	3.729	1	.053
N of Valid Cases	127		
a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.54.			

The third question was ‘Are local people as the major threat to Saker Falcon population decline?’ with 3 responses ‘Yes’, ‘No’, and ‘I don’t know’. Overall, more than half of all participants consider that local people have no impact as a threat to Saker Falcon population decline. However, a greater number of central government policy makers see that local people as a threat to Saker Falcon, while local government and herding communities themselves do not consider them as a threat.

Figure 26. Stakeholder view on local people's involvement for Saker Falcon



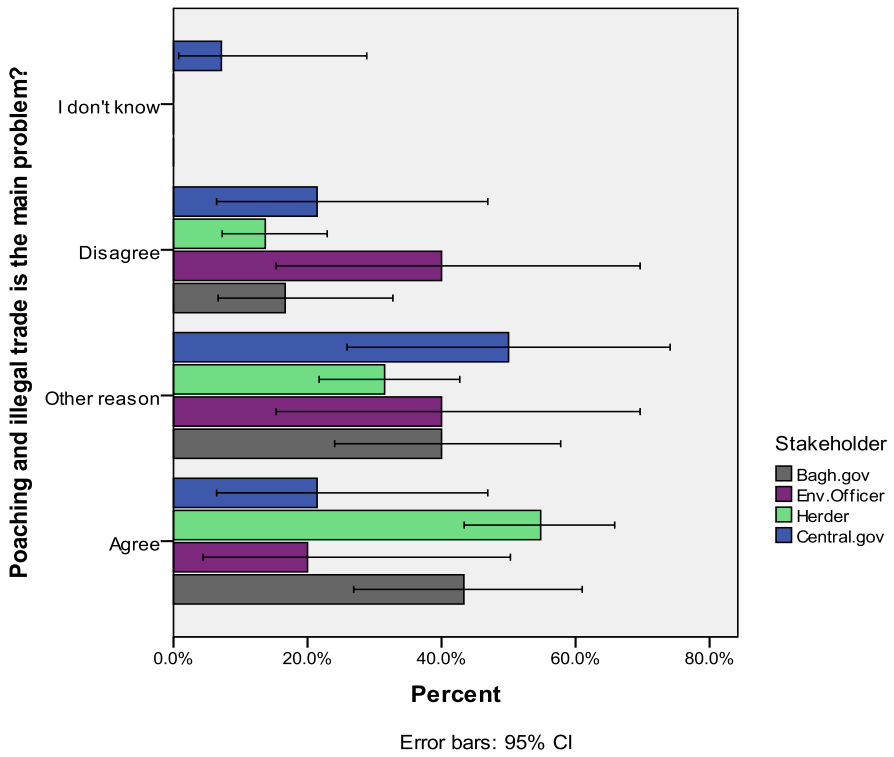
More than half of bag governors (60.0%), herders (58.9%), and substantial number of environmental officers (70.0%) believed that local people is not a threat to Saker Falcon. In contrary, a significant number of central government policy makers (71.4%) disagreed the other groups, and they indicated that local people as a threat. Only little number of bagh governors (23.3%), environmental officers (20.0%), and herders (20.5%) has agreed with central government policy makers. Among the stakeholders, herders (20.5%) have the most 'I don't know' responses, while central government policy makers (7.1%) made the least response for this category. For this variable, the null hypotheses rejected, the chi square test was χ^2 (4) =16.563, p≤.002.

Table 32. Chi square tests for threat to Saker Falcon mortality

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.563[a]	4	.002
Likelihood Ratio	14.498	4	.006
Linear-by-Linear Association	8.186	1	.004
N of Valid Cases	127		
a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 2.43.			

Fourth question examined the knowledge of stakeholders regarding the poaching and illegal trade of Saker Falcon. All stakeholders were asked “Poaching and illegal trade is the main problem?” with 4 different responses, such as ‘Agree’, ‘Another reason’, ‘Disagree’, and ‘I don’t know’. A considerable amount (45.7%) of all stakeholders agreed that poaching and illegal trade is the main threat to Saker Falcon population, whereas only less than one fifth (17.3%) considered poaching and illegal trade is not a threat. Second highest number of people from the different stakeholders regarded poaching and illegal trade is not a threat, when relatively small (.8%) number of people responded as ‘I don’t know’.

Figure 27. Stakeholder's view on contribution of illegal harvesting for Saker Falcon



More than half of the herders (54.8%) and a significant number of Bagh governors (43.3%) who live in or near Saker Falcon natural habitat indicated that poaching and illegal trade as a main threat. A half of central government policy makers (50%) and a substantial number of some level environmental officers (40%) as well as bagh governors (40%) pointed out there are other threat that impact the Saker Falcon population decline. In contrast, a sizeable number of local governors (40%) and few central government policy makers (21.4%) disagreed that poaching and illegal trade is not a threat, whereas herders (13.7%) and bagh governors (16.7%) had the same opinion. Only central government policy makers (7.1%) gave 'I don't know' response for this question. The null hypotheses rejected for this variable, the chi square test was χ^2 (6) =14.436, p≤.025.

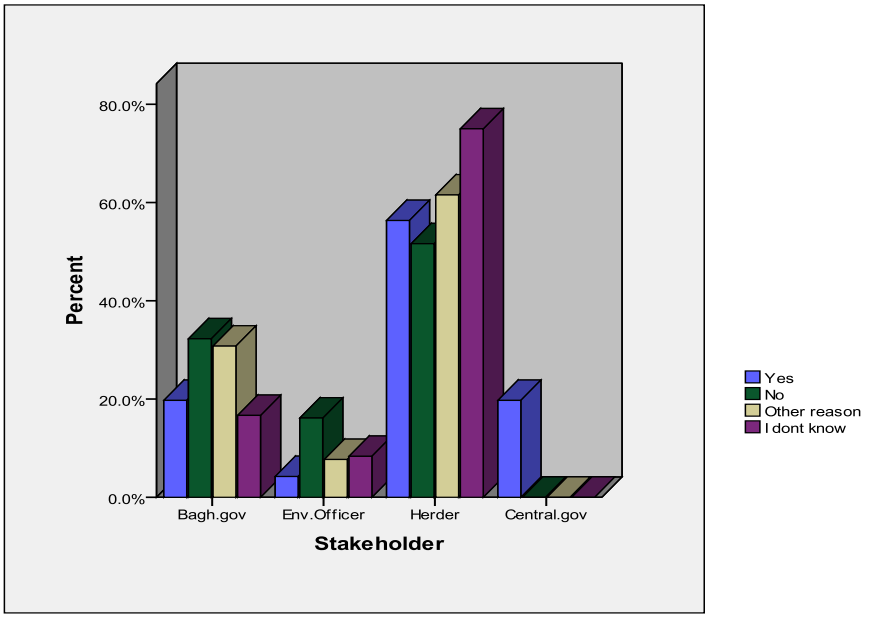
Table 33. Chi square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.436[a]	6	.025
Likelihood Ratio	11.095	6	.085
Linear-by-Linear Association	7.413	1	.006
N of Valid Cases	127		
a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .11.			

The last question was ‘Has the unsustainable harvesting of Saker Falcon caused the main mortality of Saker Falcon?’, which has 4 different choices, such as ‘Yes’, ‘No’, ‘Another reason’, and ‘I don’t know’.

A greater than half (55.9%) of all respondents determined that unsustainable harvesting as a main threat to Saker Falcon population in Mongolia. Only a few (10.2%) referred other reason, when some (24.4%) conceived unsustainable harvesting is not a threat. Another few (9.4%) participants responded as ‘I don’t know’.

Figure 28. Stakeholder's views on contribution of legal harvesting with unsustainable harvesting for Saker Falcon



Regarding the unsustainable harvesting of Saker Falcon, more than half of the herders (54.8%) and all central government policy makers (100%) shared the same opinion that it is a main threat. When nearly half of the bagh governors (46.7%) perceived unsustainable harvesting as a problem, only one third of the environmental officers (30%) indicated that is a threat to Saker Falcon. Surprisingly, a half of the environmental officers (50%) perceived that unsustainable harvesting is not a threat, whereas one third of the bagh governors (33.3%) and less than one third of the herders (21.9%) shared the same view. Except the central government policy makers, all three stakeholders, such as bagh governors (13.3%), environmental officers (10%), and herders (11%) pointed out that there is other reason for declining Saker Falcon population. Again, a highest number of herders (12.3%) responded with 'I don't know', while none of the central government policy makers responded to this category. Result of chi square test was $\chi 2$ (4) =16.377, p≤.012. The null hypothesis was rejected for this variable.

Table 34. Chi square tests

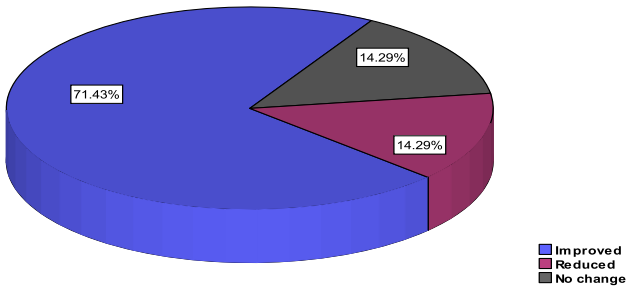
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.377[a]	6	.012
Likelihood Ratio	21.283	6	.002
Linear-by-Linear Association	4.292	1	.038
N of Valid Cases	127		
a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 1.32.			

7.1.4. Stakeholder's perspective on policy Stakeholder's perspective on policy implementation of Saker Falcon management

Followed by the questions of threat, it was interesting to see how stakeholders evaluated the degree of Saker Falcon policy implementation in Mongolia. Again, 3 main stakeholders were asked 5 questions. The self-assessment of central government policy makers was compared to the external assessment as the response of local government officers and herders. In this respect, their were3 questions asked to the central government policy makers and 2 questions to the local government officers and herders.

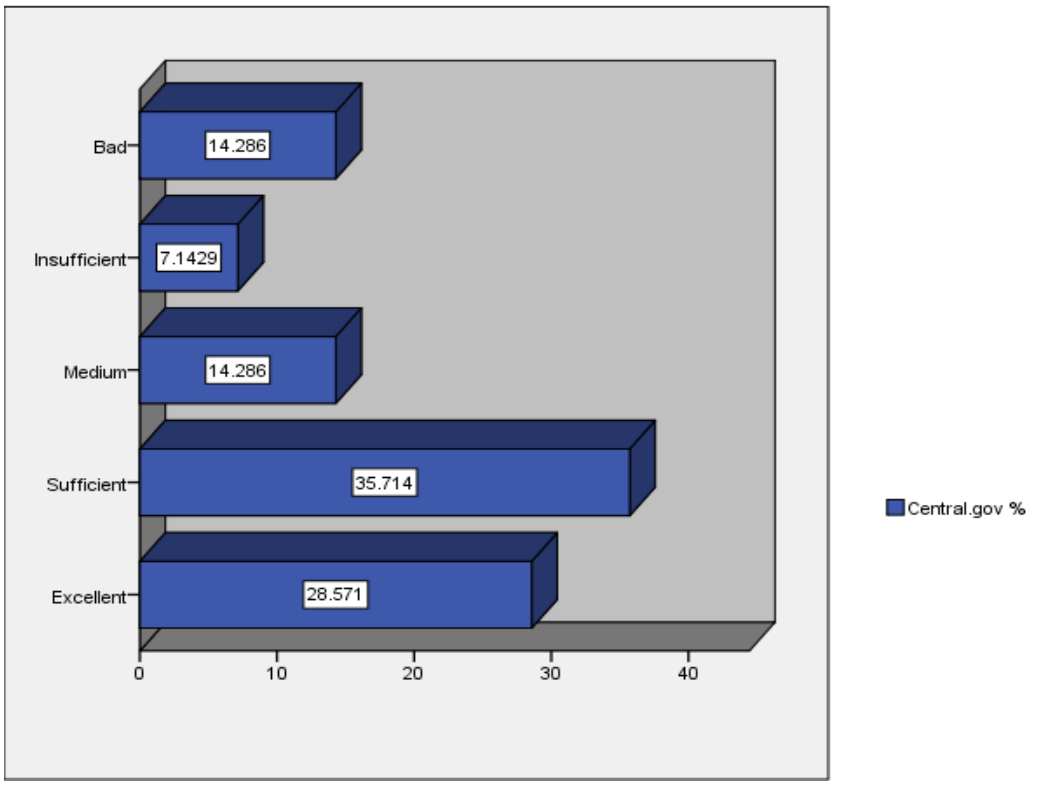
To the question of 'Has the wildlife conservation policy and MEAs implementation, strengthened, poor, or no change in last 5-10 years?' 71.4% of all central government policy makers indicated that it is strengthened, 14.3% was poor, and another 14.3% pointed out there was no change.

Figure 29. Policy makers' view on policy and MEAs implementation of Saker falcon conservation and trade in last 10-15 years



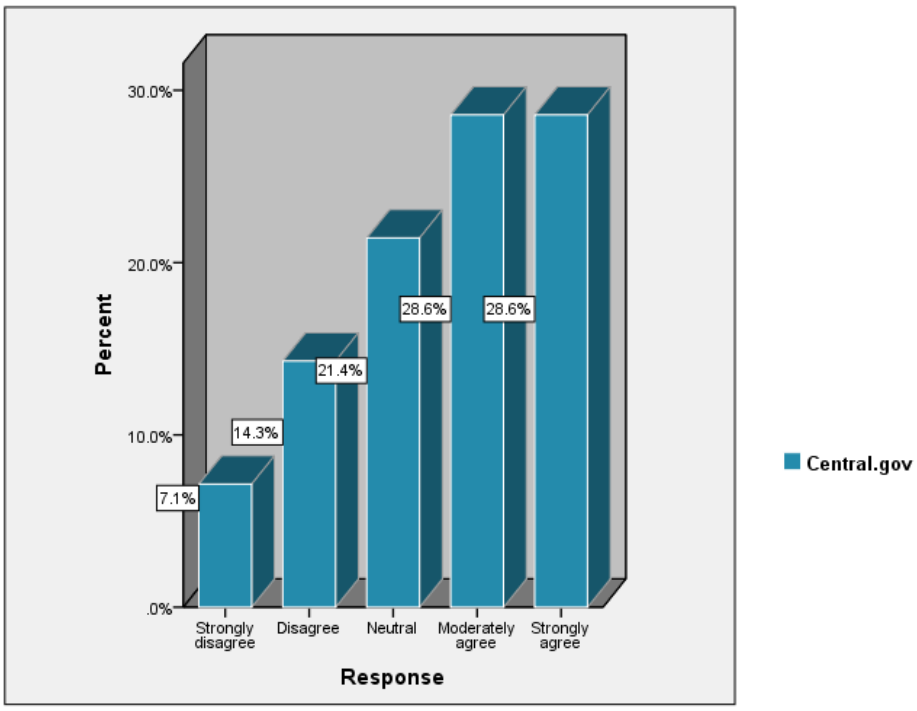
The second question to the central government policy makers was 'Are the current policies adequately implemented to conserve the endangered and migratory species including Saker Falcon?' This question had 5 different choices. Revising the responses, one third of the central government policy makers (35.7%)contemplated those policies of endangered and migratory species, including Saker Falcon are sufficiently undertaken, while a smallest number (7.1%) of them suggested as insufficient and few (14.2%) of them considered as bad. Other large portion of them (28.5%) demonstrated as excellent, whereas remaining 14.2% stated that policy implementation is in medium level.

Figure 30. Policy makers' view on degree of policy support for conservation and trade process



In the last question of ‘an institutional and incentive mechanism is required to establish improving Saker Falcon conservation and its stakeholder's involvement. Do you agree?’ over half of the central government policy makers (strongly agreed 28.6% and moderately agreed 28.6%) demonstrated that, however the policies are improving the last 5 years, it is urgent to establish an institutional and incentive mechanism to improve the implementation of Saker Falcon. Only a small number of the policy makers (7.1%) expressed as strongly disagreed and another few of them (14.3%) as disagreed. The remaining one fourth of the policy makers (21.4%) had in neutral position.

Figure 31. Policy makers’ view on institutional and incentive mechanism for improving Saker Falcon conservation



Summarising the responses of the policy makers, Saker Falcon management has been improved in last 5 years and complied the MEAs in some degree. There is a sufficient level of policies in place. Operationalising those policies are urgent and important by setting institutional and incentive mechanism.

The question to the local government officers and herders was 'Do you think that protection given by the government to Saker Falcon has increased, decreased, and remained the same in last 5 years?' Considerable number of soum environmental officers (60%) responded that Saker Falcon protection has been increased in last 5 years, while less than half of the bagh governors agreed with them. However, significant number of soum level environmental officers (40%) and bagh governors (33.3%) pointed out that protection of Saker falcon has been reduced in last 5 years; the most of herders (57.5%) considered that there is no change. A least number of herders (19.2%) answered Saker Falcon protection is reduced, when one third of the all herders (31.9%) perceived it is increased.

Result of chi square test was $\chi 2$ (2) =16.917, p≤.001. The null hypothesis was rejected for this variable. There is evidence of relationship between the current position of stakeholders and level of knowledge regarding the Saker Falcon protection.

Table 35. Chi square tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.917[a]	2	.000
Likelihood Ratio	18.069	2	.000
Linear-by-Linear Association	14.306	1	.000
N of Valid Cases	113		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.91.			

The second question was testing how policy of Saker Falcon has been formally informed to the local level and aimed to measure its intensity of reaching to the local level through asking the question of 'How often do the soum/ bagh meeting discuss about the protection of Saker Falcon?'' The question had 4 choices, such as 'Once in 6 month', 'Once in a year', 'Never discussed', and 'There is no regular meeting'.

Table 36. Participation of local stakeholders for Saker Falcon management

			Response			Total
			Once in a year	Never discussed	There is no meeting	
Stakeholder	Bagh.gov	Count	2	28	0	30
		% within Stakeholder	6.7%	93.3%	0.0%	100.0%
	Env.Officer	Count	8	2	0	10
		% within Stakeholder	80.0%	20.0%	0.0%	100.0%
	Herder	Count	0	57	15	72
		% within Stakeholder	0.0%	79.2%	20.8%	100.0%
	Total	Count	10	87	15	112
		% within Stakeholder	8.9%	77.7%	13.4%	100.0%

Empirical value of chi square test was $\chi 2$ (2) =26.391, p≤.001. The null hypothesis was rejected for this variable. There is strong evidence of relationship between the current position of stakeholders and formal information sharing probability through soum and bagh meetings.

Table 37. Chi square tests

.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.391[a]	2	.000
Likelihood Ratio	33.905	2	.000
Linear-by-Linear Association	24.200	1	.000
N of Valid Cases	112		
a. 1 cell (16.7%) has expected count less than 5. The minimum expected count is 3.57.			

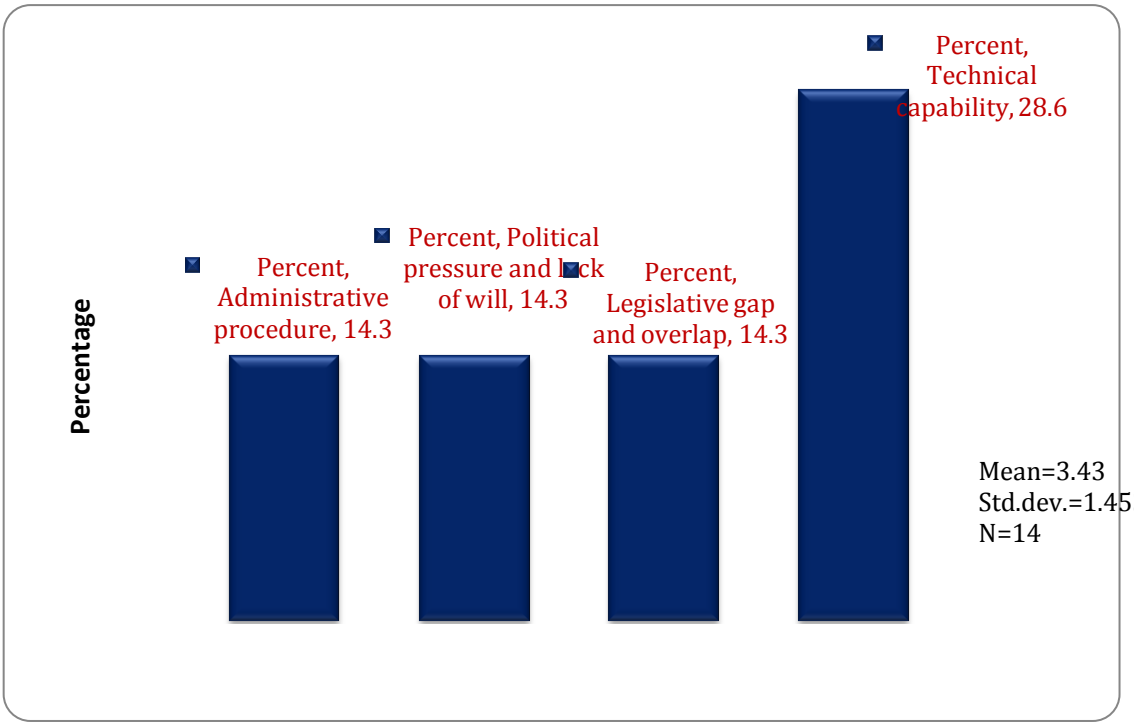
Overall, Saker Falcon policy has been evolved and considered to be sufficiently implemented in a very limited scope. The involvement of key stakeholders like Bagh governors and herders in conservation and policy implementation was not included in the policy implementation process. The herders' evaluation of increased the Saker Falcon protection by the government was mainly based on the TV and newspapers' information. In fact, they were left out the Saker Falcon management.

7.1.5. Stakeholder's perspective on Saker Falcon conservation challenge

Central government officials from different agencies were asked to identifying key challenge in their areas of relevance and responsibilities to deal with Saker Falcon management in Mongolia. Nevertheless, many of the policy makers responded that policy implementation as excellent; they expressed the problems of

Saker Falcon conservation. It has been examined by the question of 'Do you find any challenge to regulate the Saker Falcon trade and conservation in Mongolia?' The responses were required ranking a priority of conservation, such as 'administrative procedure', 'political pressure and lack of will', 'legislative gap and overlap', 'technical capability', and 'other priorities'.

Figure 32. Policy makers' view on challenges to regulate the Saker Falcon trade and conservation



A most significant challenge among the given problems the policy makers indicated that the technical capacity (28.6%) as the main problem, which followed by the administrative procedure (14.3%), political pressure and lack of political will (14.3%), legislative gap and overlap (14.3%), and other priorities (14.3%) respectively. Details of technical capacity interpreted in the following:

1) There is a lack of technical capacity to reach in harvesting areas of Saker Falcon to control foreign trappers/buyers. Since the fund is limited to do monitoring, assigned inspection team unable to patrol all trapping camps. Selected areas were able to be inspected and favourable to the shortest distances (Interviews of 117; 127 in June and August 2011).

2) Sufficient funding for enforcement, such as the increasing number of officials dealing with Saker Falcon conservation and providing some equipment GPS, vehicle, etc (Interviews of 116 in June 2011).

3) Training and capacity building are urgent need at the national level. One of the policy makers expressed that there is lacking scientific knowledge, such as biology and ecology of the Saker Falcon as unknown to many policy makers. One or two individual can identify Saker Falcon in the government (Interview of 118 in June 2011). In addition, from the workshop, the many policy makers expressed there is a knowledge gap regarding the policy, legislation, and scientific aspects of Saker Falcon. No one was offering any training on how to follow the guidelines in CITES and CMS agreements. Additionally, the central government officials noted that they have a little knowledge about the monitoring and harvesting of Saker Falcon (Interview of 118 and 120 June 2011).

4) Staffs and agencies need to be knowledgeable about the relevant legislations of Saker Falcon at the local level (Interview of 120 in June 2011).

Unlike the policy makers and local government officials, scientists, ENGOs, and trappers have a different opinion towards current Saker Falcon management. International and national scientists considered that their participation and inputs in the policy making as insufficient (Interviews of 128 and 129 in August 2011). Current trade brings the opportunity to enhance the study about Saker Falcon

biology and ecology, while some ENGOs have strongly disagree the trade and trapping in Mongolia (Interview from130 August 2011). ENGOs stated that their voices are not heard in policy making. Mongolia should not make a profit on its natural treasure as wildlife. Regarding the implementation, they have a doubt, particularly in harvesting and exportation process.

7.2. Knowledge Gap for Saker Falcon management

Considering the stakeholder's perspective towards the Saker Falcon management, a significant knowledge gap found in the current policymaking and implementation, this weakens the Saker Falcon conservation in Mongolia. In knowledge gap analysis, 3questions were asked to 4 groups, such as central government policy makers, bagh governors, environmental officers, herders, and central government policy makers.

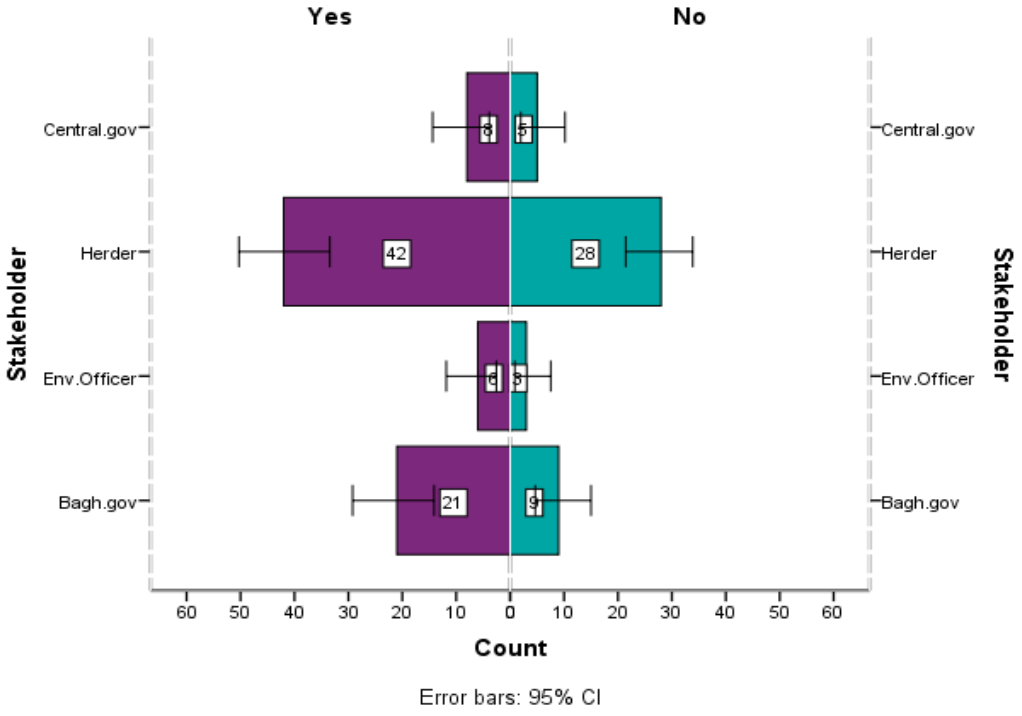
Table 38. Knowledge gap for Saker Falcon conservation

Questions	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Stakeholder * Do you recognise Saker Falcon?	122	89.1%	15	10.9%	137	100.0%
Stakeholder * Do you know about	126	92.0%	11	8.0%	137	100.0%

Saker Falcon conservation and trade?						
Stakeholder * Do you know about Saker Falcon conservation laws and policies?	125	91.2%	12	8.8%	137	100.0%

Regarding the first question, ‘Do you recognise about Saker Falcon?’ total (N=122) people responded with ‘Yes’ and ‘No’. For data analysis, only people considered themselves as knowledgeable regarding the Saker Falcon, a great number of bagh governors (70%), soum environmental officers (66.7%), and herders (60%) informed that they can recognise the Saker Falcon, while more than half of the central government policy makers (61.5%) gave the same response. Less than half of the herders (40%), and over one third of the environmental officers and central government policy makers (38.5%) and around one third of the bagh governors (30%) reported they don’t recognise the bird.

Table 39. Stakeholders view on knowledge and identification of Saker Falcon



Result of chi square test was χ2 (3) =.965, p≤.810. There is no evidence supporting the relationship between the current position of stakeholders and knowledge about Saker Falcon.

Table 40. Chi square testsa

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.965[a]	3	.810
Likelihood Ratio	.981	3	.806

Linear-by-Linear Association	.794	1	.373
N of Valid Cases	122		
a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.32.			

For the second question, ‘Do you know about Saker Falcon conservation?’N=126 samples used. This variable had 3 options, such as ‘Very knowledgeable’, ‘Average’, and ‘Very less’.

More than half of the policy maker (53.8%), Bagh governors (53.3%), and relatively good number of soum environmental officers (40%) confirmed that they do have knowledge on Saker Falcon conservation. When half of the environmental officers (50%) reported that their knowledge about Saker Falcon is in medium level, over half of the herders (52.1%) informed they have very less understanding about this topic. Around one third of the herders (31.5%) responded they have a very good knowledge regarding the conservation of this species, whereas less than one third of the bagh governors (23.3%) and few environmental officers (10%) as well as policy makers (15.4%) expressed they have very less knowledge about this issue. Surprisingly, one third of the policy makers (30.8%) also informed they are not an expert level knowledge on Saker Falcon conservation. In total, much less than half of all participants demonstrated as very well knowledgeable (39.7%) as well as very less knowledgeable (38.1%), whereas remaining few (22.2%) has in medium level of knowledge. It illustrates in policy making and implementation of Saker Falcon a knowledge gap as a significant problem needs to be tackled.

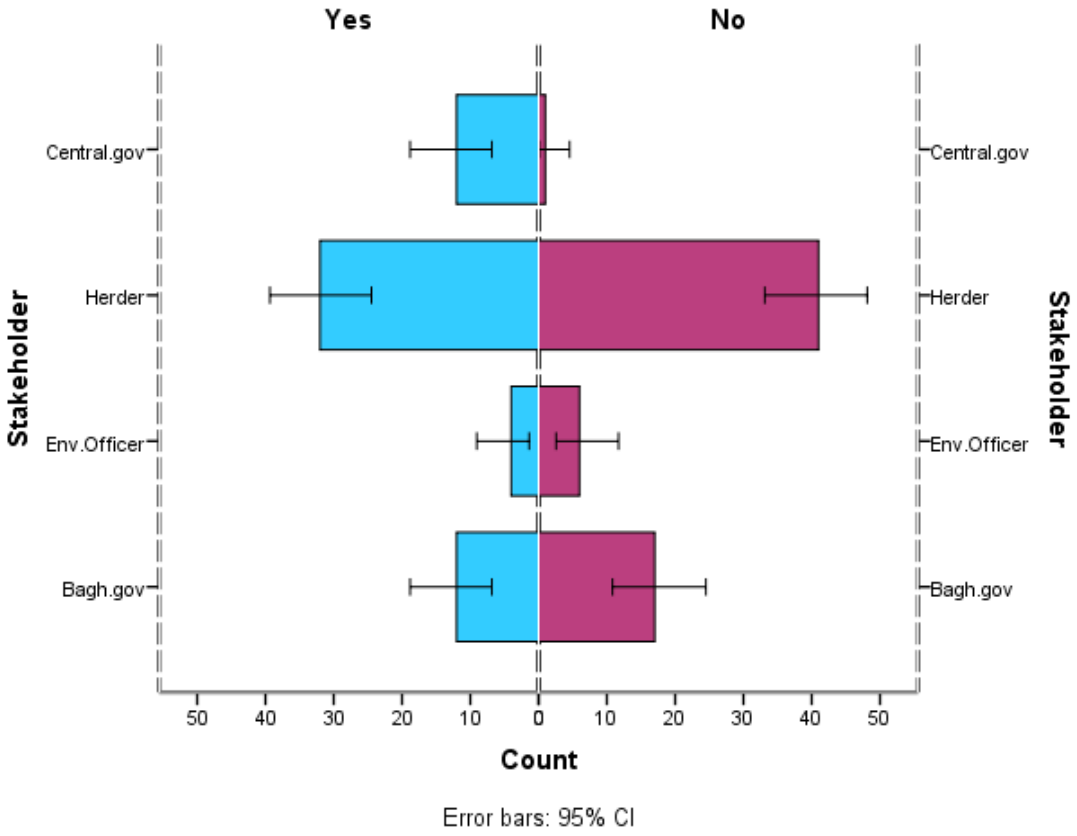
Table 41. Chi square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.593[a]	6	.007
Likelihood Ratio	17.908	6	.006
Linear-by-Linear Association	2.480	1	.115
N of Valid Cases	126		
a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 2.22.			

The result of the Chi square test was $\chi 2$ (6) =17.593, p≤.007. No evidence supports that there is a relationship between the current position of stakeholders and the degree of knowledge about Saker Falcon conservation.

Last variable 'Do you know about Saker Falcon conservation laws and policies?' was tested with N=125 samples.

Figure 33. Stakeholders view on knowledge about the current legislation



Less than half of all participants (48%) reported they are familiar with Saker falcon related legislation and policies, while over half of them stated as not knowledgeable about the legislation and policies. A great number of all policy makers (92.3%) informed they know about the legislations and policies, albeit significant number of environmental officers (60%) and bagh governors (58.6%) expressed that they don't know about it. When only one policy maker (7.7%) admitted as no knowledge regarding the legation and policy, the remaining of bagh governors (41.4%), environmental officers (40%), and herders (43.8) have shared 'No knowledge' response in very similar level.

7.3. Discussion

The study reveals that the central Mongolian herders have no interest in falconry and cultural significance of Saker Falcon. A majority of local government official and local communities were aware of the artificial nests erected in near their homes. The results of a stakeholder's approach to identifying major threats, conservation gaps, and policy implementation illustrated that there is a significant knowledge and information sharing gap. But among the stakeholders, such as herders, various level government officials, trappers, and field researchers (biologists and ecologists) there is no formal and informal information exchange mechanism to deliver conservation policy and prevent the illegal trade or harvesting. However, the impacts of the rural Mongolians' cultural and religious event and ceremony contribute the overall habitat conservation for Saker Falcon and other wildlife, there is a lack of constructive approach reducing anthropogenic impacts, such as habitat destruction and human and livestock disturbances. The stakeholders' knowledge gap is apparent concerning the current legislation, conservation, and even the identification of Saker Falcon. The regular trappers reveal the willingness to contribute the conservation of Saker Falcon. Such areas were not explored by the decision makers in the current management. Sustainable management and governance structure will be needed to identify the scale and extent of trapped live Saker Falcons in Mongolia. To successfully maintain the wild Saker Falcon populations, Mongolia needs to involve both state and ENGOs, improving preventative actions of illegal harvesting and trade, as the artificial project team recommended on section 6.3.7 in Chapter Six. At last, to overcome the conservation challenges, such as knowledge and information sharing, institutional involvement, and stakeholders' perspective to policy implementation, the ongoing sustainable management project for Saker Falcon conservation needs to mobilise a funding for education, monitoring, regulation and conservation of wild Saker Falcon in Mongolia.

7.4. Conclusion

Local approach provides a framework that allows developing a governance structure to tackle the complex ecosystem which is continiously changing. Hence, the available information at any particular point in time incomplete regarding the Saker Falcon management and the sustainable use concept. The strength of sustainable Saker Falcon management is that it establishes an experimental monitoring site to resource management and regular supply of the falconry market through regulated trade from the central Mongolia. However, there is a certain understanding has developed in the last decade regarding the value of Saker Falcon, the fact is culturally this bird has no direct significance for the local people's livelihood. Beyond that Saker Falcon, the landscape value and overall ecosystem conservation may receive a high significance and measurable results in the environmental protection, including wildlife conservation.

Chapter 8. Recommendations and Conclusion

Introduction

This study has aimed to identify the distinguishing elements of endangered and migratory species conservation and the environmental governance challenges, in particular in relation to Mongolia, using the example of Saker Falcon management. In order to achieve these aims the researcher first reviewed the existing academic literature to evaluate previous research on natural resources management and wildlife conservation in environmental governance, valuing nature of nature, and ecosystem services in general. Because it is important to note that when conducting this review the existing literature and data related to Mongolia, particularly wildlife conservation or endangered and migratory species conservation and trade from the governance perspective was found to be extremely limited. In addition, the literature highlighted the importance of valuing nature of nature in that endangered and migratory species conservation and trade is experiencing most of the governance challenges in developing and transition states, although there was this acknowledgement, there was no literature about the correlation between culture and wildlife conservation, specifically developing and transition states in Central or East Asia. Therefore, there was a need to conduct new research in order to understand the nature of environmental governance of wildlife management and valuing nature of nature in the current resources management of Mongolia. This involved the collection and analysis of data from a number of secondary sources, including from the World Bank, the United Nations, and MEAs policy and recommendation, and Mongolian government sources. This was supplemented by the generation of primary data by conducting a field study identifying the relevant stakeholders, main challenges and consequences of Saker Falcon conservation and trade in Mongolia.

This study supported the central argument that although current management of Saker Falcon shows complex within itself, as a conservation it

encompasses general human and wildlife conflicts and environmental degradation processes, associated with political and socio-economic transformation that are distinct in comparison with the remainder of the developing and transition country. However, the results also show that local government and community involvement within wildlife conservation is itself significant and that this should not be ignored in pursuit of proof that Saker Falconsustainable management is distinct in the endangered and migratory species management in context.

The study recognised three distinct aspects of endangered and migratory species conservation in Mongolia: accountability and sustainability, transparency and information exchange, and facilitation and participation. This led to a stakeholder's approach a certain degree of the analysis. In general, it was found to be more beneficial for the purpose of discussion to identify the relevant stakeholders into the current governance arrangement, such as the policy makers, the local government, and a third group for non-state actors, such as NGOs, scientific community, or local community. The study divided the stakeholders and endangered and migratory species conservation in the policy making process, policy implementation, and conservation. These divisions were judged to be suitable because these stakeholders were found to have a significant influence on the processes of both policy and practice. Regarding the debate, it is important to note that since the commencement of this thesis the Saker Falcon conservation project has begun as an answer to many conservation and governance challenges of Mongolia experienced. This study considered this and found, for example, that the conservation project like Artificial Nest project in Mongolia was tackled for subsequent parts of conservation challenges. It was also expected a large impact on governance and policy in Mongolia. Artificial nests assisted to progress the partnership between government and civil society and some policy process, although it should be noted that much of this development faces complexity towards the cultural value of Saker Falcon for Arabic falconry.

The study adopted a multi-level and multi-scale governance approach in recognition of the fact, identified during the review of the literature (Young 1997, 2002, 2005; Paavola 2002, 2007; Duffy 2006; Howitt 2013), that it is not just purely economic and ecological factors that play a role in the processes of environmental issues. This approach associated consideration of the main factors which include the political, social, and cultural, it was also found that this approach provided a richer insight into wildlife conservation and the results suggest that such factors should not be ignored, as evidenced by their role.

8.1. Developing and Transition: Mongolia

When Saker Falcon conservation and trade is placed in the global and local context, and examined in terms of political and economic transformation, which Mongolia is found to be a transition and developing state. It is clear from the research that the main factor towards environmental governance, valuing nature of nature, and ecosystem services throughout the developing and transition states has been in challenges decentralisation and valuing nature, this has been reported to be the case in Asia Pacific Islands and other parts of the world (Kenter et al 2012; Turner et al 2003; Christie et al 2012). In developing and transition context Mongolia is distinctive in view of landlocked, maintaining liberal political system, growing market economy that comprised extractive and resource exploitation and traditional livestock breeding, however there occur frequent government changes but no civil war and conflicts. At rates of education is high, but the lack of management skills to proceed the political and economic transformation process and tackling unemployment and poverty remain as challenges in last two decades, in addition to increasing migration to urban settlements and the level of environmental pollution reached the peak (UNDP 2011a). This study has highlighted the distinctive factors to be environmental governance process and the consequences of political and economic transformation to endangered and

migratory species managment, rather than the patterns themselves. This is not claiming, however, that there is a governance process and reform, there are typical experiences of being developing and transition in other regions of the world as well. Thus, in spite of the unique characteristics of Mongolia, the country does share some qualities with the developing and transition states as a whole. The most obvious of these is the lack of governance system and institutionalisation of resources management and the consequent need to decentralise wildlife or endangered and migratory species conservation. Overall, the distinctiveness of wildlife conservation in Mongolia and its complexity and capacity, as well as the variety of other developing and transition states with the same pattern have limited compared to the basic notions of endangered species management, e.g. migratory species conservation, such as Saker Falcon or sustainable use issues.

8.2. Political implication for resources management

Political implication was also found in Saker Falcon conservation and trade, presented itself in ways that were found to have differing effects on Artificial Nest projects. Governments and their policies toward managing the Saker Falcon, and indeed its drivers, are a significant factor in the course followed by conservation policy and action in Mongolia. The government approach has been slow to implement policies and reforms in relation to wildlife management and ecosystem service provision in major MEAs. Besides the fact that the policy implementation is failed due to political change in the government, followed by frequent changes of staffs and lacking complied data. It has been difficult for governments to manage this situation that it has not been well understood. The public sector has become a place for not stable job. A critical problem has been that this instability of staffs occurs in local government level. Another level of political implication is the same people in the power for the last twenty years, doing decentralisation and democracy in Mongolia. It has been evident in Mongolia, where resource

management is remained as highly centralised. However, the process has been a move towards decentralisation in Mongolia, there is no political interest to complete this process. In spite of this, the review of the literature implies complete devolution is still far in the future. It is obvious that there is transparency and accountability in the pursuit of economic decentralisation, in order to answer the demands for a better wildlife management. Politically, Mongolia is characterised by a successful liberal democracy that is moderately well established, and therefore progress in democracy will proceed the transformation in resources management in the future. The consequences of not doing so have already impacted on the recent environmental degradation that may lead to recent civil unrest in Mongolia.

8.3. Endangered and migratory species conservation: Saker Falcon trade in Mongolia.

Another conclusion derived from this study is that although there are complex terms of environmental geography, the drivers of the conservation are universally applicable to the whole problems and regions. This generalisation trend of conservation was found to be similar mainly because the wildlife as a whole is experiencing rapid loss, driven by human disturbance, such as unsustainable use and increasing commercial demand, and environmental degradation induced by human. However, while these drivers may be the same on the surface, closer examination reveals that there is a distinction between the social-cultural settings, political and economic development, conservation priorities valuing nature. Obviously, the cultural significance needs more attention and opportunity for adding value to wildlife conservation. In addition, endangered and migratory species in trade have more conservation concerns beyond its ability to generate income. Thus, whether it is for cultural reasons, scientific and biological reasons, or economic income generation reasons endangered and migratory species conservation like Saker Falcon is a priority in multiple context. Only the part of

trade has more delicate within the conservation context. It has produced a variety of environmental governance challenges. Overall,distinction of the topic, such asSaker Falcon conservation and trade is suffering from governance and coordination, a large range of habitats, inconsistent policy between trade and conservation, and still growing market demand for Arabic falconry, all factors that drive conservation potentially ineffective and costly (William et al 2013).A significant finding of this study is that Saker Falcon population management is also variable throughout its range states, and that geographical distinction only influences this to a certain extent. The two contributing factors to Saker Falcon conservation were found to be collaboration in the context of governance andregulated sustainable trade. It was found that the collaboration has led it to transparent and informed management in Saker Falcon across its range states, including Mongolia. In the examination of the Saker Falcon trade in Mongolia was an important lesson to learn from the failure of inconsistent policy making and implementation. For instance, to address the artificial nest region can be concerned as a whole in terms of sustainable use, which comprised economic, political, social, and cultural context in Mongolia; this was in line with the MEAspolicy, which Mongolia adopted. The recent trade ban is not fit this policy, while Mongolia continues exporting of Saker Falcon to abroad under the category of gift. It was found that by looking at this development, Saker Falcon management is failing in Mongolia, indeed, avoid making a progress to establish monitoring and sustainable use through regulated trade, based on the artificial nests, the trade ban restricts the decentralisation of resources management.

The central region used stakeholder's analysis has led to a variety of conservation leadership and partnering dynamics that revealsin each sub-region (provinces, soums) differently; despite the fact that common attributes were found to link the geographical and ecological sub-region in Mongolia, especially in terms of environmental geography. Indeed, it is the diversity within the central region that

has affected environmental geography through local government leadership towards wildlife conservation.One of the most interesting qualities of Saker Falcon conservation and trade in Mongolia is that it is differentiated in terms of economic fortune, at one end of the scale, there are potential to generate income and raise the fund for its conservation, accelerating conservation activities at the local level, and at the other there are very much opposing the trade and its use, and no discourse of conservation activities as well. The variation in income generation has driven the processes of conservation in the central region and resulted in both positive and negative outcomes. The study addressed to these outcomes and found that they were all interlinked; people were attracted to artificial nests for Saker Falcon trade and sustainable use issues, and this economic opportunity because they may be incentivised in the future. The fact that there has been both economic and political investment in the central region of Mongolia. Further evidence of this was that stopped to with trade ban was not a complete determinant of conservation, and that policy inconsistency is also found in Saker Falcon management. In this regard, this study has found a reason for the policy disconnectedness and governance failure, highlighting the sudden changes of conservation policy, which has significantly altered the globally endangered and migratory Saker Falcon conservation in Mongolia.

8.4. Recommendations

There are a number of areas that have been addressed and discovered by this study, which have wider implications for future study of endangered and migratory species conservation and sustainable use in the developing world. These areas include the significance of environmental governance and institutional reforms, the importance of addressing multiple conservation stakeholders, the necessity of adopting a scalar dimension of governance approach and the overall political, socioeconomic, and cultural factors.

Because there is a lack of studies focusing on valuing nature of nature and cultural ecosystem services and the developing world generally, it was not possible to compare this study with those of other developing and transition countries of similar experiences. Therefore, there should be more studies of similar processes of decentralisation wildlife management; this would allow the findings of this study to be verified alongside others, verifying them and revealing whether or not Mongolia's wildlife management is a unique case or a representative and generalisable example of a typical post communist states within the developing countries. Moreover, the decentralisation of natural resources management in Mongolia should be examined in the developing and transition context because this is where much of the lacking or progressing steps are taking place.

This study has focused on valuing nature amongst different stakeholders in Mongolia, however, much of the research about policy making and implementation, sustainable use appears in the issue of intra-stakeholders and inter-stakeholders. Although this study did consider the issue of culture this aspect of wildlife conservation was included in the field study; therefore, future study could usefully expand the cultural dimensions of conservation, because it characterises a significant portion of the local community perception of conservation. Moreover, the consideration of multiple stakeholders in the same regions revealed similarity between them, but there is a distinction and such an approach could be adopted in future studies, especially in the conservation of geographic and eco-regions where there is a distinction of involving local communities to highlight the different perception and culture between these groups.

The adoption of a scalar dimension approach to the understanding of environmental governance and endangered and migratory species conservation was shown to be beneficial because it recognised that such processes are a complex system where economic, political and social as well as cultural factors interact and determine outcomes. Clearly the economic was the most significant dimension, but to gain a true understanding of the thoughts behind drivers and

consequences wildlife conservation, it is necessary to understand the role that is played by, for example, socio-cultural factors. The literature revealed a need for a scalar dimension approach and the findings of this study demonstrate the importance of such an approach. Therefore, any further study should consider these factors and not just approach to wildlife conservation and valuing nature from a purely economic perspective, which could be limiting.

Much has changed in the political and the Saker Falcon management landscape of Mongolia since the author began conducting this research. The government term ended 2008-2012 and as a result of the new parliamentary election, the new government established in 2012. It has brought about changes in terms of wildlife trade and Saker Falcon conservation and trade policy and practice, beyond the country's economy and overall political attitudes. This study did address these issues to a certain extent of wildlife conservation context; however, these developments are ongoing. Therefore, because it has been shown that resources management has an impact of political change in Mongolia, any future study could examine the effects of conflict retrospectively, specifically in relation to environmental governance, institutional reforms, environmental policy and human geography. In fact the recent problems of policy change, lacking governance settings, and valuing nature of nature are partly a result of rapid political and economic transformation in Mongolia and therefore, the results of this study, which show the impacts for wildlife management, may serve as a basis for policy formulation to prevent failure and inefficiency in wildlife management in the future. Moreover, the factors that have led to a complexity of wildlife conservation in this study could be further addressed academically, to expand this issue of (in) efficient side of conservation in the developing and transition states.

Amongst the limitations of this study was the fact that it was almost impossible for the researcher, as a female, to interview falconers due to cultural and language reasons. Falconers are usually males and required interpreter to communicate. It is relevant as those of who wants any future study would benefit

from establishing a network with local partners of falconers who may provide assistants for data collection. Another limitation of the study was that it was difficult to obtain data from the policy makers; firstly because Saker Falcon is a politically sensitive issue. They are suspicious of being asked questions, and secondly, that they were reluctant to share information and give their time, unless pre-established network. The reasons for this are firstly the policy makers would regard a decision maker as having a government position and would be reluctant to criticise policy implementation in wildlife conservation and resource management, and secondly, informally they belong to same political party which is very much a closed link, and finally, they are concerned about media and would be uncomfortable sharing information about e.g. foreign buyers of Saker Falcon in Mongolia, and details of license permitting process or giving the reason to avoid implementing microchipping etc.Therefore, future studies should consider the implication that examining the views of policy makers may be affected by the specific behaviour of such stakeholders.

The study also revealed that the central region of Mongolia is very homogenous and that there are slight differences between each soum. Therefore, for any future study the drivers, patterns and consequences of wildlife management could focus on a particular sub-region or types of ecosystem or eco-region. Moreover, in relation to Mongolia, the country could be examined in the context of the liberal democrats, developing, and transition country in particular, rather than developing as a whole.

Any future study for wildlife management can determine the attitude and behaviour of conservation stakeholders and trends in conservation leadership. There is evidence to show that Saker Falcon conservation could succeed with better leadership and attitude of policy makers in a sustainable use manner, because the main problem of Saker Falcon conservation and trade was lacking political will and interest to succeed the sustainable use.

It was found that some of the stakeholders from civil society and the local community were in fact not supporting the use of resources. These stakeholders were not informed or no economic interest. Thus, any future study should consider these stakeholders, their motivations to collanorate in wildlife conservation and (in recognition of their interest) the impact that they have on wildlife conservation policy and practice in Mongolia.

In the context of multi-level and multi-scale governance context, this study also strives to understand how different stakeholder groups position themselves in relation to the broader discourses of global endangered and migratory species conservation, and how these discourses shape stakeholders' relationship with wildlife and its other users. This study included several stakeholder groups, such as central and local government officials, rural communities, NGO representatives, and academic researchers Relationships between government policies, institutions and international conservation organisations are examined in the context of Saker falcon conservation and trade. In addition, it explores how policy, science and practice interact with political interests to shape endangered and migratory species conservation and trade policy and how these in turn shape different stakeholders access to and control over natural resources (Bryant and Bailey 1997). In order to understand the issue of the valuing nature of nature, this study adopts an environmental, economic framework with an emphasis on issues of price setting, and a focus on analysing the current trade of the Saker Falcon. It also analyses the current economic and ecological values of the Saker Falcon across the various levels and the impact of the Artificial Nest Project therein. To date, the results of the artificial nest project have not been taken into account in price setting for the Saker Falcon trade or in related conservation policy decisions. This study highlights a lack of information exchange mechanisms between the stakeholders as well as financial, technical, and human capacity issues, which have become a key challenge for the implementation of conservation projects and programmes.

The impact of these considerations and the International Wildlife Conservation (IWC) initiative for Saker Falcon conservation and setting sustainable use model enables Mongolia-complying CITES and other international conventions.The main questions of the thesis aimed to address the current conservation policies and governance mechanisms for endangered and migratory species, by exploring the globally endangered and migratory Saker Falcon in Mongolia. In this respect, the key challenges and gaps of multi-scalar governance, specifically in Mongolia has been examined.

To effective implementation of Saker falcon conservation and trade the scale and institutional dimension was important to improve the policy and decision making process. Policy measures the value the wildlife like Saker Falcon needs to be updated. To this respect, the valuing nature of nature concept has been raised through this study. The current management strategies need to recognise the sustainable use and ecosystem service approach. Thus, thesis focused on Saker Falcon artificial nest project. Saker Falcon has a great value and many stakeholders, who are able to contribute its conservation with full support in different scales and levels, from local to international. When considered in a certain light, this policy arena seems most appropriate explained by an ecosystem services, market based and sustainable use contexts. Multi- stakeholders, including conservationists, local community, buyers or trappers, scientists, and central and local government officials, promoting diverse values and conservation priorities, seem widely substantial. However, upon closer investigation, and particularly in reference to contemporary status of globally endangered and migratory Saker Falcon, a realist and eccentric approach was more fit. Non-state and informal stakeholders are prevalent within the wildlife policy-arena, yet their ability and power sharing mechanism to mobilise appropriate resources from formal and state-agencies are absent. Saker Falcon is valuable, in a number of distinct ways. Chapter 2 described a very broad range of valuing nature of nature

and economic terms, that is, the ways in which Saker Falcon and artificial nests are valuable. Some of these were on account of the intrinsic values of Saker Falcon, whereas extrinsic and instrumental aspects considered, that is the ways in which Saker Falcon is a commodity. Some of these management and monetary price setting techniques are incompatible with one another, particularly non-detrimental finding reports and ecological and economic evaluation methods.

Appendix 1

Participation Information

Scalar dimensions of environmental governance: Saker Falcon conservation and trade in Mongolia

Researcher: Choikhand Janchivlamdan (Ph.D student - Department of Geography, University of Leicester)

Purpose of research

The research is part of a Ph.D study intended to obtain your views and experiences about endangered and migratory species conservation, particularly Saker Falcon conservation and trade in Mongolia, and hopes to get an in depth view of the challenges or advantages for and consequences of this process. The data collected from participants will help greatly in understanding and evaluating endangered and migratory species, specifically Saker Falcon conservation through the Artificial Nest Project and further to develop a sustainable use mechanism through trade of the species in Mongolia. It will be appreciated if participants answer questions fully and honestly.

Participants will be requested to take part in a questionnaire and interview. This study in the future, it is hoped, will help the international agencies, the government, and local authority to plan for a better conservation and sustainable trade regime on Saker Falcon management in Mongolia. Additionally, the data will be used for the Ph.D thesis, academic publications and policy reports.

Confidentiality

The information obtained will be treated in strict confidence and will only be used for purposes of this study. Your name is not required in order to protect your anonymity. Participation is voluntary and participants have the right to withdraw at any time, without giving reasons, and any information obtained can be returned and not used for the study if the participant so wishes.

The researcher is grateful for your participation and will be happy to answer any questions you may have. Please complete the Informed consent sheet.

Thank you

Choikhand Janchivlamdan (Researcher)

Appendix 2

Questionnaires for the central government policy makers

General question:

First name……. Last name…….

Profession……. Education…….

Current position…….. …… Length in position……..

Accept interview……

Main questions

Part one for domestic policy for Saker Falcon conservation

1. Are you involved the management and policy making of endangered and migratory species?

2. Do you involve Saker Falcon conservation and trade?

1. Are NGOs (civil society organisations, activists, private sectors, scientific communities) involved the in policy formulation and revision on Saker Falcon conservation, including control of illegal trade and monitoring?

2. Howpolicy making is organised and arranged on Saker Falcon conservation and trade in Mongolia?

3. Do you know any research and studies on Saker Falcon in your country?

4. Do you think that current statistics, management plan, and conservation activities of Saker Falcon are based on scientific judgment?

5. Do you think that current statistics, management plan, and conservation activities of Saker Falcon are correct and appropriate? (Yes, efficient; no, inefficient please, how would you evaluate this process? Can you give me a scale?)

6. Do you thick Saker falcon population is decreasing or increasing? If decreasing what is the main problem of Saker Falcon mortality in Mongolia? (Note: Priority e.g international trade, local people, and trappers in general, power lines, poisoning, lack of information or no knowledge how to conserve, and unsustainable harvesting of Saker Falcon)

7. Is the current policy adequate to conserve the endangered and migratory species including Saker Falcon?

8. Do you know about Saker Falcon conservation laws and policies?

9. Do you think that protection given by the government to Saker Falcon has increased, decreased, and remained the same in last 5 years?

Part Two for international agreements and MEAs:

1. Do you know about the MEAs e.g. CBD, CITES, and CMS?

2. What is the level of implementation of CITES and CMS in Mongolia?

3. Do you know about which organisation is responsible for CITES and CMS in Mongolia?

4. Do you know about the responsible and key oragnisation for the implementation of CMS in Mongolia?

5. How many staffs are working at the CITES and CMS?

6. Do you know that how much budget is allocated by Mongolia for the implementation of CITES and CMS?

7. Have you ever attended any training or workshop for CITES and CMS and their implementation?

8. Has the wildlife conservation policy and MEAs implementation, strengthened, poor, or no change in last 5-10 years?

9. What is your personal opinion to implement the CBD, CITES, and CMS in Mongolia?

10. To improve the implementation and current mechanism of CMS and CITES, what is your personal opinion and suggestion?

11. Do you find any usefulness and relevance of these international policies to conserve and trade the Saker Falcon in Mongolia?

Part Three: Trade and harvesting of Saker Falcon

12. Is there any legislation and regulation to export the Saker Falcon in Mongolia?

13. Is it regulated if Saker Falcon is traded and harvested in Mongolia?

14. Has the income generated through Saker Falcon increased, decreased, and no change in last 5 years?

15. Do you think that regulatory framework is sufficient to set trade quota and harvesting regime for Saker Falcon conservation in Mongolia?

16. Do you think that implementation and enforcement of Saker Falcon conservation and harvesting is well-organised?

17. Is there any regulatory mechanism of Mongolia among/bilaterally with neighbouring countries set to conserve and trade the Saker Falcon?

18. Do you think it is sufficient legislation in place to conserve and export the Saker Falcon in national and international levels?

19. How many buyers visit annually to Mongolia for Saker Falcon purchase?

20. Do you think that there is illegal trade of Saker Falcon operating in Mongolia?

21. Do you find any challenge for Saker Falcon trade in Mongolia to regulate any part of the following?

22. Poaching and illegal trade is the main problem?

23. Low budget and financial inability are the major constraints?

24. Lack of information-sharing is the key problem?

25. What you think about falconry and foreign trappers in Mongolia?

26. If someone found that illegally traded Saker Falcon, what would be the legal penalty in Mongolia?

Part Four: Current development in Saker Falcon conservation and trade issues

27. An institutional and incentive mechanism is required in place to receive the views of Saker Falcon conservation stakeholders?

28. What is more reflective in your opinion from field conservation realities into the current institutional and legislation mechanism for Saker Falcon management? (Note: Priority)

29. Do you know about Artificial Nests?

30. How do you see the sustainable use concept in relation to Saker Falcon trade and conservation? In your opinion how efficient these Artificial Nests to conserve the Saker Falcon and support the trade?

31. Who should protect and manage the Artificial Nests?

32. Have you heard about microchipping of Saker Falcon? Do you think it is workable idea for monitoring?

33. Do you have any concerns and comments on Saker Falcon management in Mongolia?

Appendix 3

Interview questions for the local government officers and herders

General questions:

First name……. Last name…….

Profession……. Education…….

Current position…….. …… Length in position……..

Accept interview……..

What is your opinion about this area whether it becomes better or worse for wildlife in last 10-15 years?

Do you know about any research work conducted in your area?

Do you know about any NGO is doing conservation work in your area?

Do you know about Saker Falcon conservation in your soum area?

Are the current policy adequate to conserve the endangered and migratory species including Saker Falcon?

Do you know about Saker Falcon conservation laws and policies?

If someone found that illegally traded Saker Falcon, what would be the legal penalty in Mongolia?

Are ENGOs involved the in policy formulation and revision on Saker Falcon conservation, including control of illegal trade and monitoring?

Do you find any challenge to regulate the Saker Falcon trade and conservation in Mongolia?

In absence of strong policy and scienctific inputs for controlling Saker Falcon harvesting in rural Mongolia? Please provide some details?

Whate are the main value of Saker Falcon to you?

How often does the soum/ bagh/agency meeting discuss about the protection of Saker Falcon?

Do you know about artificial nests?

In your opinion how efficient these artificial neststo conserve the Saker Falcon?

Who should protect the artificial nest?

How often do you see and come across Saker Falcon trapping by someone?

Low budget and financial inability are the major constraints for Saker Falcon monitoring?

Lack of information-sharing is the key problem?

Has the unsustainable harvesting of Saker Falcon caused the main mortality?

What you think about falconry and foreign trappers and how many of them come to your soums?

Do you agree the idea of microchipping Saker Falcon?

Do you think that monitoring and enforcement of Saker Falcon harvesting will become more effective if the scientific research findings and sustainable use are adequately incorporated in the process of policy review and formulation?

Do you think that Saker Falcon trade is a sustainable use and in a form of conservation?

How many buyers visit annually to to your soum for Saker Falcon trapping?

Do you know that how much budget is allocated for the implementation of Saker Falcon conservation per year to your soum?

What is more reflective in your opinion from field conservation realities into the current institutional and legislation mechanism for Saker Falcon management?

Do you have any concerns and comments on Saker Falcon management in Mongolia?

Appendix 4

Interview questions for local herders

General question:

No leading introductory comments about Saker Falcon trade, conservation, artificial nests, benefits.

Warm up questions:

- What is your occupation?
- What is your current role in your household and community?
- Do you have any questions on the purpose of this interview?

Main questions:

- What is your current medium to long-term livelihood plan?

- Could you elaborate on your plan?
    - Has the wild animals around this area, increased, decreased, or remained the same in last 10-15 years?
    - Has the rodents and desertification process around this area increased, decreased, or remained the same in last 15 years?
    - Are you involved the management (e.g. natural resources, such as pasture land, wildlife conservation) of this area?
    - What do you understand by the term "Saker Falcon"?
    - In your opinion why/how is Saker Falcon conservation important to you?

- Is it importance increasing/decreasing of the Saker Falcon population?
    - How relevant is birds of prey (e.g. Saker Falcon) and such species conservation for your livelihood?
- Insignificant; Moderately Important; Very Important – you should also get them to explain how and why
- Do you think conservation of birds of prey (Saker Falcon) will fit with your livelihood plan? (again, need details on how and why)
- Do you think conservation measure for Saker Falcon may bring some benefits do you mean to the respondent personally?
    - Currently, who are the most influential actors in the conservation of Saker Falcon in your opinion? Will this question make sense for herders do you think?
- Are they the most appropriate players (i.e. in the interviewees opinion are these the sort of people/organisations who should have influence over the Saker Falcon conservation and safeguard of artificial nests in your areas); Are the artificial nests capable of influencing conservation/natural habitat Saker Falcon? Do they have sufficient capacity to fulfill a role and/or mandate of safeguarding the artificial nests?
- Are there any particular reasons why other important players are not involved?
    - What do you understand by the term "artificial nest"?
- In order to protect Saker Falcon through artificial nests, how or what contribution can you make?
- Need to explain what you mean by collaboration in this context
- What isthe main support you can offer?

- What about asking if they are willing to support artificial nests/ falcon conservation – in what ways, if not why not etc?
    - If, yes to what? Please elaborate your opinion? If not, why?
        - What do you consider to be the main value of Saker Falcon conservation (Open question? Both generally and personally? Let the interviewee formulate her/his own answer to this question, which is the key question for the entire interview :)
        - How important is Saker Falcon trade for your livelihood?
    - Insignificant; Moderately Important; Very Important
        - Of the three drivers of what exactly? (put prompt here of livestock, wildlife, and natural environment stated by interviewee as important), please rank these in order of highest to lowest priority.
    - Please explain your choices
    - Are there any win-win opportunities not currently recognised/fully exploited, or are such opportunities exaggerated?
        - Do you believe there is tension/advantage between short-term and long-term conservation and livelihood as well as environmental policy? Yes, No
    - If there is tension, what takes priority (short or long term) and why?
    - Future needs for support
        - Do you think there is need for external support to assist Saker Falcon conservation in your area?

- If you think there is need for external support to assist the local community involvement for Saker Falcon trade and conservation, what kind of support do you think is needed?

Sub questions:

What kind of support (open ended)?

Do you think regulatory/technical/educational assistance is needed?

Do you see the need for policy change and if so, what kind and in what areas of policy?

If you think there is an awareness raising and incentives, which forum, public/private institutions, etc. are most important to promote Saker Falcon conservation policy?

Is there opinion of collaboration which might be built upon?

Wrap-up

• Any further points you wish to raise

Appendix 5

SURVEY INSTRUMENT - FOCUS GROUP (FG)

Introduction (15 mins)

- Introduce the objectives of research, the purpose of holding FG interview and the question structure / areas which will be explored during the course of the session
- Saker Falcon conservation and Stakeholders
- Assessment of where FG participants fit in the policy map, what their power and influence is, what their relationships are to other stakeholders.
- Who do participants think are the key players in Saker Falcon conservation and trade at the moment and why?

Main drivers (45 mins)

- This is the main section and should focus on stakeholders' attitudes to, and priorities for Saker Falcon conservation such as artificial nests.
- Open discussion around the status of Saker Falcon conservation and artificial nests in region; including attitude to trappers etc? (Foreign and Mongolian)
- Open discussion about the main issues of Saker Falcon conservation and artificial nests.
- Prompts around the community-based conservation, Saker Falcon values, and sustainable use. How important does the focused group think each of the above issues are? How do they personally value/ think about SF and

conservation – and do they think this is reflected in projects such as AF project – or are these values different? How do they think they are currently included in existing plans/policies related to Saker Falcon and artificial nests? What do they think about the principle of trade/ export in falcons and assigning financial value to them?

- Ranking of main concerns (potentially depending on discussion, possibly using: Insignificant; Moderately Important; Very Important as pointers)
- How has the relative importance of the concerns will change in next 5 years and why?Recommendations
- Willingness to participate in SF conservation; work with/protect artificial nests?Perceptions of personal benefit? What factors would increase their willingness to be involved?

Debate (45 mins)

- Challenges in Saker Falcon conservation and artificial nests
- Areas where concerns may complement each other and generate synergies
- Tensions between the concerns
- Areas where participants think disadvantages will occur and how disadvantages may be managed

Research and support needs (30 mins)

- Assess whether participants think that external support is needed for Saker Falcon conservation and artificial nests.
- If support is needed, in what form should it be and where should it be concentrated?

Appendix 6

INTRODUCTORY LETTER FOR FOCUS GROUP PARTICIPANTS

To whom it may concern:

I am writing to you to seek your input and advice into a research study on Saker Falcon conservation, conducted by the Universities of Leicester, and International Wildlife Consultancy (IWC) UK.

The aim of the study is to collect data and obtain information to understand aspects of environmental governance, with reference of conservation, trade and the Saker Falcon in Mongolia. As part of this study I am seeking to identify priorities to Saker Falcon conservation through artificial nests in three case study areas: Khentii, Dundgobi and Tov provinces in Mongolia.

Three main areas of Saker Falcon conservation and installed artificial nests have expected major importance in the future: multi-scale environmental governance, conservation measure for endangered and migratory species, sustainable use, community involvement, and ecological and economic values of Saker Falcon. These important issues assume more importance to overcome the challenges of implementation of MEAs and management of wildlife trade in Mongolia.

Focus groups will take place on_____date. I would like to invite you to participate in this discussion, and would be glad if you would agree to attend a focus group meeting. I would also like to request your assistance in identifying

players of this conservation activities, the responsibilities, priorities to include in the study. I am also seeking to examine efficiency of existing policy framework for Saker Falcon conservation, monitoring, and artificial nests in your areas.

I would be grateful if you would indicate your availability to attend a focus group on the date given above and complete the attached short questionnaire in advance, returning it to the FG meeting. The data collected from the questionnaire will be gathered and used to produce this research outcome.

Thanking you in advance for your time to complete the attached questionnaire and for sharing your opinions. I look forward to receiving your reply, and hope you will be able to contribute to this study.

Yours faithfully,

Choikhand Janchivlamdan

Appendix 7

Request for information - Focused group

Case Study area:Khentii, Dundgobi and Tov provinces in Mongolia.

Person participating the questionnaire:

Name .....

Address

.....

.....

.....

TEL .....

FAX .....

E-mail .....

Which agency or organisation held primary responsibility?

Address:

.....

.....

.....

Which organisations have participated in Saker Falcon conservation?

_ environment

_legal

_ health

_ labour

_ agriculture

_ transport

_ economic

_development/industry

_ finance/customs

_ foreign affairs

_ other (please specify):

Non-governmental organisations

_ public interest groups

_ research institutes

_ universities

_ other (please specify):

Industry

_mining

_agricultural

_ other (please specify)

What's your contribution/responsibility to the implementation of Artificial Nest project?

……..

Appendix 8

SURVEY INSTRUMENT - FOCUS GROUP (FG)

Introduction (15 mins)

- Introduce the objectives of research, the purpose of holding FG interview and the question structure / areas which will be explored during the course of the session
- Saker Falcon conservation and Stakeholders
- Assessment of where FG participants fit in the policy map, what their power and influence is, what their relationships are to other stakeholders.
- Who do participants think are the key players in Saker Falcon conservation and trade at the moment and why?

Main drivers (45 mins)

- This is the main section and should focus on stakeholders' attitudes to, and priorities for Saker Falcon conservation such as artificial nests.
- Open discussion around the status of Saker Falcon conservation and artificial nests in region; including attitude to trappers etc? (foreign and Mongolian)
- Open discussion about the main issues of Saker Falcon conservation and artificial nests.
- Prompts around the community-based conservation, Saker Falcon values, and sustainable use. How important does the focused group think each of the above issues are? How do they personally value/ think about SF and conservation – and do they think this is reflected in projects such as AF project – or are these values different? How do they think they are currently included in existing plans/policies related to Saker Falcon and artificial nests? What do they think

about the principle of trade/ export in falcons and assigning financial value to them?

- Ranking of main concerns (potentially depending on discussion, possibly using: Insignificant; Moderately Important; Very Important as pointers)
- How has the relative importance of the concerns will change in next 5 years and why?
- Willingness to participate in SF conservation; work with/protect artificial nests? Perceptions of personal benefit? What factors would increase their willingness to be involved?

Debate (45 mins)

- Challenges in Saker Falcon conservation and artificial nests
- Areas where concerns may complement each other and generate synergies
- Tensions between the concerns
- Areas where participants think disadvantages will occur and how disadvantages may be managed

Research and support needs (30 mins)

- Assess whether participants think that external support is needed for Saker Falcon conservation and artificial nests.
- If support is needed, in what form should it be and where should it be concentrated?

Appendix 9

Request for information - Focused group

Case Study area:Khentii, Dundgobi and Tov provinces in Mongolia.

Person participating the questionnaire:

Name .....

Address

.....

.....

.....

TEL .....

FAX .....

E-mail .....

Which agency or organisation held primary responsibility?

Address:

.....

.....

.....

Which organisations have participated in Saker Falcon conservation?

_ environment

_legal

_ health

_ labour

_ agriculture

_ transport

_ economic

_development/industry

_ finance/customs

_ foreign affairs

_ other (please specify):

Non-governmental organisations

_ public interest groups

_ research institutes

_ universities

_ other (please specify):

Industry

_mining

_agricultural

_ other (please specify)

What's your contribution/responsibility to the implementation of Artificial Nest project?

……..

……..

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