

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA



Nineteenth meeting of the Conference of the Parties
Panama City (Panama), 14 – 25 November 2022

Species specific matters

Elephants (Elephantidae spp.)

REPORT ON THE ELEPHANT TRADE INFORMATION SYSTEM (ETIS)

1. This document has been prepared by the Secretariat.
2. The Elephant Trade Information System (ETIS), established under Resolution Conf. 10.10 (Rev. CoP18) on *Trade in elephant specimens* and supervised by the Standing Committee, is conducted in accordance with the framework outlined in Annex 1 on *Monitoring illegal trade in ivory and other elephant specimens* of the Resolution.
3. ETIS is managed and coordinated by TRAFFIC, in consultation with the MIKE and ETIS Technical Advisory Group (TAG) and in collaboration with the CITES Secretariat. Data and information on illegal trade in ivory and other elephant specimens are collected by TRAFFIC in collaboration with the CITES Secretariat. The analysis and interpretation of data are handled by TRAFFIC.
4. Resolution Conf. 10.10 (Rev. CoP18) directs the CITES Secretariat in paragraph 12 to report on information and analysis provided by ETIS at each meeting of the Conference of the Parties. Comprehensive ETIS analyses have been submitted to every meeting of the Conference of the Parties since its 11th meeting.¹
5. The assessment of the results of the cluster analysis and the categorization of Parties based on the assessment is set out in Annex 1 to the present document, specifically in Part IV of Annex 1. Parties are categorized based on the extent to which they are affected by illegal trade in ivory as Category A (most affected by illegal trade in ivory), Category B (markedly affected by illegal trade in ivory), and Category C (affected by trade in ivory).
6. Selection of countries included in Category A and B was based on their higher overall illegal trade activity within country, but also higher large-scale illegal trade activities that occurred in the country undetected (i.e., large seizures in which the country was implicated as country of origin, export/re-export, or transit, or destination in the illegal trade chain). Differentiation to determine ranking of the Parties as Category A or B was done in the context of the overall bias-adjusted illegal trade volume (or weight seized), and the reported role of the country in the illegal trade chain. While identifications of countries requiring attention is based on the bias-adjusted data to allow for proper comparisons, when the role of the countries in the illegal trade chain is discussed, the reported (rather than bias-adjusted) data are used for interpretation. Additionally, where notable seizures or weight summaries are highlighted, the weight presented consists of the seized weight as defined in Figure 1 in Annex 1. Supportive information from the subsidiary data maintained in the ETIS database provided context to further differentiate countries into the A and B categories. Specifically, an index of the country's corruption perception, a measure of the country's law enforcement efforts based on reported ETIS data, and published literature were considered. The supportive information allows to differentiate, for example, between Parties with similar illegal trade characteristics that may otherwise differ

¹ CoP11, Gijiri, 2000, in document [Doc. 11.31.1 Annex 5](#); CoP12, Santiago, 2002, in document [CoP12 Doc. 34.1](#); CoP13, Bangkok, 2004, in document [CoP13 Doc. 29.2A](#); CoP14, The Hague, 2007, in document [CoP14 Doc. 53.2](#); CoP15, Doha, 2010, in document [CoP15 Doc. 44.1 Annex](#); CoP16, Bangkok, 2013, in document [CoP16 Doc. 53.2.2 \(Rev. 1\)](#); CoP17, Johannesburg, 2016, in document [CoP17 Doc. 57.6 \(Rev. 1\)](#); and CoP18, Geneva, August 2019, in document [CoP18 Doc. 69.3 \(Rev. 1\)](#)

in their law enforcement efforts in pursuing organized crime, or other documented activities that demonstrated strong commitment to disruption of the illegal trade (e.g., through the enactment of national legislation).

7. Countries that presented new illegal trade dynamics are mentioned as Category C as they are deemed as “countries to watch”. More refinements might be made in future categorization of Parties to Category C, as well as Categories A and B, based on the implementation of the proposed recommendations emanating from the review of the ETIS programme (see document CoP19 Doc. 21).
8. The Secretariat concurs with this assessment in Annex 1:
 - a) Category A: Democratic Republic of the Congo, Nigeria and Viet Nam;
 - b) Category B: Cambodia, China, Gabon, Malaysia, and Mozambique; and
 - c) Category C: South Sudan (non-Party).
9. The Secretariat will develop recommendations for consideration by the 75th meeting of the Standing Committee (SC75, Panama City, November 2022) in line with the *Guidelines to the National Ivory Action Plans Process* in Annex 3 to Resolution Conf. 10.10 (Rev. CoP18) and provide an oral update at the present meeting.
10. The Secretariat notes that South Sudan is not a Party and that the *Guidelines to the National Ivory Action Plans Process* in Annex 3 to Resolution Conf. 10.10 (Rev. CoP18) refers only to Parties. Other compliance processes have however been applied to non-Parties in the past. For example, Haiti is not a Party to the Convention, but recommendations to suspend trade were made based on significant trade involving *Strombus gigas*. The Secretariat will take these past practices into consideration in implementing the *Guidelines to the National Ivory Action Plans Process*.
11. At its 74th meeting (SC74, Lyon, March 2022), the Standing Committee noted the suggestion of the European Union to invite the Secretariat and TRAFFIC to engage the Technical Advisory Group (TAG) of the Programme on Monitoring the Illegal Killing of Elephants (MIKE) and of the Elephant Trade Information System (ETIS) in preparing the ETIS report to CoP19. The purpose was to advise whether an analysis of ivory seizures connected to Parties with legal domestic markets for commercial trade in ivory could be undertaken and to include such an analysis in the ETIS report, if feasible. The MIKE and ETIS TAG considered this suggestion at its 18th meeting (Online, April 2022) and, although there was general agreement that the suggested analysis would be helpful to better understand the impact of changes, it requires further consideration and discussion, and it will therefore not be possible to include such an analysis in the report to the 19th meeting of the Conference of Parties.
12. Information and recommendations relating to the review of the ETIS programme is contained in document CoP19 Doc. 21 and further information relating to the National Ivory Action Plan Process is provided in document CoP19 Doc. 66.1.

Recommendations

13. The Conference of the Parties is invited to take note of this document and the report in Annex 1.

The Elephant Trade Information System (ETIS) and the Illicit Trade in Ivory

A report to the 19th meeting of the Conference of the Parties to CITES prepared by TRAFFIC in consultation with the MIKE-ETIS TAG and in collaboration with the CITES Secretariat

INTRODUCTION

The Elephant Trade Information System, commonly known as ETIS, is a comprehensive and global information system whose central feature is a database holding the details of seizures or confiscations of elephant ivory and other elephant specimens since 1989. ETIS was established by the Conference of the Parties (CoP) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at its 10th meeting in 1997, with the objectives of monitoring and recording levels of illegal trade in ivory and other elephant specimens and serving as an information base for decision making by the Parties (Resolution Conf. 10.10).

Annex 1 to Resolution Conf. 10.10 (Rev. CoP18) on *Monitoring illegal trade in ivory and other elephant specimens* specifies that TRAFFIC, in consultation with the MIKE-ETIS Technical Advisory Group (TAG) and in collaboration with the CITES Secretariat, manages and coordinates all aspects of ETIS including the analysis of ETIS data to monitor trends in illegal trade. In accordance with the provisions of this Resolution, TRAFFIC has been producing reports for consideration by the meetings of the Conference of Parties; as such, this report is the eighth major assessment of the ETIS data and constitutes TRAFFIC's reporting obligations for the 19th meeting of the Conference of Parties. Prior to final submission, the report was reviewed by members of the MIKE-ETIS Technical Advisory Group (TAG) and the CITES Secretariat.

This report contains six main parts describing the ETIS Data (Part I) and Trend Analysis (Part II) used to derive trends in illegal ivory trade; the Cluster Analysis (Part III) used as an aid to identify Parties with similar characteristics of illegal ivory trade; the identification of Parties Requiring Attention for Consideration for the NIAP Process (Part IV); overall Conclusions of Parts I to IV of the report (Part V); and considerations of ETIS data submission timeline (Part VI) following proposed changes to the submission deadline from 31 March to 31 October that were brought forward at the 74th meeting of the Standing Committee (SC74) (Lyon, March 2022) and a request from the TAG to lay out implications for the data included in ETIS reports. The description of the data and trend analysis have already been published for SC74, thus Parts I and II of this report are summarized based on the ETIS report to SC74 (CITES 2022a), and reference is made to [SC74 Doc. 68](#) including its Annex 1c, for more detailed data description, methodology and results².

PART I: ETIS DATA

Data included in the analyses presented in this report were downloaded from the ETIS database on 20 October 2021 and contained 32,353 records from 1989-2020³. The majority of records ($n = 29,447$) represented ivory seizures and confiscations (hereafter referred to as 'seizures' or 'records'; Figure 1), while the remainder comprised of seizures of non-ivory elephant specimens. Reporting by the Parties has increased in 2020 ($n = 49$ Parties) compared to 2019 ($n = 47$) and 2018 ($n = 42$), but lack of timely reporting after seizure occurrence, having gap years in the reporting time-series, and incomplete reporting by some countries participating in the NIAP process continue to be of concern⁴.

² For brevity, [SC74 Doc. 68](#) is not cited repeatedly throughout Parts I and II of this report and as it is assumed readers will refer to SC74 Doc. 68 and its Annex 1c for detailed data descriptions, methodology reference, and trend analysis results.

³ Data summarized here are similar to the data presented in the SC74 ETIS report and the annual trend analysis completed for data up to and including 2020. Because: the CITES deadlines for report publications pre-CoP requires early submission of this report; ETIS data for 2021 were due on 31 March 2022; and the need to allot time for the analysis to identify Parties requiring attention under the NIAP process, no new data for 2021 were added. The next annual ETIS trend analysis that includes 2021 data is expected to be completed in advance of CoP19 – see Part VI: Considerations of ETIS data submission timeline.

⁴ As stated in paragraph 32.c of document SC74 Doc. 68, two out of the five Category A Parties (Togo and Viet Nam), and four out of the nine Category C Parties (Angola, Cambodia, Ethiopia, and Qatar) submitted 2020 ETIS data; all Category B Parties, i.e., Hong Kong SAR, reported 2020 ETIS data. In general, reporting from NIAP Parties has been inconsistent, the exceptions being Ethiopia and Hong Kong SAR, which have been reporting continuously for the time period included in the trend analyses (i.e., 2008 – 2020).

Of the ivory seizures ($n = 29,447$), 48% had both the number of pieces and weight of raw or worked ivory reported to ETIS, and therefore constituted the basis for estimating missing weights for seizures which reported the number of pieces but not their weight⁵. Worked ivory weights were converted to Raw Ivory Equivalent weights (RIE) to account for wastage when raw ivory is worked. Collectively and hereafter in this report, weight seized refers as applicable to the total of: raw ivory seizure weight from the reported data; the estimated weights for records with number of pieces but no weight; and the RIE weights for both reported or estimated worked ivory seizures weights.

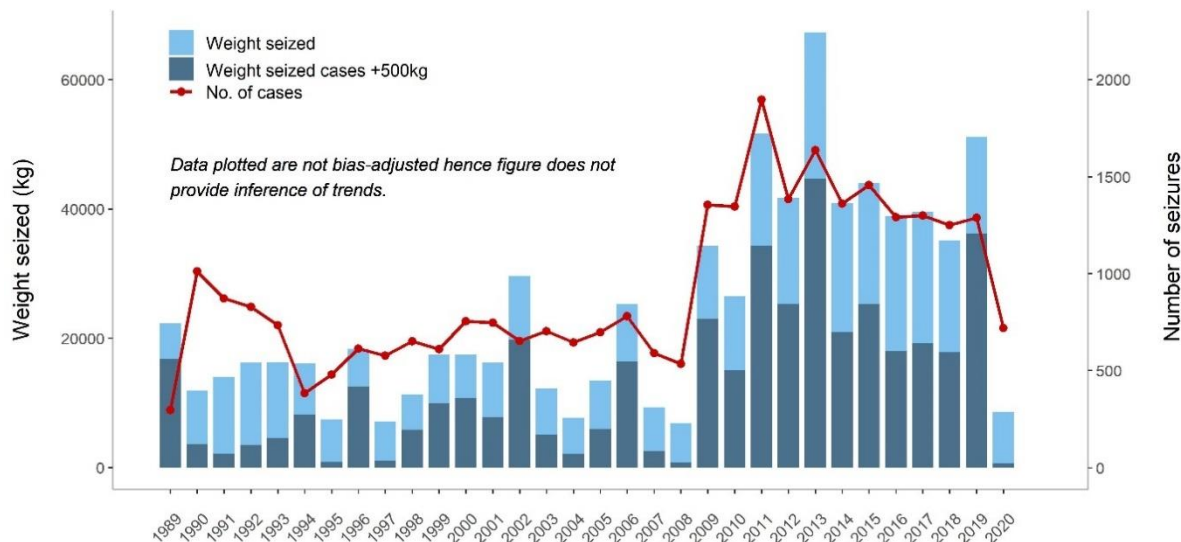


Figure 1: Number of ivory seizure cases and weight by year from 1989 - 2020. Summaries are based on data downloaded from the ETIS database on 20 October 2021. Number of seizures includes seizures and confiscation reported to ETIS⁶. Weight seized refers to the total ivory weight from the reported data, the estimated weights for records with number of pieces but no weight, and the Raw Ivory Equivalent (RIE) weights for both reported or estimated worked ivory seizures weights (based on methods described in Annex 1c of SC74 Doc. 68).

As reported to SC74, the summaries of data reported to ETIS depicted in Figure 1 reveal two key patterns. Firstly, fewer records were reported in 2020, with number of seizures and total weight reported being similar to 2008 levels. This is likely because 2020 represents an abnormal year in which economic, travel, and trade activities were severely reduced due to the impacts of the COVID-19 pandemic, which could have subsequently impacted illegal trade activity, seizure rates, and ETIS reporting rates. Secondly, 2019 represented the third largest year in total weight seized that was reported to ETIS (51,161 kg) and included three exceptionally large seizures that were the largest ever recorded in ETIS. The latter included: a seizure by officials in China of 7,482 kg of raw ivory exported by sea from Nigeria and reported as destined for China; a seizure by officials in Singapore of 8,795 kg of raw ivory exported by sea from the Democratic Republic of the Congo (from here on referred to as DRC) transiting in Singapore (where it was intercepted) *en route* to Viet Nam before reaching its reported destination, China; and a seizure by officials in Viet Nam of 9,104 kg of raw ivory, also exported from the DRC, that transited undetected via the Republic of the Congo and Singapore before reaching its destination, Viet Nam, where it was seized.

PART II – TREND ANALYSIS

Data and Methods. The trend analysis aims to identify whether illegal trade activity increases or decreases overtime after adjusting reported ETIS data for differing enforcement and reporting efforts by the Parties. Since CoP16, a hierarchical Bayesian model has been used to estimate the illegal transaction index and weight index respectively as measures of frequency and volume of illegal trade over the period of the reported analysis (CITES 2013, Underwood *et al.* 2013). Seizure data have been classified into ivory type and weight classes of: small raw

⁵ Weight estimation models were on data from 1995 to most recent year included in the analysis, or 24,842 records out of the 29,447 ivory seizure records in ETIS. Model were run separately for raw and worked ivory and statistical outliers were removed. For each ivory type, records that contained both the number of pieces and weight seized were used to as a model training set to develop a predictive relationship using a polynomial regression on the log transformed number of pieces. The resulting model parameters allowed estimation for records with reported number of pieces but not weight. For the latest trend analysis, the training datasets consisted of 5,246 records of raw ivory and 3,322 records of worked ivory, and the respective estimation datasets consisted of 2,584 and 8,870 records.

⁶ As also detailed in Annex 1c to document SC74 Doc. 68, summaries refer to ETIS data that passed certain checks including the removal of duplicated records, follow up if missing or abnormal information was noted, verification of open sources data by the Parties, etc.

(less than 10 kg), medium raw (10 kg to less than 100 kg), and large raw (100 kg or more) ivory, small worked (less than 10 kg), and large worked (10 kg or more) ivory. Similar to the analyses performed for CoP18, model parameters were estimated for each ivory type and weight class using country-, or territory-, specific covariates of law enforcement ratio⁷ and trade chain index⁸ to model seizure rates, and covariates quantifying reporting rates to ETIS and to CITES annual reports to model reporting rates⁹.

The latest trend analysis carried out and reported to SC74 included ETIS data spanning 2008 – 2020, or 16,818 ETIS records from 68 countries. Models were run using the jagsUI package (Kellner 2021) in Program R (R Core Team 2021), using 2 chains, 200,000 iterations, 100,000 burn-in iterations, and chain-thinning factor of 10, resulting in posterior distribution of 10,000 values. Results are shown with 95% credible intervals for each ivory type and weight category as well as for the composite index across all categories for the transaction index (Figure 2) and the composite weight index (Figure 3). It is noted that indices are presented relative to the first year in the time series, or 2008¹⁰, which is set to a value of 100, and thus should not be interpreted as absolute values.

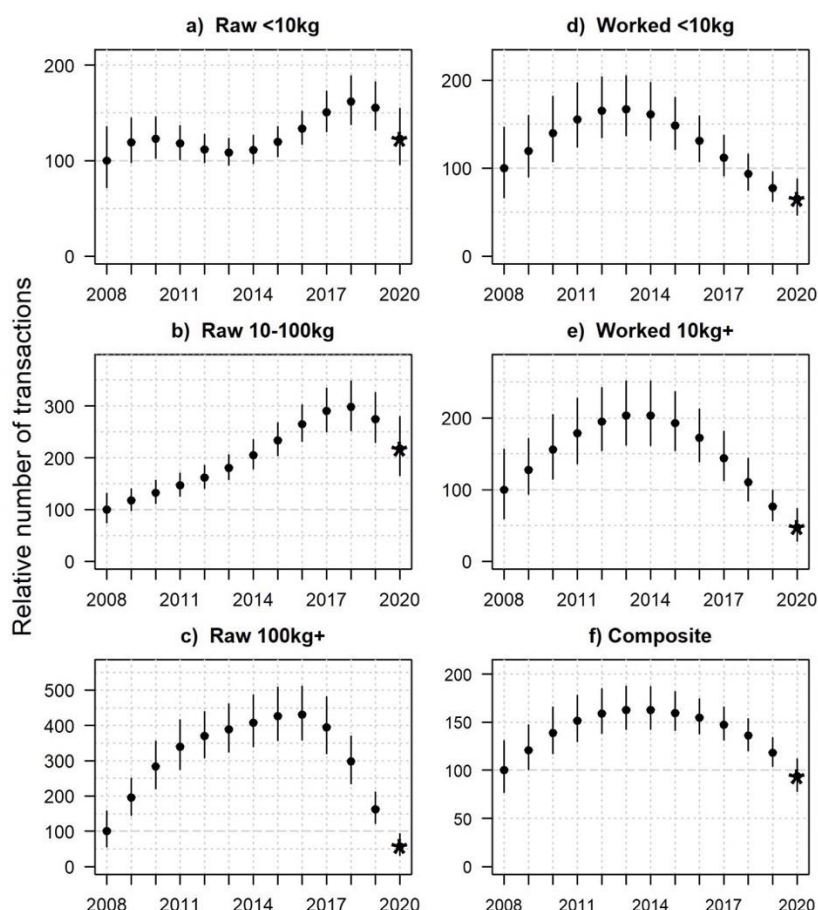


Figure 2. Transaction index. Transaction index estimates for (a) small (<10 kg), (b) medium (10-100 kg), and (c) large (\geq 100 kg) raw ivory classes; (d) small (<10 kg), and (e) large (\geq 10 kg) worked ivory classes; and (f) the composite across all ivory types and weight classes. Mean estimates (bold dot) are shown with 95% credible intervals. Asterisk is denoting the fact that 2020 data (and estimates) likely represent an abnormal year, acting as an outlier that could impact results (see also

⁷ Law enforcement ratio (also known as LE ratio) is defined as the proportion of all seizures that a country was involved in that were made by the country themselves. Countries implicated in seizures and that did not make and report any seizures themselves have a LE ratio of zero, whereas countries that capture and report all shipment known to have passed through their borders will have an LE ratio of one. A lagged law enforcement ratio was used because the level of law enforcement in the previous year may represent the enforcement environment for the current year.

⁸ Trade Chain Index (TCI) was introduced in the ETIS analyses for CoP18 and is aimed at correcting for a situation where destination countries in the trade chain may have a higher LE ratio simply due to the fact that a shipment is less likely to leave their borders. The TCI is calculated as a ratio of destination and non-destination trade chain scores, thus it measures the relative role that a country plays in the trade route. The ratio is then logged (after adding one) and is used along with LE ratio to model seizure rates.

⁹ CITES reporting score was derived as a ratio of the number of years that a country submitted their annual trade reports as documented by the CITES Secretariat, over the number of years for which the Convention has been in force for that Party; ETIS data collection score is derived based on modes of reporting of ETIS data, i.e., passive, prompted or targeted defined in Underwood et al. (2013).

¹⁰ 2008 was used as a baseline year because it marked the second CITES-approved one-off sale of ivory amongst six Parties, and was the beginning of a nine-year moratorium on further sales from range States with elephants listed in Appendix II (CITES 2013, 2016, and 2019).

Annex 2). Models are based on ETIS data downloaded from the database on 20 October 2021.

Trend Analysis Results. As reported to SC74, the trend analysis results showed that since the peak in illegal ivory trade in 2014 – 2015 there appears to have been an overall decreasing trend in illegal ivory trade activity to 2020, with 2020 estimates comparable to the baseline levels of 2008 (Figure 2.f for transaction index and Figure 3.a for weight index). These results are consistent with results from the trend analyses of Monitoring of Illegal Killing of Elephants (MIKE) data (CITES 2022a) and the previous ETIS analysis indicating an incremental decline in illegal ivory trade in recent years. However, for 2020 it is impossible to determine the extent to which this is due to a real decrease in illegal ivory trade stemming from control actions taken by the Parties and law enforcement agencies, or due to the possible impacts of the COVID-19 pandemic on overall illegal wildlife trade. It is possible that COVID-19 related restrictions imposed in 2020 have affected travel and transport systems and subsequently reduced illegal ivory trade activities. Further, closure of physical markets and lockdowns might have shifted illegal activity to online channels, primarily through the movement of smaller parcels (OECD, 2020). Lastly, decreased law enforcement efforts may have resulted from staff illness, isolation, or furlough, or focus of effort was on COVID-related enforcement.

Because 2020 was most likely an abnormal year in terms of seizure data and 2019 had record-setting seizure values by seized weight, models were also run excluding 2020 (Annex 2 of this report, as appeared in Annex 1d of CITES 2022a). When omitting the 2020 data, results revealed increasing trends up to a peak in 2019 for small and medium raw ivory classes (Annex 2, Figure A1.a-b); an increasing trend from 2018 to 2019 for small worked ivory class (Figure A1.d) and the composite index (Figure A1.f); and decreasing trends for large worked and raw ivory classes (Figure A1.c and e). It remains to be seen if in line with economic recoveries in 2021 illegal ivory trade activity will increase, and future analysis of post-pandemic ETIS data can provide an indication of the direction and sustainability of trends.

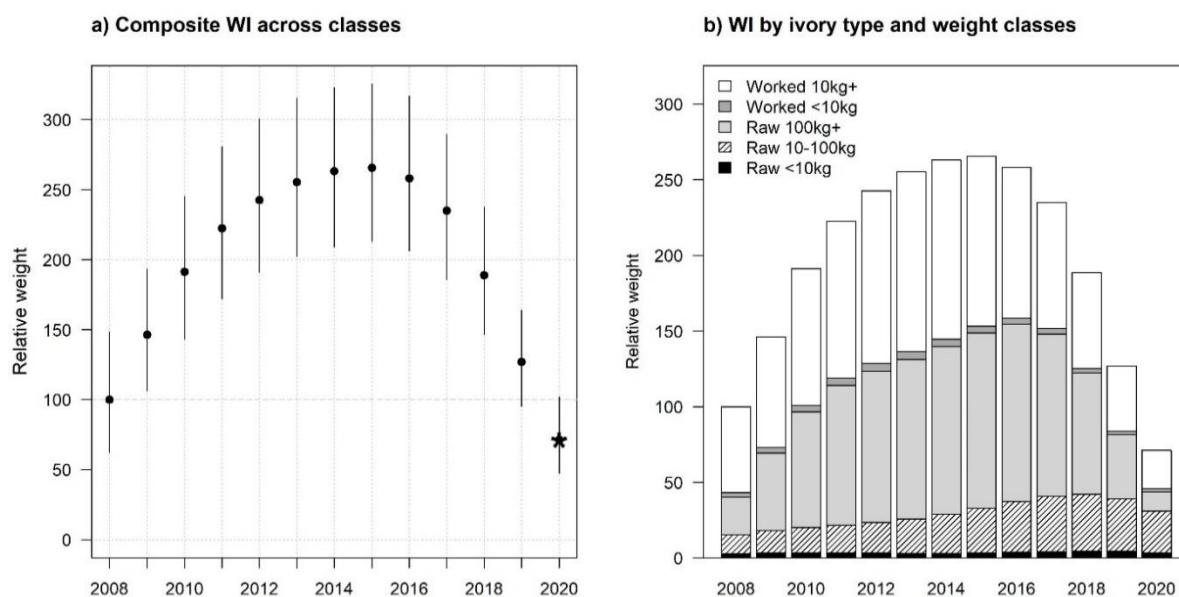


Figure 3. Weight index. (a) Composite of weight index estimates across all ivory types and weight classes, where mean estimates (bold dot) are shown with 95% credible intervals, and where an asterisk is denoting the fact that 2020 data (and estimates) likely represent an abnormal year, acting as an outlier that could impact results (see also Annex 2); and (b) weight index estimates depicted by ivory type and weight classes. Models are based on ETIS data downloaded from the database on 20 October 2021.

PART III: CLUSTER ANALYSIS

Annex 3 of Resolution Conf. 10.10 (Rev. CoP18) on *Guidelines to the National Ivory Action Plans Process* states that: ‘The foundation for identifying Parties to participate in the National Ivory Action Plans Process (NIAP) process is the ETIS report submitted to each meeting of the Conference of the Parties under this Resolution’. Since the ETIS report to CoP13 (CITES 2004), an agglomerative hierarchical cluster analysis has been used to identify countries with similar trade characteristics to help inform the process of identifying countries that are most prominently implicated in the illegal ivory trade. Analyses used here followed the same methodology presented in the last ETIS report to CoP18 (CITES 2019). It is noted that the cluster analysis was based on the trend analysis results reported to SC74 therefore included data up to 2020.

Input data. Input data to the cluster analysis were summed for years 2018-2020, or those covering the period since the last cluster analysis prepared for CoP18. Data consisted of the following 11 country-, or territory-, specific variables in four general groupings (seizure-in, seizure-out, weight-in, and weight-out):

Seizure-in. The transaction Index (TI) results from the trend analyses (Figure 2) that represent an index of the number of seizures made within the country or territory. TI is estimated by ivory type in five weight classes (three raw ivory and two worked ivory classes) that consisted five input variables: small raw (<10 kg), medium raw (10-100 kg), large raw (100 kg+), small worked (<10 kg), and large worked (10 kg+) . These five input variables capture the seizure-in component of the illegal ivory trade, i.e., the number of seizures made by the country or territory of interest and allow for comparison of its relative role in the illegal trade.

Seizure-out. The bias-adjusted total of 'seizures out', or the number of seizures in which a country or territory has been implicated as part of the illegal trade chain but did not make the seizure itself although it had an opportunity to do so. This variable is summarized for seizures that were less than 500 kg (< 500 kg), or equal to or greater than 500 kg (500 kg+), where weights are summed for raw and worked classes combined. These two input variables allow for comparison of the law enforcement performance (i.e., high seizure-out value compared to seizure-in values indicates lower enforcement performance), but only in cases where law enforcement action would have been possible.

Weight-in. The bias-adjusted total of 'weights in', or the weight in kg of seizures made by a country or territory. This variable is summed for seizure-in with total weight less than 500 kg (< 500 kg), or equal to or greater than 500 kg (500 kg+), where weights are summed for raw and worked classes combined. These two input variables allow for comparison of the relative quantity of ivory being seized coming into a country or territory in smaller (< 500 kg) or larger (500 kg+) consignments.

Weight-out. The bias-adjusted total of 'weights out', or the weight in kg of seizures in which a country or territory has been implicated as part of the illegal trade chain irrespective of where the seizure took place. This variable is summed for seizures that had total raw and worked ivory weights less than 500 kg (< 500 kg), or equal to or greater than 500 kg (500 kg+). These two input variables allow for comparison of the relative illegal ivory trade flows in terms of the quantity of ivory coming from, leaving, or moving through a country or territory in smaller or larger consignments.

It should be noted that, similar to previous analyses, seizures of 500 kg or more have been used as an indicator for assessing large-scale ivory movements that are assumed to be linked to organized criminal activity (CITES 2019); Parties amended Res Conf 10.10 at CoP 16 to recommend that large seizures (i.e., over 500 kg) should be subject to forensic analysis.

Bias-adjustment. The core of the cluster analysis is a comparison of characteristics of illegal ivory trade activities among countries or territories (hereafter collectively referred to as countries). As noted in Part II, because countries expend differing enforcement efforts in seizing illegal products (as reflected in differing seizure rates) as well as differing reporting efforts in submitting seizure data to ETIS (as reflected in differing reporting rates), comparing the characteristics of countries requires first to correct for individual country's seizure and reporting rates. As detailed in Part II, the hierarchical Bayesian modelling conducted for the ETIS trend analysis (CITES 2022a) provides posterior distributions of, or a set of values for, the estimated seizure and reporting rates for each iteration of the model (a total of 10,000 values) and for each of the five ivory type and weight classes: raw ivory < 10 kg, 10-100 kg or 100 kg+ and worked ivory <10 kg or 10 kg+.

Using these parameter estimates, bias-adjustments were made as follows: 1) seizure records were adjusted based on country- and year-specific covariates and the seizure and reporting rate parameter estimates ($n = 10,000$ each) in accordance with the hierarchical Bayesian model formula used for the trend analysis¹¹; 2) when multiple countries of origin were specified, the bias-adjusted quantities for weight-out were further corrected to account only for the weight of ivory that originated from that country; 3) the bias-adjusted seizure data were then summed across the year range considered for the cluster analysis (2018 – 2020), thus resulting in 10,000 bias-adjusted values for each country and cluster analysis input variable; 4) the 10,000 bias adjusted values were averaged for each country across the 10,000 posterior distribution values to provide a single country-specific value for each cluster analysis input variable. The resulting country-specific input variables were then log-transformed and standardized before running the cluster analysis.

¹¹ Bias-adjustment is performed in accordance to formulae in lines 69 – 110 in the [R code](#) that specify the hierarchical Bayesian model used in the trend analyses such that each value is adjusted by $1/(\text{seizure rate} \times \text{reporting rate})$.

Cluster derivation. An agglomerative nesting hierarchical clustering was run to derive a dendrogram using the *cluster* package (Maechler *et al.* 2021) in Program R (R Core Team 2021). Similar to the last ETIS analysis for CoP18, Ward's method¹² was used to derive 15 groups from the countries included in the trend analysis based on inclusion criteria that relate to the number of seizures for each weight class (see details in *Data inclusion* section in SC74 Doc. 68 Annex 1c; CITES 2022a). Upon examination of the input variables, it was noted that three countries - Equatorial Guinea, Mauritius, and Saudi Arabia - had no seizures-in nor seizure-out data from 2018 – 2020¹³; therefore, these countries were excluded from the cluster analysis, leaving 65 countries in total.

Given that the variables in the cluster analysis are based on modelled outputs, a sensitivity analysis was conducted to assess the cohesiveness of the countries that form each cluster by: 1) repeating the cluster analysis for every possible input data value estimated from the posterior distribution of the trend analysis, 2) calculating the proportion of times that each country was clustered with every other country and 3) plotting and visually assessing the degree of variation for each country's cluster membership (Annex 3). The degree of cluster cohesiveness that was found is noted unless the cluster consisted of only one country; this is especially relevant for larger clusters. In general, a high degree of cohesiveness was observed, especially for those clusters considered for NIAP prioritization later in this report (Annex 3).

Cluster analysis results. Figure 4.A depicts the dendrogram resulting from the cluster analysis in which 65 countries were assessed for the years 2018 - 2020. Countries are grouped together such that variability in the 11 input variables (listed in the y-axis of Figure 4.B) is minimized within the group compared to other groups thereby resulting in clusters of countries with similar characteristics. The degree of vertical separation between different countries provides a relative measure of dissimilarity based upon the distance along the vertical axis. Although countries represented on the top left branch of the dendrogram carry in general larger values for most variables (Figure 4.B; clusters 1 to 8), the numerical order of the cluster groups is not a ranking of their relative importance, but simply indicates their order moving from left to right across the dendrogram.

Figure 4.B is a heat image that depicts the mean log-transformed and standardized input variable values for all countries where larger values are plotted as darker red colors and lower values are plotted as lighter yellow colors. Because input values were bias-adjusted and standardized, the relative scale (i.e., color variations) can be compared within and across variables and countries. However, it should be noted that due to different distribution of the data for each variable depicted, color variations might differ between the variables. For example, less degree of variation was noted for variable seizure-out 500 kg+ than seizure-out < 500 kg, hence the color of lower values is not as pronounced. Finally, it is noted that countries are arranged to correspond with the dendrogram in Figure 4.A.

In the following sections cluster characteristics are described for each group based on the standardized, log-transformed and bias-adjusted values from Figure 4.B, which were the input data to the cluster analysis. For the purpose of describing the clusters, transaction indices are sometimes referred to collectively as “seizure-in”, in which case values were summed across their respective ivory type and weight classes. For the general context of data that were available for the analysis, it is noted whether countries reported to ETIS in the analysis timeframe, i.e., whether ETIS data were submitted by 20 October 2021 for the analysis timeframe (2018 - 2020). For these reporting data statements use of *ETIS data* refers to data reported to ETIS; however, unless otherwise stated, reference to *data* or *variable(s)* in the cluster descriptions refers to the bias-adjusted and transformed data that were the input variables into the cluster analysis.

Cluster 1 – Nigeria (NG): Nigeria has not reported data to ETIS since 2017, however data for seizures made by the country were obtained from non-Party sources (SC71 Doc. 11 A9: $n = 3$; media sources: $n = 2$), and data for seizures that implicated the country were mostly reported by other Parties ($n = 75$) or by non-Party sources (World Customs Organization: $n = 2$; media sources: $n = 3$). From 2018 – 2020 Nigeria was associated with the second highest numbers of seizures-out and total weight-out, which implies other Parties or non-Party sources reported Nigeria as a country of origin, export, transit, or destination on the trade chain of an illegal consignment and that Nigeria did not make that seizure. Overall, Nigeria accounted for 29% of the total weight-out depicted in Figure 4.B. Nigeria also had lower seizure-in (summed across all transaction indices) and weight-in values, respectively ranking at 29th and 24th out of 65 countries or territories.

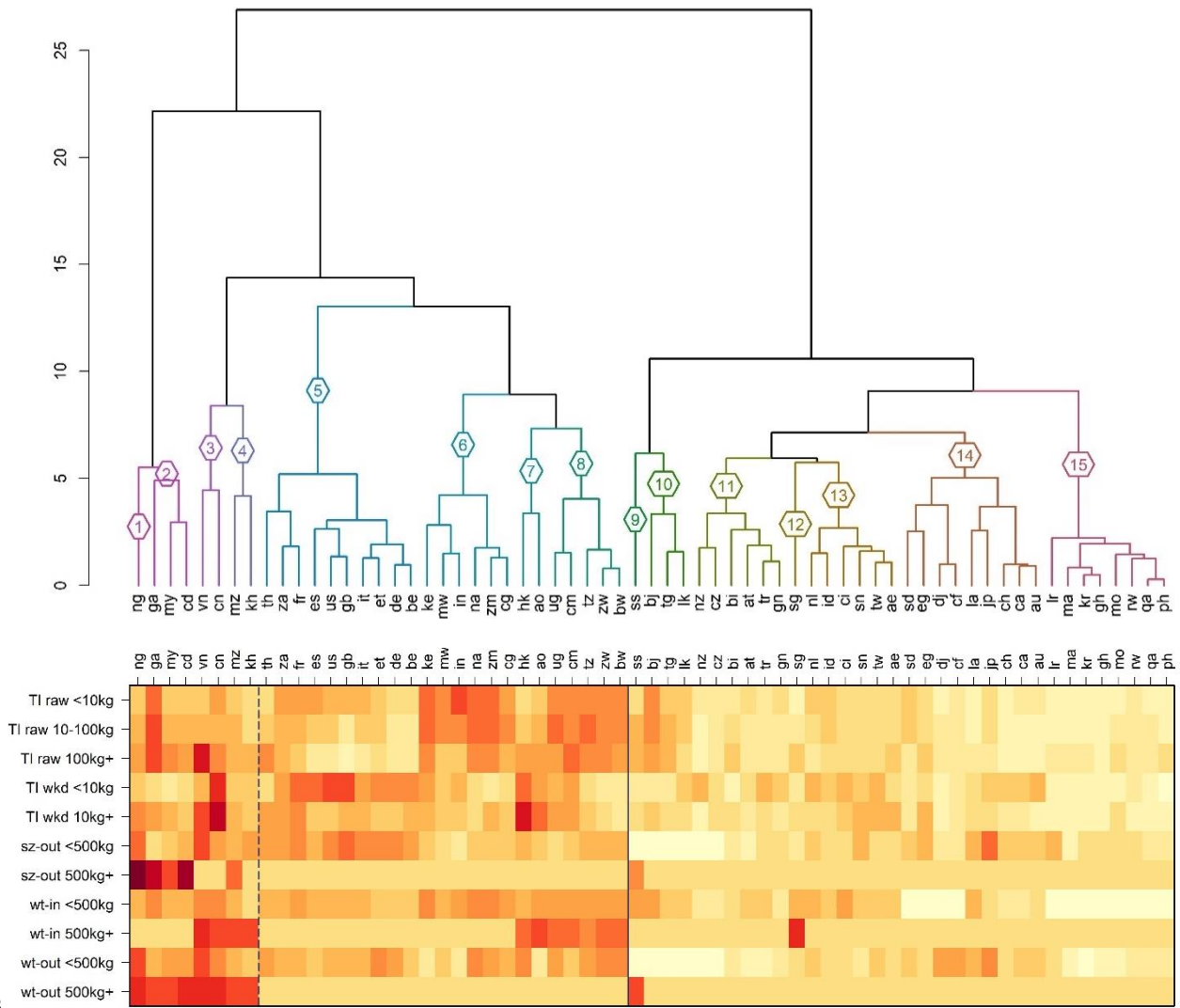
Cluster 2 – Gabon (GA), Malaysia (MY), Democratic Republic of the Congo (CD): While Malaysia reported

¹² An option specified in the *cluster::agnes* function which uses a clustering method that minimizes the total variance between countries within a cluster using a sum-of-squares criterion.

¹³ No data were reported by these three Parties for 2018 – 2020 nor was it reported by non-Party sources. These countries were initially included in the calculations of input variables to the cluster analysis as they did have seizure data from 2008 – 2020 and thus generated Transaction Indices for the five ivory types and weight classes.

seizures made in country (seizure-in) to ETIS in 2018, no other data were reported to ETIS by the Parties in this cluster and during that year. However, for the other years for Malaysia, and for other countries from 2018 – 2020, ETIS contained seizures-in data in this cluster from non-Party sources¹⁴. There was a high degree of cohesiveness for countries within this cluster (Annex 3). Relative to the other 65 countries or territories in the analysis, countries in this cluster were implicated in more large seizures (seizure-out 500 kg+) that totaled more weight (weight-out 500 kg+). For the seizure-out 500 kg+ variable, countries in this cluster ranked 2nd (DRC), 3rd (Gabon), and 4th (Malaysia). For weight-out, these countries collectively accounted for 39% of the total weight that implicated countries, with DRC accounting for most of that weight (31%; Malaysia 6%, and Gabon 2%). Gabon, Malaysia and DRC did not make any large-scale seizures in country that were 500 kg+ (weight-in 500 kg+), but otherwise for transaction indices of raw ivory type (TI raw < 10 kg, 10-100 kg, and 100 kg+), Gabon had higher values in this cluster compared to DRC and Malaysia, implying more seizures were made in country for Gabon.

A



B

Figure 4. Cluster analysis results and input variables. A) A dendrogram delineating the clusters based on 11 input variables representing measures of illegal ivory trade in 65 countries or territories from 2018 - 2020. Clusters are numbered sequentially from left to right on the dendrogram but have no bearing on cluster ranking. B) A heat-map ranking of standardized, log-transformed values (darker color = higher values) for the input variables for each country. Countries are ordered as they appear from left to right in the dendrogram and country name abbreviations follow ISO alpha-2 country codes¹⁵ and appear with the full country name in the main text. Variable descriptions appear in main text and name abbreviations

¹⁴ Malaysia reported no seizures were made in 2019 and 2020; however, ETIS contained data for seizures made in country from media sources (n = 6). Similarly, seizure-in data for Gabon and DRC were obtained from the World Customs Organization (DRC, n = 2), CITES reports (DRC, n = 5), NGOs (DRC, n = 1 from Juristral; GA, n = 70 from EAGLE network) and media sources (GA, n = 3). In general, throughout the report data from other sources may have been available for each country. Parties are able to access ETIS Online to review and verify data reported as seizures made within their country that were obtained from other sources.

¹⁵ <https://www.iso.org/obp>

represent: TI = Transaction Index; wkd = worked ivory; sz-out = seizure-out; wt-in = weight-in; and wt-out = weight-out. The vertical solid line represents the first division of the dendrogram where in general countries to the left have relatively higher input values than countries to the right, and the vertical dashed line represent a division where countries to the left have relatively higher values relating to large (500 kg+) seizures out.

Cluster 3 – Viet Nam (VN), China (CN)¹⁶: In this cluster, the two Parties reported to ETIS each year with the exception of 2018 seizure data for Viet Nam. Sensitivity analysis results suggested the cluster had a high degree of cohesiveness. Viet Nam and China had high total weight equal to or greater than 500 kg for seizures that were made in country (weight-in 500 kg+) as well as for seizures in which the countries were implicated (weight-out 500 kg+); together these two countries accounted for 59% (VN – 50%; CN – 9%) of the weight-in 500 kg+ and 42% (VN – 34%; CN – 8%) of the weight-out 500 kg+ from 2018 - 2020. Both countries also had low numbers of medium raw ivory seizures (10-100 kg). China ranked highest among all 65 countries or territories for worked ivory seizures made in country (TI worked < 10 kg and 10 kg+), while Viet Nam ranked highest among all 65 countries or territories for large raw ivory seizures made in country (TI 100 kg+) and for the total weight-in 500 kg+.

Cluster 4 – Cambodia (KH), Mozambique (MZ): In this cluster, only Cambodia reported data to ETIS before 20 October 2021 to be included in the analysis¹⁷. Cambodia and Mozambique had good cluster cohesiveness. Both countries ranked relatively high for weight-out 500 kg+ where Cambodia ranked 6th and Mozambique ranked 7th out of the 65 countries or territories included in the analysis; together they accounted for 8% of the weight (KH – 4.5%, MZ – 3.5%). Mozambique and Cambodia also had similar high ranks for weight-in 500 kg+, accounting for approximately 9% of the weight (KH – 4%, MZ – 5%). For seizures-in, the countries had similar values for the transaction index of raw ivory 100 kg+ and for worked ivory less than 10 kg, but for the number of large seizures-out (seizures-out 500 kg+), Mozambique ranked higher (5th) than Cambodia (6th).

Cluster 5 – Thailand (TH), South Africa (ZA), France (FR), Spain (ES), United States (US), United Kingdom (GB), Italy (IT), Ethiopia (ET), Germany (DE), Belgium (BE): All countries in this cluster reported data to ETIS from 2018 – 2020. Despite being the largest cluster in this analysis, sensitivity analysis results showed a relatively cohesive fit. Countries in this cluster had no large-scale seizures (seizure-out 500 kg+ or weight-out 500 kg+) and, compared to other clusters in the top left branch of the dendrogram (i.e., as compared to clusters 1 to 8), they generally had lower values of transaction index of raw ivory (TI < 10 kg) and higher values of transaction index worked ivory (TI worked < 10 kg).

Cluster 6 – Kenya (KE), Malawi (MW), India (IN), Namibia (NA), Zambia (ZM), Congo (CG): All countries in this cluster are elephant range States. All except Republic of the Congo and India reported 2018 – 2020 seizure data to ETIS. Countries in this cluster exhibited relatively good cohesiveness and had no large seizures that implicated the country (seizure-out 500 kg+ or weight-out 500 kg+). For seizures-in, the countries made no seizures greater than 500 kg as indicated by the weight-in 500 kg+ variable, but countries in this cluster had a relatively high number of seizures-in for small and medium raw ivory types, and overall weight-in for seizures less than 500kg.

Cluster 7 – Hong Kong Special Administrative Region (SAR) (HK), Angola (AO): In this cluster, the two Parties reported to ETIS each year with the exception of 2019 seizure data for Angola¹⁸. This cluster exhibited relatively good cohesiveness. Hong Kong SAR and Angola had no large seizures that implicated the country or territory, but relative to the other 65 countries or territories in the analysis, they made more worked ivory seizures in country or territory as indicated by the 2nd (Hong Kong SAR) and 4th (Angola) ranking of their transaction indices (TI worked 10 kg+). Overall for large seizures (weight-in 500 kg+), Hong Kong SAR and Angola seized in country or territory 5% of the total weight compared with the 65 countries or territories which made large seizures of 500 kg+ (weight-in 500 kg+).

Cluster 8 - Uganda (UG), Cameroon (CM), Tanzania (TZ), Zimbabwe (ZW), Botswana (BW): All countries in this cluster are elephant range States. Uganda, Tanzania, and Zimbabwe have reported all data for the analysis period, with the exception of Botswana, which did not report to ETIS in 2019¹⁹, and Cameroon which did not

¹⁶ China refers to mainland China. In line with the treatment of Hong Kong SAR separately from China under the NIAP process, in this report data for Hong Kong SAR were analyzed and are presented separately.

¹⁷ Mozambique reported to ETIS in 2022 hence any new seizure-in data are not factored in this cluster analysis; data for seizures made in Mozambique were obtained from document SC70 Doc. 27.4 A16 (n = 2) or from media sources (n = 6).

¹⁸ For Angola, no other sources reported seizures made in country in 2019 however two media sources reported seizures made in country in 2018 and 2020; additionally, from 2018 to 2020, seven seizures reported by other Parties and one obtained from a media source implicated Angola.

¹⁹ Seizure data in ETIS for Botswana for 2019 (n = 20) were all obtained from the CITES Secretariat based on the illegal trade report (UNODC) (but were not submitted using ETIS data collection form or on ETIS Online).

report to ETIS between 2017 – 2020²⁰. Cluster cohesiveness was moderately good. Countries in this cluster were not implicated by any large seizures data (seizure-out or weight-out 500 kg+) and had larger numbers of seizures of raw ivory made within country (TI raw). The countries also have seized more weight from seizures made in country (weight-in 500 kg+), and collectively account for 17% of the total weight across the 65 countries or territories.

Cluster 9 – South Sudan (SS): South Sudan is a relatively young country and not a Party to CITES. While the country has a National Authority listed on the CITES website and has registered on ETIS Online on March of 2021 (as part of the 2020 data collection effort), it has not submitted data to ETIS but would be able to review and verify data that have been submitted by other Parties in which it is implicated. Data for South Sudan are therefore based on non-Party data reported for seizures made within country or based on other Parties' data that implicated South Sudan as a country on the illegal trade chain²¹. The country has relatively lower values for most input data into the cluster analysis, except for large seizures-out and weight-out 500 kg+ where South Sudan has respectively ranked 6th and 8th for these variables (out of the 65 countries or territories in cluster analysis).

Cluster 10 – Benin (BJ), Togo (TG), Sri Lanka (LK): With the exception of Togo's reporting of ETIS data for 2020, these countries did not report ETIS data for 2018 – 2020²². The countries had relatively more uncertainty in cluster membership. Benin, Togo, and Sri Lanka had no large seizures (500 kg+) that implicated the countries. Compared to other countries in the right top branch of the dendrogram (i.e., clusters 9 to 15), the countries in this cluster had higher values for raw ivory seizures made in country. For seizures of raw ivory, Benin made more seizures in country and had larger total weights-in for seizures under 500 kg than other countries in this cluster.

Cluster 11 – New Zealand (NZ), Czech Republic (CZ), Burundi (BI), Austria (AT), Türkiye (TR), Guinea (GN): Countries in this cluster reported to ETIS from 2018 to 2020 with the exception of Guinea for 2018-2020 and of Austria in 2018 and Burundi in 2018 and 2020²³. Countries in this cluster had more uncertainty in cluster membership (Annex 3). None had any seizures that implicated the countries (seizure-out and weigh-out < 500 or 500 kg+). The countries in this cluster did have relatively similar but low small (< 500 kg) weight-in and small (< 10 kg) worked seizure-in data, which can be an indication of small souvenir artifacts transported by tourists.

Cluster 12 – Singapore (SG): Singapore has been reporting consistently to ETIS since 2013. Consistent with the top right branch of the dendrogram (i.e., clusters 9 – 15), it had relatively lower variable values on all input variables with the exception of weight-in 500 kg+. Even though the country did not have many large seizures made within country (seizure-in 500 kg+) and had ranked out of the 65 countries or territories in 22nd place for transaction index of large raw, and in 42nd place for large, worked seizures, Singapore accounted for 18% of the weight-in 500 kg+ variable and ranked 2nd out of the 65 countries or territories.

Cluster 13 – Netherlands (NL), Indonesia (ID), Côte d'Ivoire (CI), Senegal (SN), Taiwan Province of China; (TW), United Arab Emirates (AE): The Netherlands, Côte d'Ivoire, and Indonesia were the only countries that reported ETIS data for 2018-2020, United Arab Emirates reported data to ETIS for 2018 and 2019, and Taiwan Province of China and Senegal did not report to ETIS but seizure records were reported by other Parties or non-Party sources²⁴. This cluster showed relatively higher amount of uncertainty for cluster membership (Annex 3). Countries in this cluster had no large seizures that implicated the countries (seizure-out or weight-out 500 kg+), and no large seizures made within the country (weight-in 500 kg+). Relative to other countries in the top right branch of the dendrogram (clusters 9-15), these countries had more total weight seized from small-scale seizures made in country (weight-in < 500 kg). A mix of range and non-range States, countries in this cluster had relatively higher values for small, worked ivory seizures that were made within country (TI worked < 10 kg; relative to

²⁰ Cameroon is now registered to ETIS Online and has reported 2021 data within the deadline. Seizure in data for Cameroon for 2018 – 2020 was obtained from World Customs Organization (n = 6), media sources (n = 5), EAGLE network (n = 13) and TRAFFIC (n = 1).

²¹ One seizure made in South Sudan was reported by a media source, and one seizure implicating the country was reported by a CITES Party.

²² For Benin, all 12 seizures made in country were reported by the EAGLE network, and one implicating record was reported by another Party; For Sri Lanka, five seizures made in country were reported from media sources, and one from the World Customs Organization, and no implicating seizures were reported from 2018 -2020; For Togo, one seizure in was reported by EAGLE network for 2019 and no implicating seizures were reported from 2018 -2020.

²³ For Guinea, one seizure made in country was reported by EAGLE network, and three seizures reported by other Parties implicated the country; For Austria, one seizure-in was reported by World Customs Organization for 2018, and one seizure reported by another Party implicated the country; For Burundi, no other sources reported seizures-in, two seizures reported by other Parties implicated the country.

²⁴ For the United Arab Emirates, no other sources reported seizures made in country, and 15 seizures reported by other Parties implicated the country, as were two seizure reports obtained from media sources and one report from document SC70 Doc. 27.4 A8; For Taiwan Province of China, one seizure made in the Province was reported by media sources, and three and two seizures implicating the Province were made by other Parties or media sources, respectively; For Senegal, three seizures made in country were reported by EAGLE Network, and one was reported by media sources, and all 12 seizures implicating the country were reported by other Parties.

countries in right branch of dendrogram), and Senegal, Taiwan Province of China, and UAE had a similar slightly higher transaction index for seizures of worked ivory 10 kg+. Lastly, relative to countries within the cluster, Côte d'Ivoire seized more weight in country for smaller consignments (weight-in < 500 kg).

Cluster 14 – Sudan (SD), Egypt (EG), Djibouti (DJ), Central African Republic (CF), Lao PDR (LA), Japan (JP), Switzerland (CH), Canada (CA), Australia (AU): ETIS data submitted by countries in this group consisted of: Australia and Japan reporting for all years, Switzerland reporting for 2018 and 2019, and Canada reporting for 2019. All other years and countries combinations were not reported to ETIS by the Parties but data may have existed from other sources²⁵. This cluster was the second largest and showed greater uncertainty in country membership. Similar to cluster 13, countries in this cluster had no large seizures that implicated the countries (seizure-out or weight-out 500 kg+), and no large seizures made within the country (weight-in 500 kg+). Relative to other countries in the top right branch of the dendrogram (clusters 9-15), this cluster had more small seizure in which they were implicated (seizure-out < 500 kg), as well as more seized weight for those seizures (weight-out < 500 kg); notable was Japan which was implicated with more small-scale seizures (seizure-out < 500 kg). Finally, Switzerland, Canada, and Australia had slightly higher values for small (< 10 kg) worked ivory seizures made within country relative to other countries in this cluster.

Cluster 15 – Liberia (LR), Morocco (MA), Republic of Korea (KR), Ghana (GH), Macao SAR (MO), Rwanda (RW), Qatar (QA), Philippines (PH): ETIS data submitted by countries in this group consisted of: Qatar and Philippines reporting for all years, and Ghana reporting to ETIS in 2020. All other years and countries combinations were not reported to ETIS by the Parties but data may have existed from other sources²⁶. This cluster showed moderate uncertainty in country membership. Countries in this cluster had relatively lower values for all input data to the cluster analysis, no large seizures that implicated the countries (seizure-out or weight-out 500 kg+), and no large seizures made within the country (weight-in 500 kg+). Countries in this cluster had slightly higher numbers of small-scale seizures (seizure-out < 500 kg) in which they were implicated, but otherwise the countries had relatively low levels of illegal trade across the 11 variables.

PART IV: PARTIES REQUIRING ATTENTION FOR CONSIDERATION FOR THE NIAP PROCESS

The National Ivory Action Plans (NIAP) process is detailed in the *Guidelines to the NIAP process*, contained in Annex 3 of Resolution Conf. 10.10 (Rev. CoP18) as a practical tool under the direction of the Standing Committee. The goal of the NIAP process is to address illegal ivory trade by initiating a process in which participating Parties strengthen activities for five pillars: legislation and regulations; national enforcement and inter-agency collaboration; international law enforcement collaboration; outreach, awareness, and education; and reporting. Parties that participate in the NIAP process are categorized into three levels of attention in regard to illegal ivory trade: Parties *most affected* by the illegal trade in ivory (NIAP Category A); Parties *markedly affected* by the illegal trade in ivory (NIAP Category B); and Parties *affected* by the illegal trade in ivory (Category C).

The *Guidelines to the NIAP process* outline the NIAP process step-by-step starting from the identification of Parties to participate in the process, continuing with the development, assessment, and implementation of activities relating to the five pillars of the process, and concluding with the final evaluation of whether Parties completed their obligations and can exit the process. Step 1 a) in the identification of Parties to participate in the NIAP process states that (bold emphasis added):

*The **foundation** for identifying Parties to participate in the National Ivory Action Plan (NIAP) Process, is the ETIS report submitted to each meeting of the Conference of the Parties (CoP) under this Resolution*

where Steps 1 b and c further refines that (bold emphasis added):

*b) For Parties identified through the ETIS report to CoP as **requiring attention**, as described in Step 1, paragraph a), above, the CITES Secretariat will, in cooperation and consultation with the Party concerned, determine whether there is additional information to be considered in developing its recommendation to the Standing Committee, on whether the Party should be included in the process or*

²⁵ For Sudan, Egypt, Djibouti, Central African Republic, Switzerland, and Canada, no seizures made in country were reported from other sources. For Lao PDR, three seizures were obtained from SC70 Doc. 27.4 A13, and one from a media source. As for implicated seizures, most were reported by other Parties (3 for Sudan, 11 for Egypt, 1 for Djibouti, 2 for Central African Republic, 5 for Lao PDR, 10 for Switzerland, and 8 for Canada), followed by the World Customs Organization (1 for Sudan, 2 for Canada), and by media sources (5 for Lao PDR).

²⁶ None of the countries in this cluster had reported seizures made in country from 2018 – 2020. For implicated seizures, majority were reported by other Parties as follows: 17 for Liberia, 4 for Morocco, 3 for Ghana, 4 for Rwanda, 5 for Qatar, and 2 for the Philippines. Additionally, 2 implicated seizures were reported from media sources for Republic of Korea and 3 were reported from media sources for Macau Special Administrative Region.

not. The Secretariat may, if needed, engage with other experts and conduct country missions to assist in this process.

c) The Secretariat will prepare within 90 days from the submission of the ETIS report to CoP, in consultation with the Party concerned, using other relevant information and taking into account the purpose and intended outcome of the NIAP process, a recommendation to the Standing Committee as to whether a Party should be included in the process or not.

Hence, countries or territories requiring attention as part of the NIAP process are identified for consideration based on the ETIS analyses of contemporary patterns and country characteristics in illegal ivory trade. But while the preliminary suggested NIAP categorization in this report is the foundation for identifying Parties that may require attention, further pertinent information and consultation with the relevant Party by the Secretariat may result in a recommendation not to include a Party as part of the NIAP process that is made to the Standing Committee which holds all decision-making powers whether to include a Party in the NIAP process. It is also noted that while countries currently participating in the NIAP process may not be named as “requiring attention”, it is not an indication of an endorsement for those Parties to exit the process; the latter is to be determined by the evaluation steps of the process as detailed in Annex 3 of Resolution Conf. 10.10 (Rev. CoP18).

Countries requiring attention. Amongst the 65 countries or territories included in this analysis, Parties belonging to clusters 1–4 (Nigeria, Gabon, Malaysia, Democratic Republic of the Congo, Viet Nam, China, Mozambique, and Cambodia; Figure 4.A) are identified as those *most affected* (Category A) or *markedly affected* (Category B) by illegal ivory trade. Selection of these countries was based on their higher overall illegal trade activity within country, but also higher large-scale illegal trade activities that occurred in the country undetected – i.e., large seizures in which the country was implicated as country of origin, export/re-export, or transit, or destination in the illegal trade chain (Figure 4.B). Differentiation to determine ranking of the Parties in those clusters as Category A or B was done in the context of the overall bias-adjusted illegal trade volume (or weight seized), and the reported role, of the country in the illegal trade chain. For example, countries with more small-scale seizures made in country were assigned a Category B (i.e., seizures-in; e.g., Gabon) compared to Category A Parties which had more large-scale seizures in which the illegal trade chain implicated the country (i.e., seizures-out; e.g., Nigeria). It is again highlighted that while identifications of countries requiring attention is based on the bias-adjusted data to allow for proper comparisons, when the role of the countries in the illegal trade chain is discussed below, the reported (rather than bias-adjusted) data are used for interpretation. Additionally, where notable seizures or weight summaries are highlighted, the weight presented consists of the seized weight as defined in Figure 1²⁷.

As has been done in previous CoP reports, supportive information from the subsidiary data maintained in the ETIS database provided context to further differentiate countries into the A and B categories²⁸. Specifically, an index of the country’s corruption perception (CPI²⁹; Transparency International 2021; higher values indicate a country is less corrupt), a measure of the country’s law enforcement efforts based on reported ETIS data (LE ratio³⁰ as defined in Part II of this report; higher values indicate better enforcement effort), and published literature were considered; for the latter, the new index of global organized crime was also considered as a measure of organized crime (Global Initiative Against Transnational Organized Crime 2021). Using the supportive information allows to differentiate for example, between Parties with similar illegal trade characteristics that may otherwise differ in their law enforcement efforts in pursuing organized crime, or other documented activities that demonstrated strong commitment to disruption of the illegal trade (e.g., through the enactment of national legislation).

Finally, and as was done in previous reports, countries that presented new illegal trade dynamics are mentioned as Category C as they were deemed as “countries to watch” (rather than those that were already participating, or participated, in the NIAP process as detailed in previous ETIS CoP reports). Only one non-Party (South Sudan) was included in this Category based on its notable implicated volume of illegal trade (weight-out 500 kg+), which

²⁷ Weight seized refers to the total ivory weight from the reported data, the estimated weights for records with number of pieces but no weight, and the Raw Ivory Equivalent (RIE) weights for both reported or estimated worked ivory seizures weights (based on methods described in Annex 1c of SC74 Doc. 68).

²⁸ For included subsidiary data of CPI and LE ratio, data were averaged for each country over the three years included in the analysis 2018 – 2020. It is also noted that because of the impacts of the COVID-19 pandemic on economic activities and travel severely reduced the ability to sample markets in 2020, the previously used domestic market scores were not considered in this report as quantitative subsidiary data, but where relevant, published market surveys were used qualitatively to discuss the Parties’ illegal ivory trade activity and NIAP categorization

²⁹ CPI values are on the scale of 0 to 100 where lower values indicate higher corruption may exist in the country.

³⁰ LE ratio values vary from 0 to 1 where 0 values indicate all illegal shipment activity passed undetected in the country, and values of 1 indicate all shipments were seized.

was relatively high compared to otherwise lower values of illegal trade activities among similarly clustered countries (clusters 9-15; Figure 4). As with Category A and B countries, additional information (CPI, LE ratio, and published literature) was used to justify the selection. With that stated and in light of proposed recommendations based on the ETIS program's external review (CITES 2022b), more refinements might be made in future assignments of Parties under the NIAP process to Category C, as well as Categories A and B, as better definitions are developed by the Parties as to what *most affected*, *markedly affected*, and *affected* mean in terms of quantifiable illegal trade characteristics.

With the above criteria in mind, the following sections provide additional contextual details for Parties that may require attention as Category A, B and C under the NIAP process. Countries are presented in the order of their appearance in Figure 4.

Category A

Nigeria (NG) – Nigeria is an African elephant (*Loxodonta africana*) range State with a relatively small elephant population (Thouless *et al.*, 2016). The Party has been participating in the NIAP process since 2014 and is currently listed as Category A (CITES 2022c)³¹. From 2018 – 2020 Nigeria ranked the second largest in terms of total weight-out in the illegal ivory trade accounting for 29% of the implicated illegal trade volume and included a seizure consisting of the third largest seized amount ever reported to ETIS. During the same period, Nigeria apparently made few seizures in country, where all seizures made in country were reported from non-Party sources (CITES reports and media sources; see PART III of this report) as the Party has not reported to ETIS since 2016. The country had a very low estimated (based on ETIS data) LE ratio of 0.04 indicating poor law enforcement performance.

For its role in the illegal trade chain, Nigeria was mostly reported as an implicated country of origin or export with 80 seizures implicating Nigeria out of 85 total reported seizures for the Party from 2018 – 2020 (details in PART III of this report). For large seizures (500 kg+) that included illegal trade chain information on exporting countries ($n=12$), Nigeria was the most commonly reported country of export/re-export ($n=5$) with 17.3 tonnes of raw ivory reportedly shipped from Nigeria destined for China (one seizure of total seized weight of 7,483 kg), Viet Nam (three seizures of total seized weight of 7,246 kg³²) and Hong Kong SAR (one seizure of total seized weight of 2,046 kg that was seized in Hong Kong SAR with no reported further destination country). All five seizures were hidden in sea freight containers, and at least two seizures also included large quantities of other contraband, including 14.3 tonnes of pangolin scales. Therefore, Nigeria serves as an export country for large shipments moving from Africa to Asia that appeared to be of large-scale organized wildlife crimes.

A recent study (Wasser *et al.*, 2022) supported the observed patterns related to Nigeria in ETIS. By identifying ivory trafficking networks based on genetic matching of tusks from separate shipments for the same elephants, or their close relatives, the study highlighted shifts in the African bases of operation of transnational criminal organizations to Nigeria. It further demonstrated the shifting pattern of containerization of large-scale ivory exports from Togo, which was the major exit point in 2013–2014, to Nigeria also in the period 2016–2019. Other studies established that Asian-led criminal syndicates were involved in illegal ivory export trade in Nigeria (EIA, 2018; WJC, 2021).

Democratic Republic of the Congo (CD) – Democratic Republic of the Congo (DRC) is an African elephant range State participating in the NIAP process since 2014, DRC was listed as Category B in CoP16, and listed as a Category C Party since CoP17 (CITES 2022c). DRC has not reported to ETIS since 2016 (see PART III for ETIS data sources for the Party). From 2018 – 2020, DRC had the highest volume of illegal ivory trade that was not detected in country (i.e., weight-out), which in total consisted of 31% of the implicated illegal trade volume by weight for the 65 countries or territories included in the analysis. The two largest seizures ever recorded in ETIS were exported from DRC in 2019 and constituted over 83% of the 21.5 tonnes of reported seized ivory that implicated the country ($n=13$ reported seizures). During the same time DRC reportedly seized only 329 kg of ivory in country³³; therefore the country had an estimated LE ratio of 0.29 indicating low law enforcement effort.

DRC's role in the illegal trade chain was mostly as a country of export of ivory from Africa to Asia. The two record-setting seizures had similar reported trade routes going from DRC, then transiting through the Republic of the Congo and Singapore where one shipment that was destined for Viet Nam was seized in Singapore, whereas the other shipment transited through Singapore to Viet Nam (where it was intercepted) reportedly *en route* to

³¹ Nigeria entered the NIAP process as a Category B country in CoP16 in 2013. It became a Category A country at CoP18 in 2019.

³² One seizure had reported 2,000 seized raw ivory pieces and had its weight estimated as 3,706 with the weight estimation model described in document SC74 Doc. 68 Annex 1c.

³³ Reported to ETIS by World Customs Organization and collated from CITES report and an NGO.

China. A third shipment of 3.4 tonnes of ivory was also shipped from DRC through the Republic of the Congo and Singapore, destined for Viet Nam where it was seized. These three maritime shipments totaling 21.3 tonnes were seized within a four-month period from March to July 2019, and the latter shipment of 3.4 tonnes of ivory also included 4 tonnes of pangolin scales. Such large-scale shipment in a short timeframe, and the large volume of other wildlife contraband is likely an indication of organized criminal activity.

A study identifying ivory trafficking networks based on genetic sampling (Wasser *et al.*, 2022) supported patterns observed in ETIS with regard to DRC. The study highlighted shifts in the African bases of operation of transnational criminal organizations from East Africa to the DRC and Angola in the period 2016–2019. Furthermore, an Organized Crime Index ranked the DRC with the highest criminality score among 193 countries, attributing high scores to illegal wildlife trade as well as other contraband (Global Initiative Against Transnational Organized Crime, 2022). DRC also ranked fourth lowest on the CPI indicating high levels of corruption, and a recent study that was an initial step toward the future establishment of an ivory stock management system in the DRC revealed that, over the last 26 years, a minimum of 7,686 kg of ivory had gone missing from government custody (Mashini & Nkoke, 2020).

Viet Nam (VN) – Viet Nam has been a Category A Party participating in the NIAP process since 2014 (CITES 2022c). Viet Nam had the weight-out from 2018 – 2020 accounting for 11% of the volume of the trade, which included the largest seizure ever recorded in ETIS (9.1 tonnes). The Party also ranked the highest in the number of large-scale raw ivory seizures made in country (TI raw 100 kg+) and the total weight seized in country from small (< 500 kg) and large (500 kg+) seizures. Collectively, Viet Nam accounted for 34% of the volume by weight of the seizure-in trade. Despite some efforts to intercept illegal ivory trade activity within country, Viet Nam was still implicated in many seizures made elsewhere and therefore had an estimated LE ratio of 0.29 implying a low overall enforcement effort.

Viet Nam's role in the illegal trade chain was varied. The country was reported as a *country of origin* on small-scale worked ivory seizures of mostly one item that was reported as illegally traded “jewelry” (79 out of the reported 83 seizures from 2018 – 2020; another two seizures included jewelry-like items like pendant, bracelet, ring, etc.); therefore, these shipments destined mostly to the USA may have been illegally transported as a personal item, perhaps by tourists. For seizures that reported Viet Nam as a *country of export/re-export* ($n = 78$), most included worked items reportedly destined for China (63%) followed by the USA (30%), with a few large-scale seizures of worked ivory consisting of hundreds of pieces that were shipped by post; one such seizure of 740 pieces of worked ivory destined for China in 2018 also included machinery used to process ivory³⁴. Three seizures that listed Viet Nam as a *country of transit* had very large raw ivory weight (8.8 tonnes exported from DRC destined for China in 2019, and 3.4 tonnes exported from Mozambique destined for Cambodia in 2018), or large worked weight (> 10 kg exported from Laos P.D.R. to Thailand). Finally, seizures listing Viet Nam as a *country of destination* from 2018 – 2020 included a few ($n = 7$) large raw ivory shipments with reported seized weight totaling 7.6 tonnes, including two large shipments of over 3 tonnes that were reportedly exported from Nigeria in 2019 and South Sudan in 2019.

The ETIS trade chain data suggest that Viet Nam plays a complex role in the illegal trade of ivory and functions as a processing hub where large-scale shipments of raw ivory are arriving from Africa, and large-scale worked ivory shipments are reportedly destined for other Asian countries (mainly China) as well as to other parts of the world (mainly USA). UNODC's report on Transnational Organized Crime in Southeast Asia, stated that Viet Nam is “*perhaps the most important Southeast Asian country in the illicit wildlife trade*” because of its trading connections with Africa (UNODC 2019). Supplementary information from published reports have indicated similar patterns where Vietnamese transnational criminal syndicates were actively moving containerized ivory shipments from various African ports to Asian destinations throughout this period (EIA, 2018 and 2019).

Category B

Gabon (GA) – Gabon is a category C Party participating in the NIAP process since 2014 (CITES 2022c), the Party did not report seizure-in data to ETIS from 2018 – 2020. However, seizure data describing seizures made in the country were obtained from open-source media and data submitted by several NGOs operating in the country (details in PART III of this report); subsequently, the estimated law enforcement ratio for Gabon was high at 0.94.

Gabon ranked first for medium-scale (10-100 kg) seizures of raw ivory made within country (seizures-in), second for large-scale (100 kg+) raw ivory seizures-in, and third for small-scale (< 10 kg) raw ivory seizures-in. Compared

³⁴ This seizure was reported by open-source media China Daily:
<http://usa.chinadaily.com.cn/a/201805/15/WS5afa19f0a3103f6866ee854f.html>

to the 65 countries or territories included in the analyses, Gabon accounted for 12% of the total weight seized from small seizures (weight-in < 500 kg); this is compared to < 1% of the total weight seized from small seizures in which Gabon was implicated (weight-out < 500 kg). The majority (63 seizures out of 73) of the seizures reportedly made in Gabon consisted of 10 or less pieces of raw ivory, often in multiples of two (i.e., 2, 4, 6, 8, 10). While government pressure has potentially driven the domestic ivory market in Gabon underground (Nkoke *et al.*, 2017), there is some evidence to suggest raw ivory continues to move across the country's borders into neighboring countries for consolidation and export to Asia (Wasser *et al.*, 2022).

Malaysia (MY) – Malaysia is currently a Category A Party participating in the NIAP process since 2013. Malaysia ranked fourth for the number of (seizure-out 500 kg+), and fifth for the total seized weight of (weight-out 500 kg), large seizures implicating the country. Overall, the country accounted for 6% of the total weight-out trade among the 65 countries or territories included in the analysis. At the time data were prepared for the analyses, Malaysia did not report all data for 2019 and 2020, but some of the data included in the analyses were seizure records obtained from open-source media reports³⁵. With those records factored in, the Party had an estimated LE ratio of 0.62, meaning roughly 6 out of 10 seizures relating to Malaysia were made in country.

For all seizures made in country or that implicated Malaysia from 2018 – 2020, the most notable is a seizure of 3.5 tonnes of raw ivory that implicated Malaysia in 2018 as a transit country. In this case the ivory was reportedly exported from Nigeria through Malaysia, Singapore (where it was seized), and destined for Viet Nam. Additional seizures implicated Malaysia as a country of export of medium-scale (10-100 kg) raw ivory to Indonesia in 2019, and large-worked ivory to China in 2018. Additionally, a large-scale seizure of worked ivory reported for 2018 as destined for Malaysia was seized in DRC. Given these reported illegal trade chains, it appears that Malaysia maintains its transit status with illegal trade linking it to African range States as well as Asian consumer States. Supplementary data come from a report depicting the dismantling of Chinese transnational crime syndicates engaged in the containerized movement of large quantities of ivory from Africa to Asia, that appeared to have smuggled ivory from Malaysia to China (WJC, 2021).

China (CN) – China has previously participated in the NIAP process exiting it in 2018³⁶, and has regularly reported to ETIS. From 2018 – 2020, China had the highest rank for small- and large-scaled worked ivory seizures made in country (seizure-in), and overall accounted for 8% of the illegal ivory trade weight seized in country (weight-in). China also ranked 4th for the total seized weight that implicated the Party (weight-out < 500 kg and 500 kg+), accounting for 8% of the overall volume by weight of implicated illegal trade. Overall, the Party had a high estimated LE ratio of 0.95.

There have been numerous seizures made in China ($n = 415$), with the majority consisting of seizures of worked ivory, with some consignments containing over a hundred ($n = 8$) and two of over a thousand pieces of worked ivory. When China was implicated by other Parties, it was relatively rarely reported as the country of origin ($n = 3$) or export ($n = 20$) on the illegal trade chain, and most frequently reported as the country of destination ($n = 148$). A few large-scale raw ivory seizures reportedly destined for China were made from 2018 – 2020 including the 8.8 and 7.5 tonnes seizures that were exported from DRC and Nigeria in 2019, respectively. Unlike other countries included in the analyses, China seems to have direct and indirect illegal trade links with numerous other countries in Asia, Africa, North America and Europe.

China continued its commitment to curtail domestic ivory trade including a total ban that took effect on 31 December 2017, just before the period of data summarized for this report. China also demonstrated commitment in pursuing and dismantling key crime syndicates operating domestically and abroad (WJC, 2021). While the COVID-19 pandemic precluded physical market surveys, ongoing monitoring of online and social media platforms has documented a decrease in the number of online advertisements for ivory products in China (although next to rhino horn, ivory products were the most frequently offered wildlife product in the 2017-2018 survey; Xin and Xiao, 2019)³⁷. Despite China showing strong commitment to curb domestic illegal ivory trade and aggressive investigation and prosecution of its nationals involved in overseas wildlife trafficking, the Party still remains a primary destination for illegal ivory.

³⁵ All Parties were able to review records pertaining to them that have been included in the analysis before 20 October 2021 using ETIS Online. Malaysia informed ETIS in February 2022 (i.e., after date cut-off of 20 October 2021 for the analysis presented here) that they had not made any seizures of ivory from 2019 – 2021.

³⁶ China was listed as a Category A Party participating in the NIAP process at CoP16 in 2013, and exited the process after CoP17 and the 70th meeting of the SC in 2018.

³⁷ Subsequent tracking of elephant ivory prices on social media accounts between July 2019 to December 2020 indicate a 43% decline in the average cost of small ivory items below 200 grams, which dropped from RMB 42.12 to RMB 23.72 (USD 6.60 to USD 3.73) (Xiao and Wilson. In prep. 2022).

Mozambique (MZ) – Mozambique is a Category A Party participating in the NIAP process since 2014 (CITES 2022c)³⁸. From 2018 – 2020, the country had the fourth-highest volume by weight of large-scale seizures made in country (weight-in 500 kg+) and the seventh-highest volume by weight of large-scale seizures in which the country was reportedly implicated (weight-out 500 kg+); Mozambique's illegal trade volume by weight was 4% and 3% of the total respective illegal trade volumes across the 65 countries or territories included in the analysis. The Party had not reported to ETIS by the time data were used for the current analysis³⁹, but was estimated to have seized 4 out of every 10 illegal trade activities relating to the country (i.e., seizure-in and seizure-out; an estimated LE ratio of 0.38).

Mozambique's role in the illegal ivory trade chain was most notably linked with that of Cambodia, also in cluster 4 and participating in the NIAP process as Category C Party. In a period of eight months, two seizures, each exceeding 3.3 tonnes of raw ivory, were exported from Mozambique and shipped to Cambodia, where one of the shipments also transited via Viet Nam⁴⁰. While the illegal trade chain of these notable seizure-in and seizure-out records mirrors that of Cambodia, in the case of Mozambique, an open-source reported possible leakage (meaning theft) of official stockpile ivory tusks into one shipment⁴¹, where it was alleged that at least one-third of the ivory had been stolen in 2018 from the provincial warehouses of the Ministry of Land, Environment and Rural Development (MITADER) and the Criminal Investigation Service (SERVIC) in Lichinga, the capital city of Niassa Province in the far north of the country.

A recent report supported illegal trade patterns observed in ETIS (EIA, 2018); it suggested Asian-run transnational criminal syndicates focused on wildlife trafficking are operating out of Mozambique and into Cambodia. The report further detailed Vietnamese syndicate operatives, who have allegedly been operating throughout the country since at least 2015, which scaled up their operations from bases in the south of Mozambique and exported multiple consignments of ivory to Malaysia and Cambodia. At ninth rank from the bottom (out of the 65 countries or territories considered in this analysis), Mozambique ranks relatively low for corruption perception; however, stricter penalties for ivory trafficking were implemented in 2017, making imprisonment “an obligation” for ivory trafficking cases (CITES, 2018).

Cambodia (KH) – Cambodia, a Category C Party participating in the NIAP process since 2014 (CITES 2022c), has been reporting regularly to ETIS since 2015. From 2018 – 2020, the country had the fifth-highest volume by weight of large-scale seizures made in country (weight-in 500 kg+) and the sixth-highest volume by weight of large-scale seizures in which the country was reportedly implicated (weight-out 500 kg+); Cambodia's illegal trade volume was 2% and 4% respectively of the total weight seized across the 65 countries or territories included in the analysis. Cambodia has seized 4 out of every 10 illegal trade activities in the country during the period of the analysis (an estimated LE ratio of 0.39).

In regard to the illegal trade chain data, as noted above, there seemed to be an illegal trade link between Cambodia and Mozambique; in a period of eight months, two seizures exceeding 3.3 tonnes of raw ivory were exported from Mozambique and shipped to Cambodia, where one of the shipments also transited via Viet Nam. Additionally, several large shipments of worked ivory (ranging 10 – 69 number of worked ivory pieces) that were destined for USA were also reported to originate from Cambodia in 2019 and 2020, and one shipment of 10 worked ivory pieces was reported to be destined for China in 2020.

Cambodia ranks sixth lowest on its CPI compared to other countries included in the analysis, however it is noted that the country has demonstrated several initiatives to address illegal trade. In September 2019, the Ministry of Environment issued official letters to notify the shops in Phnom Penh and Siem Reap to stop selling ivory and rhino horn products and conducted 16 operations to reduce violations, and in 2020, a 10-year National Elephant Conservation Action Plan (2020-2029) was approved by the Ministry of the Environment (CITES 2022c).

Category C

South Sudan (SS) – South Sudan is not a Party to CITES and thus did not report to ETIS from 2018 – 2020. However, during the same period, data for one seizure-in was obtained from open sources (detailed in PART III of this report), and the country was also implicated by another Party submitting seizure data to ETIS. The latter

³⁸ Mozambique was first listed as a Category B Party at CoP16 in 2013, then as Category C Party at CoP17 in 2016, then as Category A Party at CoP18 in 2019.

³⁹ However, since then has registered to ETIS Online and submitted data on the system.

⁴⁰ It was stated in the open source of this seizure by Cambodian officials (the director of the Customs and Excise Office at the Phnom Penh port) that Viet Nam customs authorities did not have the authority to inspect the shipment as it transited via Viet Nam.

⁴¹ Reported by Club of Mozambique: <https://clubofmozambique.com/news/haul-of-ivory-in-maputo-port-a-part-was-stolen-from-state-warehouses-in-niassa-anac/>

was a notable seizure implicating South Sudan in 2019 and consisted of a 3.2 tonne shipment of raw ivory that was seized by Ugandan officials and was reportedly destined for Viet Nam. It was reported that some of the ivory in that seizure bore the markings of tusks that derived from the Burundi stockpile that was first registered and marked in 1989 by the CITES Secretariat; over the years, several illegal ivory transactions have included pieces appearing to show the marks from the Burundi stockpile (CITES 2019; Wasser *et al.*, 2022). Coupled with the fact that South Sudan has the lowest CPI score indicating high corruption in the country and an estimated low LE ratio of 0.33, this is a country to watch in future analyses.

PART V: CONCLUSIONS

Conclusion of trend analysis.

This analysis presents the trend in illegal trade in ivory from 2008 through 2020 with illegal trade activity tracked through Transaction and Weight Indices. The following conclusions can be made:

- In 2019, the third highest weight of ivory seizures for the period 2008 to 2020 was reported to ETIS, with three record-setting seizures recorded in 2019, each totaling 7.5 tonnes or more. In 2020, lower numbers of seizures and seized weight of elephant specimens were reported than in the preceding year.
- The illegal ivory trade trend analysis based on the transaction index showed that since the peak in illegal ivory trade in 2014 – 2015 there has been an overall decreasing trend in illegal ivory trade activity to 2020, with 2020 estimates comparable to the baseline levels of 2008.
- A trend analysis omitting data from 2020 (due to low reporting possibly resulting from the impacts of COVID-19) showed increasing trends for several ivory type and weight classes where for small and medium raw ivory 2019 presented a peak illegal ivory trade year from 2008 – 2019.
- Given that 2020 might have been an abnormal year due to the COVID19 pandemic, which could have impacted reporting rates to ETIS, and because 2019 had record-setting seizure by seized weight, future analysis of post-pandemic ETIS data will provide an indication of the direction and sustainability of the decreasing trends reported here.

Conclusion of cluster analysis

With respect to the cluster analysis, which focused upon assessment of illegal ivory trade data in the period 2018 – 2020, the following conclusions can be made:

- Parties that have previously been mostly affected by the illegal trade in ivory and that are already part of the NIAP process continued to be Parties requiring attention. In particular, illegal trade volumes associated with **Nigeria**, **Democratic Republic of the Congo**, and **Viet Nam**, were substantially large warranting their consideration as **Category A** Parties under the NIAP process.
- Additional Parties that are markedly affected by illegal trade in ivory but less substantially than Category A countries in terms of the overall volume of illegal ivory trade, but still continued to play a major role in the illegal trade, included **Gabon**, **Malaysia**, **China**⁴², **Mozambique** and **Cambodia**, which are proposed for consideration as **Category B** under the NIAP process.
- It is reasoned that although **South Sudan** is a non-Party, it is proposed as a **Category C** country under the NIAP process as a country to watch given its increasing role in the regional illegal ivory trade.
- Finally, it is noted that following 2019, in which record setting seizures were reported, data reporting and illegal trade activities in 2020 were low likely due to the impacts of the COVID-19 pandemic. This might have influenced categorization levels of existing NIAP countries, hence continued monitoring is warranted.

PART VI: ETIS DATA SUBMISSION TIMELINE

At the 74th meeting of the Standing Committee (SC), amendments were proposed to Annex 1 of Resolution Conf. 10.10 (Rev. CoP18) - *Monitoring illegal trade in ivory and other elephant specimens*, following an external review of the ETIS programme (SC74 Doc. 12). One amendment to the data collection and compilation section proposed

⁴² Referring to mainland China in this report.

the submission date of ETIS data will be “...within 90 days of their occurrence or by 31 October each year for the submission of data covering seizures in the preceding year” which aligns with the deadline for the submission of the Annual Illegal Trade Reports (AITR) and is a 7-month delay from the current submission date of 31 March (90 days after the end of the previous year). At its 18th meeting, the MIKE-ETIS Technical Advisory Group indicated that the actual impact of this change would vary based on the actual timing of Standing Committees and CoP meetings, which vary from year to year. In some cases, this may lead to a significant delay, in other years the impact may be minimal. It recommended that TRAFFIC could consider a short note to clarify the potential impact of deadline changes on submission of ETIS reports to the Standing Committee and the meetings of the Conference of Parties. TRAFFIC provided the following information relating to this matter:

Two main analyses are produced by ETIS:

- the first, an annual trend analysis is produced annually and can be submitted as an SC report or could be published online intersessionally;
- the second is produced before a CoP meeting and includes an analysis to identify Parties that require attention under the NIAP process and includes an analysis that builds on the trend analysis.

Reports must be reviewed by the MIKE-ETIS TAG and the Secretariat before being finalized and submitted in advance of the relevant meeting; 60 days in advance of an SC meeting, 150 days in advance of a CoP.

Depending on the timing of the meetings, the change in the submission date may result in a time lag between data submission and it being included in a report to the SC or CoP:

- If the submission date **remains 31st March** for the previous year's seizure data and the SC meeting is scheduled for December in that year, the trend analysis report would have a 1-year time lag. If the SC meeting is between January and November the following year, the trend analysis would have a 2-year time lag. For the Country/NIAP report, a CoP scheduled between August and December would have a time lag on date of 2 years or, from January to July, the time lag would be 3 years.
- If the submission date **moves to 31st October** SC trend reports would have a 2-year time lag if the meeting is scheduled from September to December or a 3-year time lag if the meeting is scheduled between January to August. CoP reporting would have a 3-to-4-year time lag (April to December vs January to March).

ACKNOWLEDGEMENTS

This report was authored by S. Baruch-Mordo, T.E.E. Oldfield, S. Zain, and L. Sangalakula from TRAFFIC in May 2022. TRAFFIC would like to acknowledge with gratitude the funding support from: the European Union's "INTRA-ACP WILDLIFE TRAFFICKING – MIKES+" project; the United States Fish and Wildlife Service's African Elephant Conservation Fund; the governments of Belgium and the Netherlands; and WWF, for providing support for the operation and management of ETIS since CoP18, including the production of this report. TRAFFIC also thanks Mr. Tom Milliken who was instrumental in the initiation and operation of ETIS until 2020, and who contributed his expertise to this report, and to Drs. Bob Burns and Fiona Underwood who until 2020, developed and implemented the methodology used for the ETIS analyses for this report.

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ETIS TREND ANALYSES RESULTS FOR MODELS EXCLUDING 2020 DATA

Due to the COVID-19 pandemic economic, travel, and trade activities were severely reduced which could have subsequently impacted illegal ivory trade activity, seizure rates, and reporting rates as detailed in the main text of this report; therefore, **2020 likely represents an abnormal year, acting as an outlier that could impact results**. In exploring the potential impacts of 2020 ETIS data on trend results, analyses were repeated to only include data from 2008 – 2019. While modeling results for this additional analysis are only presented as this Annex 2 and not included in the main report to avoid confusion, it is worth noting that changes in trend between the two modeling approaches – i.e., including and excluding data from 2020 - were observed. For example, excluding 2020 data resulted in an increasing rather than decreasing trends for transaction index (TI) for three ivory type and weight classes for 2019 (Figure A2.a, b, and d), which for two classes (small and medium raw ivory; Figure A2.a-b) represented a peak year in the timeseries analyzed. Similar trends were observed for weight index (WI) as depicted in

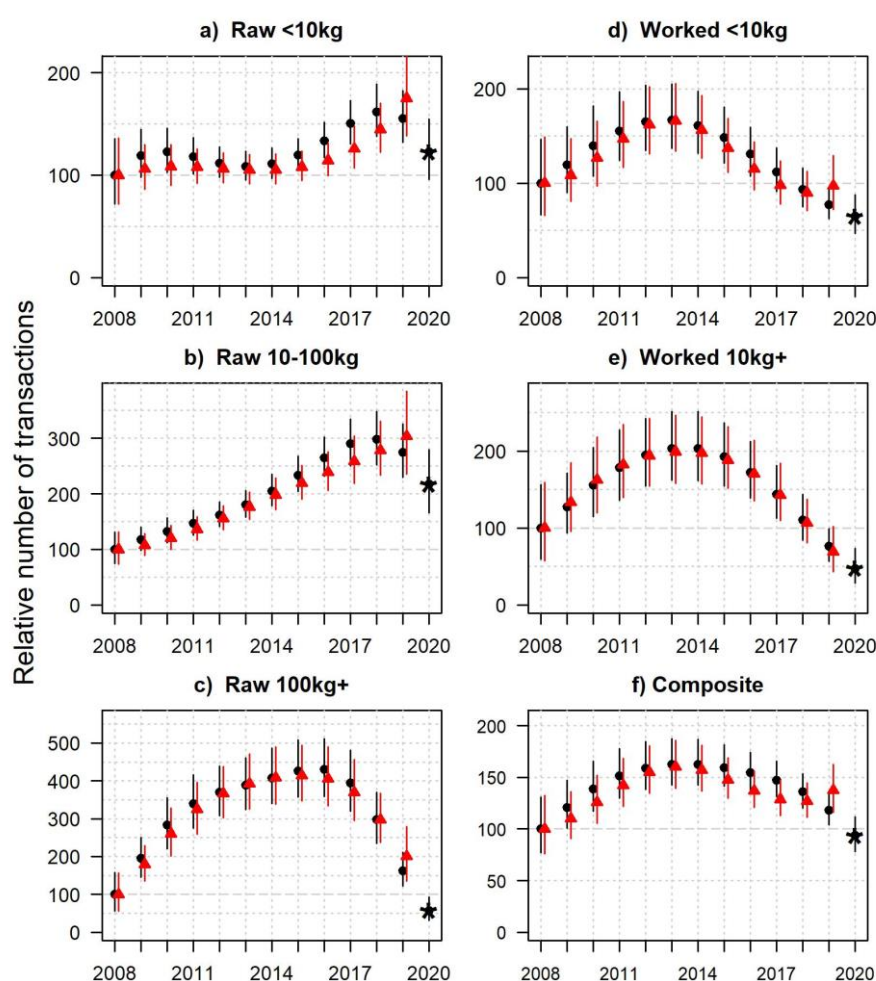


Figure A2. Transaction index estimates for (a) small (<10 kg), (b) medium (10-100 kg), and (c) large (≥ 100 kg) raw ivory classes; (d) small (<10 kg), and (e) large (≥ 10 kg) worked ivory classes; and (f) the composite across all ivory types and weight classes. Models were ran including (black circles) or excluding (red triangles) data from the abnormal year of 2020 due to the global COVID-19 pandemic (estimates for 2020 denoted with an asterisk). Mean estimates are shown with 95% credible intervals. Y-axis scales vary between panels to allow for clear depiction of the degree of change in trend relative to the baseline year of 2008. Models are based on ETIS data downloaded from the database on 20 October 2021.

the differences between the bars in Figures A4. panels a and b, although unlike the composite TI which increased in 2019 compared to 2018 for models excluding 2020 data, WI estimates indicated decreasing trends with or without data from 2020.

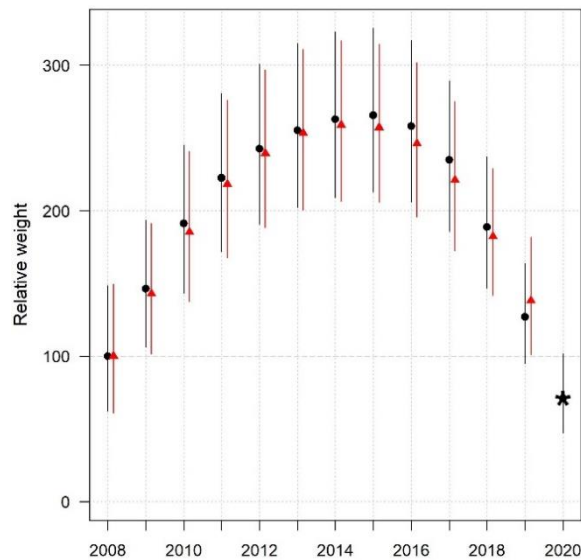


Figure A3. Weight index composite trends. Composite of weight index across all ivory types and weight classes. Models were ran including (black circles) or excluding (red triangles) data from the abnormal year of 2020 due to the global COVID-19 pandemic (estimates for 2020 denoted with an asterisk). Mean estimates are shown with 95% credible intervals. Models are based on ETIS data downloaded from the database on 20 October 2021.

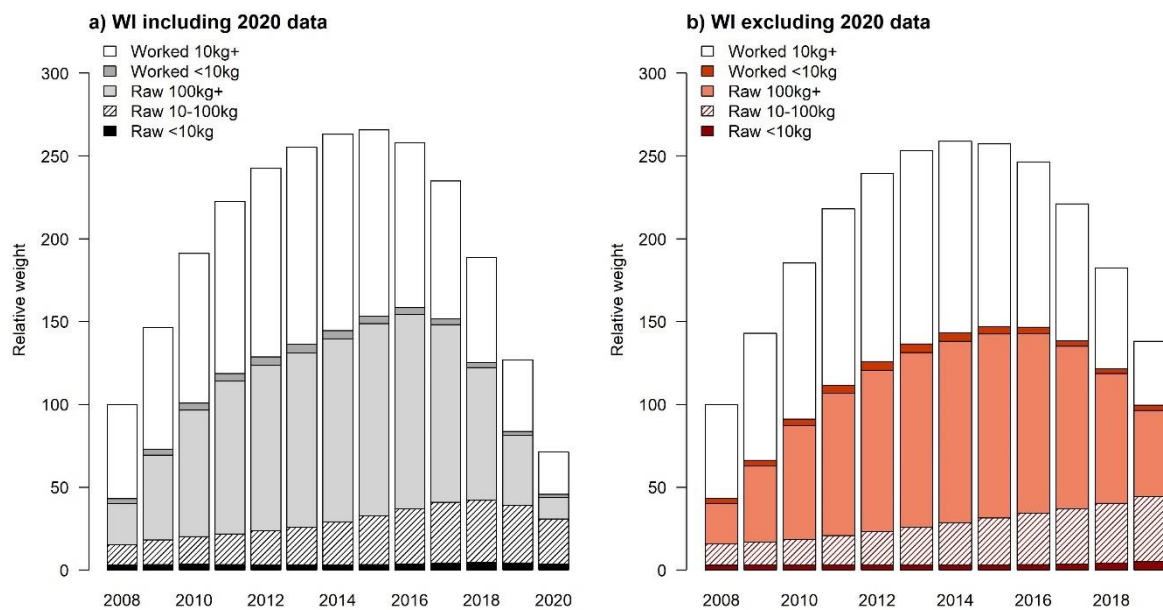


Figure A4. Weight index (WI) trends by ivory type and weight classes. Weight index trends are presented for models that (a) included and (b) excluded 2020 data that likely represented an abnormal year, acting as an outlier that could impact results. Models are based on ETIS data downloaded from the database on 20 October 2021.

ETIS CLUSTER ANALYSIS SENSITIVITY RESULTS

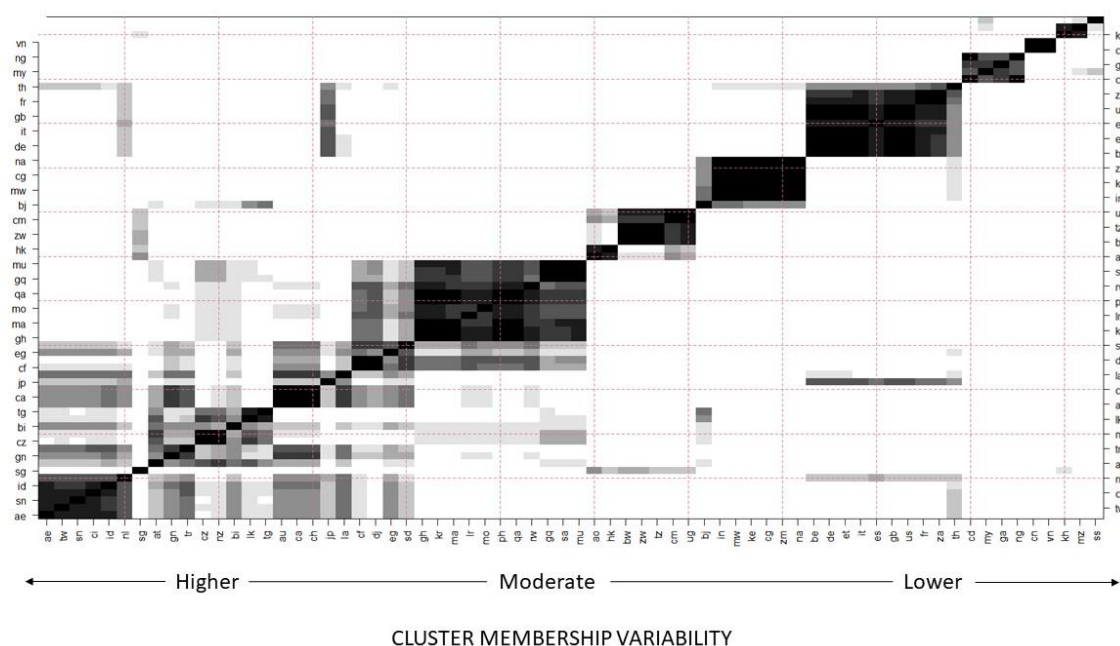


Figure A5. Proportions of country-to-country cluster membership. The proportion of times each of the 65 countries or territories included in the cluster analysis were in the same cluster as any other country or territory included in the analysis. Proportions were derived by running the cluster analyses for every value of the input data variable based on the posterior distributions from the ETIS trend analyses ($n = 10,000$ for each parameter). Darker colors indicate higher proportions, where black values represent a proportion of 1, or consistent cluster membership between countries or territories across all iterations (this includes same country “identity” matches, e.g., AE-AE or SN-SN); white colors represent a proportion of 0 where countries were never clustered together. In general, countries to the right have lower cluster membership variability as indicated by the darker, less dispersed values, whereas countries or territories to the left have higher cluster membership variability as indicated by the more numerous associations (higher proportions) with other countries or territories.

TENTATIVE BUDGET AND SOURCE OF FUNDING FOR THE IMPLEMENTATION OF DRAFT RESOLUTIONS OR DECISIONS

According to Resolution Conf. 4.6 (Rev. CoP18) on *Submission of draft resolutions, draft decisions and other documents for meetings of the Conference of the Parties*, the Conference of the Parties decided that any draft resolutions or decisions submitted for consideration at a meeting of the Conference of the Parties that have budgetary and workload implications for the Secretariat or permanent committees must contain or be accompanied by a budget for the work involved and an indication of the source of funding. The Secretariat include the following tentative budget for the calendar years 2022 – 2024 (external funding) (Table 1) as well as an indication of the budget shortfall (Table 2).

Table 1. ETIS projected operational budget for calendar years 2022 – 2024.

Budget category	Cost in USD
Staff (including social costs)	729,482
Travel	36,300
Website costs	7,952
Equipment	7,641
Contractual	71,646
Other*	415,434
Total	1,268,456

* Category includes establishment, administrative, and audit costs.

Table 2. ETIS projected budget shortfall for calendar years 2022-2024.

USD	2022	2023	2024
Budget	387,568	433,826	447,062
Secured Funding	267,833	44,000	0
Shortfall	119,735	389,826	447,062