

TRAFFIC
the wildlife trade monitoring network

A BRIEFING PAPER ON RESEARCH METHODS TO
IDENTIFY THE DRIVERS AND
DYNAMICS OF DEMAND AND
IMPACT OF DEMAND REDUCTION INITIATIVES

TRAFFIC REPORT

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Abdullah Hasan Bin Muhammad Anuar

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ABBREVIATIONS

APEC	Asia-Pacific Economic Cooperation
ARC	Alliance of Religions for Conservation
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild
FFI	Fauna and Flora International
FOFAC	Forum on China-Africa Cooperation
FSC	Forest Stewardship Council
ICGWC	International Consortium on Combatting Wildlife Crime
IGO	Inter-Governmental Organisation
NGO	Non-Governmental Organisation
NIAP	National Ivory Action Plan
OECD	The Organisation for Economic Co-operation and Development
SGD	Sustainable Development Goals
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
UNODC	United Nations Office On Drugs and Crime
WCS	Wildlife Conservation Society

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TACKLING TRADE IN ASIAN BIG CATS

Supporting urgent action (ref. Doc. 71.1 and Doc. 71.2)

Monday 19 August, 17:15 - 19:00

Location: Room A+B+C, Palexpo

Gourmet sandwiches provided

Opening remarks by

Mr M.S Negi,
Government of India

ORIENTATION AND OVERVIEW

This document provides a briefing for non-specialists in research to assess demand drivers and dynamics and initiative impact. The audience is primarily Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), but others may also find it beneficial. Parties may find it a helpful complement to official 'Guidance' for implementation of Resolution Conf. 17.4 on 'Demand reduction strategies to combat illegal trade in CITES species'.

Resolution Conf. 17.4 urges Parties to: **“Conduct in-depth and regular research on the demand for specimens of illegally traded CITES-listed species, where possible, using standard methodologies to understand the drivers and dynamics of the demand and to provide solid information for use in demand-reduction campaigns”.**

While attaining standard methodologies is challenging, this document aims to help Parties and others adopt a more harmonised approach, especially one that provides sufficient quality of insight for the purpose, time, cost, and logistical capabilities available.

The content builds upon that in 'Evolving Evaluation' (Burgess and Broad, 2020¹), and focuses on the datapoints, indicators and methods that can be used in end markets for illegal wildlife trade. Before delving into the detail, it is worth setting out some common principles that Parties and others can take to ensure a safe, robust, and ethical approach to research of this type.

¹<https://www.traffic.org/site/assets/files/13362/evolving-evaluation.pdf>

PRINCIPLES FOR A SAFE, ROBUST, AND ETHICAL APPROACH TO RESEARCH



Research in end-markets for illegal wildlife trade must meet the following criteria:

- Adequately mitigate any risks to the researchers / respondent
- Adequately deliver reliable and robust insight; and
- Ensure actionable information is of a suitable quality to be shared with relevant authorities

As such, research of this type should only be undertaken by trained, qualified and experienced professionals, for whom comprehensive safeguards and risk mitigation strategies can be applied.

Within this frame, the following Principles should also then be considered:

01 Research should go beyond reporting demand reduction initiative inputs or outreach, and specifically acquire insight in changes in the target audiences' knowledge, attitudes, and behaviour (or actions);

Research should compare against a baseline acquired using comparable methods, with an equivalent/ similar group of participants and conducted at comparable time / place;

02

03 Research data acquired should be analysed statistically, gained from a representative sample; standard error margins and confidence intervals should be clear and reported;

Research should ideally involve comparison between a group exposed to the intervention (the 'treatment' group) and one that was not (the 'control' group);

04

05 Research should be ethical, ensure respondent anonymity, and confidentiality, use neutral question framing, and involve any relevant specialist techniques specific to sensitive questioning.

THE PLANNING OF ANY RESEARCH ACTIVITY MUST INCLUDE CONSIDERATION OF ETHICAL CONCERNS, WITH PARTICULAR REFERENCE TO THE FOLLOWING (BASED ON THE UK ECONOMIC AND SOCIAL RESEARCH COUNCIL GUIDANCE):

- ▶ Research should aim to **maximise the benefit** for individuals, society and wildlife conservation and minimise risk and harm;
- ▶ The **rights and dignity** of individuals and groups should be respected;
- ▶ Wherever possible, participation should be **voluntary and appropriately informed**;
- ▶ Research should be conducted with **integrity and transparency**;
- ▶ Lines of responsibility and accountability should be **clearly defined**;
- ▶ Independence of research should be maintained and **where conflicts of interest cannot be avoided, they should be disclosed and managed**.

TYPES OF RESEARCH

The main types of research used in understanding demand drivers and dynamics and initiative impact are social and market research:

- **Social research** has various academic definitions, but for the purpose of this document is considered research that focuses on people and gathering opinion-oriented data. Examples include engaging those buying and selling wildlife in qualitative and quantitative assessment processes, including interviews, surveys, focus groups, polls, or social listening studies.
- **Market research** has a commercial definition, but for the purpose of this document is considered research that focuses on products and gathering observation-oriented data. Examples include assessing the number of commodities and trends over time in adverts and offers for sale in physical and online markets, analysing secondary data sources such as seizures, information from law enforcement operations, court cases and prosecutions.

DATAPPOINTS AND INDICATORS

Social and market research processes can be used to explore a wide range of datapoints and indicators in end markets for illegal wildlife trade. Burgess and Broad (2020) outline 16 datapoints which are initially apparent, with eight relevant to each research category and market actor (Figure 1 below) :

Figure 1



Recognising it is neither practical nor feasible for those aiming to understand the drivers and dynamics of demand, or the impact of demand reduction initiatives, to gather data in all 16 domains, 2x2 analyses can be conducted to identify the datapoints offering the most useful insight for the cost and effort involved. Burgess and Broad (2020) ran three 2x2 analyses resulting in a shortlist of:

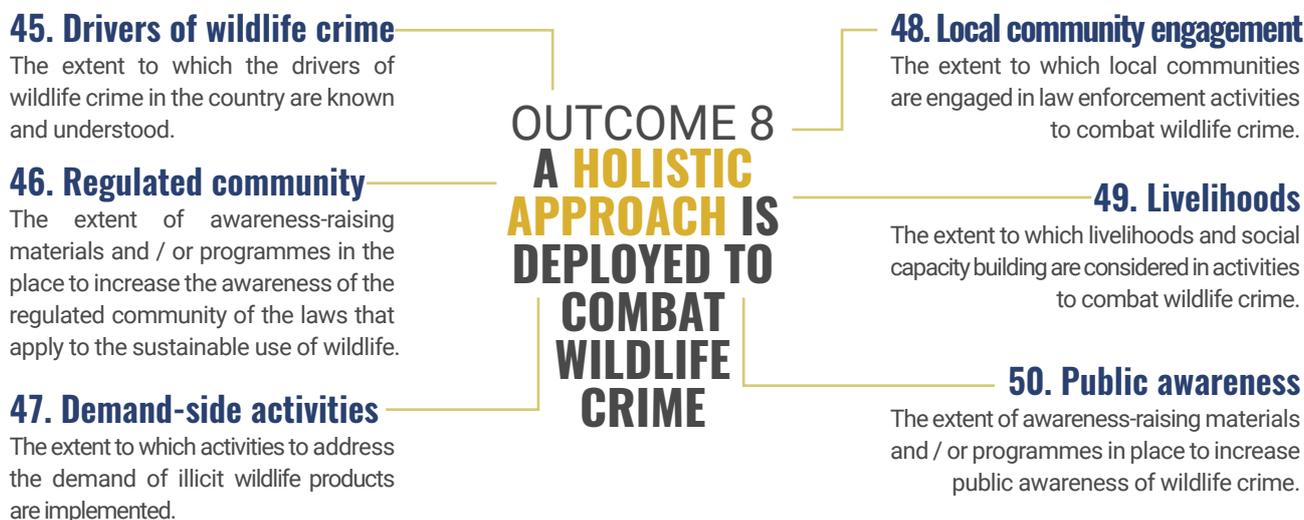
Retail observation indicators: Wholesale/ retail price; Retail sales volume and the ‘throughput’ of the products in the end-markets

Consumer opinion indicators: Claimed past purchasing; Predicted future intention.

Alternate datapoints and indicators might also be considered.

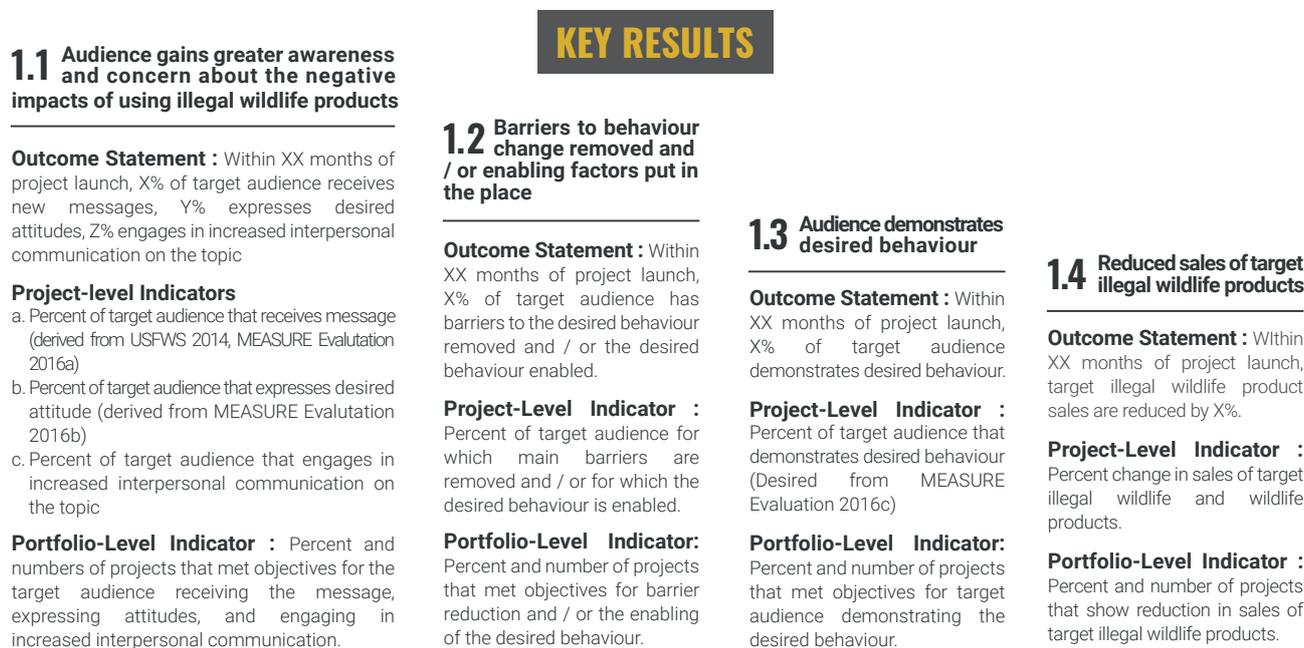
In the ICCWC Indicator framework¹, Outcome 8 / indicators 45-50, are especially relevant to the drivers and dynamics of demand and impact of demand reduction initiatives. Indicators 45, 48, 49 and 50 (Figure 2 below) might be gathered through social research processes focused on consumer opinion data. Indicators 46 and 47 meanwhile, could be gathered through market research processes focused on retail observation data.

Figure 2



In the USAID Measuring Efforts to Combat Wildlife Trafficking toolkit², a total of nine indicators are identified across four outcomes under Key Result 1, which is especially relevant to the drivers and dynamics of demand and impact of demand reduction initiatives. Data for almost all of the indicators (Figure 3) might be gathered through social research processes focused on consumer opinion data. Indicators identified at the portfolio level are more observational in nature.

Figure 3



To enable Parties to select the datapoints and indicators of most interest and relevance to their individual circumstances, the next section explores some of the methods that can be utilised.

¹https://cites.org/sites/default/files/eng/prog/iccwc/E-ICCWC-Ind-FW-Assessment_guidelines_and_template_clickable-final.pdf

²https://pdf.usaid.gov/pdf_docs/PA00KQR6.pdf

METHODS: SOCIAL RESEARCH

Consumer opinion data is likely to vary according to which stage a consumer is at in their journey towards the purchase of a prohibited wildlife product. The range of methods relevant to social research can first be considered according to these stages.

Measurement can focus on any of the stages, although latter stages are more consequential, as they relate more closely to actual purchases. For the purpose of exploring relevant research methods, awareness is discounted and the following are considered;



RESEARCH INTERNET SEARCH FREQUENCY

With the majority of consumers now having access to the internet, search engines like Baidu, Google and Yahoo have become key places where people research the available products before making a purchase. Google, through its platform Google Trends (trends.google.com) and 'Baidu trends' are often used for research purposes.

Google Trends provides an index of the relative volume of search queries conducted through Google, which has been shown to be a good indicator of consumption (Vosen & Schmidt, 2011). This type of indicator has been used in the wildlife trade context for example to understand the potential increase in demand in the USA for an ornamental fish species as the result of a blockbuster movie (Veríssimo, Anderson, & Tlustý, 2020). It should be noted that this indicator may lose validity when dealing with consumer groups with low access to the internet.

PREFERENCE

The range of techniques presented here are especially suitable for avoiding social surveys and other types of response bias, and in revealing the truth about people's preferences by avoiding any overt probing or requirement for statements about values, attitudes and actions that may be sensitive in some manner, or subject to social or legal sanction. This is critical in gaining robust insight.

DISCRETE CHOICE EXPERIMENTS

Discrete choice experiments are a survey-based method that asks respondents to make choices between different hypothetical product alternatives, each described by varying levels of the same attributes. Discrete choice experiments have been used in a variety of ways in the context of wildlife trade, for example to understand the preferences for different types of wild meat in Vietnam (Shairp, Veríssimo, Fraser, Challender, & MacMillan, 2016). To ensure anonymity, this technique could be coupled with the ballot box technique (with price examples in Vietnam Dong [VND]).

Illustration of discrete choice experiments

			<p>Neither option</p> <p>Alternative menu (non-forest meat)</p> <p>2800.00 VND / 4 persons</p>
<p>Pangolin</p> <p>4.500.000 VND / 4 persons Farmed</p>	<p>King Cobra</p> <p>300.000 VND / 4 persons Farmed</p>	<p>Wild Pig</p> <p>2.200.000 VND / 4 persons Wild</p>	



SOCIAL LISTENING

Social listening involves the monitoring of social media channels for mentions of the relevant products. This data also allows for an analysis of the context in which it is mentioned to understand whether users have a positive attitude towards the product. This can be done via application programming interfaces that provide access to data produced by social media users on a given platform. The relevant platform will vary from country to country and access to information can vary, with some like Twitter, making a small proportion of their data freely accessible and others like Instagram having many barriers to data access. In the context of wildlife trade, social listening has been used in various circumstances (see Di Minin, Fink, Hiippala, & Tenkanen, 2019).

PURCHASE UNMATCHED-COUNT TECHNIQUE (ALSO KNOWN AS LIST EXPERIMENT)

Survey respondents are randomly allocated into control and treatment groups (Veríssimo, Vieira, Monteiro, Hancock, & Nuno, 2020). The control group is shown a list of non-sensitive items while the treatment group is shown this same list with a sensitive item added to it. All respondents are asked how many, but not which, items apply to them. Using specialized statistical analysis the differences in the means between baseline and treatment groups are used to estimate the prevalence of the sensitive behaviour

CONTROL GROUP

-  • Chicken
-  • Land snail
-  • Monkey
-  • Fish
-  • Fruit Bat

TREATMENT GROUP

-  • Chicken
-  • Land snail
-  • Monkey
-  • Fish
-  • Fruit Bat
-  • Sea Turtle

NOMINATIVE TECHNIQUE

The Nominative Technique is easy to use as it asks respondents to report the number of close friends that they know for certain have conducted a certain behaviour (e.g. broken a hunting rule); and how many other people they believe know about the nominated friend's behaviour (Nuno & John, 2015)

Figure 6 : Illustration of Unmatched-Count Technique and Nominative Technique differences

Unmatched Count Technique (UCT)	
How many of the following have you done <u>in the past 12 months?</u>	
A	B
Cut yourself by accident	Cut yourself by accident
Take a painkiller	Take a painkiller
Use herbal medicine	Use herbal medicine
Take bear bile	Go to the hospital in the US
Go to the hospital in the US	
Nominative Technique (NT)	
a. How many of your close friends do you know for certain have used/consumed bear parts for medicine or other purposes? (If more than one friend has used bear parts, randomly nominate one of them.)	
b. Other than you, how many other people do you believe know that the nominated friend has used bear parts or products for medicine or other puposes?	

BEAN METHOD

This method presents respondents with one large and one small jar of beans, both containing mixed-up beans of different colours (Jones, Papworth, Keane, Vickery, & St John). The number of beans should be large enough so that addition or removal of a single bean from either jar is not noticeable. Respondents are instructed to move a black bean from the smaller jar to the large jar if the answer to a sensitive question is 'no' and to move a bean of another specified colour from the small jar to the large jar if the answer is 'yes'. Respondents do this in private, without being watched by the interviewer. After multiple respondents have completed the exercise, changes in the number of beans of each colour, and the number of black beans in either the small or large jar, is used to estimate the prevalence of a sensitive behaviour. In conservation it has been used in the context of illegal wildmeat hunting in Liberia (Jones, Papworth, Keane, Vickery, & St John, 2020).

BALLOT BOX

The Ballot box method requires respondents to provide answers to sensitive questions through an anonymous ballot, which is then placed inside a sealed ballot box that contains the responses from all survey respondents, ensuring that the interviewer cannot link the respondent to his or her answer (Arias, Hinsley, & Milner-Gulland, 2020). In the context of wildlife trade it has been used to better understand the trade in jaguar parts in Bolivia (Arias et al., 2020).

MIXING METHODS

Understanding sensitive behaviours is challenging. The best way to gain a robust understanding is to obtain multiple estimates using multiple methods. The following table presents a summary of the pros and cons of the various methods presented here, to assist with decision making around the mix of methods that might be chosen.

	How much money is required?	How much time is required?	How much technical expertise is required	How insightful is the data
Internet search frequency	Desireable	Desireable	Manageable	Manageable
Discrete choice experiments	Manageable	Challenging	Challenging	Manageable
Social listening	Challenging	Desireable	Challenging	Manageable
Unmatched count technique	Manageable	Challenging	Challenging	Desireable
Bean method	Manageable	Manageable	Desireable	Desireable
Ballot box	Manageable	Manageable	Desireable	Desireable

■ Challenging
 ■ Manageable
 ■ Desireable



METHODS: MARKET RESEARCH

PLANNING THE APPROACH

When identifying suitable market research methods to explore the drivers and dynamics of demand and impact of demand reduction initiatives, some initial decisions must be made around:

- 1) What questions will the research process specifically aim to answer?
- 2) Which physical and online locations will serve as 'indicator' markets?
- 3) What will the scope of research be (e.g., how many shops/ commodities/ taxa)?
- 4) How often / frequently will research be conducted to track trends over time?
- 5) How will the data arising be stored/ used / shared with others?

CONSIDERATIONS

Within the context of understanding the drivers and dynamics of demand and initiative impact, market research processes should seek to answer questions such as:

- **How much** product is being offered for sale? **By whom? Where? How? At what price?**
- Is the product live/dead, whole or partly processed, raw or worked/finished? What features of the product are **promoted by sellers?** What drivers do they perceive in relation to trade?
- How is the product paid for and delivered to buyers? Any actors involved aside from the buyer and seller (e.g., transport, financial services)? Can the **supply of products** to consumers be disrupted somehow, and can the volume of products in markets be reduced?
- How do actors (buyers, sellers and any relevant intermediaries) **access the market?** How do they control or influence the supply chain more broadly? How are the benefits from the trade distributed along the supply chain?

Factors that influence decisions around which questions might be relevant, include: the **purpose** of the research, how **feasible** it is to gather data (time, cost, logistics), and the type of **statistical analysis** you might need to conduct.

Selection of physical and online locations as 'indicator markets' will also depend on these factors, plus pre-existing knowledge. For example, you may wish to know how widespread and commonly available certain illegal commodities are in consumer marketplaces (in which case you will need to survey multiple physical and online locations in a **representative** but randomly selected sample); or deeper aspects of consumer purchase patterns, such as how and when people buy (this would be more **focused on physical and online locations where illegal trade is already known to occur**).

The choice of location will also vary according to whether you're interested only in retailers and consumers, or in wholesalers and **other actors** in wildlife end markets. Wholesalers may (but not always) operate closer to borders, ports, or other entry points for illegally traded

commodities coming from overseas. Retail sale in physical locations by contrast is likely to be more visible in sites closest to the **highest density of consumers**, for example in large urban centres.

In terms of frequency, for the purpose of understanding demand drivers and dynamics, 'snapshot' or one-off surveys are unlikely to be useful; so **'repeat' surveys are necessary**. Decisions around the interval between each survey will be influenced by purpose, time, cost, and logistical aspects. Gathering data **at least once a year** should be a minimum, and timing should be planned around any celebrations, festivals, or tourist seasons when commodities may experience higher turnover.

An additional consideration with market research frequency and timing, is how **durable or perishable** the target commodities may be. For example, if trying to estimate turnover of a non-perishable item sold relatively infrequently (e.g., ivory), the period between surveys will need to be longer than for a perishable item sold frequently (e.g., meat).

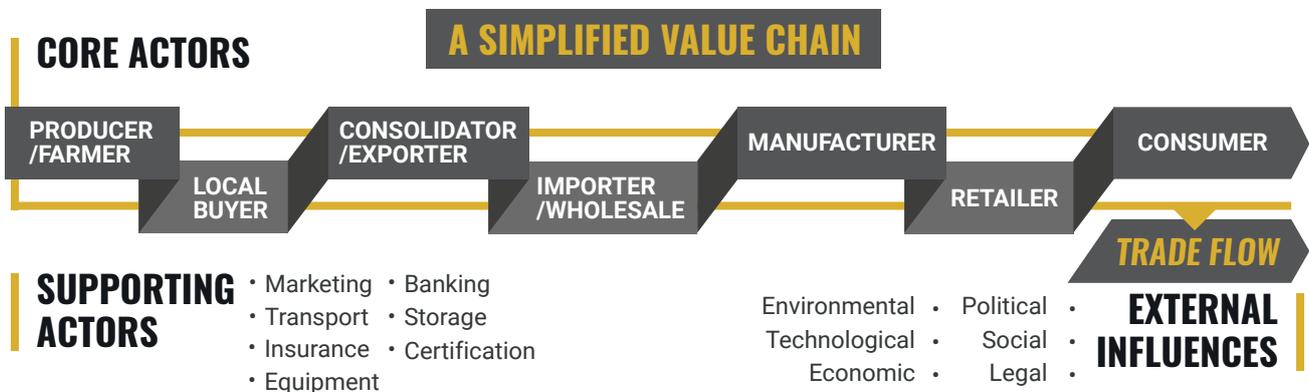
POTENTIAL TEMPLATES

Within this frame, the following offers a potential survey template that could be used to plan a physical market research method: [Number] surveyor(s) surveyed a total of [number] outlets in [number] locations starting on [date] and ending on [date] totalling [number] days / hours of survey.

The following offers a potential survey template that could be used to plan an online market research method: [Number] surveyor(s) spent [number] hours per day each systematically surveying [number] online platforms in [language used] using [number] key words for [number] days starting on [start date] and ending on [end date] (Monday to Friday) totalling [number] hours of survey. The research captured advertisements/posts with date stamps from [look-back date] through the final date of monitoring.

TREND DATA / TURNOVER

To fully understand demand drivers and dynamics and the impact of demand initiatives in end markets for illegal wildlife trade, market research and observation-based measures should also focus on assessing trend data in the volume of products sold. In value chains for traded commodities this data is equivalent to measuring product 'throughput' or turnover.



As the sale of illegal wildlife products is by nature criminalised, clandestine and deliberately hidden from sight, the methods involved in gathering data in this area are admittedly challenging. It is important data to obtain however, especially with regards to achieving more effective demand reduction impact evaluation assessments (see Burgess and Broad [2020] for elaboration on this point). Further discussion is required to address these challenges.

Some initial thinking around options for measuring the 'throughput' of products includes:

- Exploring the 'electronic footprint' and digital trail that might be left by online purchases. Most commercial firms tracking legal sales¹ in various commodities use 'End Point of Sale' [or till] receipts: can Coalition to End Wildlife Trafficking Online members find an equivalent?
- Engaging credit card companies, banks or United for Wildlife Financial Taskforce² members in identifying and tracking any suspicious sales made by individuals in personal accounts. Is information available regarding alternative descriptions used by buyers and sellers?
- Analysing CCTV footage and working with cameras and microphones more remotely, to explore what can be tracked in terms of e.g., people leaving shops with purchases visible.
- Identifying any legally traded commodities that might be associated with use of the illegal one (e.g. rhino horn grinding bowls) and identifying a proxy value for purchase of the latter.
- Carefully observing transactions that occur for specific vendors / points of sale in physical markets for a given period of time – selecting high-footfall locations and estimating how they might relate to wider sales. Ideally transactions could be watched covertly from a safe distance – say from a café, nearby food stalls or eating areas, balconies, or other vantage points - by a 'tag-team' of at least two people for half a day (during peak hours).

¹<https://www.endwildlifetraffickingonline.org/>

²<https://unitedforwildlife.org/projects/financial-taskforce/>

It is worth noting that in fields beyond wildlife trade, where effort is invested to track the turnover of other illegal commodities – for example, drugs or counterfeit goods – research methods include those detailed previously in relation to social and market research, but also ethnographic studies. Examples include engaging sellers in discussions to estimate how much product they might sell in any given time period. Although there are clear caveats that should accompany data gained through this method, such experience in other sectors does reinforce the importance of adopting a ‘mixed methods’ approach to understanding the drivers and dynamics of demand and impact of initiatives.

SAMPLING

Determining the size of the population you might want to sample depends on the research question. The sample size will depend partly on how accurate you need your data to be, on practical factors (budget, time, scale of survey etc.), and the statistics you wish to use. Importantly: it is not fully dependent on the population size. An example of one approach to calculating a statistically significant sample size is given here, but note that this will not be appropriate for all sampling methods. There is a wealth of information online offering guidance (e.g. <https://www.surveysystem.com/sscalc.htm>).

Example Method for Calculating Sample Size:

- **Determine population size** – The population size is the number of individuals in your population and can exist at different geographic scales (country, city, market etc.). For example, if your research question aims to measure the volume of birds for sale in Jakarta then your target population could be considered as all outlets selling birds in Jakarta.
- **The margin of error (Confidence Interval)** – No sample will be perfect, so you need to decide how much error to allow. The confidence interval determines how much higher or lower than the population mean you are willing to let your sample mean fall. A common margin of errors is +/- 5% (0.05).
- **Confidence Level (Z-score)** – How confident do you want to be that the actual mean falls within your confidence interval? The most common confidence intervals are 90% confident, 95% confident, and 99% confident¹.
- **Standard Deviation** – How much variance do you expect in your data? If you have not conducted this survey before, then a safe value to use would be 0.5.
- **Calculate the sample size** – Using the equation below or an online calculator²:

$$\text{Sample size} = \frac{\frac{z^2 * p(1-p)}{e^2 * N}}{1 + \frac{z^2 * p(1-p)}{e^2 * N}}$$

z = Z - score / p = standard deviation
 e = margin or error / N = population size

So, if your population size was 1000 outlets selling birds and you chose a 95% confidence level, 0.5 standard deviations, and a margin of error (confidence interval) of +/- 5%:

which equals:

$$\text{Sample size} = \frac{\left(\frac{1.96^2 * 0.5(1-0.5)}{0.05^2} \right)}{1 + \left(\frac{1.96^2 * 0.5(1-0.5)}{0.05^2 * 1000} \right)}$$

$$\text{Sample size} = \frac{384.16}{1.38416}$$

¹ Your confidence level corresponds to a Z-score. This is a constant value needed for this equation. The z-scores for the most common confidence levels are:

90% – Z Score = 1.645

95% – Z Score = 1.96

99% – Z Score = 2.576

<http://www.sjsu.edu/faculty/gerstman/StatPrimer/z-two-tails.pdf>

² e.g. <https://www.surveymonkey.com/mp/sample-size-calculator>

In this example the sample size would be 278 of the 1000 outlets. If the population size were 10,000 outlets, the sample size would be 370. It might not always be possible to be sure of the exact population (N), however, this can be informed through prior research and pilot studies to get an approximation of the value. Further information about sampling is available in the M&E 'Good Practice Guidelines' for Social and Behaviour Change Communication Professionals and Practitioners (here); and in Module 5 of the 'Behaviour Change for Conservation Online Course' (here).

ATTRIBUTION OF IMPACT

It is worth emphasising in closing that the datapoints, indicators and methods outlined here can be used in combination to generate insight into the drivers and dynamics of demand and impact of demand reduction initiatives. This takes into consideration the purpose, time, cost, and logistical capabilities which Parties and others may have available to them. For those specifically interested in identifying the impact their own demand reduction initiative may have had over other efforts to combat end markets for illegal wildlife products however, additional approaches may be considered.

Social research methods – qualitative and quantitative assessments through 1:1 interviews, focus groups or online questionnaires – can be designed to probe whether self-reported changes in e.g., purchase of an illegal wildlife product in the past 12 months, are due to a particular initiative or campaign message.

A gold standard approach to this type of assessment however, is the use of Randomised Controlled Trials (RCTs). RCTs are a research approach that compares differences between a 'treatment' and 'control' group, and attributes those differences to the initiative in question. The treatment group should reside in a community or location exposed to the demand reduction initiative or campaign message, whereas the control group should not. RCTs provide a robust assessment around attribution of impact but can be very time consuming and costly to implement.



FURTHER SUPPORT AND INFORMATION

- Core references for those interested to know more about the topics covered in this Paper, include:
Module 5 of the Behaviour Change for Conservation Online Course:
<https://www.changewildlifeconsumers.org/behaviour-change-for-conservation-online-course/index.html#/lessons/rEeOjLMExtOlz9590Yb3SLNv5iBJwZNr>
- Good Practice Guidelines for Social and Behavioural Change Communications Practitioners and Communications Professionals' (TRAFFIC, 2018):
<https://www.traffic.org/site/assets/files/1851/sbcc-me-good-practice-guidelines-2018.pdf>

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TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:

TRAFFIC
Global Office
David Attenborough Building
Pembroke Street
Cambridge CB2 3QZ
UK

+44 (0)1223 277427

traffic@traffic.org

traffic.org

UK Registered Charity No. 1076722,
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