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

Seventy-fourth meeting of the Standing Committee
Lyon (France), 7 - 11 March 2022

Administrative and financial matters

REVIEW OF THE ETIS PROGRAMME:
REPORT OF THE SECRETARIAT

1.   This document has been prepared by the Secretariat.

Background

2.   At its 70th meeting (SC70, Sochi, October 2018), the Standing Committee adopted the Terms of Reference
for a review of the Elephant Trade Information System (ETIS) programme [see documents SC70 SR, SC70
Com. 15, CoP18 Doc. 69.1, Annex 4]. The Standing Committee requested the Secretariat to:

   i)   *subject to external funding, appoint a group of independent experts to carry out the review of the
        ETIS programme under the oversight of the MIKE and ETIS Subgroup and a nominated member
        of the MIKE and ETIS Technical Advisory Group; and*

   ii) *issue a Notification to Parties requesting Parties to submit written observations on the ETIS
        methodology to be considered in the review process to the Secretariat by 28 February 2019; and
        to provide financial support for the review of the ETIS programme.*

   *The Standing Committee further requested the Secretariat to prepare a document on this matter for
   consideration at CoP18, which could include draft decisions on the conduct and delivery of the review,
   depending on advancements made.*

3.   The Secretariat issued the Notification to the Parties referred to in paragraph 2 b) above on 28 January 2019
(Notification No. 2019/009). Written observations on the ETIS methodology were received from China,
Nigeria and Singapore by 28 February 2019. In response to the invitation to Parties in the Notification to
provide financial support for the review of the ETIS programme, China and the Netherlands committed
financial support after the 18th meeting of the Conference of Parties (CoP18, Geneva, 2019).

4.   In accordance with recommendation c) in paragraph 2 above, the Secretariat prepared and submitted a
document on the implementation of Resolution Conf. 10.10 (Rev. CoP17) on *Trade in elephant specimens*
to CoP18 (CoP18 Doc. 69.1). This document included the matter of the review of the ETIS programme.
Based on the document, the Conference of the Parties adopted Decisions 18.18 to 18.20 on the *Review of
the ETIS programme* as follows:

   18.18   Directed to the Secretariat

   *The Secretariat shall include in the terms of reference for the review of the Elephant Trade
   Information System (ETIS) programme the issue of overlapping reporting requirements
   created under Resolution Conf. 10.10 (Rev. CoP18) on* Trade in elephant specimens *and
   Resolution Conf. 11.17 (Rev. CoP18) on* National reports *and the challenges posed by the
   different data-sharing policies, and work closely with the consultants carrying out the review
   to identify possible solutions.*

18.19 Directed to the Secretariat

The Secretariat shall report the findings of the review of the ETIS programme requested by the Standing Committee, and any recommendations emanating from the review, at the 73rd meeting of the Standing Committee

18.20 Directed to the Standing Committee

The Standing Committee shall review the findings and recommendations reported by the Secretariat in accordance with Decision 18.19 and make recommendations for consideration at the 19th meeting of the Conference the Parties.

5. The Secretariat included the overlapping reporting requirements referred to in Decision 18.18 in the terms of references for the review of the ETIS programme adopted at SC70. The terms of reference for the review of the ETIS programme required that the reviewers give due consideration to the institutional arrangements and resources needed to adequately meet the objectives of ETIS and ensure its longer-term sustainability, which is therefore covered by this report. For this reason, this document is also to be considered as the report by the Secretariat on Decision 18.21 on the MIKE and ETIS programmes adopted at CoP18 (Geneva 2019) with respect to the ETIS programme. Decision 18.21 on the MIKE and ETIS programmes directed at the Secretariat reads as follows:

18.21 Directed to the Secretariat

The Secretariat shall develop a proposal for consideration by the Standing Committee at its 73rd meeting on possible approaches to address the financial and operational sustainability of the MIKE and ETIS programmes.

Conduct of the review of the ETIS programme

6. The Secretariat contracted two independent consultants in June 2020 to undertake the review of the ETIS programme. One consultant focused on governance and business processes, while the other focused on the data management and the statistical analysis aspects. The two consultants collaborated on the review to ensure that all aspects of the terms of reference were addressed.

7. Some delays were experienced, mainly associated with the COVID-19 pandemic; and the report could not be finalized for consideration by SC73.

8. Due to the scope of the review, four members on the MIKE-ETIS Technical Advisory Group (TAG) were consulted during the review and requested to provide inputs to draft interim reports.

9. The Secretariat shared the final draft report with the eight members of the MIKE-ETIS Subgroup on 15 October 2021 and presented the main aspects of the report to the members of the Subgroup during an online meeting on 26 October 2021. The briefing session was attended by three members of the Subgroup (i.e., Belgium, China and Namibia). Comments on the draft report were received from Belgium and China by 12 November 2021 and shared with the consultants. Due to the independent nature of the review, the consultants did not incorporate all proposed amendments in the final report.

10. The executive summary of the final consolidated report on the review of the ETIS programme is attached as Annex 1 to the present document. For ease of reference, the key findings and recommendations by the data management and statistical analysis consultants, that are technical in nature, are attached in Annex 2 to the present document. The full reports are available as information documents.

11. The ETIS programme review was conducted in line with the UNEP Evaluation Policy and the UNEP Programme Evaluation Manual, and the programme's performance was assessed in terms of strategic relevance, effectiveness, efficiency, sustainability and impact. The overall assessment finding was that ETIS' overall performance could be rated as "Satisfactory" based on the assessed criteria.

12. The key findings and recommendations of the review are summarized in paragraphs 13 to 23. The comments submitted by members of the MIKE-ETIS Subgroup are summarized in paragraphs 25 to 28, followed by observations by the Secretariat.

Findings of the review of the ETIS programme based on the key requirements in the terms of reference

> ***Assessment of whether implementation of the provisions in Annex 1 of Resolution Conf. 10.10 (Rev. CoP18), including processes and methods implemented by TRAFFIC, are adequate to meet the objectives of ETIS and sufficiently robust, transparent and scientifically justifiable***

13. *Governance:* The decision-making processes were found to be effective, participatory and based on consensus building, and while there seems to be some perception that transparency could be improved, it was acknowledged that capacity constraints hindered in some instances timely responses to Parties' concerns. Some Parties expressed concerns about a non-governmental organization (TRAFFIC) managing and coordinating ETIS, but the review found that the overall analysis is data-driven and quantitative at its core, and TRAFFIC is objective in its use of available data, the analytical approach and reporting. The review does, however, highlight the need to further strengthen the MIKE-ETIS Technical Advisory Group with expertise relating to illegal trade in wildlife.

14. *Supporting processes*: In terms of business processes, the reviewers had to deal with a moving target because TRAFFIC has been implementing a number of changes based on previous requests of the Standing Committee (see SC70 SR and SC69 SR), including the release of ETIS Online that enables Parties to access, download or upload seizure data and verify if they have been implicated in illegal trade. The report highlights the need to ensure that existing technical documents describing and supporting ETIS processes, including Standard Operating Procedures, are regularly updated, consolidated and published in a consistent and timely manner. In addition, training was identified as a key area that TRAFFIC can improve going forward, in addition to targeted, timely, frequent pro-active communication, especially of new and upcoming changes and developments in terms of the methodology and proxies used for the analysis.

15. *Data governance:* The reviewers found that data governance has not been defined nor referenced in any of the documents reviewed and therefore proposed amendments to Annex 1 of Resolution Conf. 10.10 (Rev. CoP18) to address this (see Annex 3). The review highlighted that existing data sharing and data access policies need to be further refined, and better reflected in relevant Resolutions. These data policies should allow synergies with relevant agencies, including the International Consortium on Combating Wildlife Crime (ICCWC) partners.

16. *Data management:* Seizure record submissions can be done through ETIS Online (launched in October 2020) or in the form of an Excel spreadsheet or Word document. Of these, online submission seems to be the most effective and is expected to become the prominent medium and mechanism for seizure record submission by Parties, according to the reviewers. TRAFFIC uses covariates, such as a Law Enforcement Ratio and a Trade Chain Index[1] to address the biases in the data. The data relating to these covariates are kept in subsidiary databases. The reviewers found that the current and future covariates[2] to be used in the ETIS analyses need to be thoroughly tested and should be validated by the MIKE-ETIS TAG prior to undertaking the analysis. Furthermore, the justification for and assumptions associated with the use of covariates must be clearly communicated to Parties and the MIKE-ETIS TAG must have more oversight in the process to identify relevant covariates. Parties had raised concerns about the source and use of data leveraged by TRAFFIC either directly in statistical modelling, or indirectly as complimentary data and information to support the analysis and explain the output from the cluster analysis. The reviewers emphasized that the MIKE-ETIS TAG should therefore play a more active role in ensuring the applicability and appropriateness of data sources and the use of the data. The review also found that a more comprehensive, in depth and clearer explanation of the data sources used by TRAFFIC needs to be provided to the Parties, including access to the data.

17. *Analysis and interpretation*: The reviewers found that although Parties have access to the analytics 'R' code for the ETIS analysis, the detailed data required to execute the 'R' scripts are not accessible. If the intention of the Standing Committee, in requesting TRAFFIC to release the code is to enable Parties and other stakeholders to run the analysis, the reviewers concluded that Parties should be provided with this data to enable the execution of the posted analytics 'R' code. The existing Standard Operating Procedures (SoP) explain various aspects of the ETIS methodology and data management processes. The review

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[1] *The two proxies (covariates) used to address the bias in seizure rate: Law Enforcement Ratio and Trade Chain Index are further explained here: Understanding ETIS*

[2] *The covariates that are currently used by TRAFFIC to address biases in the data include two proxies (covariates) to address the bias in seizure rate: Law Enforcement Ratio and Trade Chain Index; and two proxies (covariates) to address the bias in reporting rate: Data collection Score and CITES Reporting Score.*

recommended that these be consolidated in a single document that outlines how data is managed, how the statistical models are executed, and what methodologies and supporting scientific/statistical modeling assumptions are applied. The MIKE-ETIS TAG should have access to this single SoP and all other supporting documents for ETIS. The ETIS methodology has some limitations that should continue to be clearly explained to Parties (including assuming that the data are biased; interpolation and modelling where data gaps exist; and the implications of using covariates and their effects). The covariate that needs most justification and better explanation is the 'Mean Market Score (MMS)', representing a level of domestic ivory trade that is used to interpret the outcomes of the cluster analysis. The basis for grouping certain Parties in the cluster analysis should also be further clarified and detailed. These aspects should be considered by TRAFFIC in consultation with the MIKE-ETIS TAG. Further clarification is required why the ETIS trends and cluster analyses are based on bias-adjusted data, while non-bias-adjusted ETIS data is used for the categorizations in the National Ivory Action Plan (NIAP) process.

18. *Sustainability*: Funding inconsistency and uncertainty is an impediment for meeting the ETIS objectives, enhancing its functionality and ensuring its robustness. Consequently, planning is short-term and reactive, depending on available funds, and not long-term. Alternative statistical models and techniques cannot be explored because the required funding is not available. Synergies with other UN and global agencies should be considered from a resource and knowledge perspective, and alternative supporting mechanisms for ETIS need to be examined (see Annex 3). A minimum budget for TRAFFIC to meet its operational needs (USD 1,268,456 for 2022 – 2024) is included in Annex 6 to the present document. It was updated by TRAFFIC after the review was completed.

Amendments to Resolution Conf. 10.10 (Rev. CoP18)

19. The review found that amendments to paragraph 27 g) of Resolution Conf. 10.10 (Rev. CoP18) and to Annex 1 on *Monitoring illegal trade in ivory and other elephant specimens* are required to address the findings. The amendments proposed by the reviewers address the following: the mandate to facilitate exchange of data on seizures of elephant specimens between ETIS, the Secretariat and ICCWC partners; the scope of data to be submitted by Parties, including minimum data requirements; data governance provisions to address data ownership, stewardship, oversight and accountability; mechanisms for data collection and increased oversight by the MIKE-ETIS TAG; as well as the need for regular funding to meet the objectives.

Assessment of whether the ETIS analysis is able to support CITES processes and decision-making such as the NIAP process

20. The review concluded that the ETIS analysis can support CITES processes and decision-making, such as the NIAP process, but CITES Parties should note that ETIS was not designed to determine causality nor to be a data-driven instrument to justify compliance activities. It is, however, the only system currently available to CITES Parties that can provide analytical outputs to inform compliance processes such as NIAP. The cluster analysis is the element of the ETIS report that assists the Conference of the Parties in identifying Parties that need to engage in the NIAP process. Since domain knowledge (knowledge about illegal ivory trade, trade routes and dynamics) is essential to interpret the output from the cluster analysis, there is an inherent perceived subjectivity that is unavoidable. The reviewers made recommendations to further strengthen specific aspects in this regard, including the need to further explain the cluster analysis and interpretation of the results, and the increased involvement by the MIKE ETIS TAG especially in the identification and use of covariates.

Reporting requirements created under Resolution Conf. 10.10 (Rev. CoP18) and Resolution Conf. 11.17 (Rev. CoP18) on National reports and the challenges posed by the different data-sharing policies

21. ETIS data cannot be shared with other entities such as the ICCWC partners. The reviewers proposed that the provisions on data sharing and access policies in the two relevant Resolutions should be refined and aligned.

22. In this regard, the reviewers proposed amendments to the data access provisions in the relevant Resolutions as set out in Annex 3 and Annex 5 to the present document. This could facilitate an automated or manual reconciliation between ETIS data and the annual illegal trade data. In parallel, the Secretariat could issue guidance to ensure that responsible CITES Management Authorities enter and reconcile the entries for both reports as some Parties are already doing.

23. The submission deadlines for the two reports are different: 31 March for ETIS and 31 October for the annual illegal trade report. Therefore, the reconciliation needs to consider 'date of seizure' as a key attribute. Parties can also consider aligning the reporting dates (e.g., both deadlines to be 31 October). This may have an impact on the ETIS analysis as data will be received at least seven months later each year.

Recommendations emanating from the review of the ETIS programme

24. The review offers a set of recommendations that is included in the executive summary in Annex 1 to the present document. Additional recommendations relating to data management and statistical analysis that are more technical in nature are contained in Annex 2.

Comments made by the members of the MIKE-ETIS Subgroup

25. Belgium, as member of the Sub-group, recommended that if seizure data recorded through the EU TWIX[3] databases meet the minimal requirements for data reporting under ETIS, Parties could be requested to explicitly allow ETIS to use data submitted to TWIX, resulting in reduced reporting burden on Parties.

26. Belgium furthermore proposed a further amendment to section 4 on Data collection and compilation in Annex 3, to specify that Parties should submit seizure information as soon as possible after the seizure but that the deadline for submission is 31 March each year for the submission of data covering seizures in the preceding year.

27. China, as member of the MIKE-ETIS Sub-group, proposed the inclusion of sections of the report by the data management and statistical analysis reviewer in the consolidated report, but the reviewers were of the view that the consolidated report should include the higher-level findings, while the more technical report should also be made available.

28. China did not support the proposed amendments by the reviewers to include a specific reference to domestic ivory seizures. The reference to the use of information to facilitate interpretation was also of concern to China. China proposed that these two proposed amendments as well as the nationality of suspects should not be included in amendments to Annex 1 of the Resolution. China furthermore also proposed that reporting through formats other than those provided by ETIS should not be recommended and that external funding should remain the main means to support the ETIS programme.

Observations and recommendations by the Secretariat

29. In response to the finding by the reviewers that the MIKE-ETIS Technical Advisory Group should be further strengthened with expertise relating to illegal trade in wildlife, the Secretariat, in consultation with TRAFFIC, nominated experts in this regard for consideration by the MIKE-ETIS Subgroup as indicated in document SC74 Doc. 13.

30. With regard to the need for further clarification relating to the interpretation of the cluster analysis, the Secretariat proposes that clear guidance or criteria be developed by the MIKE-ETIS TAG, in consultation with TRAFFIC and the Secretariat, to guide the clustering of Parties in the ETIS report that forms the basis for identifying Parties to participate in the NIAP process.

31. In terms of the scope of seizures to be reported, the Secretariat is of the view that seizures of elephant specimens within a country's borders should be reported too, and not only seizures made at the ports of entry / exit. The current provisions in Resolution Conf. 10.10 (Rev. CoP18), although not stated explicitly, imply that *all* seizures must be reported by Parties. The Secretariat notes in this regard that Resolution Conf. 11.17 (Rev. CoP18) on National reports '*URGES all Parties to submit an annual illegal trade report by 31 October each year covering actions in the preceding year and in accordance with the report format distributed by the Secretariat, as may be amended by the Secretariat from time to time with the concurrence of the Standing Committee.*" The *Guidelines for the preparation and submission of the CITES annual illegal trade report* (see Notification No. 2021/044 of 6 July 2021) state the following (emphasis added by the Secretariat):

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[3] TWIX: Trade in Wildlife Information eXchange is an online tool developed to facilitate the exchange of information and co-operation between enforcement officers and was developed and is managed by TRAFFIC on behalf of law enforcement agencies participating in the platform.

2. ***General guidance***

> g) *The annual illegal trade report should include information on all seizures for violations involving CITES-listed species, irrespective of whether the seizure was made at an international border, or at* **domestic level** *for example during the search of a private or business property or during inspections at domestic markets.*

32. To limit any ambiguity, the Secretariat proposes that wording similar to that in the Guidelines for the annual illegal trade report be included in paragraph 2 of Annex 1 of Resolution Conf. 10.10 (Rev. CoP18). The proposed text is included in Annex 4 to the present document.

33. With regard to the proposal to delete the nationality of suspects, the Secretariat notes that it is optional in both the ETIS report and the annual illegal trade report to provide information relating to the nationality of suspects.

34. The Secretariat notes that the review emphasized that it is important to clarify what 'minimum required information' relating to each seizure record represents. The reviewers highlighted the minimum required information with an asterisk. The Secretariat proposes that these elements be listed separately from additional information that may be included for each seizure record. The Secretariat furthermore proposes that the provisions relating to subsidiary data should also be consolidated in one paragraph. Amendments relating to the above mentioned are included in Annex 4.

35. With respect to the data governance provisions proposed by the reviewers and contained in Annex 3 to the present document, the Secretariat proposes further changes to the text to clarify the roles and responsibilities of the Secretariat and TRAFFIC and to provide for the development of a formal agreement between the Secretariat and TRAFFIC in this regard. The proposed text is included in Annex 4 to the present document.

36. On the subject of the deadlines for submission of ETIS data and the annual illegal trade reports, the Secretariat proposes that the provision in Annex 1 of Resolution Conf. 10.10 (Rev. CoP18) relating to the submission of seizure data within 90 days of its occurrence be retained, but that a final deadline for submission of seizure data be included and aligned with the deadline for submission of annual illegal trade reports, i.e., 31 October each year (Annex 4). Challenges relating to data submission have been highlighted in all ETIS reports submitted for consideration by the Standing Committee and the Conference of Parties and consolidating reporting dates will enable the Secretariat to engage Parties on the submission of all seizure information in a consolidated manner, while reducing the burden on Parties. Furthermore, the submission of these reports by the same deadline will facilitate the exchange of data that has been highlighted as an important aspect to be addressed. There will be a delay in the analysis of ETIS data, but considering the data collection challenges reported in the ETIS reports, consolidating efforts to promote data submission, and facilitating exchange of data relating to elephant specimens will benefit the programme.

37. Although the standardized formats for submission of ETIS data assist in ensuring the minimum required information is submitted, the Secretariat recommends that the submission of seizure data relating to elephant specimens in the annual illegal trade report format should specifically be included as an acceptable format for submission. An amendment in this regard is proposed in Annex 4.

38. The Secretariat notes that the implementation of most recommendations would require additional funding and that broad timeframes for implementation have been provided by the reviewers. A substantial number of recommendations also emphasized more involvement by the MIKE-ETIS TAG and further engagement with the MIKE-ETIS TAG relating to the implementation of these recommendations is required. The Secretariat therefore recommends the development of an action plan to guide the implementation of the recommendations for consideration by CoP19. The action plan will furthermore prioritize and cost the recommendations.

39. The Secretariat will coordinate the development of the action plan in collaboration with the MIKE-ETIS TAG and TRAFFIC, with oversight provided by the MIKE-ETIS Subgroup. The action plan will be shared with the MIKE-ETIS Subgroup prior to the deadline for submission of documents to be considered by CoP19.

40. The Secretariat would like to bring to the attention of the Standing Committee that, based on the information provided by TRAFFIC in Annex 6 to the present document, TRAFFIC has a significant budget shortfall for the period 2022 – 2024. The reviewers proposed several options to address financial sustainability, including the development and implementation of a sustainable financing framework and a resource mobilization

strategy, but the implementation of the recommendations, if adopted, will take time. The Secretariat has made provision in the MIKES+ project, funded by the European Union, to support the ETIS programme. Furthermore, TRAFFIC has been successful in securing additional funds to keep ETIS running. However, additional resources are required to implement the programme and meet the objectives in Resolution Conf. 10.10 (Rev. CoP18) while funding options are further explored.

41. In this regard, the Secretariat will consider the costs associated with the implementation of Decision 18.75 on the *Annual illegal trade reports* that directed the Secretariat to contract the United Nations Office of Drugs and Crime (UNODC) to *establish, host and maintain a database for the storage and management of illegal trade data collected through annual illegal trade reports*. Seizure data relating to elephant specimens submitted to ETIS are included in the annual illegal trade reports and the feasibility of maintaining multiple databases containing the same information must be considered. The Secretariat is of the view that the consolidation of databases containing illegal trade data will promote effective management of the data and could contribute to long-term sustainability since it is inclusive of all illegal trade data submitted by Parties. Since the two databases (ETIS and illegal trade database) are at different stages of development, the implications associated with the consolidation of the databases require careful consideration and should be included in the process to develop a costed action plan referred to in paragraph 38 above.

42. It should be noted that the UNEP Audit Report of the Secretariat, dated 4 November 2021, recommended that the Secretariat develop a resource mobilization strategy to raise resources and facilitate effective implementation of the Convention's activities. In case the Parties approve this approach, the Secretariat will take the resource requirements for the ETIS programme and for the database for illegal trade data into consideration in the development of such a resource mobilization strategy.

Report by the Standing Committee to CoP19

43. In order to assist the Standing Committee in its reporting at CoP19, the Committee could request the Secretariat to draft a report on the implementation of Decisions 18.18 to 18.20 on its behalf in consultation with the Chair of the Standing Committee, summarizing the outcomes of the review and the recommendations for consideration by CoP19.

Recommendations

44. The Standing Committee is invited to:

a) consider the report on the review of the ETIS programme;

b) consider submitting to the Conference of the Parties the proposed amendments to paragraph 27 g) of Resolution Conf. 10.10 (Rev. CoP18) on *Trade in elephant specimens* contained in Annex 3 to the present document;

c) consider submitting to the Conference of the Parties the proposed amendments to Annex 1 to Resolution Conf. 10.10 (Rev. CoP18) on *Trade in elephant specimens* contained in Annex 4 to the present document that includes the amendments discussed in paragraphs 32, 34, 35, 36 and 37 above;

d) consider submitting to the Conference of the Parties the proposed amendments to Resolution Conf. 11.17 (Rev. CoP18) on *National reports* contained in Annex 5 to the present document;

e) request the Secretariat, TRAFFIC and the MIKE-ETIS Technical Advisory Group, with oversight by the MIKE-ETIS Subgroup, to prioritize the recommendations in Annexes 1 and 2 and prepare a costed action plan for the implementation of prioritized recommendations, to be included in the report to CoP19 on this matter; and

f) request the Secretariat to, based on the further work done as outlined in paragraph e) above, draft recommendations as required by Decision 18.20 on behalf of the Committee and in consultation with the Standing Committee Chair, for consideration at CoP19.

Review of the ETIS Programme

SUMMARY REPORT: REVIEW OF THE ETIS PROGRAMME

Overview and Structure of the Report

1. This Executive Summary has been drafted by the Governance and Business Process Specialist, with input from the Data Management and Statistical Analysis Specialist (henceforth used interchangeably with "the consultants" and "ETIS review team"). It is intended to pull together the main findings and observations, recommendations and conclusions of the ETIS review at a high-level, the details of which are presented in subsequent sections of this report.

2. Per the Terms of Reference, and consistent with the Inception Report detailing the methodology and approach of the ETIS review, the Governance and Business Process Specialist incorporated the statistical report produced by the Data Management and Statistical Analysis Specialist, on the technical aspects of the analytical framework of the ETIS programme. For reference, the statistical report has been appended in its entirety in Annex M of the consolidated report.

Purpose and Scope of the Review

3. The ETIS programme review was recommended by the CITES Standing Committee. Its associated ToR (Ref. Annex A) was formally adopted at the 70th meeting of the Standing Committee (SC70, Sochi, October 2018) (**Ref.** SC70 SR and SC70 Com.15). Subsequently, at CoP18, Parties adopted Decisions 18.18 - 18.20 with further instructions relating to this review.

4. Pursuant to Decisions 18.19 and 18.20, Parties directed the Secretariat to take stock of any recommendations emanating from this review and report back to the Standing Committee at its 73rd meeting (SC73) that subsequently will review the findings and recommendations therein to make recommendations for consideration at the 19th meeting of the Conference the Parties (CoP19). However, due to the COVID-19 pandemic, SC73 was postponed and held online. The reduced agenda for SC73 did not contain the ETIS review, which may be addressed at the 74th meeting of the Standing Committee, to be held prior to CoP19.

5. Also of note is Decision 18.21 calling upon the Secretariat to develop proposals for consideration by the Standing Committee, on possible approaches to address the financial and operational sustainability of the MIKE and ETIS programmes.

6. Since its inception ETIS has not undergone a formal "end-to-end" evaluation. Only some incremental refinements and revisions to the database structure, statistical model, bias adjustments, ETIS 'R' code-base, and analytical reporting to CITES on illegal trade in ivory, have been undertaken.

7. Recognizing the importance of greater efficiency, stronger synergies with other programmes (including to the best extent possible linkages with MIKE) and the need to reduce duplication of efforts to serve CITES Parties more effectively, the review addresses three main questions:

    a. Is ETIS operating in an appropriate, transparent, and accountable manner?

    b. Are CITES Parties engaged as appropriate?

    c. Does ETIS produce scientifically robust analyses to be used in CITES decision making processes in accordance with the provisions in Resolution Conf. 10.10 (Rev. CoP18)?

Review Methodology and Approaches

8. This report addresses ETIS-related review requirements and concerns under three pillars:

    - Overall governance, information governance, supporting processes, and ETIS sustainability;

    - Data management (including data acquisition and preparation), data quality management and validation, information dissemination, control, and use;

    - Analytics methodology, supporting programing code, and analytics interpretation.

Figure 1: Overall Governance Construct
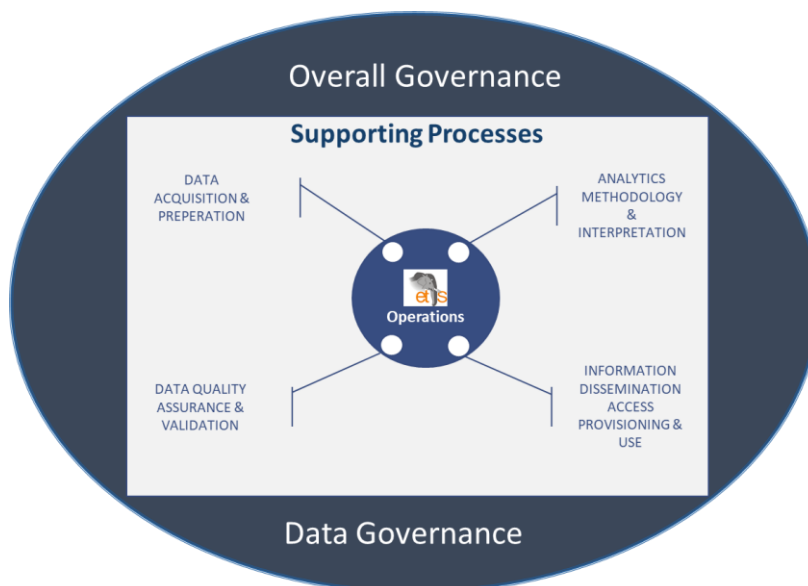
9. The consultants conducted the review using a participatory and utilization-focused approach, based on the questions provided in the ToR, by an evaluation matrix organized under a subset of UNEP's evaluation criteria: strategic relevance, effectiveness, efficiency, sustainability and impact. This matrix (see Table 6) outlines the main evaluation questions and data sources.

10. The review was executed across four methodological phases: (a) inception stage and preliminary document review, (b) current state / fact finding stage, including virtual consultations, (c) future state definition stage, including options analysis and gap analysis, and (d) reporting.

11. It also used a mixed-methods approach to collect and triangulate data from different sources, including a documentation review, semi-structured interviews, direct observation and hands-on review of the code. This approach supported the development of robust and evidence-based findings, which in turn allowed for the development of insightful, validated conclusions, and forward-looking recommendations.

12. The consultants reviewed more than 70 documents, publications, presentations, CoP Resolutions and reports provided to them at the outset of the assignment, analyzing them and systematically parsing information related to the evaluation questions. Many more documents were collected, read and discussed over the course of the ETIS review.

13. Between 25 June 2020 and 24 November 2020, the consultants conducted 41 online interviews with over 50 people to gather data, including 9 interviews with staff members of the CITES Secretariat, 11 with current TRAFFIC staff, 2 with former TRAFFIC staff, 3 with members of the Technical Advisory Group (TAG), 1 with the former Chair of the MIKE-ETIS Subgroup and finally, extensive consultations with 15 Parties.

14. The ETIS review team encountered a number of challenges and setbacks while conducting data collection that were principally related to the availability of key stakeholders at critical junctures due to the COVID-19 pandemic. Other delays in the receipt of requested documentation occurred as a result of the review

coinciding with an intense period of preparation for the launch of ETIS Online, and the Data Management and Statistical Analysis Specialist encountered issues while running the code provided to Parties on GitHub (also faced by a member of the TAG). The above contributed to an extended timeline for the ETIS review, which was further compounded by a lengthy review cycle lasting more than six months as opposed to the three weeks envisaged and articulated in the Inception Report.

Key Issues, Observations and Findings - ETIS' Current Operational and Governance Approach

15. The key issues, observations and findings noted below are supported by detailed findings in Section Four of this report. Reference is also made to the graphic in Annex B of the full report presenting "ETIS in a Nutshell"[4].

Governance

16. Based on the key pillars of the ETIS programme's governance construct (see Figure 1 above and Section Four of the full report for detailed findings), as well as the totality of the documentation reviewed, including Standing Committee communications and official correspondence by Parties (and responses therein), as well as stakeholder consultations held, the decision-making processes have been found to be effective, highly participatory, and founded on consensus building; the trade-off being that its overall efficiency and responsiveness is somewhat hindered and not "lean". Generally, accountability is well-defined, and responsibilities are followed but not consistently, mostly due to lack of capacity.

17. While there is the perception, that transparency can be improved, the CITES Secretariat and TRAFFIC have been forthright with providing all relevant information related to the operational and governance aspects of ETIS. The Parties' requests for information, explanation and further elaboration are addressed diligently and at length. Time-lag in response to Parties' concerns is reasonable considering capacity constraints and competing priorities in supporting other CITES activities and statements of work by TRAFFIC.

18. In the absence of clearly defined Key Performance Indicators, the outcomes of the ETIS programme are assessed by proxy through the lens of its reports to CoPs, the resulting decisions and recommendations by Parties and the extent to which these have been implemented, as well as key technical documentation, parallel informal technical reviews conducted by members of the TAG and stakeholder consultations. From a process perspective, as the foundational system to provide the data and analytics required in support of the National Ivory Action Plan (NIAP) compliance mechanism, ETIS performs well based on the data available, however the NIAP process should also be explicitly and consistently informed by interactions with and consultations with other agencies and experts, as reflected in Annex 3, Step 1 (b) in Resolution Conf. 10.10 (Rev. CoP18) on Trade in elephant specimens.

19. Some Parties do have concerns with an NGO managing and coordinating ETIS since it also plays an advocacy role in its programming, which may introduce implied biases in its supporting activities under ETIS. There is no doubt, however, that TRAFFIC is committed to the conservation of elephant populations, curtailing illegal trade of ivory and other specimens, and to biodiversity conservation in general. The overall analysis is data-driven and quantitative at its core. Furthermore, the data analysis is supported by in-depth knowledge of the domain and associated qualitative information. Upon reviewing all the available documentation, correspondence (including responses to Parties' concerns), and an extensive number of conversations and interviews with TRAFFIC and ETIS stakeholders and based on the totality of information and data digested as part of the review, the consultants find TRAFFIC to be objective in their use of available data, analytics approach, observations, and recommendations, which is overseen by the TAG and Secretariat.

20. As per its Terms of Reference, Resolution Conf. 10.10 (Rev. CoP18) on Trade in elephant specimens directed the Standing Committee to establish a Technical Advisory Group to provide technical oversight to the programme for Monitoring the Illegal Killing of Elephants (MIKE) and the Elephant Trade Information System. To be effective in its oversight role, two of the main subject areas requiring technical expertise on the TAG to advise on ETIS matters are statistical analysis and illegal wildlife trade. To fulfill the statistical analysis subject area, two seasoned veterans were appointed to the TAG as statisticians to address the need for analytics and statistical oversight. Moreover, to ensure further coverage of the other domain, the CITES Secretariat in consultation with TRAFFIC will be nominating illegal wildlife trade experts as global members to the TAG for consideration by the Standing Committee. The TAG should instill confidence in the Parties by ensuring that all the reports and analytics outputs are being reviewed and validated by an

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[4] *Content drafted by Thea Carroll (CITES MIKE Coordinator) and validated and redrawn by Camillo Ponziani (Governance and Business Process Specialist),*

independent group. This person would provide the expertise in place of the former ETIS Director (Mr. Tom Milliken) who has retired and is no longer with TRAFFIC. Meanwhile, TRAFFIC's new in-house analyst, Ms. Sharon Baruch-Mordo, brings statistical expertise in the wildlife domain and over time, can fill the role that the previous ETIS Director had.

Supporting Processes

21. From a business process perspective, the ETIS review has been somewhat of a moving target as there are already important changes introduced or well underway that will address concerns raised by Parties relating to supporting processes, and further developments during the report's long review cycle that may not be fully captured herein[5]. The recently launched [ETIS Online](#) platform includes features that will make the submission and validation of data by Parties much more robust, especially in relation to validation of the countries implicated in a seizure recorded by the country of 'Discovery' (country reporting the seizure). In this case, the process has been enhanced through automation. Further detail is outlined in Section Four.

22. The available technical documentation on ETIS is extensive and comprehensive but is neither organized nor published consistently. Relevant information based on subject area ought to be collated in one singular document. Updates to the supporting documents lag the implementation in some instances and lack proper version control. Knowledge management is paramount in exuding confidence in the supporting processes and how data and information is managed and arrived at.

23. Training is one of the key areas that TRAFFIC can improve on going forward. In the past, TRAFFIC has developed publications and presentations. For example, TRAFFIC noted that it produced a modular training package, which was translated into 15-16 languages; from a one-hour PPT to a 3-day workshop that described the end-to-end process and ETIS' data fields for form entry. Nonetheless, more emphasis is needed for both passive (recorded) and active (scheduled and participatory) online / virtual training, especially considering the new release of the ETIS Online.

24. Communication across the board is an area in which the ETIS programme can improve on and is the hallmark for business process optimization. Targeted, timely, frequent, proactive as well as reactive communication of new and upcoming changes and development, as well as regularly reiterating key concepts and processes is crucial. As an example, it is not widely understood that TRAFFIC is only tasked to communicate what the data shows, and not as decision-makers, as is clearly outlined in relation to the NIAP process in 'Annex 3' to the Resolution Conf. 10.10 (Rev CoP18) on Trade in elephant specimens. This misunderstanding can undermine confidence in what TRAFFIC is tasked with: leveraging its domain expertise, information, and analytics knowledge to render cause and effect suggestions and observations for the CITES Secretariat to further assess and make recommendations, or constructive corrective action by Parties and stakeholders where appropriate, to manage and combat the illegal ivory trade.

25. Since the CITES Management Authorities (MAs) in some instances have no ivory seizing responsibilities themselves and are not always empowered as a law enforcement body to make seizures, to validate seizures they have to contact customs or police or other law enforcement agency in the country. Leveraging mobile technology to render ETIS Online to the agents on the ground could have the potential to enhance data quality, sense of empowerment by the field officers, and resource utilization efficiencies.

Sustainability

26. Funding inconsistency and uncertainty is an impediment to advancing towards the objectives set forth for ETIS and enhancing ETIS' functionality and ensuring its robustness. Consequently, long-term constructive and logical planning is not feasible; planning is very much short-term and reactive based on what funds are made available for what purpose.

27. Independent and formalized third-party reviews, evaluations and assessments are imperative for continuous improvement of a practice/discipline/program and justification for supporting funds. Approval and funding of this review is a prime example of it. In fact, this review is in response to addressing Parties' concerns and a subsequent request by the Standing Committee.

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[5] *It is important to note the fact finding stage of the ETIS review ended November 2020 with several material developments, where referenced explicitly, also reflected in this report up until March 2021.*

28. In November 2020, it was conveyed to the consultants by the CITES Secretary General that positioning ETIS under the Outreach and Projects Unit - as part of the organizational realignment thinking at the time - may present new opportunities through collective fundraising to advance financial sustainability by positioning initiatives within similar needs and requirements under a single umbrella. This potential needs to be explored further as provisioning for the minimal funding required to sustain the program is crucial during the next few years.

29. Potential implication of externalities to a programme's sustainability needs to be considered diligently from a risk management perspective. One of these risks has already materialized in the COVID-19 pandemic. This event has not only caused historic setbacks in global health but has triggered a series of degenerative ripple effects, such as political mandate and priority, economical condition, and social discourse to name a few, all of which will have implications in sustaining this program and prioritizing the minimal funding required for day-to-day operations. The consequences need to be considered systematically towards prioritizing activities and resource allocation.

30. Deep understanding of illegal/legal wildlife trade is crucial and the former ETIS Director was instrumental in providing subject matter expertise. Furthermore, the relationships built with Parties over decades have been paramount in promoting open dialogue and enhanced cooperation; hence critical for the sustainability of the ETIS program. The gap created by his retirement could potentially create a significant gap going forward, if not managed carefully.

Data Governance

31. ETIS is a data-centric system; an established data governance practice is fundamental in outlining data policies and a decision framework for managing the data. Data governance has not been defined nor referenced in any of the documents reviewed. A well-established data governance regime instills confidence in the data management practices by custodians of their data, TRAFFIC and CITES Secretariat, the data stewards.

32. Paragraph 27 (g) of Resolution Conf. 10.10 (Rev CoP18) on Trade in elephant specimens outlines data ownership as: "*…the detailed data on individual seizure cases, elephant mortalities and law enforcement submitted to MIKE or ETIS are owned by the respective data providers, which in most case are the CITES Parties; any such data relating to a CITES Party will be accessible to that Party and the members of the MIKE and ETIS Technical Advisory Group for information and review purposes, but will not be released to any third party without the consent of the Party concerned; data may also be released to contractors (e.g. statisticians) or other researchers (e.g. MIKE ETIS Subgroup-approved research collaborations) under appropriate nondisclosure agreements;…*". Moreover, any changes to the data elements associated with a submitted record needs to be confirmed with the Party before it is considered the official version of the record. The review finds that TRAFFIC follows up with an official body to validate the data as required.

33. Currently, ETIS data cannot be shared with other entities such as UNODC, the UN entity that currently conduct the illegal trade review. Data sharing policies as well as provisions relating to access to data contained in relevant Resolutions need to be refined to take advantage of potential synergies in leveraging the knowledge and experience of other established and trusted agencies such as UNODC where appropriate.

34. Relevant seizure data shared by other NGO's are leveraged by TRAFFIC where appropriate. If there is any discrepancy between the data received and official government agency data, the latter is taken. Although in some cases, TRAFFIC would follow up with the government agency to reconcile. If cases are validated by government agencies, the seizure data will be recorded as the official data in ETIS.

35. ETIS Online does not capture sensitive Personally Identifiable Information (PII) such as name of offender, however non-sensitive PII such as nationality of the offender is captured. Even though TRAFFIC is prohibited from sharing the data with other agencies such as NGOs, any data-centric system warrants a well-informed privacy policy that explicitly lists all the sensitive and non-sensitive information being captured and/or utilized.

Data Management

Data Acquisition and Preparation:

36. ETIS data and information can be classified into the following:

- Seizure records;

- Subsidiary (complementary) data;

- Derived variables and measures and analytics outputs (trend lines and charts);

- Supporting information: Audit logs, all related documentation (i.e., standard operating procedures (SoP), publications, formal correspondence, training artifacts, etc.), and all other information.

37. The ETIS data lifecycle is depicted in Figure 2 below. The initial data lifecycle process is the data acquisition and collection. Seizure records are collected and captured through several mediums that include, online forms, seizure record batch upload Excel templates, and all other format and forms of hard/soft copy submissions which are entered in ETIS by TRAFFIC. Current record submissions use ETIS Online (since its launch) to enter each record through the interactive forms, or an Excel template batch upload. Online submission is the most effective method since it enforces ETIS's online field-level edit and validation rules, and is the method being promoted by the CITES Secretariat and TRAFFIC as best practice. It is expected that ETIS Online will become the prominent medium and mechanism for seizure record submission by Parties. As of March 2021, despite multiple efforts by TRAFFIC encouraging data submission on the portal, the uptake has not been significant. Internalization and utilization of ETIS Online needs to be encouraged and promoted.

Figure 2: ETIS Data Lifecycle
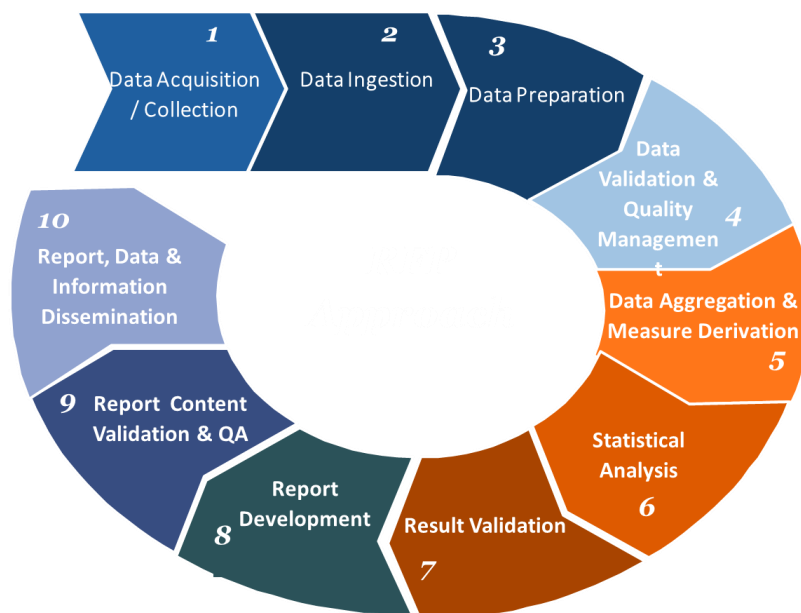
38. Subsidiary data are acquired by TRAFFIC, such as Transparency International for 'Corruption Perception Index (CPI)', or they are derived measures such as 'Mean Market Score' that are based on data acquired by TRAFFIC through market surveys, NGOs and other viable sources. This dataset is leveraged either directly in statistical modelling, or indirectly as complimentary data and information to explain the output from the cluster analysis. Both these uses are appropriate and significant in supporting the illegal ivory trade analysis with its sparse and small seizure dataset. However, since the source and usage of this dataset is of concern to Parties, the TAG should play a more active role in ensuring the applicability and appropriateness of the subsidiary data, and a more comprehensive, in depth and clearer explanation of the subsidiary data used by TRAFFIC needs to be provided to the Parties, including access to the subsidiary data.

39. Once data is captured through ETIS and stored in the ETIS database, it is prepared before it is used in the analytics phase by applying data quality management, enrichment, and transformation rules. Downstream in the data life cycle, upon data capture, data quality, credibility and richness deficiencies are addressed by the application of the statistical methodology, the Bayesian Hierarchical model. Data preparation is time consuming and when provisioning for this activity TRAFFIC follows right practices. Of course, there is always room for improvement, but like any data management processes, once the appropriate process maturity level is reached, the incremental value extracted versus time and resources allocated may not be justified, considering resource and funding constraints.

Data Quality Management and Validation:

40. The effectiveness of analytics and the credibility of its results are directly dependent on the quality of the data used. Data quality management is applied throughout the data lifecycle. The most significant application of data quality management protocols is at the front end of the data life cycle, over the data acquisition and database system ingestion, where most of the effort needs to be focused.

41. The first data quality provisioning in the data lifecycle is addressed during data ingestion in ETIS, the field level data validation rules such as list-based selection, data type edit rules, and multi-field complex rules. Subsequently, there are a number (19) of more complex, stand-alone executable 'R' scripts rules that can be executed on-demand by the ETIS System Administrator to identify anomalies. If a data quality issue is validated by executing a particular rule, then the appropriate action is taken by the System Administrator to resolve the problem. These set of rules are comprehensive and provide the correct level of data quality management before data is used for the analytics phase.

42. Information and data are validated further down the data lifecycle to validate the output from the analytics phase and the final reporting phase. The validation in these phases is contextual vs the earlier validations which were more mechanical.

Database and System Management:

43. The current system change management and release management practices of ETIS should be more robust and formal. As best practice, request for changes from all stakeholders should be logged and assigned with a suggested level of 'importance'. The change request list ought to be reviewed annually with the TAG before it goes through the MIKE-ETIS Subgroup, who should then make recommendations on the system change implementation priorities for the subsequent year, taking into account the funding envelope available. The plan for the implementation of system changes, including its timeline, needs to be communicated with all the stakeholders. The changes to be implemented that year should be treated as a single release to be developed, tested, supporting documents updated, and training materials produced as required by TRAFFIC. The review team recognizes the funding and capacity constraints and recommends that the required provisions be followed on a "best effort" basis, to be acknowledged by CITES Secretariat and TRAFFIC.

44. ETIS provides a comprehensive audit log functionality. Any action (CRUD: create, read, update, delete) on the data is recorded both at the system level by the Database Management System (DBMS) and application level with reporting functionality.

45. Keeping database snapshots are useful for purposes such as audits, reporting and period-over-period analyses. The ETIS support team creates frequent snapshot of the ETIS Database as best practice. Moreover, each version of a published report is based on a snapshot of the ETIS Database on which the associated analytics is based. This practice enables regeneration of the same results when the code-base for a reporting cycle is re-run against the associated database snapshot by another stakeholder.

Information and Data Dissemination and Access Control:

46. User access provisioning is a manual and resource-intensive process and needs to be accounted for. The CITES Secretariat needs to establish the capacity required within the organization to assist with access provisioning tasks which are now completely managed by TRAFFIC. TRAFFIC would need to discuss the specifics of access control workflow with CITES Secretariat to determine the appropriate division of responsibilities.

47. Parties have access to the analytics 'R' code-base but not the detailed data required to execute the 'R' scripts. At best, the Parties can go through the code one line at a time and, in conjunction with associated

annotation, try to understand how the data preparation and statistical modelling is implemented. The Standing Committee should consider recommending that Parties provide access to all the data to enable the execution of the posted analytics 'R' code-base.

48. ETIS needs to have a formally communicated data sharing policy to be addressed under data governance. Data sharing agreements need to be aligned with this policy. An example of a data sharing agreement is an MOU that has been negotiated by TRAFFIC in conjunction with the CITES Secretariat and the World Customs Organization that calls for an annual data exchange for seizures. The data from the World Customs Organization is a subset of the ETIS data because some seizures are made by the police and some are made by wildlife officials in the national parks. TRAFFIC can isolate all seizures made by customs authorities on an annual basis and share it with World Customs Organisation (WCO).

49. With reference to CoP18 Doc. 69.1 Addendum, there is an annual illegal wildlife trade report which includes illegal ivory trade that has an overlap with the ETIS report, causing potential issues with duplicate reporting as noted in one documented instance involving Turkey. While interviewing selected MAs and CITES Secretariat staff, this concern was not raised as a major issue. In its forthcoming proposal to the Standing Committee, the CITES Secretariat can consider proposing amendments to the data access provisions in the relevant Resolutions, i.e., Res Conf. 10.10 (Rev. CoP18) and Res Conf. 11.17 (Rev. CoP18) to facilitate data sharing to address this concern. This could facilitate an automated or manual reconciliation between ETIS data and the annual illegal trade data. In parallel, the CITES Secretariat can issue guidance to ensure that the responsible MA in each country enters and reconciles the entries for both reports as some do already. The submission deadlines for the two reports are different, March 31 for ETIS and October 31 for the annual illegal trade report, therefore, the reconciliation needs to consider 'date of seizure' as a key attribute for reconciliation. Parties can also consider aligning the reporting dates - both 31 October - recognizing this may have an impact on the ETIS analysis and the ability to produce regular reports as data will only be received 7 months later each year.

50. Based on the current established process, the report is first reviewed by the TAG, then submitted to the Secretariat in accordance with SC/CoP document submission deadlines (90 or 150 days prior, respectively). During that time, Parties have a chance to comment on the report to the CITES Secretariat. A recurring thread noted by Parties consulted during the ETIS review, is anecdotal evidence of Parties being blindsided immediately prior to a Standing Committee meeting, specifically in relation to the scenario where the Party is implicated. The launch of ETIS Online adds a new layer of transparency as detailed country reports and data are now accessible online, including any records in which the Parties were implicated.

Analytics - Methodology:

51. For the average CITES MA and non-expert, there is inherent difficulty in understanding the underpinnings of the statistical methodology. The statistical model is unique and hence not inducive to understanding and comprehension. There was no similar analytics developed in any other equivalent analysis of illegal wildlife trade data, hence the whole approach and statistical modeling to account for the various biases is custom-made. Several deliverables have been produced to provide a simplified explanation[6] of how and why the methodology chosen is leveraged.

52. The base methodology has been peer-reviewed and adapted to new information whilst responding to scrutiny. TRAFFIC has not received any negative feedback through formal academic channels on the approach to the statistical modelling[7]. Furthermore, the two TAG statisticians have conducted an informal review of the statistical methodology and have not found major issues[8].

53. The code to prepare, analyze and report the ETIS data is contained in 38 separate 'R' scripts. These were originally developed under the Darwin Initiative project 17-020 in collaboration with the University of Reading over the period 2009 - 2013, and many of them serve as utility scripts for data preparation and model plotting and diagnostics and not published in the scientific publication; instead, data aggregates that serve as

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[6]   *For example, Understanding ETIS by TRAFFIC provides a useful introduction and overview of the context behind ETIS, and the way in which the analysis is conducted.*

[7]   *As per consultations held during the review this is reflected in "Underwood FM, Burn RW, Milliken T (2013) Dissecting the Illegal Ivory Trade: An Analysis of Ivory Seizures Data. PLoS ONE 8(10): e76539. https://doi.org/10.1371/journal.pone.0076539", one of the most downloaded papers from the statisticians' website.*

[8]   *The informal review by the MIKE-ETIS TAG statisticians in 2019 encouraged the consideration of other methods on how to bias-adjust the ETIS data, using a different selection of covariates or using other methods rather than covariates. In the statisticians' response to the internal review of the ETIS review it was noted that alternative approaches could be considered in the future.*

modeling inputs are provided along with a few modeling scripts. Since then, the ETIS analysis has been revised and the 'R' code adapted over time; a set of R scripts were first published on GitHub on 17 August 2019 which is the R code used to transform the ETIS data into the outputs for the CoP18 report.

54. Since the model does not work well with a small number of seizures, the ETIS analysis does not consider a country experience in isolation but looks at all transactions captured for the analysis. Due to data sparsity, Frequentist and Bayesian Inference methodology are used; they allow inference based on a small sample size. The Model used for weight estimation is Frequentist (linear model). This approach is sound and appropriate for the ETIS use-case.

55. There has been a long-standing discussion within the MIKE-ETIS TAG to incorporate other related data sets[9]. However, it is much more difficult to match the elephant population, and the numbers illegally killed, to illegal ivory entering the market due to the time lapse and hence not feasible.

56. The model is sensitive to the uniform application of the definition for seizure. Discrepancy as to how the Parties define seizure and hence, what data they report on, has been observed.

57. Comprehensive collection of instructions outlining the methodology and supporting scientific/statistical modeling assumptions in one collated document is absent (i.e., single consolidated update of the Standard Operating Procedures). There are a number of sections in the SoP that provide explanation on various aspect of the methodology and data management processes that can be instrumental in enabling the Parties and all stakeholders to have a better understanding of how data is managed and how the statistical models are executed. In order to make informed decisions, going forward, the TAG should have access to the SoP, the code-base, and all other supporting documents for ETIS.

Analytics - Interpretation:

58. Qualitative analysis is as important as quantitative; however, qualitative is more subjective and requires extensive domain expertise. The former ETIS Director provided the insight required based on his wide-spread knowledge, decades of experience and a strong network that provided insight and information. These are not readily available to his replacement.

59. Input variables into the cluster analysis consist only of outputs from the trend analysis (i.e., transaction and weight index by raw/worked ivory weight classes). Select explanatory variables are leveraged in qualitative analysis for the interpretation of the cluster analysis. These variables are either captured from external sources such as 'Corruption Perception Index (CPI)' or are derived measures from ETIS's base seizure data. Explanation for how and why each variable is used is comprehensive with the exception of the 'Mean Market Score (MMS)' that represents the domestic ivory trade. Consideration of the domestic ivory market is contentious on how the data is obtained, and the calculation of the MMS needs to be further explained. For further detail on the CPI and Mean Market Score, please refer to Section 6 of the statistical report appended in Annex M.

60. Dependency on an ivory market survey is problematic as a number of Parties are not clear on the significance of it for the analysis. Current documentation and communications associated with it are inadequate and not reflective of its importance and its value in the interpretation.

61. The ETIS methodology, as all mathematical and statistical methodologies, has some limitations that should be clearly explained to Parties. This includes the implications of making assumptions and in particular assuming that the data are biased; limitations associated with interpolation and modelling done when there are gaps in the data (e.g., ivory weights); and the implications of using covariates and the effect of each covariate. Although any statistical model has its own limitations, internal coherence should be respected. In this regard further clarification is required about the reasons why the trends analysis and the cluster analysis are based on bias-adjusted data, but the determination of the categories considered in the NIAP process is informed by non-bias-adjusted data. Furthermore, clarification about the similar characteristics considered to group countries into clusters for the cluster analysis is required, as well as more details relating to the sensitivity analysis. These technical aspects should be considered and addressed by the TRAFFIC in consultation with the TAG.

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[9] *Using the datasets held by the IUCN/SSC African Elephant Specialist Group African Elephant Database (elephant numbers), MIKE (illegal killing) and ETIS (illegal trade) into a single model.*

62. It has been noted through the consultations that most Parties are not so concerned about the analytics methodology itself as it is scientific, objective and complicated. They are mainly concerned about the interpretation and ramifications. The CITES Secretariat and the MIKE-ETIS TAG review, validate and suggest amendments as deemed necessary. Since TRAFFIC is the author of the report and will be held accountable to any conclusions drawn, it is prudent that TRAFFIC is maintained as the authoritative source for the final report with ample input from the TAG and undersigned by the Secretariat who are responsible for presenting findings at the CoP.

Factors that Influence the Current Situation of ETIS

Timely and Proactive Communication and Engagement has not been Adequately Emphasized

63. Via the consultation process, an overwhelming number of Parties have expressed a need for adequate lead-time to review the ETIS report findings and assertions in advance of the CoP meetings. This lead time could pay dividends in creating a more efficient and productive atmosphere by allowing the CoP to cover more ground and honing its efforts on discussing broader trends, collective concerns and future plans. It should be noted that if the lead time accommodated for is longer than a few days based on the current schedule, the analysis timeline is implicated and as a consequence, the reports might be out-of-date.

64. The CITES Secretariat and TRAFFIC can improve upon communication, providing updates on all relevant changes that are planned for ETIS and the supporting data and system management processes. Communication needs to be multi-faceted; CITES notifications to Parties, website postings, ETIS Online reminders. Moreover, there needs to be a collective effort by all stakeholders towards timely and proactive communication and engagement.

Stakeholder Accountability is Paramount to Maximize ETIS' Full Potential

65. Institutionalized accountability and responsibility are not carried through consistently by all Parties. ETIS supporting processes and organizational structure assume that all Parties adhere to their mandate for timely, high-quality data submission, which is critical for ETIS analysis to reflect on the most recent trends in illegal ivory trade. The CITES Secretariat and/or Chair of the Sub-group can be more involved and proactive in mitigating the disputes between the Parties and advance its capacity in knowledge and experience of the required subject area, analytics and ivory trade.

Reliable Funding Required

66. Funding has been provided by various stakeholders: from country-specific contributions (e.g., the Netherlands and the People's Republic of China funding this review) to TRAFFIC-engaging entities that have an interest in the preservation of wildlife and specifically elephants, and allocations from the European Union through the MIKE programme. Funding certainty to ensure continuity to support ETIS' day-to-day operations provides the stability required to promote additional financial contributions by the supporting team as well as supplementary contributions from various entities for new initiatives. As an example, other statistical modelling techniques can be tested in parallel for suitability and consideration as an alternative to the current methodology, but it requires a significant funding envelope.

Training and Knowledge Management are Cornerstone of an Enterprise Information Management System

67. Supporting documentation and formal training on how to use ETIS will eliminate any doubts, misunderstandings, unnecessary errors, and problems. User training can help with the implementation of the new release of ETIS Online and ensures maximum efficiency and effectiveness right from the start. TRAFFIC can train ETIS users in a few hours through interactive WebEx/Zoom/MS Teams sessions that would require advance registration. Although as of the end of November 2020 at the cut-off of the fact finding stage, no formal training had been conducted, TRAFFIC did reach out to over 100 Parties to promote the use of data submission using ETIS Online and to offer training. Also to date, TRAFFIC provided one-on-one training sessions with Botswana and Zambia, and a joint training presentation with the Secretariat to the Africa TWIX countries of: Benin, Cameroon, Central African Republic, Congo, Democratic Republic of Congo, Gabon and Rwanda. TRAFFIC has committed in each communication with the Parties as 2020 ETIS data are being collected, to continue to offer training. To this effect, the importance of knowledge management is recognized by TRAFFIC and prioritized accordingly. As with most of the enabling activities noted in this report, advancement in knowledge management suffers from funding constraints.

Seizure Data Sparsity Requires Data Augmentation to Arrive at a More Credible Result

68. Countries differ in their ability to make and report seizures, and therefore, the seizure rate and rate of reporting can be sparse and not reflective of the actual magnitude of illegal ivory trade. Moreover, the data reported can be incomplete, inconsistent, or requiring augmentation by other relevant and useful data points and information. As such, all available relevant information and data that are statistically tested for significance should be considered in the statistical analysis and interpretation as best practice. This by no means undermines the robustness of the underlying methodology. Moreover, the current and future proxies need to be thoroughly tested and the premise for consideration validated by the broader TAG - not just a subset of this group - prior to the analysis. Statistical modelling has an implied continuous improvement as more data is accumulated, and the relevance of proxy variables used in the past vs new proxies are continuously tested and adjusted for. The justification for and assumptions associated with the use of proxy variables must be clearly communicated to Parties and the TAG must have more oversight in the process to identify relevant proxies.

ETIS was not Envisaged as an Instrument to Drive Compliance

69. Unlike MIKE, ETIS is leveraged to enforce compliance, but the original design was not set out to determine causality[10] nor to be the data-driven instrument to justify compliance activities. The fact that the ETIS analysis is used as the basis for the NIAP process does not incentivize the Parties to report timely or report at all. Contrastingly, certain Parties have leveraged their inclusion in the NIAP process to advance their capacity for law enforcement and combating illegal trade in ivory.

Conclusions

70. The conclusions below are structured per the "Duties and Responsibilities" section of the Terms of Reference to reflect on whether (a) the ETIS programme is operating in an appropriate, transparent and accountable manner; (b) CITES Parties are engaged as appropriate; and (c) ETIS produces scientifically robust analyses to be used in CITES decision making processes in accordance with the provisions in Resolution Conf. 10.10 (Rev. CoP18) on Trade in elephant specimens; these are elaborated and discussed further in Section Six. Based on the review findings, recommendations are formulated to:

    (i) further strengthen the methodology used throughout the ETIS process (if required);

    (ii) address the institutional arrangements and resources needed to implement any proposed recommendations to amend the ETIS methodology or Resolution Conf. 10.10 (Rev. CoP18); and

    (iii) deal with the institutional arrangements and resources needed to adequately meet the objectives of ETIS and ensure its longer-term sustainability.

71. In light of the issues, observation and findings noted above, the following conclusions are drawn, which are expanded further in the detailed findings in Section Four.

ETIS Operating Model

72. TRAFFIC has been the focal point for the ETIS programme operations since its inception due to the significance of ETIS as an enabling data-centric technology and its unique, complex analytics framework as the engine that drives the illegal ivory trade analysis, trend analysis, agglomerative hierarchical cluster analysis, and overall reporting. TRAFFIC operations have been diligent and responsive to the requirements of the CITES Secretariat and the Parties' concerns.

73. The recent reorganization of TRAFFIC to conduct the ETIS analysis internally and institutionalizing the required technical skills in-house offers stability and continuity for TRAFFIC and the ETIS programme. Moreover, the enlistment of two seasoned statisticians and the planned addition, as a member of TAG, of a subject matter expert in the illegal ivory trade in addition to current members' knowledge, expertise and contributions, will provide the complementary expertise required to address the need for a strong advisory group and an independent oversight of the ETIS analytics results, as well as enhance the perceived overall transparency. The TAG has been instrumental in providing support for the ETIS Programme and with the

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[10] *ETIS' impetus and prime motivation was assessing whether or not, and to what extent, observed trends are related to measures concerning elephants and trade in elephant specimens taken under the auspices of CITES; changes in the listing of elephant populations in the CITES Appendices; or the conduct of legal international trade in ivory.*

expanded responsibility and dependency outlined as recommended in the report, it would be prudent to revisit/adjust the TAG's ToRs.

74. Accountabilities and responsibilities are well-defined, but both financial and human resource capacity constraints hinder advancing the ETIS programme to realize its full potential. The CITES Secretariat should create a CITES ETIS Focal Point role within the organization to provide an oversight function, to take on a more active role in mitigating the disputes between Parties should these occur, facilitate the reconciliation of elephant specimen seizure information and to report back to the CoP at the end of each reporting cycle. It is acknowledged that the creations of this position will have financial implications. This role can potentially be assigned to current CITES staff member(s)[11] but it will require allocation of adequate time to fulfil the role as well as a good understanding of ETIS, its intricacies and challenges in data management, and knowledge of illegal ivory trade.

75. The long-term servicing of the online ETIS database facility for the CITES Parties needs to be adequately supported so that it serves its purpose in a timely and robust manner. This is of paramount importance for the sustainability of the Programme. The existing ETIS development plan of enhancements and functionality for 2021 and subsequent years needs to be reviewed to evaluate what is required for sustainability of the Programme, then updated so that a vision for the next decade of operation is in place.

Stakeholder Engagement

76. The communication and engagement with Parties and all ETIS stakeholders is fluid and enabled through informal channels and formal governance structures, via Standing Committee meetings, the MIKE-ETIS Subgroup and Technical Advisory Group, as well as through the Conference of Parties and Notifications. What is absent from this equation, however, is the formal and targeted engagement at the most contentious junctures of the ETIS Data Management Lifecycle, including at ETIS seizure record intake and validation.

77. In the context of an ETIS seizure record intake and validation, supporting processes and communication need to be enhanced to ensure sufficient awareness and/or consent by any Party that a record is attributed to, but not the instigator of the seizure, so that it can be fully engaged to assess and confirm the assignment. Furthermore, it is imperative that there is a process to justify any change to a record at any given point in time, making sure that this change is done with equal disclosure and consent by the Party in question.

78. Functionality in the recently launched ETIS Online has gone a long way to close these perceived gaps on the change management of seizure records but it needs to be supported by a workflow and be actively brokered. In more contentious circumstances where a Party is implicated by another and there is disagreement over the legitimacy of a seizure record, the entity which brokers a conversation between Parties should be the Chair of the MIKE-ETIS Sub-group and not TRAFFIC.

79. Finally, targeted, timely, frequent, proactive as well as reactive communication of new and upcoming changes and development, through structured release and change management processes, are paramount, and hence funding should be allocated as required. Effective engagement is a natural extension of a robust governance framework and is a critical factor for successful end-to-end operations an organization; it ensures that the organization's systems are aligned to, and support the organization's strategies and mandate, in this case being Paragraph 27 of Resolution Conf. 10.10 (Rev CoP18) on Trade in elephant specimens.

Analytics Robustness and Fit-For-Purpose

80. The effectiveness and appropriateness of the ETIS programme is very much dependent on the robustness of its analytics framework. Whilst the analytical methods are robust and yield relatively accurate results, there is always an unsatisfied funding need for further exploratory analysis and testing of other statistical modelling techniques with a view towards enhancing and improving the analytical framework for ETIS, which is primarily funding dependent. In the absence of adequate funding for research and development and given the continuous pressures to process incoming data, these needs (to improve the analytics in ways that could support continuous improvement) are often overlooked or forgotten.

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[11] *Recognizing any decision regarding internal resource allocation and available capacity is an internal one, the reviewers recommend the proposed designated CITES ETIS Focal Point to be someone other than the CITES MIKE Coordinator. The reviewers have determined the capacity required for the CITES Secretariat to support ETIS based on recommendations outlined in Table 2, would require a dedicated resource.*

81. Even though ETIS was not built to support compliance processes such as the National Ivory Action Plan (NIAP) Process, it is the only instrument available to CITES that can provide the required analytics output to inform it. The cluster analysis is the foundation and underlying piece of the ETIS report that assists in identifying Parties to participate in the NIAP process. Since domain knowledge is essential to interpret the output from the cluster analysis, there is an inherent perceived subjectivity that is unavoidable; however, the output interpretation has been performed with competency and based on the ETIS Director's extensive tacit knowledge and experience, together with TRAFFIC's statisticians.

82. The analytics framework's main fuel is data. Receiving good data is extremely important in securing good results from the system, i.e. an accurate, timely, and reflection of the illegal trade in elephant ivory with an understanding of the global scale of the trade, key players, the most important pathways of movement and other relevant dynamics. Effort in enhancing timeliness, completeness and accuracy of the seizure data from the Parties is well worthwhile. It is important to note that there is a trade-off between time allotted to ensure data completeness/accuracy and timeliness of the analysis and the outputs/reports produced to support decision-making.

83. Because a primary ETIS consideration is the trade route associated with each seizure case, countries which rarely or never report seizures themselves can become highly implicated in illegal trade based on data of the trade routes of illegal transactions provided by other nations. At the same time, known trade chains of particular seizures can be expanded on the basis of subsequent forensic examination of confiscated ivory specimens to identify the 'countries of origins' through DNA analysis and other methods. Hence, the forensic assessment is important, and its viability and dependability need to be verified. However, this will only partially address the assignment of 'country of origin', and the identification and credibility of the trade chain should also be scrutinized and requires concerted attention.

84. The table below presents a summary of the ratings assigned by the Governance and Business Process Specialist, who is also an evaluation consultant. Adopting a subset of UNEP evaluation criteria, these ratings reflect the degree to which, in the judgement of the consultant, progress has been made that can ultimately support the achievement of the ETIS' core objectives. It should be noted that the ratings are a key element of the mechanism by which adaptive management can be achieved. They also provide a measure of accountability and confidence to Parties. This is part of the feedback loop by which information is gathered that can guide decision-making.

85. All in all, ETIS, notwithstanding challenges over the years, has been successful and has realized critical impacts that contribute to the conservation status of the African Elephant (*Loxodonta africana*)[12] and has had a positive impact on reducing illegal trade in ivory. The overall assessment is that ETIS' overall performance can be rated as "Satisfactory" based on the following assessed criteria. These are elaborated on in Section Five.

Table 1: Summary of Ratings	
Criterion	*Overall Rating[13]*
A. Strategic Relevance	Highly satisfactory
B. Effectiveness	Satisfactory
C. Efficiency	Satisfactory
D. Sustainability	Moderately Likely
E. Impact	Satisfactory
Overall review rating	Satisfactory

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[12] *Prior to 25 March 2021, African elephants were treated as a single species, listed as Vulnerable. The latest IUCN Red List recognizes two species (forest and savannah elephants ADD Sc names) following the emergence of new genetic evidence. See: https://www.iucn.org/news/species/202103/african-elephant-species-now-endangered-and-critically-endangered-iucn-red-list In case CITES were to adopt new taxonomy recognizing two African elephants species, this may have consequences for ETIS reporting by Parties, subsequent analyses of data and decision-making.*

[13] *The individual rating scale used for the criteria of Strategic Relevance, Effectiveness, Efficiency and Impact is consistent with UNEP guidelines as follows: Highly satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory and Highly Unsatisfactory. Similarly, the ratings used for the assessment of sustainability are also consistent with UNEP guidelines as follows: Highly Likely, Likely, Moderately Likely, Moderately Unlikely, Unlikely and Highly Unlikely.*

Recommendations

86. In the context of the most recent state of ETIS (December 2020), associated processes and governance, and assumed contextual limitations, the review offers the following itemized list of recommendations, with additional details for each provided in Section Six of this report and further detail and sub-recommendations in the main body of the report, as well as futher complimentary recommendations for consideration from the Data Management and Statistical Analysis Specialist that includes technical aspects to be considered by the TAG provided in Annex L:

No.	Recommended Actions	Responsible Party	Anticipated Timeframe[14]
Governance			
1	Augment Annex 1 to include 'Data Governance' and introduce other minor refinements	CITES Secretariat	TBD
2	CITES Secretariat to take on a more proactive role in helping TRAFFIC with data acquisition and as the mediator for concerns and issues raised by the Parties pertaining to data integrity, to facilitate timely data collection.	CITES Secretariat	Short term ASAP, in anticipation of upcoming CoP19, subject to availability of resources
3	Currently there is no defined formal "ETIS team" within CITES; although there is an informal support network of CITES resources that do play a role at different junctures such as overseeing TRAFFIC contractual obligations and supporting CoP reporting during Plenary. At minimum, it is recommended to establish a 'CITES ETIS Focal Point' role to work closely with TRAFFIC and MIKE-ETIS TAG, to orchestrate content reviews (and approvals) between different governance structures and processes, to address Parties' procedural/data disputes, and to aid in ETIS data collection from the Parties. This role can be assigned to current staff member(s) and does not necessarily need a new headcount.	CITES Secretariat	Short term ASAP, subject to availability of resources
4	TRAFFIC should continue to practice objectivity to avoid the appearance of bias pertaining to the ETIS programme. It is also recommended that TRAFFIC coordinates with the CITES Secretariat (i.e., on official media releases) on external communications pertaining to ETIS.	TRAFFIC	Short term ASAP, in anticipation of upcoming CoP19
Supporting Processes			
5	Define clear process (system + workflow) for confirmation and validation of Parties that are implicated in the trade chain respectively	TRAFFIC & Review Team Assistance	Short term
6	Frequently scheduled (quarterly), regimented, real-time training sessions that are recorded and posted covering ETIS Online, data management, and analytics, with pre-defined agenda based on feedback from Parties, complimented by a bi-annual newsletter	TRAFFIC	Short term
7	Streamline and consolidate existing SoPs & methodology documentation for TRAFFIC's internal use and operations, and a refined version suitable for online publication outlining detail procedures and assumptions	TRAFFIC	Short term Internal SoP online SoP: Subject to the availability of funding
8	Incorporation of ETIS Online notification-enabling data validation/confirmation workflow	TRAFFIC	Complete

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[14] *Short term: up to one year, depending on available funding;*
Medium term: three years (one CoP cycles), depending on available funding; and
Long term: up to six years (two CoP cycles), depending on available funding.

No.	Recommended Actions	Responsible Party	Anticipated Timeframe[14]
	Table 2: High-Level Itemized List of Recommendations		
9	Emphasize advance distribution of the reports to the Parties to give them time and opportunity to understand the findings, get clarification on their concerns, if any, and to receive feedback on what is being repaired/proposed before the standing committee and CoP meetings. To ensure clarity and confirmation, a supporting SoP needs to be developed (i.e., to set out the processes to be followed to engage implicated Parties and facilitate engagement)	TRAFFIC & CITES Secretariat	Short term, subject to the availability of funding
10	Mobile enablement of ETIS Online to improve data quality through facilities like form-level validation rules while working offline, enabling Parties law enforcement staff to record seizures in remote field locations	TRAFFIC (Significant system change required)	Medium term Subject to the availability of funding
11	Annual illegal trade report and ETIS report automated or manual reconciliation of data relating to elephant specimens and in parallel ensure that the responsible CITES Management Authority in each country enters and reconciles the data for elephant specimens for both reports. It is also recommended to make changes to Res Conf. 10.10 (Rev. CoP18) and Res Conf. 11.17 (Rev. CoP18) on National reports, in line with the proposed amendments in Annex N.	CITES Secretariat (in collaboration with UNODC)	Short term Subject to the availability of funding
12	Consider a robust forensic assessment, through DNA analysis and other methods, is important in the context of establishing the trade chain, and its viability and dependability need to be tested and verified	The Parties in consultation with TRAFFIC & CITES Secretariat	Medium term Subject to the availability of funding
Sustainability			
13	From a resource and knowledge/expertise perspective, leverage synergies with other UN and global agencies	CITES Secretariat	TBD
14	Independent research initiative to analyse and investigate alternative statistical models and techniques with the view towards enhancing and improving the analytical framework for ETIS and/or explore 'crowdsourcing' options for research into assessment of alternative statistical modelling (Access to the detailed seizure data is a pre-requisite to enable this)[15]	TRAFFIC / CITES Secretariat	TBD
15	With the expanded responsibility for TAG and dependency outlined in this report, it would be prudent to revisit/adjust the TAG's ToRs and reasonable financial provisioning (i.e., 1-2 members to participate in CoP and SC)	CITES Secretariat	Short term
16	Feasibility assessment to evaluate effectiveness/efficiency of alternative supporting mechanisms for ETIS (i.e. UNODC or CITES Secretariat supporting ETIS in place of TRAFFIC)	CITES Secretariat	Medium term, subject to the availability of funding
17	With respect to the provision of financial resources to meet **minimum requirements** of ETIS to "keep the lights on"[16], Parties should be made	CITES Secretariat	Short term

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[15] *Crowdsourcing is a sourcing model in which individuals or organizations obtain goods and service, including ideas, micro-tasks and finances, from a large, relatively open and often rapidly evolving group of participants. Currently, crowdsourcing typically involves using the internet to attract and divide work such as research projects between participants to achieve a cumulative result.*

[16] *To keep the lights on (i.e. continue supporting ETIS infrastructure and seizure data collection and cyclic analytics and reporting activity, without any further enhancements) there is a need for approximately USD 220k – 300k per annum, bearing in mind that CoP years are slightly more resource intensive. There is currently an estimated USD 200k shortfall in the budget for the 2020 - 2023 cycle.*

No.	Recommended Actions	Responsible Party	Anticipated Timeframe[14]
	aware of the implications of insufficient resources on core operations. A dedicated budget to cover these minimum requirements is required.	and CITES Parties	
18	For **any enhancements / improvements moving forward** there are two main requirements: i) change requests should be logged, costed and prioritized by the TAG and subsequently vetted by the Standing Committee to ensure the availability of funding, and upon approval, formal communication of planned changes to all ETIS stakeholders. Recognizing funding and capacity constraints, this should be undertaken on a "best effort" basis; ii) for the provisioning of additional funds for any improvements or enhancements for which there is insufficient funding, more emphasis should be placed on the private sector and philanthropic contributions. Moreover, to alleviate legal obstacles for the receipt of private sector contributions, a legal expert should be asked to propose (and set up) an appropriate legal framework for establishing an appropriate international fund; For **minimum funding requirements,** the following should be implemented: iii) a dedicated marketing campaign for ETIS, targeting the private sector (including technology firms) but leveraging messaging linked to the illegal killing of elephants (as opposed to illegal ivory trade) should be launched to promote non-traditional sources of funding. iv) An experienced consultant(s) should be recruited for the development and implementation of a Sustainable Financing Framework, resource mobilization, private sector engagement strategy, as well as establishing the required legal frameworks to operationalize preferred options.	CITES Secretariat with support from TRAFFIC	Medium term By CoP20 subject to the availability of funding
Data Governance			
19	It is recommended to determine the appropriateness of all data elements stored in ETIS database both from a privacy policy and data ownership requirement perspective	TRAFFIC / CITES Secretariat	Short term
20	Inclusion and implementation of data governance principles, policies, and standards	TRAFFIC / CITES Secretariat	Short term
Data Management			
21	Timely seizure data reporting by the Parties is absolutely crucial in order for TRAFFIC to produce quality science-based estimates of trends, hence a more concerted effort for timely submission by ALL the Parties needs to be emphasized and committed to	Parties	Short term Soon after publication & distribution of this report
22	Define a more efficient and effective ETIS user access management process	TRAFFIC / CITES Secretariat	Short term
23	Leverage BI/dashboarding tool such as 'Tableau', 'ActivTrak' or 'Matomo' to present the trends and anomalies dynamically/interactively	TRAFFIC	Medium term Subject to the availability of funding

No.	Recommended Actions	Responsible Party	Anticipated Timeframe[14]
	Table 2: High-Level Itemized List of Recommendations		
Analytics Methodology			
24	Greater identification and testing of other covariates that could feature as independent country-specific variables for bias adjustment purposes or as explanatory factors to interpret and understand ETIS results more effectively, accompanied by supporting documentation for communication and reference by stakeholders	TRAFFIC / TAG	Medium term For CoP20 Cycle, subject to the availability of funding
25	Further exploratory analysis with a view towards enhancing and improving the analytical framework for ETIS (in concert with recommendation 26)	TRAFFIC / TAG/ Research Consultancy	Medium term Subject to the availability of funding
26	Streamline the 'R' scripts (+30) to enhance execution performance and minimize hands-on intervention	TRAFFIC	Short term Subject to the availability of funding
27	Per Paragraph 27 of Resolution Conf. 10.10 (Rev CoP18) on Trade in elephant specimens, bring to a successful conclusion the exploration and incorporation of overall illegal trade patterns/trends in the overall analysis using the datasets held by the IUCN/SSC African Elephant Specialist Group's African Elephant Database (elephant numbers), MIKE (illegal killing) and ETIS (illegal trade) in a single model	ETIS/MIKE Supporting Team, CITES Secretariat / TAG / TRAFFIC	Medium term For CoP20 Cycle
28	Modelling exploration of the impact of removing lower source grades (B and C) data from trend analyses	TRAFFIC / TAG	Short term Noted as a planned activity for 2021 to be prioritized by TAG Subject to the availability of funding
Analytics Interpretation			
29	Active engagement and involvement of the entire TAG in the overall interpretation and identification and fit-for purpose covariates and proxies before they are considered for the analysis, and refinement and validation of the analytics results and stakeholder communication of this important contribution and oversight	TAG / CITES Secretariat	Short term Immediate
30	Examine the relevance of the ivory price to better understand the economics of illegal trade in ivory and potential for integration with core ETIS activity. TRAFFIC's ivory price dataset can be leveraged as seen fit by TRAFFIC and the TAG	TRAFFIC / TAG	Medium term For CoP20 Cycle Subject to the availability of funding
31	Examine the relationship between ivory stockpiles and illegal ivory trade needs.	TRAFFIC / TAG	Medium term For CoP20 Cycle Subject to the availability of funding
32	Thoroughly examine the key drivers and their correlation in terms of elephant poaching and the illegal killing of elephant and illegal ivory trade. This activity can be undertaken in concert with recommendation 27 above	ETIS/ CITES Secretariat / TAG	Medium term Subject to the availability of funding

Review of the ETIS Programme

FINDINGS AND RECOMMENDATIONS OF THE DATA MANAGEMENT
AND STATISTICAL ANALYSIS

The Terms of Reference for the ETIS review posed three main questions to the reviewers:

1) Do the processes used by TRAFFIC sufficiently contribute to achieving the objectives of ETIS?

2) Is the ETIS analysis able to support CITES processes and decision making such as the National Ivory Action Plan (NIAP) process as outlined in Annex 3 to Resolution Conf 10.10 (Rev. CoP18)?

3) Are the processes used by TRAFFIC adequately described in Annex 1 of Resolution Conf. 10.10 (Rev. CoP18)? Is there a need to amend Annex 1 of Resolution Conf. 10.10 (Rev. CoP18)?

Based on the statistical review of the processes and systems used by TRAFFIC to collect, validate, manage, analyze and interpret ETIS data, the answers to the above first two questions are:

1) Yes, the processes used by TRAFFIC sufficiently contribute to achieving the objectives of ETIS.

2) Yes, the ETIS analysis is able to support CITES processes and decision making such as the NIAP process, but recommendations are made relating to areas that require strengthening and to address concerns raised by CITES Parties.

As for the third question:

3) Annex 1 of Resolution Conf. 10.10 (Rev. CoP18) should be amended to clarify specific matters, including data governance, Minimum Required Information relating to seizures, and to enhance the role of the MIKE-ETIS TAG in fulfilling its responsibility as contained in its terms of reference.

The table below reflects the evaluation of the different elements reviewed and discussed in detail in this report with the overall rating being **satisfactory** (for more information please refer to Chapter 7 of the full report). Each rating is assigned based on the assessment provided in each corresponding chapter.

Summary of Ratings	
Evaluated Processes	**Rating**
F. **Data collection**	**Satisfactory**
G. **Data validation**	**Satisfactory**
H. **Data management**	**Satisfactory**
I. **Data analysis (R-code and algorithm used for analysis)**	**Satisfactory**
J. **Data interpretation**	**Moderately Satisfactory**
K. **Review of overall ETIS methodology, technical outputs and reports**	**Moderately Satisfactory**
Overall review rating	**Satisfactory**

The processes and systems used to collect, validate, manage and analyze ETIS data are fairly well-documented although they are neither organized nor published consistently. Relevant information based on subject area ought to be collated in one single document. TRAFFIC has been able to produce reports for consideration by the meetings of the Conference of Parties (CoP) to CITES and Standing Committee (SC) meetings of CITES as required in Resolution Conf. 10.10 (Rev. CoP18). While the statistical analysis is robust and statistically sound, there is a need to review certain aspects of the methodology and to strengthen overall capacity building and communication. It is important that CITES Parties understand: i) the sources of data used in the analysis, ii) the

proxies used to address gaps in the data, and iii) that the interpretation of the results of the analysis is highly reliant / dependent on expert knowledge.

The following key findings and recommendations are extracted from the statistical report:

- *Data collection*
  Parties and TRAFFIC should pay particular attention to the data collection phase of the ETIS programme to ensure timely, precise and complete submission of seizure data in order to support punctual analysis. Failure to address this will undermine the quality of the trends and cluster analysis. TRAFFIC should furthermore ensure that Parties are aware of and agree to the use of data obtained from sources other than Parties (i.e., Non-Governmental Organizations, articles, other secondary data sources, etc.). TRAFFIC should explain the various modalities of ETIS data collection, provide training as needed, and ensure that Parties are aware of the peculiarities of each modality used for data submission to ensure Parties use these in the best possible way and according to their organizational needs (e.g. the ETIS Online requires an internet connection while the other two formats (Word and Excel) can be completed without internet connectivity and data can be uploaded when internet connectivity is available. The ETIS Online system facilitates the verification of data by Parties and Parties can access data submitted by them as well as data submitted by other Parties that implicate them in a seizure). A number of aspects require clarification, including the submission of seizure data relating to both national and international seizures; the deadline for submission of data, and the content and use of the subsidiary databases.

- *Data validation*
  Data validation rules should be specified and explained at each statistical phase of the ETIS analysis. The data validation rules should be documented, including the responsibilities of TRAFFIC staff and made available to Parties through the ETIS Online system and/or through other ETIS-related communications. TRAFFIC should consider validating consistency of ETIS data across different databases: internal e.g., Trade in Wildlife Information Exchange data (TWIX) and external e.g., World Custom Organization data (WCO).

- *Data management*
  The CITES Secretariat should have full access to all raw and elaborated seizure data that comprises the ETIS database. The description of Security protocols established by TRAFFIC should be enhanced in the Standard Operating Procedures (SOPs) Manual and additional back-ups of the ETIS database, should be kept by the CITES Secretariat in a secure manner. Proper documentation and tracking should be ensured and described as this is lacking in the current SOPs manual.

- *Data analysis (R-code and algorithm used for the analysis)*
  It is recommended that a full review of the ETIS code should be carried out to modernize execution and coding efficiency. The new version of the code should include the review of the ETIS theoretical framework. Supporting documentation should then be developed for both the improved ETIS theoretical framework and the improved code. The review of the code should include streamlining some processes and scripts. The code published on GitHub did not run smoothly, but the statistical consultant of this review, in collaboration with the TRAFFIC Senior Analyst, produced a version of the code which can be run without any challenges and were able to reproduce the analysis prepared for CoP18.

- *Data interpretation*
  The justification for assumptions made in the overall ETIS process as well as the assumptions associated with covariates used must be clarified, documented, and shared with Parties in each ETIS report prepared for the meetings of the Standing Committee and CoP. Other methods on how to bias-adjust the ETIS data, using a different set of covariates or using other methods other than covariates, should be considered. Some of these are already part of the "Short- and long-term development plan of ETIS/TRAFFIC program" (Annex I). The MIKE ETIS Technical Advisory Group (TAG) should play a more active oversight role in this process.

- *Review of overall ETIS methodology, technical outputs and reports*
  A clear step-by-step description of the ETIS methodology from beginning (data collection) to end (report to Standing Committee/CoP and NIAP categorizations), including all assumptions, should be developed. Various documents have been produced by TRAFFIC, but a comprehensive document describing the whole process from beginning to end is needed. The current Standard Operating Procedure (SOPs) Manual could be used (if appropriately updated) to develop this document. The document must then be made available to Parties through the ETIS page on the CITES website or at least to the MIKE-ETIS TAG. TRAFFIC should furthermore offer online and in person information sessions aimed at explaining the ETIS

methodology to interested Parties. Other than improvements in documenting the ETIS methodology, TRAFFIC should reflect on improving the following processes: cluster analysis; measure of domestic ivory trade; use of different sets of covariates over the years; selection of covariates used for ETIS analysis; data used to inform the categorization of countries; heavy reliance on qualitative analysis despite the availability of a complex statistical methodology; method of selecting countries for ETIS analysis; use of bias-adjusted data and data summary statistics; and ETIS' user awareness about limitations and assumptions of the ETIS methodology.

TABLE OF RECOMMENDATIONS:

The recommendations provided in the chapters in the full report have been grouped and summarized in the table below. If more information, context and details are required, the relevant chapters should be consulted, given that the table below is not meant to provide the full content and details. Responsibilities have been assigned to each recommendation although most are to be addressed by TRAFFIC while the CITES Secretariat and the MIKE-ETIS TAG also have a role to play.

It is important to remember that there are a number of sections in the Standard Operating Procedures manual that provide explanations relating to various aspect of the methodology and data management processes that can be instrumental in enabling the Parties and all stakeholders to have a better understanding of how data is managed and how the statistical models are executed. In order to make informed decisions, going forward, the CITES and MIKE-ETIS TAG should have access to the SoP, the code-base, and all other supporting documents for ETIS.

The column "Time Frame" has three categories:

– **Short-Term** means that a recommendation is relatively easy to implement and usually does not require additional budget to be implemented. Most of these recommendations concern aspects that form part of the ETIS methodology already in place but that needs to be better explained to all ETIS stakeholders. Recommendation to be implemented within one year.

– A **Medium-Term** recommendation will require more time to be implemented but may not necessarily require additional funding. For example, most of these recommendations are about the simplification and modernization of the R code along with some reflections on the robustness of some elements used in the ETIS methodology. These are activities that require time but not necessarily extra funds as they can be implemented by TRAFFIC's Senior Analyst in collaboration with the MIKE-ETIS TAG. Recommendations to be implemented within one CoP cycle.

– **Long-Term** recommendations require more time and, in most cases, additional funding. These relate to more structural changes to the ETIS methodology. Recommendations to be implemented within two CoP cycles.

No	Recommendations	Who	Time frame
	DATA COLLECTION		
1	The implications that each method of data collection has on the Data Collection Score should be clarified. Both smart visual schematic and detailed information on data collection scoring methods should be provided.	TRAFFIC	Short-Term
2	Clarify definitions and adopt consistent terms to identify the categories of Data Collection Efforts. The definitions of TRAFFIC's collection efforts should be further clarified: (1) Targeted, (2) Prompted, and (3) Passive. It is recommended that TRAFFIC provides a precise description of how these categories are assigned, and according to which modalities of data collection.	TRAFFIC	Short-Term
3	Use only one phrase to indicate the minimum set of data without which the seizures cannot be part of the ETIS analysis. This review recommends adoption of the term "Minimum Required Information".	TRAFFIC	Short-Term
4	There is confusion about what information constitutes the Minimum Required Information. This should be clarified and explained to Parties (see Annex B).	TRAFFIC	Short-Term

No	Recommendations	Who	Time frame
5	Explanatory Notes – following to be provided / clarified: 7.1 "Required information" means that without the Minimum Required Information the seizure cannot be included in the analysis. It is recommended to include this important information in ETIS documents. 7.2 "Required Information" in the ETIS Data Collection Form does not match with what is reported in its Explanatory Notes. It is recommended to modify the two documents. 7.3 The definition of "seizure" and "confiscation" is not provided. It is recommended to provide both definitions. 7.4 It is not clearly mentioned that the seizures on which information must be submitted refer to both national and international illegal trade. It is recommended that this should be explicitly stated. 7.5 Create an Explanatory Notes file as a separate worksheet within the Excel file dedicated to the Excel Template and to number the Excel's questions like the ETIS Form and the ETIS online reporting system	TRAFFIC	Short-Term
6	Insert a new field in the three ETIS data collection forms to ask whether the seizure reported concerns national or international illegal trade. This additional information should be clearly specified as it is particularly valuable for the calculation of the Trade Chain Index[17].	TRAFFIC	Short-Term
7	TRAFFIC SOPs report that there are 8 different methods of data collections. This review has reduced them to 6 in order to avoid duplications. It is recommended to change this in the SOPs as well.	TRAFFIC	Short-Term
8	The information on nationality of suspects in not used in the ETIS analysis therefore it is recommended to remove this question.	TRAFFIC	Short-Term
9	The communication relating to the deadline for submission of data should clarify that ETIS data should be communicated within 90 days and not every 90 days.	TRAFFIC	Short-Term
10	Parties to be consulted before including any unofficial data into the ETIS dataset.	TRAFFIC	Short-Term
11	Given that Eco messages and TWIX data contain the Minimum Required Information these should be accepted as a "Parties' pre-existing record".	TRAFFIC	Short-Term
12	Provide a better description of the ETIS subsidiary database, methods of data collection and the role that this database has had over time in particular in relation to the various ETIS reports. Publication of the database itself.	TRAFFIC	Short-Term
DATA VALIDATION			
13	Use the reliability of source score graded as C "Least degree of reliability" with cautions. Parties should be consulted before validating such data and including it in the analysis.	TRAFFIC	Short-Term
14	Enrich the description of the "Reliability of the Source" scores, clarify how grades A, B and C are assigned, and provide criteria used to determine whether a NGO or other source is 'reputable'.	TRAFFIC	Short-Term
15	The combination of "Reliability of the Source Score" and "Data Completeness Score" is described in the TRAFFIC SOPs manual with a 3x4 matrix. This review proposes a new version of the matrix (see Chapter 2).	TRAFFIC	Short-Term
16	After consultation with TRAFFIC, it was noted that the "Status Categories" reported in the SOPs manual are not updated. It is recommended that TRAFFIC updates the Status Categories and the description of the new three categories -5, -4 and -3 in the SOPs manual.	TRAFFIC	Short-Term
17	Data validation rules need to be applied consistently.	TRAFFIC	Medium-Term
18	A detailed description of how the ETIS subsidiary database is validated must be developed.	TRAFFIC	Short-Term
DATA MANAGEMENT			
19	A clearly defined data management plan should be established. This explanation is already provided in TRAFFIC SOP manual, but the related descriptions are out of date and need to be revised.	TRAFFIC	Short-Term
20	A data lifecycle control should be implemented.	TRAFFIC	Long-Term

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[17] The Trade Chain Index is better explained in Chapter "Review of overall ETIS methodology, technical outputs and reports".

No	Recommendations	Who	Time frame
21	Identify data owners and data stewards. This includes having an up do date list of focal points of CITES management authorities for the ETIS data and ensuring full access to the ETIS database by the CITES Secretariat.	TRAFFIC	Short-Term
22	Appropriate security protocols in place should be better described. To increase security, back-ups of ETIS databases should also be secured at the UNEP CITES Secretariat as this is not the case at present.	TRAFFIC	Short-Term
23	Proper documentation and tracking should be ensured as this is lacking in the current SOPs manual. Sound data management includes documenting workflows and tracking anomalies.	TRAFFIC	Short-Term
DATA ANALYSIS			
24	A full review of the ETIS code should be carried out. This would include streamlining some processes and scripts.	TRAFFIC	Long-Term
25	The theoretical framework of the ETIS methodology should be updated and clearly described in a single document before any changes are made to the R code.	TRAFFIC	Medium-Term
26	RMarkdown should be used to document the code. An RMarkdown is quite a technical instrument, and it may be the case that only statisticians will be able to run it. It is therefore important to clarify whether the code's reproducibility is to be limited to statisticians only. CITES Parties should clarify which audience they would like to share the code with.	TRAFFIC	Medium for TRAFFIC/Short for CITES
27	Technical recommendations: i) Inconsistencies between scripts should be addressed.	TRAFFIC	Long-Term
	ii) Use functionals as an alternative to 'for loops' in the R code.	TRAFFIC	Medium-Term
	iii) The code published on GitHub shouldn't be customized for a specific ETIS report. Rather, it is recommended that the code accessible to Parties should include all the passages mentioned in the ETIS methodology.	TRAFFIC	Long-Term
	iv) The file published online on GitHub that explains to Parties how to run the scripts, should be revised, and explanations on how to run the following 10 scripts should be included: 1) df_ctry_add_fn.R, 2) df_quantities_rie_separate.R, 3) get subsid vars.R, 4) ggplot theme.R, 5) posterior distributions for lambda theta phi.R, 6) rhat functions.R, 7) select final data.R, 8) sql select countries oetd.R, 9) transaction index and plots.R, 10) weight index and plots.R. Although statisticians could determine how to run these scripts, it is important to document how to run each and every script used.	TRAFFIC	Short-Term
	v) Referring to columns by numbers should be avoided. The order of columns could change, and the R script would then be out of sync with the data.	TRAFFIC	Medium-Term
	vi) The use of T and F for TRUE and FALSE respectively should be avoided. R package conventions (and strong package checking) flag such usage as "non-conforming" because it is then too easy to accidentally create a variable T or F that is used in place of TRUE and FALSE.	TRAFFIC	Medium-Term
	vii) Explicit error messages should be given when things go wrong so that it is obvious to the person running the code that a problem exists.	TRAFFIC	Medium-Term
	viii) Assuming that data frames have rows in a particular order should be avoided. The use of cbind() should be avoided in favor of merge() when joining two data frames. It is recommended to never refer to rows by row number but by selection criteria.	TRAFFIC	Medium-Term
	ix) Convert to simple plots in base R.	TRAFFIC	Medium-Term
	x) Use modern packages for data analysis	TRAFFIC	Medium-Term
DATA INTERPRETATION			
28	The method for assigning the percentages of seized ivory to the country of origin (50%-50% as in the example of chapter 5) should be clearly explained in the ETIS forms and in the ETIS methodology.	TRAFFIC	Short-Term
29	The ETIS data should be analyzed over the years using the same set of covariates otherwise results cannot be considered comparable/consistent. If covariates have to change for scientific purposes the limitations that this creates in terms of interpretation of data should be clearly explained.	TRAFFIC	Long-Term

No	Recommendations	Who	Time frame
30	Request information from Parties about how they determine the countries of origin for the seized ivory. It is recommended that Parties specify the method used to determine the country(ies) of origin.	TRAFFIC/ Parties	Short-Term
31	Reflect on the use of the CITES Reporting Score as a covariate to determine reporting rate. This proxy does not appear to be statistically robust.	TRAFFIC	Medium-Term
32	The definition of the Trade Chain Index, and in particular the definition of Destination Score, should be clarified (concepts of country listed and destination given). At the moment the model does not account for this limitation. It is recommended to revise this proxy to take into account this limitation.	TRAFFIC	Short-Term
33	Destination Score and Non-Destination Score have the similar concepts in common: it is suggested to use the term "provided" for both concepts to enhance consistency.	TRAFFIC	Short-Term
34	Parties must have an opportunity to engage the relevant DP on seizure records in which they are implicated before the data is used in the analysis.	TRAFFIC	Short-Term
35	The major concern with the ETIS model is the lack of identifiability of the underlying parameters which could arbitrarily be multiplied and divided by constants. It is recommended to take this limitation into account in the ETIS model.	TRAFFIC	Medium-Term
36	More quantitative elements relating to the illegal trade of ivory should be considered for inclusion in the methodology, as well as triangulation of data from various sources as an alternative to the use of proxies (Example of UNODC methodology).	TRAFFIC	Long-Term
37	The inputs of an expert in illegal trade in elephant specimens should be considered to enhance the interpretation of ETIS data and inform the further refinement of the methodology. The MIKE-ETIS Technical Advisory Group (TAG) should be strengthened to address this specific area and the addition of a global member with such expertise could add value.	TRAFFIC/ CITES	Medium Term
38	A more user-friendly, up-to-date and comprehensive document should be provided for the use of non-statisticians for them to fully understand the methodology. This should be provided along with trainings.	TRAFFIC	Short-Term
REVIEW OF OVERALL ETIS METHODOLOGY, TECHNICAL OUTPUTS AND REPORTS			
39	A more technical document and related training should be provided to the CITES Secretariat that is responsible to introduce the TRAFFIC reports to Parties and to interested Parties.	TRAFFIC	Short-Term
40	The ETIS methodology, as all mathematical and statistical methodologies, has some limitations. It is recommended that the following limitations are explained in the methodology document: -The implications of making assumptions and in particular assuming that the data are biased. -Limitations when data are not given or availed, and hence need to be estimated, e.g., in the case of ivory weights. -The implications of using covariates and the effect of each covariate. -Difference between relative and absolute values.	TRAFFIC	Short-Term
41	Although any statistical model has its own limitations, internal coherence should be respected and when not, it should be explained why. It is not clear why the Trend analysis and the Cluster analysis are based on bias-adjusted data, but then the determination of the categories considered in the NIAP process is informed by non-bias-adjusted data. The reasons behind this choice should be explained.	TRAFFIC	Short-Term
42	Provide documentation on the sensitivity analysis that assesses the quality of the cluster analysis and that is reported to show "very high degree of cohesiveness".	TRAFFIC	Short-Term
43	It is important to note that the countries that now enter into the ETIS analysis are countries that score at least 100 after having reported seizures or having been implicated by other countries that made seizures. It is recommended that the ETIS methodology takes into account a process to verify this data.	TRAFFIC	Short-Term
44	Additional sources of factual data should either substitute or complement qualitative indicators when determining the NIAP categories.	TRAFFIC	Short-Term

No	Recommendations	Who	Time frame
45	Provide both practical calculations done in R, and theorical explanations associated with the interpolation done when covariate data is not available.	TRAFFIC	Short-Term
46	An explanation should be provided about the changes made to the Data Collection Effort Score and an indication to which category the data classified as "routine" were assigned.	TRAFFIC	Short-Term
47	It is recommended to compare data that come from the same methodology and hence the same covariates otherwise the limitations / assumptions associated with this choice should be better explained.	TRAFFIC	Short-Term
48	It should be made very clear to Parties that the ETIS analysis is not built on the exact seizure record data Parties submit but that the data are processed, bias-adjusted with the application of covariates and then used in the ETIS analysis.	TRAFFIC	Short-Term
49	The variable "Mean Market Score "appears for the first time in the reports to CoPs and it is not clear why this variable is used to inform the determination of the categorization of Parties given that the data collected are not homogeneous on domestic illegal trade. The meaning of the variable called "Measure of Domestic Ivory Trade" should be explained to Parties and its limitations noted in the ETIS methodology considering that data on domestic illegal trade are not collected homogeneous or in a standardized manner (as is the case with seizure records).	TRAFFIC	Short-Term
50	Cluster analysis: It is not clear what the similar characteristics are that TRAFFIC takes into account to group countries into clusters. Additionally, "Most prominently implicated" is a terminology used by TRAFFIC in their ETIS report (reference is made to CoP18) when describing the results of the cluster analysis. The cluster analysis is more of a descriptive or exploratory analysis and not an inferential one. Thus, the idea that it's used to implicate countries seems potentially problematic. Additionally, TRAFFIC does not specify what metric was used to measure "distance" between countries. All these points should be clarified.	TRAFFIC	Short-Term

Review of the ETIS Programme

PROPOSED AMENDMENTS TO RESOLUTION CONF. 10.10 (REV. COP18)
ON *TRADE IN ELEPHANT SPECIMENS*

Proposed new text is underline; proposed deletions of text are shown in ~~strikethrough~~.

Resolution Conf. 10.10 (Rev. CoP18) – paragraph 27 g) to be amended as follows:

27. g)   summaries and aggregates of data provided to MIKE and ETIS, and the analyses of such data, constitute information that will be considered to be in the public domain once they are published on the CITES website, or otherwise publicly distributed; the detailed data on individual seizure cases, elephant mortalities and law enforcement submitted to MIKE or ETIS are owned by the respective data providers, which in most case are the CITES Parties; any such data relating to a CITES Party will be accessible to that Party, ~~and~~ the members of the MIKE and ETIS Technical Advisory Group for information and review purposes, and the members of the International Consortium on Combating Wildlife Crime (ICCWC) for global research and analysis, but will not be released to any third party without the consent of the Party concerned; data may also be released to contractors (e.g. statisticians) or other researchers (e.g. MIKE ETIS Subgroup approved research collaborations) under appropriate nondisclosure agreements; and

Review of the ETIS Programme

PROPOSED AMENDMENTS TO RESOLUTION CONF. 10.10 (REV. COP18)
ON *TRADE IN ELEPHANT SPECIMENS*

Proposed new text is <u>underline</u>; proposed deletions of text are shown in ~~strikethrough~~.

Annex 1   Monitoring illegal trade in ivory and other elephant specimens

1.   Introduction

In order to monitor and record levels of illegal trade in ivory and other elephant specimens on a global basis, there is a need for a system to collect and compile law enforcement data on seizures and confiscations. At its 10th meeting, the Conference of the Parties recognized the Bad Ivory Database System (BIDS) established by TRAFFIC for this purpose in 1992.

Through further development and refinement, BIDS evolved into the Elephant Trade Information System (ETIS), which has been used to monitor the pattern and scale of illegal trade in ivory and other elephant specimens since 1998.

2.   Data scope

ETIS is a comprehensive and global information system whose central feature is a database holding the details of law enforcement records for seizures or confiscations of elephant ivory and other elephant specimens which have been reported to occur since 1989. ~~ETIS also maintains a series of subsidiary information on law enforcement effort and efficiency, rates of reporting, legal and illegal elephant product markets, governance issues, background economic data and other factors~~

The following data relating to seizures of elephant specimens will be collected by Parties and consolidated and analyzed by TRAFFIC in collaboration with the CITES Secretariat and the MIKE-ETIS TAG:

Irrespective of whether the seizure was made at an international border, or at domestic level for example during the search of a private or business property or during inspections at domestic markets, the following data on all seizures for violations involving ivory and other elephant specimens are collected by TRAFFIC in collaboration with the CITES Secretariat:

a) Minimum information relating to each seizure that must be submitted (information required to enable data entry of a seizure case into ETIS):

  i.   source of information
  ii.   date of seizure
  iii. agency responsible for seizure
  iv.   country of seizure
  v.   type of ivory and quantity
  vi.   type and/or quantity of non-ivory elephant products

b) Additional information (optional information that is desirable to provide to assist in improving the understanding of the trade routes and means of transport used, methods of detection as well as the origin and destination of ivory and other elephant specimens)

  i.   type of transaction
  ii.   country of origin
  iii. country of export
  iv.   country of transit
  v.   country of destination/import
  vi.   mode of transport
  vii. *modus operandi*method of detection

viii. nationality of suspects

In addition to the seizure data, ~~ETIS~~ TRAFFIC also maintains a series of subsidiary information, including on law enforcement effort and efficiency, rates of reporting, legal and illegal elephant product markets, governance issues, background economic data and other factors to enable and inform the statistical analysis and its interpretation. Upon consultation with the MIKE and ETIS Technical Advisory Group (TAG), the subsidiary data required for analysis and interpretation may be revised and updated, in collaboration with the CITES Secretariat, as necessary to improve the analysis and the resulting output and interpretation. Parties will be informed about the additional data elements to be added through a Notification and on CITES website.

3. ~~Methods~~ **Data governance**

~~Data and information on illegal trade in elephant ivory and other elephant specimens will be collected by TRAFFIC in collaboration with the CITES Secretariat. In this regard, a standardized methodology has been developed for the collection of data, including, inter alia and to the extent known:~~

~~– source of information~~
~~– date of seizure~~
~~– agency responsible for seizure~~
~~– type of transaction~~
~~– country of seizure~~
~~– country of origin~~
~~– country of export~~
~~– country of destination/import~~
~~– type of ivory and quantity~~
~~– mode of transport~~
~~– modus operandi~~
~~– nationality of suspects~~

~~Standardized data are collected through a number of mechanisms and formats, including direct online data submission to the ETIS website, using the ETIS Data Collection Form for individual seizure cases or the ETIS Data Collection Spreadsheet for reporting multiple seizure cases at one time. Reporting on elephant product seizures or confiscations using other formats is also acceptable.~~

a) **Oversight and accountability**

The CITES Secretariat is responsible for data governance, in consultation with TRAFFIC. An agreement between the Secretariat and TRAFFIC will formalize the matters associated with data governance as provided for in this Resolution. Data governance will address sensitive and non-sensitive information collected and the use of this data and information, taking into consideration paragraph 27 g) of the Resolution. Information relating to governance will be made available on the ETIS Online system and the CITES website. Roles, responsibilities and accountability of data owners and stewards for all ETIS data are set out below.

b) **Data ownership**

The detailed data on individual seizure cases submitted to ETIS are owned by the respective CITES Parties. Each Party has data ownership accountability over the data submitted by the Party. The CITES Secretariat has data ownership accountability for all other data/information/measures used by TRAFFIC in the ETIS analysis. Data owners are accountable for the quality and integrity of their own data; however, the day-to-day data management activities may be delegated to the data stewards (CITES Secretariat and TRAFFIC).

c) **Data stewardship**

Data stewardship is the management of data and information, including content and metadata, on behalf of the data owners to ensure high quality data, required controls and data integrity in accordance with the data scope. The CITES Secretariat is the primary data steward of all ETIS data; all data management responsibilities are delegated to TRAFFIC in terms of the agreement referred to in paragraph 3 a) above.

4. **Data collection and compilation**

The MIKE and ETIS Technical Advisory Group (TAG) will support the development and implementation of ETIS. ETIS will be managed and coordinated by TRAFFIC in consultation with the TAG and in collaboration with the CITES Secretariat.

All Parties, through their CITES Management Authorities, following liaisons with appropriate law enforcement agencies, should provide information on seizures and confiscations of ivory or other elephant specimens in the prescribed formats, either to the Secretariat or directly to TRAFFIC within 90 days of their occurrence <u>or by 31 October each year for the submission of data covering seizures in the preceding year</u>. In addition, law enforcement agencies in States not-party to the Convention are invited to provide similar information.

TRAFFIC will assist the Parties in collecting data, ensuring data quality and consistency, and providing tools and training in data collection, data utilization and information management to designated officials around the world as appropriate.

<u>Standardized data for ETIS will be collected through several mechanisms and formats, including direct online data submission to the ETIS website, using the ETIS Data Collection Form for individual seizure cases or the ETIS Data Collection Excel template for reporting multiple seizure cases at one time. Reporting on elephant specimen seizures or confiscations using the CITES annual illegal trade report is acceptable, but other formats are not recommended.</u>

5. **Information, data analysis and interpretation**

Information generated by ETIS is hereby defined as the outcomes and outputs of ETIS data analysis, including summaries and aggregates in different forms, trends and other analytical presentations, and the relationships and factors which comprise underlying trade dynamics.

~~Data is hereby defined as the facts gathered through ETIS processes on individual seizures, including those collected using the CITES 'Ivory and elephant product data collection form' or other mechanisms used for obtaining elephant product seizure data. It also includes data that is part of the subsidiary databases within ETIS, and any other data that have been primarily collected under ETIS auspices to facilitate ETIS analyses.~~

The analysis and interpretation of data will be coordinated by TRAFFIC in association with the CITES Secretariat and MIKE (see Annex 2), and in consultation with the relevant Parties and the TAG. <u>The statistical methodology, underlying code and supporting documentation will be made available to all Parties. The statistical modelling and techniques will be reviewed and refined as deemed necessary by the TAG, TRAFFIC and the CITES Secretariat, and submitted to the MIKE-ETIS Subgroup of the Standing Committee for consideration.</u>

6. **Intersessional remedial action**

In the event that there is a need for urgent intersessional action, TRAFFIC will report as appropriate to the Standing Committee via the Secretariat.

7. **Funding**

<u>Regular funding should be secured</u> ~~A funding mechanism will be established~~ to ensure that ETIS ~~is fully operational~~ <u>can meet minimum operational requirements to deliver on the objectives in paragraph 27 a) of the Resolution.</u>

Review of the ETIS Programme

PROPOSED AMENDMENTS TO RESOLUTION CONF. 11.17 (REV. COP18)
ON *NATIONAL REPORTS*

Note to reader: Proposed new text is underlined.

Resolution Conf. 11.17 (Rev. CoP18) – paragraph 4. to be amended as follows:

4.   AGREES that, unless otherwise specified by the reporting Party, data collected in the annual illegal trade report and included in the database should be made available to Parties for research and analysis of wildlife and forest crime as it affects them, and to the members of the International Consortium on Combating Wildlife Crime (ICCWC) for ICCWC global research and analysis studies on wildlife and forest crime, and any data on elephant specimens seized to ETIS to support the monitoring the illegal trade in ivory and other elephant specimens as provided for in Resolution Conf. 10.10 (Rev. CoP18) ;

<u>Review of the ETIS Programme</u>

TENTATIVE BUDGET AND SOURCE OF FUNDING FOR THE IMPLEMENTATION
OF THE ELEPHANT TRADE INFORMATION SYSTEM (ETIS)

After a year of operations of ETIS Online that included: the management of the registration process that was originally intended to be managed by the CITES Secretariat; the translation of user guides, their updates, and other communication material in the three languages of the Convention; and the outreach to the Parties to encourage submission of ETIS data on the online portal and to provide one-on-one training, TRAFFIC has revised its operational costs to accommodate the need for increased program capacity with an additional staff member. Along with recent cost of living adjustments, the total operating budget for the calendar years 2022 – 2024 totalled USD 1,268,456 (Table 1). Currently 25% of this budget is secured with support from European Commission though the MIKE+ program (USD 220,000 ending in April 2023) and the German government (USD 91,833 ending in December 2022). TRAFFIC is waiting for determinations on submitted proposals or other contributions covering the calendar years of 2022 – 2023 and totalling USD 570,000. Even if all proposals are granted, the program will still be in an operational shortfall for 2024.

The enclosed budget would ensure ETIS is sustainable for the next three years and is currently at a 75% shortfall.

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**