ILLEGAL WILDLIFE TRADE IN MONGOLIA RAPID SURVEY

FINAL REPORT

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i. ACRONYMS AND ABBREVIATIONS

ADB   Asian Development Bank

ABS   Access & Benefit Sharing

BC	Bonn Convention
BD	Biological Diversity
CBD	Convention on Biological Diversity
CPAP	Country Programme Action Plan
GoM	Government of Mongolia
IWTC	Illegal Wild life Trade Crisis in Mongolia
IWTCTL	Illegal Wildlife Trade Crisis Ten Years Later
IRIM	Independent Research Institute of Mongolia
IO	International Organization
MEGD	Ministry of Environment and Green Development
MCOC	Mobicom Cellular Operator Company
MNET	Ministry of Nature, Environment and Tourism
NGO	Non-Government Organization
ProDoc	Project Document
PR	Project Report
RS	Rapid Survey
ST	Silent Steppe
ST-II	Silent Steppe Project-2
WB	World Bank
WC	Wildlife Conservation
WWP	Wildlife Product Purchase
WLP	Wild Life Product
ZSL	Zoological Society of Mongolia

ii.   **EXECUTIVE SUMMARY**

Illegal Wildlife Trade is emerging as a serious issue in East Asian Region. Ensuring sustainable exploitation of the Mongolia's considerable natural resource was one of the key

aspects in Environmental Sector in 2006. It was important to understand the driving forces of wildlife trade, its scale and operation, and to identify successful solution to address illegal trade. In this regard Silent Steppe –"The Illegal Wildlife Trade Crisis in Mongolia" (IWTCM) project (2006) took place. The project contributed significantly to addressing the wildlife trade in and from Mongolia, and in seeking solutions to conserve Mongolia's unique and wonderful wildlife community, as well as ensuring that rural livelihoods are sustainable for people in the long term, rather than being tied to a dwindling resource base.

Silent Steppe II project (2016) was the continuation of the Silent Steppe Project: "The Illegal Wildlife Trade Crisis in Mongolia 10 years later" (IWTCMTL) in which delivered alarming facts and further suggestions to Mongolia's wildlife conservation system. Accordance with fulfilling the commitments that Mongolia has made internationally, to address the changes made in environmental sector since 2006, Silent Steppe-II project –IWTCMTL (2016) contributed significantly on indicating and developing a robust study design to meet the study objectives to replicate "Silent Steppe": IWTCM project (2006) study and to capture project specific information. Furthermore, gathered empirical evidence on the quantity and scale of wildlife use, take and trade and Identified and assess the state of public awareness and attitudes toward wildlife use and trade.

Comparatively The Rapid Survey provides information on Wildlife Conservation issues in Mongolia with special highlights on three indicators provided by client organization ZSL (Zoological Society of London). In order to determine the changes made since 2016, survey uses "Silent steppe-II" project as its main resource. The research study focused on determining 1. Level of household consumption and market availability of wildlife products, 2.Public Confidence in Mongolia's legal system with regards to wildlife crime prevention and 3.Level of public support for wildlife conservation in Mongolia.

This study is significantly different from Silent Steppe-II project in regard to addressing a) Level of household consumption and market availability of wildlife products, b) Public Confidence in Mongolia's legal system with regards to wildlife crime prevention, c) Level of public support for wildlife conservation in Mongolia through conducting household survey, interviews with officials, market survey and observation in different areas including multiple Aimags (province), Soums (smallest administrative unit), and Capital city of Mongolia. Study compared some important data from Silent Steppe-II- IWTCTL project to analyze the changes

occurred. Furthermore the report highlights the possible suggestions in terms of wildlife preservation process in Mongolia.

The survey used same methodology used in Silent Steppe-II-IWTCTL project for analyzing the household purchase and market availability. The study found that 1. By October 2017, Level of household consumption, and market availability of wildlife products significantly decreased from 2016 baseline levels. 2. By October 2017, public confidence in Mongolia's legislation system with regards to wildlife crime prevention has increased but slightly from baseline 2016 levels. 3. By October 2017, high awareness on wildlife conservation among public detected in and identified as need more effort. Moreover, it has been found that the legislation changes been made related to illegal hunting is not much reached the grass root level. Furthermore the text messages sent by client organization ZSL (Zoological Society of London) to public through MCOC were received by 23.4% of respondents who uses that particular operator company service.

1. **RESEARCH BACKGROUND, PURPOSE & SIGNIFICANCE**

1.1 **Research Purpose**

The Rapid Survey is significant to contribute core data and its analysis to ZSL for further measurements. Furthermore the overall study contributes to the overall wildlife conservation system of Mongolia. It is more important from the country perspective to fulfill the commitments that made internationally naming: 1995 Nagoya protocol, (Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity is a supplementary agreement to the Convention on Biological Diversity) which provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources. Bonn Convention, (Conservation of Migratory Species of Wild Animals -It is an international treaty, concerned with the conservation of wildlife and habitats on a global scale). Moreover lack of quantitative research data and its wildlife conservation legislation defect, Silent Steppe-IWTC project (2006) and Silent Steppe-II IWTCTL project (2016) provides key information about current situation of Mongolian wildlife. In this regard the current quantitative Rapid Survey was funded and coordinated by ZSL (Zoological Society of London) in order to support sustainable changes in Mongolian wildlife conservation system.

1.2 Research Content

Since 1990 the rapid decline in wildlife showed significant cascade effect across Mongolia's ecosystems. Almost nothing is known about significant ecological roles performed by the species that are heavily hunted. (J.R.Wingard and P.Zahler 2006).Throughout the years many researchers conducted studies about certain types of species, however the both projects quantitative data collections on reasons of the decline in wildlife Rapid Survey contributes to its significance on addressing the changes occurred since 2016. Accordingly, the methodology of the study remained relatively same scale of quantitative data collection in smaller range of sites due to its time constrain. The overall scope of data collection and its analysis are made throughout three months and mainly concentrated on comparison of the quantitative data with Silent Steppe-II IWTCTL project (2016) materials as well as analyzing the changes occurred throughout the period. Besides Rapid Survey puts effort on calculating and defining the changes that occurred since 2016 where the alarming information about Mongolian Wildlife was reported in 2015-2016 Report on Mongolian Environmental Status.(Ministry of Environment and Green Development).

1.2.1 Research indicators

1. Indicator 1: Levels what kinds of changes occurred among household consumption and market availability in wildlife products throughout the country.
2. Indicator 2: What kind of changes occurred in   public confidence in Mongolia's legal system, with regards to wildlife crime prevention?
3. Indicator 3: Is there any changes occurred among public support for conservation in wildlife since 2016?

Based on above mentioned indicators given by ZSL (Zoological Society of London) the IRIM (Independent Research Institute) project team conducted several times of face to face, and Skype meetings on developing the questionnaire in order to define the given indicators.

1.3 **Structure or Outlines**

In accordance with research indicators Rapid Survey is re-collet data to identify the problems related illegal wildlife product trading throughout Mongolia. This implies selecting 6 aimags

comparatively 13 aimags in Silent Steppe-II IWTCTL project (2016). Selection of the aimags has been made based on the following assumptions:

1. Accordance with 3 indicators, 6 images from 4 regions south, north, west and east was selected to conduct 1.household, 2. Market, 3. Interview with law enforcement staff and 4. Observational analysis.

2. Site selection was made according to 2016 agreed criteria between ZSL, IRIM, and Legal Atlas.

   - Species Coverage – based on presence/absence in each aimag
   - Population Density (per km^2)
   - Economic status of the aimag (GDP per capita)
   - Economically active (competitiveness index)
   - Ethnic coverage
   - Ecological zone /representative of each ecological zones/
   - Overlapping of sites (ST-IWTC, ST-II-IWTCTL and RS)

Rapid Survey data collection sites (aimags and soums) were defined according to above mentioned criteria. The household survey contains 34 detailed questions in order to identify 3 indicators. The questionnaire transferred to software and data collection process was conducted by tablet in order to ignore possible errors. Market survey contained 6 main and 6 sub questions followed by interview with 12 questions in order to identify the indicators mentioned above. At the same time data analysis and its results been compared carefully with the results and suggestions given by Silent Steppe II –IWTCTL project (2016) and its technical reports provided by IRIM.

1.4 **Research background**

According to Silent Steppe-IWTC Project (2006), the number of Mongolia's saiga antelope (Saiga tatarica mongolicus) declined rapidly around 85% (WWF 2004) as well as red deer

(Cervus elaphus) has also declined 92% in only 18 years of period. Furthermore such declines are seen among Argali (Ovis ammon), Marmot (Marmota siberica) and Saker falkon (Falco cherrug). The report highlighted the cause of decline of wildlife by 2006 in Mongolia is due to 1. Infrastructure development, 2. Agriculture, 3. Overgrazing and mining, and 4. Over hunting (J.R Wingard, P.Zahler 2006). In this regard the study concluded that 1. Scientific monitoring required, 2. Improvements on legislation needed,3. Coordinate overlapping procedures among relevant organizations, 4. Establish methodological cross-border cooperation required and finally 5. More control on weapon required.   The following study Silent Steppe-II-IWTCTL conducted in 2016 to analyze 10 years changes.

1.4.1 **Silent Steppe II project (household survey)** was the continuation of the Silent Steppe IWTC Project: (2006) and delivered alarming facts and further suggestions to Mongolia's wildlife conservation system. Furthermore accordance with fulfilling the commitments that Mongolia has made internationally, the purpose of the study concentrated on following indicators:

- To indicate and develop a robust study design to meet the study objectives to replicate "Silent Steppe": IWTC (2006) study and to capture project specific information
- Gather empirical evidence on the quantity and scale of wildlife use, take and trade
- Identify and assess the state of public awareness and attitudes toward wildlife use and trade
- Collect and provide detailed documentation between the market and household surveys.

The study covered sample size of (4070 surveys) and the array of sampling method used for household selection (a combination of clusters, linear intersect and random methods). The main difference resides in the fact that Silent Steppe-IWTC (2006) survey relied in cluster definition based on presence of partner organizations while for Silent Steppe-II-IWTCTL (2016) survey concentrates on multi-stage cluster design (of aimags, soums/districts and khoroos) based on socio-economic criteria. The data collection covered 60% of the Mongolia's territory which is 13 out of 21 aimags and used multi-stage cluster design which was time and cost efficient method. The site selection process underlined the following 6 criteria.

1.4.2 **Silent Steppe –II project (Market survey)** was conducted in November 2016. The data collection process concentrated on collecting targeted information from possible wildlife

trade market such as restaurants, retail shops and tourist camps etc. The Market survey was conducted under the same indicators and four different surveys for actors at the end of the trade chain, where cooperation is expected completed the set of seven research instruments applied.

1.5 **Significance**

1.5.1 **Rapid Survey significance**

In July 2016, Mongolian parliament introduced the Violation law which highlights the higher range of fine for illegal hunting, trading related activities. Furthermore the law specifies the fine related to the special permit and its improper use, violation of special permit, conducting hunting, catching wild animals in protected areas.

In order to clearly identify the changes occurred since 2016, and also after 2017, introduced wildlife conservation violation law, the Rapid Survey aims to analyze possible changes occurred. In this regard study concentrates on:

1. Overall level of household consumption, and market availability of wildlife products.
2. Public Confidence in Mongolia's legal system with regards to wildlife crime prevention
3. Level of public support for wildlife conservation in Mongolia.

1.5.2 **Facing Challenges & Limitations**

As a structure in this survey the questions were developed accordance with indicators given by client organizations and limited in its number of respondents in selected 7 sites including UB city. Rapid Survey following challenges were the most significant and challenging to its implementation.

1. Data collection a) household survey, b) market survey, c) interview, d) observation need to be conducted in one month period due to time shortage.

2. Due to tightened legislation, high hesitation of information flow observed.

3. Data collection process is conducted during off hunting season for some animals which influenced the data collection process.

4. Data collection is conducted only 3 month later than the legislation introduced.

2   METHODOLOGY & DATA

2.1   **Research Methods**

The study used the retrospective longitudinal recall research methodology in order to identify the household wildlife product consumption level, wildlife trading product availability as well as trade volume compared to its baseline. The data from Silent Steppe-II-IWTCTL (2016) project was compared and measured with the Rapid Survey household and market survey data for measuring its consumption and market availability. Furthermore a recall survey is a cost effective method and can be surrogate for longer-term longitudinal survey methods. (J.R. Wingard and P. Zahler, 2006)

The study covered 3 different participants (1) Law Enforcement Officers, preservationist, local government employers (2) Citizens, (3) Possible Wildlife product Traders, to identify and analyze the main indicators given by client organization ZSL (Zoological Society of London) 1: Since 2016 baseline levels what kinds of changes occurred among household consumption and market availability in wildlife products throughout the country, 2: What kind of changes occurred in   public confidence in Mongolia's legal system, with regards to wildlife crime prevention? 3: Is there any changes occurred among public support for conservation in wildlife since 2016 baseline?

The total sample size of Rapid Survey is 121-Market survey and 951 household surveys. First and foremost 20   face-to-face interviews with Law Enforcement officers, from 6 aimags (Khuvsgul, Hovd, Umnugobi, Dornod, Arkhangai and Selenge). At the same time 951 household and market survey questionnaires been taken by researchers in 7 regions (Ulaanbaatar city, khuvsgul, Hovd, Umnugobi, Dornod, Arkhangai and Selenge). During this period of time, researchers completed observational sheets during interview and questionnaire. Afterwards, all the collected surveys had been analyzed and interviews, discussions been analyzed. Furthermore the meta-analysis conducted on Silent Steppe- II-IWTCTL project (2016) household and market data.

Rapid Survey data collection process continued from September 2017 to October 2017. IRIM research group of 12 researchers traveled over 1700km to collect quantitative and qualitative raw data.

2.2 **Methodological Framework**

Figure 1. (Methodological framework)

2.2.1 Site Selection

The field study was conducted in 7 sites in 6 provinces and 1 city located around 8573 km^2. The meta analysis contain both qualitative and quantitative results of existing project reports, to identify changes occurred based on given 3 indicators. As a result all 7 sites been selected accordance with 6 criteria's mentioned above according to uniqueness and value of all selected regions.   (Please see Table 1)

Table 1. (Aimag Sampling Criteria)

N	Aimag	Region	Selected sample	Species	Density	GDP P.C	Economic competitive advantage
1	Umnugobi	Central	Yes	9	0.4	7,694.0	85.0
2	Selenge	Central	Yes	14	2.6	5,760.0	67.0
3	Dornod	Eastern	Yes	14	0.6	7,564.0	64.0
4	Arkhangai	Khangai	Yes	14	1.7	4,125.0	57.0
5	Khovsgol	Khangai	Yes	16	1.3	3,622.0	59.0
6	Khovd	Western	Yes	17	1.1	3,758.0	62.0

Selected 6 aimags represent fully ecological coverage, economical status, population density and density of population of wild life. Rapid Survey covers 6 aimag centers, 1 soum from each aimag and total number of 12 soums. (Please see table 2).

Table 2. (Aimag & soum region selected sites)

Num	Aimag	N	Soum
1	Khovd	1	Jargalant
	Khovd	9	Mankhan
2	Arkhangai	1	Erdenebulgan
	Arkhangai	14	Khotont
3	Khuvsgul	1	Murun
	Khuvsgul	2	Alag-Erdene
4	Selenge	1	Sukhbaatar
	Selenge	14	Khuder
5	Umnugovi	1	Dalanzadgad
	Umnugovi	2	Bayandalai
6	Dornod	1	Kherlen
	Dornod	9	Sergelen
TOTAL aimags	6	TOTAL soums	12

In Ulaanbaatar city, 50% of overall population of Mongolia lives and it was selected as 7th research site alone. (Please see Table 3) Furthermore 5 districts 60% out of 9 districts (Baganuur, Bagakhangai, Nalaikh, Khan-Uul and Chingeltei) covered in the research. Selected districts represent fully ecological coverage, economical status, population density and density of population of wild life trade. The total sample size of household survey in rural area was 504 and total sample size of Ulaanbaatar city household survey was 447. Within the UB cluster, surveys distributed among all populated khoroos based on random selection procedure. Picture 1&2 shows the random sampling distribution by khoroos.

2.2.2 Research Design

Picture 1. Starting Point

Outside Ulaanbaatar city, household selection used linear Once in a cluster, starting points selected randomly along the surveyors approached all households in the line and sample for the cluster. (Please see Picture 1)
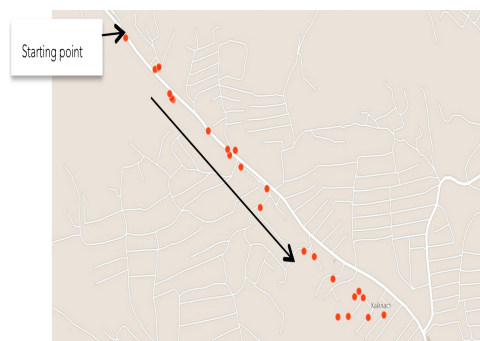
Inside Ulaanbaatar city, each khoroo counted as one cluster. Printed out khoroo border map provided to each researcher. From the khoroo, all the destinations/families randomly selected visited by researcher. (Please see Picture 2)

Khoroo 1 border restricts by the apartments near the 'Enkhtaivan' bridge from western side, area of the school #32 from Eastern side, 'Dund Gol' bridge from Southern side and 'Intermed' hospital from Northern side.

2.3 Data Collection

Total number of 951 household surveys conducted in 7 different sites (including UB city). After filtering the raw data, 100%=951 data used in the survey. Survey respondents were 485 male and 466 female which is balancing the gender constrain and age category divided in to three groups a)15-30 years old=295, b) 31-45 years old = 313, and c) 46 and above = 343 in 7 different locations including UB city.   Specified data collection information is included in Appendix 2.

Picture 3. (Selected sites throughout the country)

KHOVD
KHUVSGUL
ARKHANGAI
SELENGE
ULAANBAATAR
DORNOD
UMNUGOVI
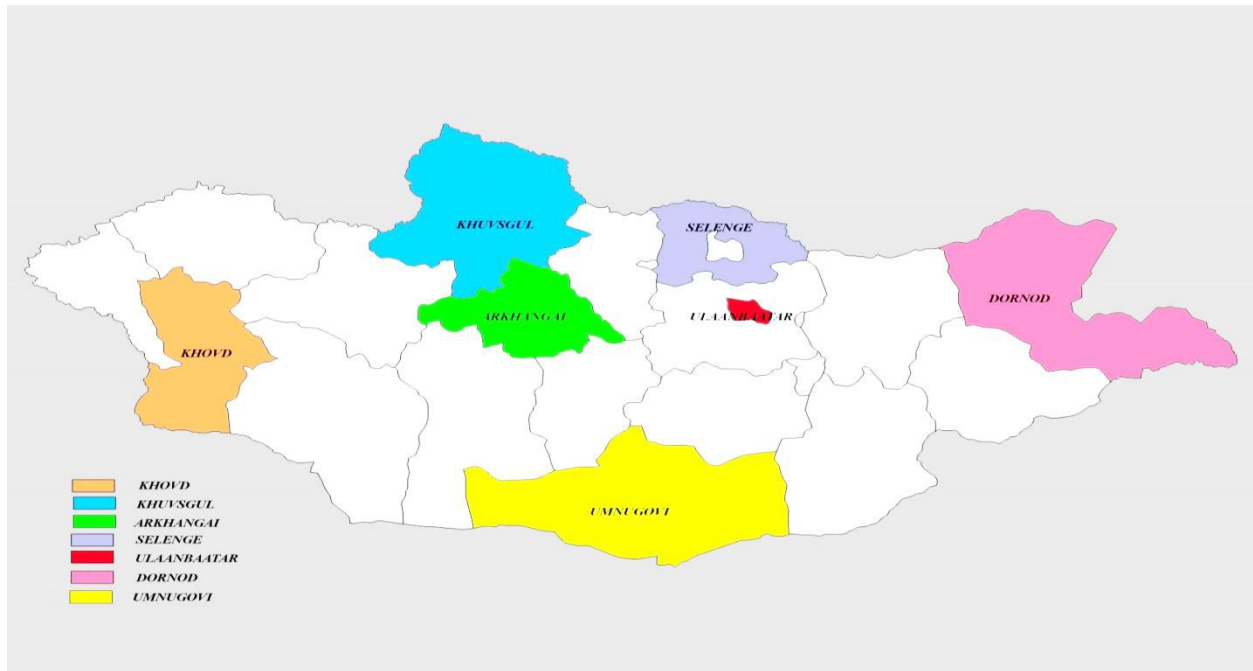
2.4 Variables and Measurements

The major variables of the study is to determine 1. Level of household consumption and market availability of wildlife products, 2. Public Confidence in Mongolia's legal system with regards to wildlife crime prevention and 3. Level of public support for wildlife conservation in Mongolia. These variables were measured based on the combination of household survey, interview, and market survey, observation and data analyses. To determine the given indicators, the questionnaire included 34 multiple choice questions asking current wildlife related products availability, conservational law changes and citizen participation in wildlife conservation etc. After the calculations made based on the collected data, project team used SPSS program to calculate its significance. Moreover the interview, discussion and observation supported the outcome. Based on the systematic analyses on the availability of wildlife products and knowledge on legislation changes, the study determines the changes been made in overall performance in wildlife conservation procedure of Mongolia. At the same time the study conducted observational analysis to compare the overall knowledge and expression of participants in defining indicators given. Accordance with the result, the observation concluded the response into two categories for further analysis (positive, and negative). Positive-defines the existing, working aspects on wildlife conservation approach in environmental sector, Negative-defines the missing point, negative aspects of wild life conservation approach.

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3. RESULT & FINDINGS

3.1 Wildlife product household consumption

Estimation of household purchase from survey is detailed in three different tables a) mammals (137) b) birds (3), c) fish (40). Respondents provided information on prices and amount purchased from a total of 25 species. The survey finds that among all, 116 marmots used among household and 73 Altai marmots purchased by household. Followed by 21 Hucho Taimen purchased by households comparatively 28 used. Separate question included in data collection and analyzed comparing the household purchase and household used products together with market availability. The wildlife related products used among households are divided into same three groups 1) mammals, 2) birds and 3) fish. During the data collection, high hesitation in reporting wildlife related products been detected through observation due to increase of fine and legislation renewal. From household survey, study finds that direct relation between household income level and illegal hunting. 845=87.8% out of 951 responded as it is necessary to support household source income in order to decrease illegal hunting. This estimation was supported by interview conducted with Law Enforcement Officers, "*Most of the cases related to wildlife crime conducted by its local citizens for household use as well as trading purposes*".

3.1.1 Volumes

The result for the household wildlife consumption divided into 2 sub sections. Result of wildlife product purchase and use. Household purchase reported totally 25 different species of 183 numbers of wildlife related products, where declaring 79.9%-81.4% out of 951 did not purchase and use any wildlife related products. Obviously when it comes to reporting purchased wildlife products, even banned species such as marmots reported. Concerning on reporting rate, respondents mostly felt insecure on reporting purchased products related to banned species. In general, the study finds that participation of households in wildlife purchase appears as decreased but active. The study concludes that total number of 191 households or 17.5% of the total respondents in 7 locations engaged in purchasing wildlife product.

Graph 1. (% of Household Purchase)

To further understand the wildlife purchase in household level, the study analyzed household income source. Study used 10 official census most possibly considered to identify the different levels of income for household needs and the ability to generate savings. As the

question does not contain specific value, the respondents' rate was high (100% response rate) and true. Result shows overall income in all level decreased significantly in certain areas such as 1) Child allowance and 2) Student allowance. It is certain and obvious decrease due to government decision on cancelation on above mentioned allowances. On the other hand visible increase in income from Business could contribute to its significance in improvement in stable income among household.

Graph 2: (Wildlife Product Purchase & Use by Household Income Source)

The further estimation included to understand the wildlife purchase pattern and analyzed to identify the purchasing power among households. As household income increase, possibility of wildlife product purchase increase. For the analyzes, survey used the five official census categories to identify household income sufficiency. Rapid Survey data collection result reports the poorest 12% as purchase power, 24.4% sufficient for only daily needs and 13.3% wealthiest purchasing wildlife products.

Graph 3: (% of Household Purchase by Income Level)

3.1.2 Species and Parts

The questionnaire included detailed inquiries to identify what kinds of specific parts are purchased and used by households. "Clothing and Shoes" consumption is the most common use of wildlife followed by "Jewelry" consumption, with animals being purchased by whole or by kilo or processed. Purchase of wolf ankle and fur is the most common purchased species parts. Internal organs, animal oil, ankle from gray wolf, brown bear and badger reported as many in a category of "Medical" purposes. It was one of the challenging tasks for the survey to be completed. While conducting the survey, most of the respondents answered 1. Didn't purchase any part of any species, 2. Don't remember, 3. Not willing to answer such questions, however after spending some time chatting with the family members, respondents without filling the questionnaire, purchased and used wildlife related products (especially parts) are mentioned. It

becomes clear from the observation that tightened legislation and its increased fine directly influencing the transparency of the information on wildlife use and purchase.

Picture 4: Household Product Use)

3.1.3 Wildlife Trade & Market availability

Contrary to household survey, market survey considered as more challenging. It was almost impossible to conduct direct questionnaire due to its sensitivity and legality. However while conducting market survey the observational analysis also contributed to its validity. This part initially considered n=121 market survey conducted after removing invalid n= 126 traders selling wildlife related products due to fake products 5 market survey deducted. On the other hand survey data collection did not include any question related to trading in its household survey due to its importance of indicators. The core species in Mongolia's wildlife trade are those that appear in almost every ranking. Again these include gray wolf, marmot, fox roe deer and brown bear. The key to the ranking is the species volume traded. Market survey result shows that average price for traded products increased. It is also interesting that respondents 38.8% answered as the profit decreased and 37.2% answered as it is the same. Only 8.3 % answered as profit increased. Moreover 52.1% responded as supplier are still the same comparatively 23.1% reported decreased. Possibly why the product availability response shows 44.6% which is the highest, followed by 28.9% decreased and 16.5% increased. Study included its importance of conducting conservation of wildlife in wildlife product trading area resulted 8.43 out of 10 shows

high significance. As public awareness is one of the important aspects in wildlife conservation so do traders. The survey asked from 121 wildlife product traders (market survey) about perception of the governments' ability to efficiently manage wildlife conservation and tackle wildlife crime. Opinions recorded low 3.64 out of 10. As wildlife product traders are direct correlated group, overall governmental ability to prevent wildlife crime and conservation itself reported low.

Graph 4: (Market Availability-5 years ago)   Graph 5: (Market Availability-1 year ago)

3.1.4 Volumes

Report shows total number of 183 types of WLP is sold every month through markets based on its availability. The study reveals that most traders and costumers are centralized in UB city area. It is also concerning that 44.6% of respondents reported that the product availability is not changed this year, comparatively 52.1% respondents also mentioned that suppliers of the wildlife product has not change as well.

Graph 6: (% of Traded Product Category)

Furthermore study analyzed the overall wildlife trade market in 7 different aspects including competitors, product price, product providers and their offered price, product availability in the market, customers and profit. Result shows that customers who are willing to purchase wildlife related product decreased 38.8% as well as the profit among wildlife product traders decreased comparison to 1 year ago. On the other hand majority of the respondents answered those competitors in the retail market increased but not much change in product availability and its providers.

Picture 5. (Traded Wildlife Products-2017)
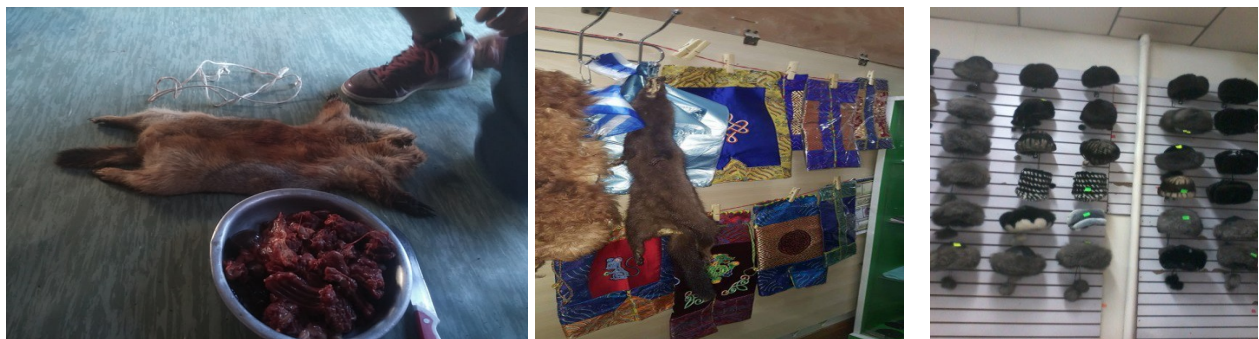
Graph 7.(% of Wild Life Product Trading Environment)

3.1.5 Top sellers

Rapid survey marketing data shows products from 1. Gray wolf= 42 products /22.1%, 2. Sable=37 products /19.5%, 3. Aminal oil (a) badger= oil 17 products /9%, (b) brown bear oil=10 products /5.3% are the top selling products in the current market. The fact is supported by interview with key informants and market survey observation. As a whole, products ranked from the highest to lowest accordingly: 1) clothing and shoes, 2) Medical products, 3) Jewelry, 4) Gifts and Souvenirs, 5) Religious art crafts, 6) Food products, 7) Ancient Artifacts.

1) Clothing and shoes: Among the survey, the most commonly sold wildlife related products included in this category. Resulting 66.9% respondents reported as bestselling product in the shop. Clothing articles include high range of sable fur related products, followed by rabbit, fox and wolf fur products.

2) Jewelry: Rapid Survey respondents reported 38.1% slight decrease. Observation supports its significance with retailers mentioning this as an important category of wildlife related products as a function of revenue circulation.

3) Medical products: Respondents ranked products for medical purposes are the 3nd top selling product throughout retail shops where it is 29.7%.

3.2 Level of public confidence in Mongolia's legal system with regards to wildlife crime prevention

Public confidence is one of baseline for the overall wildlife conservation process. In order to analyze its efficiency, survey analyzed the implication of public confidence into three main categories: 1) What is working, 2) What looks promising and 3) What needs to be considered?

3.2.1 What is working?

Survey included several different questions about public knowledge on wildlife conservation legislation and its fine approval and implementation since July 2017. The information could contribute to its importance of legislation awareness and public expectation on government capacity. 228=23.7% reported as already knows about the violation law and its

increased fine. On the other hand 723=75.2% reported didn't know about it. 141=14.7% out of 23.7% received information from television or media followed by 26=2.7% out of 23.7% from internet. Interview result supports the above result as the information is not shared well.

Graph 8.(Public Confidence-Market)   Graph 9. (Public Confidence-Household)

Moreover since July 1st 2017, ZSL (Zoological Society of London) sent 4 different types of mobile text msg.

1) Number of wildlife is decreasing in Mongolia. Let us all refuse to purchase wildlife related products. ZSL (Zoological Society of London)

 2) 976-97177000 number is receiving Wildlife related crime information. Your information is confidential by Criminal Investigation Department of National Police Agency (NPA),

3) Hunting marmot without permit ion is illegal. Fine for hunting marmot is 510.000-570.000 MNT; Let us protect the wildlife and Law and Order, 11321501,

4) it is banned to hunt Darhad white fish (houting) during the 1st of August to the 10th of October. Let us support the conservation of fish, and law and order. ZSL (Zoological Society of London) through MCOC to public. Please see Picture 6 from Appendix. (Text Message delivered by ZSL)

Based on the text messages, survey defined its outcome from respondents. 505=52.5% out of 951 respondents were customer of MCOC and 225=23.4% direct users out of 505 reported as received the text message about wildlife Conservation. Moreover 96=9.7% out of 469=48.8% indirect users reported as received the information about wildlife conservation and its importance from their family members who has received the text message. One of the SMS text messages contained increase of fine on hunting marmots; household survey also analyzed its importance. 97=10.1% out of 951 responded they are aware of the increased amount comparatively 854=88.8% unaware. Direct question about how much is the fine if hunting marmot illegally reported 26=2.7% answered 500.000 up to 600.000. The data lower than 500.000 or higher than 600.000 excluded and considered as not aware of the information. Through observation and

analyzes on household survey, it was clear that most of the respondents received text message did not understand the meaning due to the text was written in Latin alphabetical letters. As majority of the survey conducted in urban area, average foreign language background of public in urban & UB city area was 4.8 (weighted average) out of 8. Furthermore 343=35.7% of respondents was above age 46 and313=32.5% were age between 34 and 45. Only 295=30.7% were between ages 15-30 considered as high possibility in secondary language background.

Majority of the study questions related to defining public awareness among household on wildlife conservation, defines less flow of information. On the other hand it can be considered as population and its occurrence, life style and educational background is the key impacts. With the support of donor organizations or specific project implemented on conserving wildlife species, information providing activities are reported in some areas.

Graph 10: (% of Information Flow)

Further result on effectiveness on increase of fine on wildlife conservation shows 309=32.1% reported as highly effective, 510=53% responded effective, weighted average of 4.12 out of 5 response rate.

Picture 7: (Brochures on Wildlife Conservation-2017)

In Arkhangai aimag, Erdenebulgan soum interviewee responded: "*Since 2016 until 2020, "Biodiversity and Adaptation to Climate Change" project is in a process of implementation. The organization name is KFW bank of Germany. Through the project, many different activities conducted, such as providing brochure for public, conducting training, conducting survey*. Furthermore, 8 out of 21 respondents reported as with the support of International organization (IO) or Non-Governmental Organization (NGO) different short and long term projects, trainings are conducted in some areas.

3.2.2 What looks promising?

Survey analyzes its result among three different aspects (1) Market, 2) Household, and 3) Interview data). Total 121 market survey reports 47=38.8% decrease in wildlife trade income, 28=23.1% decrease in suppliers, 35=28.9% decrease in number of products out of 121. Furthermore importance of wildlife conservation among wildlife product retail shops reported 8.43 out of 10 define higher awareness.

Figure 3. (Importance of WC-2017)

**Importance of Wildlife Conservation
HOUSEHOLD SURVEY**

Figure 4. (Government Ability-2017)

**GOVERNMENT ABILITY
to prevent wildlife crime**

Figure 5. (Importance of WC-2017)

Importance of Wildlife Conservation
MARKETSURVEY

Direct question defining household use of wildlife product shows 191=19.9% out of 951. Direct purchase among household shows 163=17.5% out of 951 purchased. Above mentioned information 183 types of products from 25 different types of species directly related to 17.5%-19.9% of all respondents. 17 out of 21 interview reported as wildlife product related crime decreased significantly, 2 reported as not possible to provide information and only 1 reported as increased. The direct reason for increased wildlife crime in particular area is due to low income of the household. Renewal of legislation and violation law considered as effective among 9 interview respondent (law enforcement staff members) but complicated and less cooperative as among 4. It is explained as procedural process, financial limitation and finally times constrain results complication. 16 respondents out of 21 reported wildlife conservation related information is provided to its citizens through different channels. 10 out of 21 interviewee respondents reported citizens more positive in Violation law, on the other hand 5 reported as neutral or not much difference. It is also important to highlight the 2 reports concerned on its sophisticated procedure occurred due to tight regulation.

Graph 11. (Changes in Wildlife Conservation Legislation-1 year ago)   Graph 12. (Changes in Wildlife Conservation Legislation-5 years ago)

3.2.3 What needs to be considered?

As the performance of government is the key to understand citizen's confidence in government ability, trust and confidence are regarded direct products of social conditions that are associated with a culture or well-developed social capital. Government ability and its provided legislation perform well when there is high confidence among citizens. On the other hand the general public, the model assumes, recognizes whether government is performing well or poorly

and reacts accordingly. Survey findings show significant importance in wildlife conservation itself, however not much cooperation or connection is noticed among government, its legislations implementation procedure, officials directly related to wildlife conservation activities and the citizens. Study does not find a strong and stable confidence among citizens but find a stronger awareness of its importance. This is because confidence in political institutions is the product of governmental performance in much the same way those estimations of the trustworthiness of others, and willingness to trust them, are based on the experience of how others behave (Hardin 1996). Moreover, governmental performance affects individuals regardless of their particular personality or social type. Not all citizens are equally affected by government performance due to its large territory and different race, but things like inflation, economic growth, government corruption, foreign policy failures or lack of monitoring have an impact on all citizens to a greater or lesser extent. This explains why legislation trust and distrust tend to be more or less randomly distributed among people with different individual characteristics such as education, income, religion, age, or gender (Newton 1999). Wildlife conservation legislation and its implementation tends to be marginally higher among women, the middle classes, and older people. Survey focused on defining how citizens estimate its importance participating wildlife conservation process. Importance of informing illegal hunting activity reported as 4.24 out of 5. 315=32.7% responded as it is highly important. In such occasion 729=75.8% out of 951 will report directly to police, 684=71.1 out of 951 answered: will inform not to conduct illegal hunting. Comparatively 23.1%-27.8% will not do anything. The reason is that voluntary and community groups bring people together to work on local problems and public affairs, so high social trust should be associated with a dense and vibrant network of social capital.

Opinion on the importance of wildlife conservation among the general shows 9.61 out of 10. In contrast, opinions of the government's ability to prevent wildlife crime in the survey were low, at just 3.44 out of 10. Opinion on importance of the conservation of Mongolia's wildlife among household reported 4.24 out of 5. On the other hand, it is very much important to identify wildlife conservation legislation and its improvements made during last year, respondents reported 3.58 out of 6 improved. Direct question asked about what type of activities contribute more to wildlife conservation process 97.2% improvement in increase of public awareness and 923=95.9% out of 951 responded as improvements on wildlife conservation legislation.

Graph 13. (Effectiveness of Wildlife Management Measures-2017)

3.3 **Public support for wildlife conservation in Mongolia**

3.3.1 **What is working?**

According to Report on Mongolian Environmental Status 2015-2016, (MEGD-2017) wildlife related illegal hunting, trading violation decreased since 2015. In order to implement and evaluate the wildlife legislations, the Division for Criminal Activities against the Environmental Safety was established at the National Police Department, and to setup a special phone for receiving call from the citizens as to environmental violation, as well as co-working for improving citizen's participation and awareness on environmental protection in cooperation with the METI (current MEGD), and State Professional Investigation Agency (SPIA).

Rapid Survey interview proves that in some region local government work with local television broadcasting organization to deliver information to citizens, publish and provide small handouts about illegal hunting and its changes in legislation and in some point 18 out of 19 interview responded as conduct various different activities on providing information to the local citizens in order to prevent wildlife crime in their region. Another highlight is that some of the officials gave special recommendations on how to make the overall process more efficient: *"In order to prevent wildlife crime, it is more important to build good and stable relationship with local citizens who are living in a territory where illegal hunting might occur, and set up safe and secure wage for those who are collaborating could increase the overall performance rate."* In the household survey 3 specific questions asked from respondents to identify the public support in wildlife conservation.

Q26: *Will you claim the people who are conducting illegal hunting, using wildlife related illegal products?* 729=75.8% out of 951 respondents reported YES will report comparatively 222=23.1% reported as NO.

Q27: *Will you inform about such people who are conducting illegal hunting to legal organizations?* 684=71.1% respondents reported as YES will report to legal authorities comparatively 267=27.8% NO.

Q28: *Do you believe or confident that by informing any action related to illegal hunting can be effective?* 63=6.5% reported very confident, 433=45% reported confident, weighted average of 3.37 out of 5 clearly defines that improved awareness and willingness to support combating wildlife crime.

Graph 14: (Effectiveness of Reporting Illegal Hunting crime-2017)

Furthermore questionnaire highlights its importance of public involvement in wildlife conservation results 899=93.5% out of 951 reported YES very important. On the other hand it is also concerning that the individuals reported about wildlife related crime to its related organization in 1 year period shows only 0.8%. Moreover the observation concludes that there is high tension of insecurity among citizens due to its low population and possible negative cause on direct involvement on combating illegal hunting. 935=97.2% out of 951 reported more activities need to be conducted from authorities on improving overall knowledge of wildlife conservation.

3.3.2 **What looks promising?**

The Rapid Survey reveals that overall public support in wildlife conservation process increased. For instance, the following questions put up for interview: 1) How often citizens to inform about illegal hunting to the related organizations/agencies for environmental protection? Moreover, are there any changes in citizen's attitude and trend as for their participation in wildlife conservation and environmental protection?

The 12 out of 18 respondents replied that there are significant improvements in public support for wildlife conservation process (by interview). Due to increasing number of animals in the red data book, for instance, 6 mammals, 18 birds, and 1 creeping animal were added up in the red data book during the 2013-2016, (MEGD-2017) it's been increased noticeably the overall awareness on civilian duty as well as citizens tendency to report on possible violations, to discuss and suggest for legislations, and more importantly people's tendency to get involved in combating wildlife crimes etc. On the other hand, however, 6 officials reported as there is not much difference in public support, which may be directly correlated with less activity in providing information towards citizens.

Based on interview results, the study concludes that there are promising improvements in prevention of wildlife crime due to legislation changes, and changes in wildlife violation as well as efforts by local governments. And it was also noticed that those who were interviewed showed a positive attitude as they are people who directly involved in wildlife conservation actions as well as an individual local citizens who also live in that environment.

3.3.3 What needs to be considered?

In order to support the outcome of the survey, the study included also the questions related to text messages (4 text messages) that ZSL (Zoological Society of London) delivered to citizens on wildlife conservation issues. The result reveals that 23.7% respondents received the information provided by ZSL and affected the knowledge on Wildlife Conservation and its current changes among households.

Q15: Are you the costumer of "Mobicom" Cellular Operator Company? Result was that 505=52.5% out of 951 was direct costumers, and 469=48.8% was indirect costumers of Mobicom LLC (someone in the family uses that particular operator company service).

Q17 and 19: Did you receive text message (or information) about wildlife conservation issues? Result was that 225=23.4% out of 505 directly received and understood. 280=29.1% did not receive (or did not understand the content due to Latin letter), and 96=9.7% indirectly received (informed by family members or others).

Q: If received, did you know the increase of fine on illegal hunting? The result was that 228=23.7% out of 951 answered YES, while 723=75.2% answered NO (Possibly that many of them are not customer of MCOC or users of different mobile operators so they were not informed on it). On the other hand, the 17 out of 19 interviewers reported that information/question was actively shared among citizens.

4. COMPARATIVE ANALYSIS ON ST-II-IWTCTL PROJECT & RAPID SURVEY

4.1 Wildlife Product Household Consumption

Respondents provided information on prices and amount purchased from a total of 25 species comparison to 34 species reported in Silent Steppe II –IWTCTL project (2016). The purchased wildlife products are also divided into 3 different categories a) mammal, b) birds, and c) fish. Household purchase reported totally 25 different species of 183 numbers of wildlife

related products, where declaring 79.9%-81.4% out of 951 did not purchase and use any wildlife related products comparison to 20% out of 4070 households declared purchased for household use. The study concludes that since 2016 baseline the household purchased products decreased 2.5%. Please see the graph 3 and 4.

Graph 15. (% of Household Product Purchase-2016) Graph 16. (% of Household Purchase)

Study compared the result of 10 official census most possibly considered to identify the different levels of income for household needs and the ability to generate savings with ST-II-IWTCTL project data. There is significant change occurred in Child allowance and student allowance, where it is explained above on RS result direct influence on government decision to cut the allowance. Furthermore there is significant change occurred in income from business conducted by household from 32.7% up to 39.7%.

Graph 17: (Wildlife Product Purchase & Use by Household Income Source)

Survey compared its result with Silent Steppe-II-IWTCTL project (2016) data on household income sources in 5 different censuses where poorest households defined 11% as purchase power, 34% of the wealthiest households purchasing wildlife in UB and outside of UB in Silent Steppe-II-IWTCTL project. Rapid Survey data collection result reports the poorest 13% as purchase power, 26.8% average and 3.1% wealthiest purchasing wildlife products. However no cohesion between income source and average household, study finds that income sufficiency for daily basic needs and clothing among households is decreased slightly from 25% to 24.4%. Furthermore insufficient income rate increased from 11% up to 12%. Significant changes appeared in section where household can cover not only daily needs but also buy valuable things, result shows 27% and 37% exactly 10% increase. Finally the sufficient for all needs and can do saving category decreased dramatically from 34% to 13.3%. It is assumed that due to changes in living standards 20.7% difference occurred. Even though overall sufficiency for all needs and can do savings among household shows over 20% change, the wildlife product purchasing power still exist among household with sufficient income level. Moreover the result

revealed that overall purchased and used wildlife product number decreased from 34 species to 25 and 414 different types of products to 183 comparatively Silent Steppe-IIIWTCTL project (2016).

Graph 18: (% of Household Purchase by Income Level)

4.2 Wildlife Trade & Market availability

Comparative analysis conducted on comparing the market availability and its changes occurred since 2016 baseline. Visible changes occurred in section "Food" where it is dropped 18.1% from 28% to 9.9%. In ST-II-IWTCTL project, products specialized in "Food" category ranked in 3d top selling products, comparatively 5th in RS result. Furthermore 12.9% increase in products related to "Clothes and Shoes" where it is still the most traded products.

 Graph 19: (% of Traded Product Category)

    According to Silent Steppe-II-IWTCTL project (2016), the most targeted species are Siberian marmot and Gray wolf among mammal species. However RS marketing data shows most targeted products are from 1. Gray wolf= 42 products /22.1%, 2. Sable=37 products /19.5%, 3. Animal oil (a) badger= oil 17 products /9%, (b) brown bear oil=10 products /5.3%.

1) Clothing articles include high range of sable fur related products, followed by rabbit, fox and wolf fur products 66.9% in RS. Comparatively ST-II-IWTCTL project reported 54% retailers reported bestselling products where it is still the most selling product in the market.

2) Jewelry: As this category ranked as the second most selling product in ST-II-IWTCTL project report with 40%, Rapid Survey respondents reported 38.1% slight decrease.

3) Medical products: The product selling range in ST-II-IWTCTL revealed that 16% where it is the 4th most targeted products; however in RS, Medical Products are the 3d most targeted product showing 29.7%.

4.3 Level of public confidence in Mongolia's legal system with regards to wildlife crime prevention

Opinion on the importance of wildlife conservation among the general was consistently high at 9.66 out of 10 in Silent Steppe-II-IWTCTL project (2016). Rapid survey data collection shows same 9.61 out of 10. In contrast, opinions of the government's ability to prevent wildlife crime in the same survey were low, at just 3.42 out of 10 in Silent Steppe-II-IWTCTL project (2016) report. Rapid resulted 3.44 out of 10 slightly high. Opinion on importance of the conservation of Mongolia's wildlife among household reported 4.24 out of 5. Perception on effectiveness of Wildlife Management measurements, "Support for alternative livelihoods to reduce reliance on wildlife" shows visible increase comparatively to RS result from 81.8% to 87.8%.

Graph 20. (Effectiveness of Wildlife Management Measures-2016 & 2017)

5. CONCLUSION

5.1 Level of household consumption

1. The study finds that overall household consumption of wildlife products decreased from 2016 baseline. The number of wildlife species used by households has been decreased by 26.5%, from 34 types to 25 types of species. While types of products were decreased 55.8% from 414 to 183 comparison to ST-II-IWTCTL project data (2016). The wildlife products' availability in the households was decreased 20.1% since 2015 (compared to the 3 years ago).

2. Rapid survey revealed that households' sufficiency for all needs and can do savings show 20.7% change in decrease from 34% in 2016 to 13.3% in 2017. Furthermore 10% increase appears in household where their income is sufficient for only daily needs and

clothing from 27% in 2016 to 37% in 2017. Nevertheless, households' income insufficient for daily basic needs show 1% increase compared to 2016.

3. Above results showed that majority of wildlife products consumed by households those their income sufficiency is enough for daily needs and can save.

4. Furthermore, the study shows no significant changes in household wildlife product consumption.

5. Moreover, this study revealed that the purchase of wildlife products has been decreased by 2.5% resulting 17.5%.

6. The survey finds that even though household income source show slight decrease in overall, the sufficiency of household income remains the same since 2016 baseline.

7. The study reveals that the Mongolian Wildlife is still under pressure again and it is required to change its perspective of understanding and importance through building sustainable awareness in all level of collaborators.

5.2 Market availability

1. The survey catches that the overall market for wildlife products (particularly for banned species) is hidden and covered. It's apparent that this is resulted directly by changes in new "Law on Violation" and its' increased fines for different violations.

2. Furthermore, the availability of the products was decreased to 17.4% as compared to 5 years ago.

3. The study concludes that the average market price for wildlife products has been increased.

4. Also the study signifies that the overall market availability was decreased somewhat.

5. Additionally, the study concludes that the increase of wildlife products in the form of "clothes" is highly related to the harsh weather and culture of Mongolia.

5.3 Level of public confidence in Mongolia's legal system with regards to wildlife crime prevention

1. The study shows that there no significant change occurred among households on importance of wildlife conservation

2. Furthermore, survey finds that building public awareness on wildlife conservation process is the most important action to decrease wildlife crime.

3. The study also finds that wildlife conservation law and its implementation have been increased considerably as compared to 5 years ago.

Due to its variance in result of interview with officials and household survey, it is considered as important to present it separately to its measurement.

4. The interview result shows that overall wildlife conservation process improved since the Violation law presented. On the other hand there are some complications occurred due to its implementation procedure. In some areas such as Khovd, Dornod and Arkhangai province, there are negative impacts related to new legislation.

5. Furthermore the interview result reveals that there is lack of project implementations conducted throughout the region.

6. Overall information delivery process on wildlife conservation to public improved, but need more strategic planning and implementation in order to build sustainable changes.

5.3.1 Wildlife Conservation (SMS)

1. The study concludes that 23.4% of respondents received the text message provided by ZSL. Furthermore, 9.7% households who are not direct customers of MCOC received the information through family members.

2. The 23.7% respondents declared already aware of Violation law.

3. 2.7% respondents only knew the exact fine related to hunting marmot illegally.

4. Study finds that text message delivered in Latin Alphabetic letter caused overall outcome of information delivered to public on Wildlife Conservation.

5. Furthermore, respondents suggested to provide information using all operator organizations will increase the overall knowledge on Wildlife Conservation among public.

6. Moreover the study result shows that 21.7% household (highest) received information related to Wildlife Conservation from the (local) television channels, further considerations must be taken.

Table 3: (Household survey question & Result on MCOC text message)

N	Question	Survey Result
1	Are you customer of MCOC	Household=52.5% MCOC customer
2	If yes, Did you receive any text message related to Wildlife Conservation?	Household=23.4% received

3	Is there any family member that is a customer of MCOC?	Household=48.8% yes have family member who is MCOC customer
4	If yes, did they give you information about Wildlife Conservation related text msg sent by ZSL?	Household=9.7% yes
5	Do you know how much is the increased fine for hunting marmot illegally?	Household=10.2% Yes I know.
6	Can you write down the fine for hunting marmot illegally?	Household=2.4% answered correctly
7	If you received information about WC, from which source did you receive?	Household= 14.7% from TV (highest), 2.7% from Internet(second highest), 2% from someone else(third highest)

5.4 Level of public support for wildlife conservation in Mongolia

1. Interview result shows increased support from public on wildlife conservation issues.

2. Regarding to the legislations, the study finds that the legislation related to rewarding shall contribute noticeably the overall performance of public support on combating illegal hunting and trading.

3. On the other hand, interview result reveals that no visible changes occurred on overall public tendency on new legislation.

Table 4: (Interview question & Result on Public Support)

N	Question	Interview Result
1	How about public tendency on change in wildlife conservation law and its increased fine?	2 responded as positive reaction from public, 15 responded as not much reaction, in a process of delivering information about legislation changes.
2	How about public tendency on combating procedure of illegal hunting crime?	9 responded as positive reaction/involvement from public, 3 responded as in a process of delivering information,
3	How about the public initiative on reporting illegal hunting related violation in corresponding organizations?	12 responded increased involvement from public, 6 responded neutral=as usual

4. The study also finds that the illegal hunting actions reported by public have been increased considerably.

5. 75.8% respondents answered that resolute to combat illegal hunting activity on-site, and 71.1% responded prefer to report to legal authorities.

6.   From this result, the study concludes that overall public support in wildlife conservation has been increased noticeably.

6. RECOMMENDATION

Wildlife and the natural environment are vital to our future existence. Mongolian Wildlife Conservation process is demanding correlational procedure among its strategy planning, monitoring and implementing in all level. The study provides recommendations based on its result for further possible improvement in environmental sector.

6.1 Policy & Legal level

1.   To build sustainable source (wildlife conservation database) where all the information is shared among collaborators (provide update on recent activities) from legislation change, its implementations and records of crime conducted,
2.   To improve the information delivery process on legislation changes and its' causes and effects to the public. It is crucial to develop strategy on transparent information sharing for all wildlife collaborators,
5   To build and provide sustainable monitoring on wildlife conservation legislation and its' implementation,
6   To improve the public participation in wildlife conservation process in all level, such as supporting voluntary initiatives, supporting financially those individuals and organizations contributing to wildlife conservation process,
7   To improve the information transparency in Wildlife Conservation procedure, where it is the key aspect of building sustainable awareness among public. It is required to work closer with the media for encouraging the initiatives as well as reporting the wildlife related crimes through media,
8   To take legal measures for increasing household income in order to decrease illegal hunting crime,

9   To increase the financial support for innovative wildlife crime enforcement projects.

6.2 Operational Level

1. To take the lead in implementing strategic issues concerned with combating wildlife crime in the region and to report periodically and share experience, knowledge and best practice with other community,
2. To conduct monitoring of use and effectiveness of wildlife crime legislation and recommend changes to legislation based on best practice,
3. To improve the information providing among public in order to build single unified voice in opposition to wildlife crime in the region,
4. To conduct constant activities on changing perceptions and attitudes to wildlife crime to make it unacceptable,
5. To improve monitoring with the assistance of locals and conduct activities among public to change and reinforce public opinion against wildlife crime,
6. To take necessary actions for enabling Citizen's participation such as supporting financially for innovative educational projects,

7. To take measures for increasing availability of reading materials for locals and work closer with the local media organization in order to deliver important information to the public on time.

6.3 Community level

1. To take necessary measures for improving public awareness on illegal hunting and environmental safety issues,
2. To organize community units on volunteer basis to protect their local environment,
3. To provide some communication mediums/devices for enabling a better communication among locals as to their environmental information,
4. To organize some events time to time for information sharing among the locals as to their environmental degradation or illegal hunting etc.,
5. To build trust and improve relationship between officials and public with an interest in sustaining Mongolia's wildlife and environment.

6.   REFERENCES

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Appendix 1:

Selected Sites

The field study was conducted in 7 sites in 6 provinces spanning approximately Khuvsgul aimag (province), Murun (49.6457957822247"N, 100.16799537126779"E), Alag-Erdene (50.11708072386682"N, 100.05204817280173E) Khovd aimag (province), Manhan (47.41520896"N, 92.22375395"E), Jargalant (47.98980002"N, 91.6468234401377.08.0"E),Umnugobi aimag (province) Dalanzadgad (43.5735411581967N, 104.42918226578405"E), Bayandalai (43.466760364915416N, 103.5126298516976 E"), Dornod aimag (province) Herlen (48.085519630066315N, 114.52095604562143 E"), Sergelen (48.51140616458261"N, 114.02976114134174"E), Arkhangai aimag, (province) Erdenebulgan (47.474733811504646"N, 101.45133762351242"E), Khoton (47.35834178797646 N", 102.464129499414E"), Selenge aimag (province) Sukhbaatar (50.23972154594958N", 106.19873925112188E") and 1 city (Ulaanbaatar city(47'55,113"N, 106'55,062"E), Khan-Uul (district) (47.8741644613044E", 106.8313311631504E"), Nalaikh (district) (47.774791174335796E", 107.25436809967997E"), Chingeltei (district) (47.9533713E", 106.89181295E"), Bagakhangai (district) (47.35387731172468N", 107.498951437543E"), Baganuur (district) (47.78878479503459N", 108.37364495537608E") located around 8573 km^2.

Appendix 2:
Data Collection

Total number of 951 household surveys conducted in 7 different sites (including UB city). After filtering the raw data, 100%=951 data used in the survey. Survey respondents were 485 male and 466 female which is balancing the gender constrain and age category divided in to three groups a)15-30 years old=295, b) 31-45 years old = 313, and c) 46 and above = 343 in 7 different locations including UB city 1) Khovd=80, Khuvsgul= 111, Umnugobi = 66, Arkhangai= 68, Dornod=114, Selenge=64, UB=448 in order to identify the 3 main indicators given by client organization ZSL(Zoological Society of London). Family size divided in to three categories a) up to 4 members=597, b) 5-8 members= 344 and c) More than 8 members= 10 followed by residence condition a) lived more than 1 year in that current location= 884 and b) Lived less than 1 year=67. Furthermore the study analyzed the average family income in order to identify the possibility of direct dependency in wildlife products.

All field researchers (12 researchers) participated in the collection of 432 surveys from Ulaanbaatar city. Estimated average of 10 interviews per day per researcher concludes that data collection process continued for five days to complete the sample target for Ulaanbaatar city. Outside of Ulaanbaatar city, a total of 12 researchers for 6 groups worked and collected data in 6 selected regions in 12 soum regions.

Fields	Aimag	Number of surveyors	Total sample	Surveys	Working Days	Travel Days
					LOE / Surveyor	
Team 1	Uws-Khovd	2	81	40.5	5	2
Team 2	Govi-Altai-Zawkhan	2	112	56	6	3
Team 3	Khuwsgul and Umnugobi	2	64	32	4	3
Team 4	Arkhangai-Bayankhongor-Uvurkhangai	2	68	34	4	2.5
Team 5	Dornod-Khentii	2	114	57	6	3
Team 6	Darkhan-Selenge	2	65	32.5	4	3
All	UB	12	432	36	5	-

Fieldwork in Ulaanbaatar city started from October 9th and completed by 14th of October. From October 15th, researchers for outside Ulaanbaatar city cluster divided in teams finished collecting raw data and came back to UB in October 25th.

Dates	October																					
	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Team 1							Khovd															
Team 2							Umnugobi															
Team 3							Khovsgol															
Team 4							Arkhangai															
Team 5							Dornod															
Team 6							Selenge															
All	UB																					

Appendix 3:

Wildlife Trade in Retail Shops (Traded Wildlife parts)

HOUSEHOLD WILDLIFE	TRADED PARTS

PURCHASE TRADED PARTS	Common name	Scientific name	MEAT	OIL	SKIN/FUR	ANTLERS	BLOOD ANTLER	BONE	BRAIN	BLOOD	BRAIN	STOMACH	TONGUE	BILE	TALE	CLAW	CANINE	FEATHER	NAIL
MAMMALS	Урт сүүлт зурам	Citellus undulatus	•		•														
	Усны мен	Mustela vision			•														
	Монгол тарвага	Marmota baibacina	•		•	•													
	Алтайн тарвага	Marmota baibacina	•		•														
	Халздай дорго	Meles meles		•															
	Шар үнэг	Vulpes Vulpes			•											•	•		
	Цагаан зээр	Procapra guttorosa	•																
	Бор гөрөөс	Capreolus pygargus	•																
	Ойн булга	Martes Zibellina			•														
	Хярс үнэг	Vulpes corcas			•									•					
	Саарал чоно	Canis lupus			•			•	•				•	•	•	•	•		
	Хүрэн баавгай	Urgus arctos		•															
	Зэрлэг гахай	Sus scrofa	•																
	Халиун буга	Cervus elephus			•														
	Цаа буга	Rangifer tarandu			•														
	Туулай	Lepus			•														
FISH	Ердийн цурхай	Esox Lucius	•																
	Зэвгэ/Ленок	Brachymystax Lenok	•																
	Алтайн сугас	Oreolauciscus potanini	•																
	Шивэр хадран	Thymallus arcticus	•																
	Тул загас	Coregonus Lavaretus	•																
	Цагаан загас	Hucho taimen	•																
BIRDS	Идлэг шонхор	Falco cherrug																•	•
	Сибирийн харуулдай	Prenella Montenella																•	
	Бор бүргэд	Aquila sp																•	

Appendix 4:
Wildlife Trade in Retail Shops (Top products, Price and Sales)

WILDLIFE TRADE IN RETAIL SHOPS n=189					Top products, Sources, Prices and Sales						
					Country of origin	Produced country	Average price	Combined "best month"	Estimated max monthly income	Estimated max monthly income	Estimated max

Product category	№	Wildlife related products	Number of stores that sell products	% of all stores that sell product	Mongolia	China	Russia	Other	I don't know	Mongolia	Other	I don't know	sales for all stores	for product	for Mongolian product MNT	monthly income for Mongolian product by a category MNT
FOOD PRODUCTS	1	Preserved osman	2	9.90%	•					•			4000	300	1200000	1200000	3025002
	2	Burbot	1				•			•			3000	5	15000		
	3	Marmot	2		•					•			35000	5	175000	175000	
	4	Smoked carp	1		•					•			5000	?	5000	5000	
	5	Smoked Mongolian grayling	1		•					•			12000	90	1080000	1080000	
	6	Mongolian grayling	1		•					•			12000	35	420000	420000	
	7	Wolf	2		•					•			475000	35	16625000	16625000	
	8	Salmon	2		•					•			10000	15	150000	150000	
		TOTAL	12													
CLOTHING AND SHOES	1	Sable hat	15	66.90%	•	•				•	•		285833	40	11433320	1.1E+07	26368280
	2	Sable fur	20			•	•	•		•	•	•	1879375	15	28190625		
	3	Fur of sable	1		•					•	•		30000	4	120000	120000	
	4	Sable fur shoes	1				•			•			400000	23	9200000		
	5	Reindeer leather boots	2		•					•	•		615000	10	6150000	6150000	
	6	Seal hat	1				•			•			370000	4	1480000		
	7	Seal shoes	1				•			•			?	?	?		
	8	Boar shoes	1							•			180000	3	540000	540000	

No.	Item	Qty	%									Price	Number	Total	Total	Sum
9	Racoon hat	2		•	•				•	•		200000	10	2000000	2000000	
11	Kolinsky hat	2		•					•			220000	?	220000	220000	
12	Kidney protection belt made by marmot skin	1		•					•			40000	4	160000	160000	
13	Hare collar	4		•			•		•	•		27500	4	110000	110000	
14	Hare skin hat	2		•					•	•		200000	1	200000	200000	
15	Hare skin waist coat	2			•				•			15000		15000	15000	
16	Hare skin jacket	1					•		•			20000	1	20000		
17	Hare fur	5				•	•		•			443993	20	8879860		
18	Hat with hare fur	1				•			•			250000	10	2500000		
19	Fox fur hat	10		•					•	•		134999	40	5399960	5399960	
20	Ccoat with fox skin	2							•			1025000	6	6150000		
21	Fur with fox skin	1					•		•			150000	10	1500000		
22	Fox fur	3			•		•		•	•		488333	5	542500		
23	Reindeer leather boots	1							•			800000	100	80000000		
25	Leather jacket with full wolf skin	1			•				•			1300000	5	6500000		
26	Sly fox collar	1		•			•		•			20000	1	20000	20000	
	TOTAL	81														

	No.	Item	Qty	%									Price	Number	Total	Total	Sum
JEWELERY	1	Canine of boar	1	38.01%	•					•			120000	1	120000	120000	**7851645**
	2	Crocodile wallet	3							•			1035000	10	10350000		
	3	Snakeskin purse	1							•			110000	?	?	?	
	4	Pearl fish wallet	1							•			95000	?	?	?	
	5	Marmot ankle	2		•					•			30000	2	60000	60000	
	6	Fox skin	2		•					•	•		65000	2	130000	130000	
	7	Wolf canine (covered by silver)	2		•					•			150000	3	450000	450000	
	8	Wolf ankle (covered by silver)	8		•					•			53333	15	799995	799995	
	9	Wolf canine	10		•					•	•		135000	25	3375000	3375000	
	10	Wolf canine pendant	1		•					•			50000	35	1750000	1750000	
	11	Wolf ankle	15		•	•				•	•		46666	25	1166650	1166650	
		TOTAL	46														

	No.	Item	Qty	%									Price	Number	Total	Total	Sum
MEDICINAL PRODUCTS	1	Bear oil	10	29.70%	•		•			•			16000	10	160000	160000	**1114086**
	2	Forage for deer	1					•		•			120000	50	6000000		
	3	Deer fibre	1										75000	1	75000		
	4	Burbot oil	1						•				2000	5	10000		
	5	Badger oil	17		•		•	•		•			20454	9	184086	184086	
	6	Fish oil	3		•		•			•			3500	30	105000	105000	
	7	Hedgehog oil	1		•								15000	10	150000	150000	
	8	Wolf stomach	1		•								50000	10	500000	500000	
	9	Wolf tongue	1		•		•			•			15000	1	15000	15000	
		TOTAL	36														

	No.	Item	Qty	%									Price	Number	Total	Total	Sum
REL	1	Eagle feather	1	7.4	•								3000	2	6000	6000	**133**

Product category	№	Wildlife related products	Number	%	Average price 2015-2016	Average price 2016-2017	Estimated annual sale 2015-2016	Estimated annual sale 2016-2017	
IDIOUS ARTEFACTS	2	Eagle claw	1	0%	2000	2	4000	4000	5000
	3	Marmot skin	1		50000	10	500000	500000	
	4	Vulture feather	2		2500	2	5000	5000	
	5	Peacock feather	2		1000	?	?	?	
	6	Musk deer ankle	1		20000	1	20000	20000	
	7	Wolf skin cape	1		400000	2	800000	800000	
		TOTAL	9						

Product category	№	Wildlife related products	Number	%	Average price 2015-2016	Average price 2016-2017	Estimated annual sale 2015-2016	Estimated annual sale 2016-2017	
GIFTS AND SOUVENIRS	1	Roedeer horn	1	2.40%	30000	1	30000	30000	100000
	2	Vulture nail	1		70000	1	70000	70000	
	3	Antler wine glass	1		16000	10	160000		
		TOTAL	3						

Product category	№	Wildlife related products	Number	%	Average price 2015-2016	Average price 2016-2017	Estimated annual sale 2015-2016	Estimated annual sale 2016-2017	
ANVIENT ARTEFACTS	1	Knife with antler	1	1.60%	80000	?	80000	80000	180000
	2	Antler handle knife	1		20000	5	100000	100000	
TOTAL			2						

Appendix 5:
Wildlife Trade in Retail Shops (Product prices and Sales 2016 & 2017)

WILDLIFE TRADE IN RETAIL SHOPS				Product, Prices and Sales			
				Average price 2015-2016	Average price 2016-2017	Estimated annual sale 2015-2016	Estimated annual sale 2016-2017
Product category	№	Wildlife related products	Number of				

			products				
FOOD	1	Burbot	1	1000	3000	44000	41000
	2	Smoked carp	1	8000	5000		
	3	Marmot	2	50000	35000		
	4	Wolf	2	316666	475000		
	5	Salmon	2	35000	33000		
TOTAL			8				
ClOTHING ND SHOES	1	Sable hat	15	333000	473214	4648500	6980329
	2	Sable fur	20	1485000	1879375		
	3	Fur of sable	1	60000	40000		
	4	Reindeer leather boots	2	490000	358647		
	6	Kidney protection belt made by marmot skin	1	40000	40000		
	7	Hare fur	5	210000	443993		
	8	Fox fur hat	9	107500	167600		
	9	Coat with fox skin	2	100000	1200000		
	10	Fox fu	3	700000	542500		
	11	Reindeer leather boots	1	588000	800000		
TOTAL			60				
JEWELERY	1	Canine of boar	1	64050	120000	1465390	1621666
	2	Crocodile wallet	1	635000	1035000		
	3	Snakeskin purse	3	250000	110000		
	4	Pearl fish wallet	1	265000	95000		
	5	Fox skin	1	70000	65000		
	6	Wolf canine (covered by silver)	1	120000	150000		
	7	Wolf ankle (covered by silver)	1	22500	53333		
	8	Marmot ankle	2	8500	5000		
	9	Wolf ankle	5	38840	46666		
TOTAL			16				
MEDICINAL PRODUCTS	1	Bear oil	10	14800	16000	44575	39954
	2	Badger oil	17	16775	20454		
	3	Fish oil	3	13000	3500		
TOTAL			30				
Gifts	1	Peacock feather	2	1500	1000	1500	1000
TOTAL			2				
ANCIENT ARTEFACTS	l	Canine of boar	1	12000	20000	12000	20000
	TOTAL	TOTAL	1				