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

Eighteenth meeting of the Conference of the Parties
Colombo (Sri Lanka), 23 May – 3 June 2019

Species specific matters

Elephants (Elephantidae spp.)

REPORT ON MONITORING THE ILLEGAL KILLING OF ELEPHANTS (MIKE)

1. This document has been submitted by the Secretariat.

Background

2. The Conference of Parties agreed in Resolution Conf. 10.10 (Rev. CoP17) on *Trade in elephant specimens* that the programme known as Monitoring the Illegal Killing of Elephants (MIKE) established under this Resolution and supervised by the Standing Committee, shall continue and be expanded with the following objectives:

   i) measuring and recording levels and trends, and changes in levels and trends, of illegal elephant killing and trade in ivory and other elephant specimens in elephant range States, ivory consumer States and ivory transit States;

   ii) assessing whether 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;

   iii) establishing an information base to support the making of decisions on appropriate management, protection and enforcement needs; and

   iv) building capacity in elephant range States and, as applicable, countries involved in trade in elephant specimens, to implement and make use of MIKE and the Elephant Trade Information System (ETIS) in managing elephants and enhancing enforcement.

3. Resolution Conf. 10.10 (Rev. CoP17) further directs the Secretariat to report on information and analysis provided by MIKE at each meeting of the Conference of the Parties. Reports on the MIKE Programme were submitted to the Conference of Parties at its 11th, 12th, 13th, 14th, 15th and 16th and 17th meetings (CoP11, Gigiri, 2000, in document Doc. 11.31.2; CoP12, Santiago, 2012, in document CoP12 Doc. 31.2; CoP13, Bangkok, 2004, in document CoP13 Doc. 29.3; CoP14, The Hague, 2007, in document CoP14 Doc. 53.3; CoP15, Doha, 2010, in document CoP15 Doc. 44.2 (Rev. 1); CoP16, Bangkok, 2013, in document CoP16 Doc. 53.1; and CoP17, Johannesburg, 2016, in document CoP17 Doc. 57.5).

4. This report presents information relating to objectives i) to iv) of the MIKE mandate, as reflected above in paragraph 2.

5. The work of the MIKE Programme, including the preparation of this report, has been possible thanks to the generous financial support of the European Union, and is based on data collected by elephant range States participating in the MIKE Programme.

MIKE objective i): Levels of and trends in illegal killing of elephants

MIKE sites

6. MIKE operates in a large sample of designated sites spread across the range of African elephants, *Loxodonta africana*, and Asian elephants, *Elephas maximus*, in 30 countries in Africa and 13 countries in Asia. There are more than 60 designated MIKE sites in Africa, which together hold an estimated 30-40% of the African elephant population, and 28 sites in Asia.

7. An additional seven voluntary MIKE sites were nominated by countries in southern Africa (one in Angola, one in Malawi, four in Zambia and one in Zimbabwe) since CoP17. The nominations for the following sites were considered by the MIKE-ETIS Technical Advisory Group (MIKE-ETIS TAG) and the sites were included in the MIKE network, bringing the total number of sites in Africa to 68 by the end of 2018:

    - Luengue-Luiana National Park (Angola)
    - Majete Wildlife Reserve (Malawi)
    - Lower Zambezi National Park (Zambia)
    - North Luangwa National Park (Zambia)
    - Kafue National Park (Zambia)
    - Sioma Ngwezi National Park (Zambia)
    - Mana Pools/Sapi Conservation Area (Zimbabwe)

8. The nomination of three additional sites for Cameroon is still being considered by the MIKE-ETIS TAG.

Methods and data

9. MIKE data is collected in designated MIKE sites by law enforcement and ranger patrols in the field and through other means. When an elephant carcass is found, site personnel try to establish the cause of death and other details, such as sex and age of the animal, status of ivory, and stage of decomposition of the carcass. This information is recorded in standardized carcass forms, details of which are then submitted to the MIKE Programme.

10. A database of more than 17,780 carcass records has been assembled to date (2003 – 2017) for MIKE sites in Africa. A data set that consists of 3,377 records of elephant carcasses found between 2003 and the end of 2017 in 12 range States in Asia has also been compiled. This provides the most substantial information base available for the statistical analysis of the levels of illegal killing of elephants.

11. The participating MIKE sites are encouraged to submit carcass data for a specific year by 31 January of the following year. The CITES Secretariat will provide the Conference of Parties at its 18th meeting (CoP18) with updated information and analysis, that will include the carcass records for 2018, which are to be submitted by participating MIKE sites by 31 January 2019. This will be submitted to CoP18 in the form of an annex to the present document with updated analytical results.

Proportion of Illegally Killed Elephants (PIKE)

12. The MIKE programme evaluates relative poaching levels based on the Proportion of Illegally Killed Elephants (PIKE), which is calculated as the number of illegally killed elephants found, divided by the total number of elephant carcasses encountered by patrols or other means, aggregated by year for each site.

13. Sites with site-year combinations in which no carcasses were reported are removed, as it is not possible to compute PIKE when no carcasses have been reported. Furthermore, some site-year combinations are missing from the data set due to non-reporting by the range States. In the first instance, no carcasses were reported because none were found (e.g. in very dense forest habitat or for well protected, small populations), while the second group represents non-performing sites/range States where it is suspected that carcasses could or should have been found and reported but did not happen. As expected, different sites report widely different numbers of carcasses, as encountered carcass numbers are a function of: population size; mortality rates; the detection probabilities of elephant carcasses in different habitats; differential carcass decay rates; levels of illegal killing; and levels of search effort and site coverage.

14. The proportion of illegally killed elephants (PIKE) as a relative indicator of poaching levels has been used in the MIKE analysis in an attempt to account for differences in patrol effort between sites and over time (Burn *et al*., 2011). PIKE may be affected by data quality, including a number of potential biases related to variation in carcass detection probabilities, variation in natural mortality rates, and other factors (Burn *et al*., 2011; document CoP17 Doc. 57.5). As an example, the data used to construct PIKE are largely collected by law enforcement patrols, which are generally purposive. It is therefore likely that the probability of detecting carcasses may not be random with respect to the cause of death of the animal. If, for instance, illegally killed carcasses are more readily detected because rangers follow poacher spoor or intelligence leads, PIKE will tend to be biased towards overestimating levels of poaching.

15. The nature of the different factors that may cause biases in PIKE and influence the analyses based on PIKE data are being considered by the MIKE-ETIS TAG, and the CITES Secretariat has launched specific consultancies to look into this matter in more depth.

16. In previous reports, the Secretariat indicated that PIKE levels above 0.5 are of concern and that it is a threshold above which elephant populations are very likely to be in net decline [document SC62 Doc. 46.1 (Rev. 1)]. This was based on the assumption that, at a PIKE level above 0.5, the illegal annual offtake is likely to be higher than the number of elephants born annually in a naturally increasing population (document CoP16 Doc. 53.1).

17. Elephant population growth rate, however, differs between populations based on a number of factors, including the ecological and management conditions under which the populations occur (Calef, 1988; Foley and Faust, 2010; Turkalo *et al.*, 2018; Wittemyer *et al.*, 2013). Age structure and age-specific fecundity (primiparous age and inter-calving intervals) and natural mortality also vary both due to ecological factors and the level and type of anthropogenic mortality which has been experienced over the previous decades. The impact of a given level of illegal killing on a population will therefore vary both between sites and over time, depending on these factors.

18. The Secretariat, in collaboration with the MIKE-ETIS TAG, has initiated a process to investigate the use of population dynamic modelling to further improve the understanding of the impact of the level of PIKE on elephant populations at the MIKE sites across Africa, as well as a broader investigation to determine whether there are alternative means to reflect poaching pressure on affected populations. In the meantime, the use of the 0.5 PIKE 'threshold' should be treated with some caution.

Process to refine and improve the statistical analysis to determine the PIKE trend

19. The PIKE trend is calculated using estimated marginal means of a linear model weighted by the total number of carcasses. The continental PIKE trend is estimated based on a model with subregion and year as factors, while the subregional trends are estimated from a model using country and year as factors. This methodology has been used for the PIKE trend analysis in the reports to the two previous meetings of the Conference of the Parties (CoP16, Bangkok, 2013 in document CoP16 Doc. 53.1 and CoP17, Johannesburg, 2016, in document CoP17 Doc. 57.5), and to meetings of the Standing Committee (SC62, Geneva, July 2012, in document SC62 Doc. 46.1 (Rev. 1), SC65, Geneva, July 2014, in document SC65 Doc. 42.1, SC66, Geneva, January 2016, in document SC66 Doc. 47.1 , SC69, Geneva, November 2017, in document SC69 Doc. 51.1 and SC70, Sochi, October 2018, in document SC70 Doc. 49.1).

20. The analysis of MIKE data has been published in the peer-reviewed scientific literature (Burn *et al*., 2011). In 2018, the CITES Secretariat, in collaboration with the MIKE-ETIS TAG statisticians and an independent statistician, initiated a process to review the MIKE analytical methodology to determine whether it could be refined, or its scientific robustness improved, and further enhance the analytical basis for MIKE. The approach includes a review of the current methodology, and consideration of new statistical developments and, therefore, alternative methods or models for PIKE trend analysis, while taking into consideration the imbalances and inconsistencies inherent in the data.

21. In this regard, the application of new statistical tools, such as the R-INLA (INLA – Integrated Nested Laplace Approximations) approach (Zuur *et al*., 2009; 2014), are being considered. These tools would make it possible to extend further the analysis and methodology of Burn *et al*. (2011). The Secretariat will provide a report on the progress made relating to the review of the MIKE analytical methodology at the 73rd meeting of the Standing Committee in 2020.

22. The PIKE trend analysis for this present report was done based on the methodology referred to in paragraph 19.

Levels of, and trends in, illegal killing of elephants in Africa

23. In 2017, 1,602 records of elephant carcasses encountered were received from 40 sites in Africa, increasing the total number of carcass records in the database from 16,181 in 2016 to 17,783 in 2017. The number of reporting sites has increased from 36 sites in 2016 to 40 in 2017, with 198 more elephant mortality records provided in 2017 than 2016. The data set used for the 2017 trend analysis for Africa consists of 17,783 records of elephant carcasses found between 2003 and the end of 2017 at 53 MIKE sites in 28 elephant range States in Africa, representing a total of 586 site-years.

24. As reported to SC70 in document SC70 Doc. 49.1 A1, the time trends in PIKE at the continental level for the reporting African MIKE sites, with 90% confidence intervals, show a steady increase in levels of illegal killing of elephants starting in 2006, peaking in 2011, and thereafter following a steady downward trend (Figure 1A and 1B).

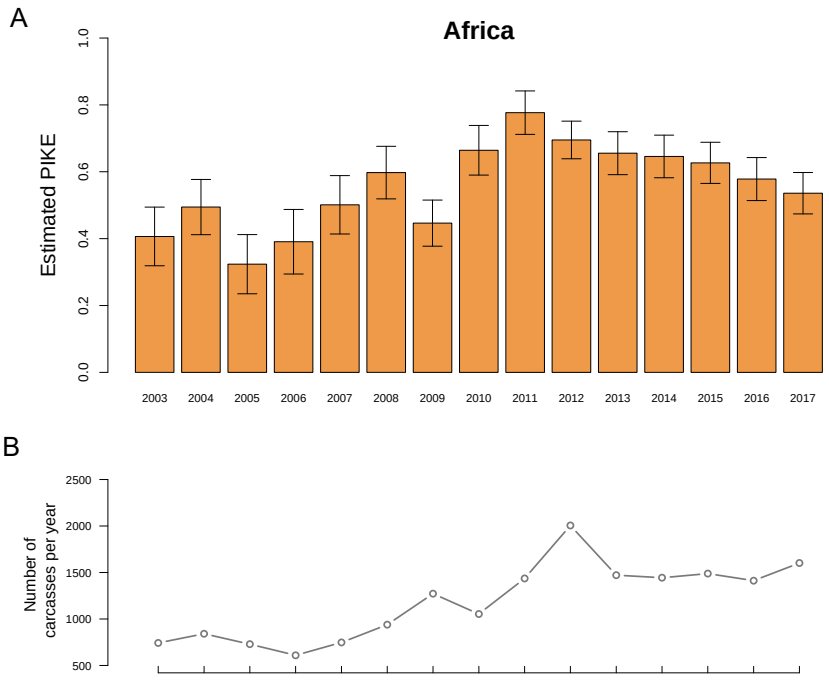

Figure 1A. PIKE trend in Africa with 90% confidence intervals, based on 17,783 *reports of elephant carcasses (illegally killed or otherwise) reported for the period 2003-2017. Figure 1B. The total number of carcasses reported by year, irrespective of cause of death. The total number of carcasses records reported in 2017 is 1602.*

25. The subregional PIKE estimates were also reported at SC70 (SC70 Doc. 49.1 A1) and are presented again in Figure 2 below.

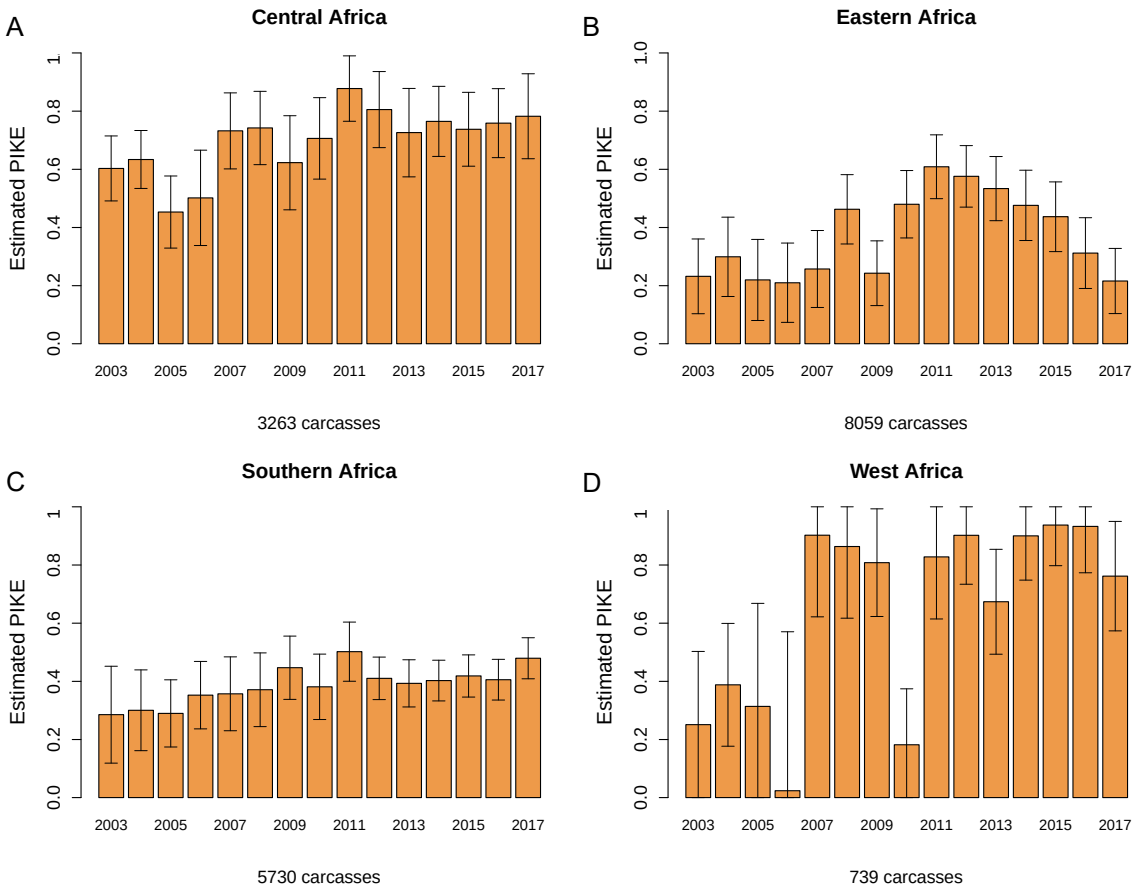

Figure 2. Subregional PIKE trends with annual 90 % confidence intervals (A – D). The total numbers of carcasses on which the graphs are based are shown at the bottom of each graph. In 2017, the number of sites that reported from Central, Eastern, Southern and West Africa were 8, 13, 10 and 9 respectively.

26. The subregional PIKE estimate for **Eastern Africa** declined from approximately 0.32 in 2016 to 0.22 in 2017 (Figure 2B). This subregional trend is heavily influenced by two sites in Kenya (Tsavo Conservation Area and Samburu-Laikipia MIKE site), which contribute a large number of records and have declining PIKE values. The drought in Kenya in 2016-2017, which began in October–December 2016, has affected parts of the country, including the Samburu-Laikipia MIKE site and the Tsavo Conservation Area. These conditions increased the natural elephant mortality rate due to additional drought-related deaths and may also have increased the detection rate of carcasses, resulting in a higher number of carcass sightings. The number of illegally killed elephants reported in Tsavo Conservation Area remained unchanged from 37 in 2016 to 38 in 2017, while in Samburu-Laikipia it increased from 58 in 2016 to 87 in 2017. However, even though the number of illegally killed elephants remained similar or increased, the PIKE estimates decreased at both sites. The decline in PIKE may therefore be as a result of increased natural mortality as a result of drought, rather than a change in the number of illegally killed elephants. A similar effect was pointed out at CoP15, with Tsavo Conservation Area and Samburu-Laikipia sites in Kenya suffering from a severe drought between 2008 and 2009, potentially accounting for the observed drop in PIKE in 2009 (Figure 2B). PIKE is likely to be biased downwards if the total carcass count is raised because of adverse environmental conditions, such as drought (Burn *et al*., 2011).

27. The subregional PIKE estimate for **Southern Africa** increased from approximately 0.41 in 2016 to 0.48 in 2017 (Figure 2C). Several MIKE sites in the region showed an increase in PIKE levels from 2016, including Chobe National Park (Botswana), Kruger National Park (South Africa), South Luangwa National Park (Zambia), and Niassa Game Reserve (Mozambique).

28. The subregional PIKE trend in **Central Africa** remains concerningly high (Figure 2A). The African Elephant Status Report 2016 (AESR 2016) reported that the models for the entire region derived from surveyed populations indicated that Central African elephants declined by over 60% between 2002 and 2011 and the decline continued at least to 2014 at a rate of about 9% per year (Thouless *et al.,* 2016).

29. In **West Africa**, due to low sample sizes, it is particularly difficult to make reliable inferences based on the year-to-year trend. With the lowest number of carcasses reported to MIKE (739 over 15 years), gaps in reporting years and a low number of sites reporting, West Africa continues to be a cause for concern in terms of data quantity and quality. According to the AESR 2016, West Africa continues to hold the smallest regional population and lost twelve populations of elephants since AESR 2007. PIKE levels remain high for the sites in West Africa for which data is available.

Levels of and trends in illegal killing of elephants in Asia

30. Information on trends in levels of illegal killing of elephants in Asia up to 2015 was provided in the addendum to document SC69 Doc. 51.1. This section provides an update on those trends, based on data from 2003 up to the end of 2017.

31. Records of 486 carcasses found in the 11 MIKE sites in South Asia and three sites in South East Asia in 2016 and 2017 were submitted by the MIKE national focal points in these two subregions. In 2016 and 2017, MIKE sites in India reported 87.9% (n=427) of all carcasses, Sri Lanka 7.8% (n=38), Malaysia 2.5% (n=12), Thailand 1.2% (n=6) and Bangladesh 0.6% (n=3). The MIKE sites in Nepal and Bhutan, as well as a site in India, reported that no carcasses had been found in 2016 and 2017. In South East Asia, three sites reported zero (0) carcasses since 2014 (i.e. both sites in Myanmar and one site in Lao's People's Democratic Republic). For 2016-2017, Cambodia, China, Indonesia and Viet Nam did not provide information or records pertaining to their MIKE sites.

32. MIKE sites in the south of India, which support over 50% of India's elephant population, had the highest number of carcass reports. Approximately, 49% (n=210) were from the Mysore Elephant Reserve in the state of Karnataka, and 14% (n=63) from Karnataka and Nilgiri Elephant Reserve in the state of Tamil Nadu. The other remaining five sites in India contributed less than 11% of carcasses reported in India between 2016 and 2017.

33. Overall, the data set for the trend analysis for Asia consists of 3,377 records of elephant carcasses found between 2003 and the end of 2017 at 25 MIKE sites in 12 range States in Asia, namely Bangladesh, Bhutan, Cambodia, China, Indonesia, India, Lao People's Democratic Republic, Myanmar, Malaysia, Sri Lanka, Thailand, and Viet Nam (Nepal did not detect any elephant carcasses during this period). Approximately 94% of the records (3,172 carcass records) are from MIKE sites in India, which, as mentioned above, holds the largest population of Asian elephants. The MIKE site in China reported the second largest number of records (45 carcass records), followed by two sites in Sri Lanka (38 carcass records). The remaining countries each contribute less than 1% to the total number of the records.

34. Figure 3A shows estimated marginal mean annual PIKE values, with 90% confidence intervals, from 2003 to 2017, for MIKE sites in Asia from which reports have been received. The figure shows a steady increase in average levels of illegal killing of elephants between 2003 and 2006, followed by a slightly decreasing trend up through 2017. The mean PIKE values from 2008 to 2013 remained relatively constant, but seemed to take an upward turn thereafter, followed by downward trend after 2015. The average PIKE value based on the last three years is equal to 0.38.

35. Figure 3B shows the total number carcasses reported, irrespective of cause of death. The number of carcasses from 2007 to 2013 remained relatively constant, with an average of 286 carcasses per year, and from 2014 and 2015 shows a downward trend, with an average number of 248 carcasses per year. In 2017, 271 carcasses were reported.

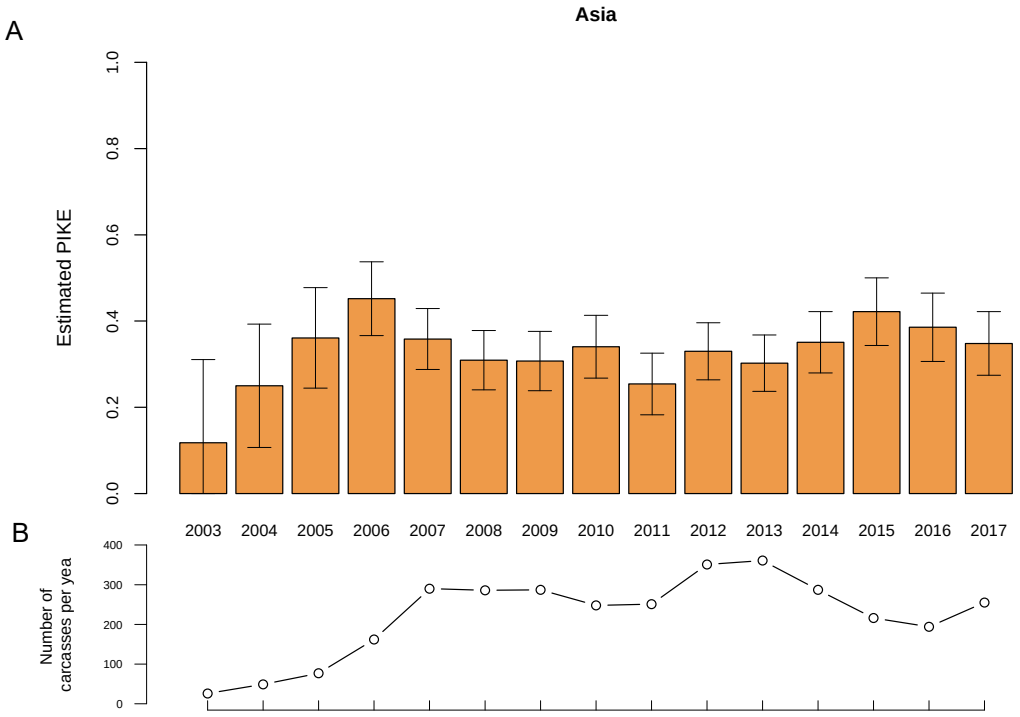

Figure 3A. Shows the PIKE trend in Asia with 90% confidence interval based on 3377 elephant carcasses (illegally killed or otherwise) reported to MIKE for the period 2003-2017. Figure 3B. shows the total number of carcasses reported by year, irrespective cause of death.

Estimates of poaching rates in Africa

36. At CoP17, the Secretariat reported on the estimates of poaching rates using a method derived by Dr. Ken Burnham, the statistical expert who was a member of the MIKE-ETIS TAG at the time. This method combines PIKE data with estimates of natural mortality rates to yield estimates of poaching rate (i.e. estimates of the proportion of total elephant population that was illegally killed in any given year).

37. The relationship between PIKE and the poaching rate *k* is given by:

$$k = \frac{mp}{1-p}$$

where *p* is PIKE estimate and *m* is an estimate of the natural mortality rate.

38. The properties of the above equation are elaborated on in document CoP17 Doc. 57.5, with the main inference being that although the poaching rate is in principle a better measure of the impact of poaching than PIKE is, its calculation requires good estimates of natural mortality rates. Unfortunately, such estimates are only available for a few sites in which detailed demographic studies have been conducted, such as Amboseli (Moss, 2001), Dzanga Bai (Turkalo *et al.*, 2018) Etosha (Lindeque, 1988), Kruger (Whyte, 2001), Samburu (Wittemyer, *et al.,* 2013), and Tarangire (Foley and Faust, 2010).

39. The MIKE reports for CoP16 and CoP17 (documents CoP16 Doc. 53.1 and CoP17 Doc. 57.5) provided estimates of poaching rate across African subregions. In the report for CoP16, natural mortality values ranging from 1.5% to 4.5% were used to estimate the poaching rate; while in the report for CoP17, a 3% natural mortality scenario was used. A 3% natural mortality rate, slightly lower than the average natural mortality estimation of 3.2% used by Wittemyer *et al*. (2014), was recommended by the MIKE-ETIS TAG at the time. This slightly reduced rate excludes juvenile mortality, as juveniles are usually not directly targeted by poachers (even though there may be collateral juvenile deaths resulting from poaching of adult females). The 3% natural mortality rate was retained for the present report.

40. The estimated trend in poaching rates for all African sites combined, under a 3% annual natural mortality scenario, is presented in Figure 4. Under this scenario, estimated median rates of illegal killing of elephants were above 5% between 2010 and 2014, dropping subsequently to converge towards 5% by 2015. In 2016,

the estimate probably fell below 5% for the first time in six years. This downward trend continued in the 2017 estimate.

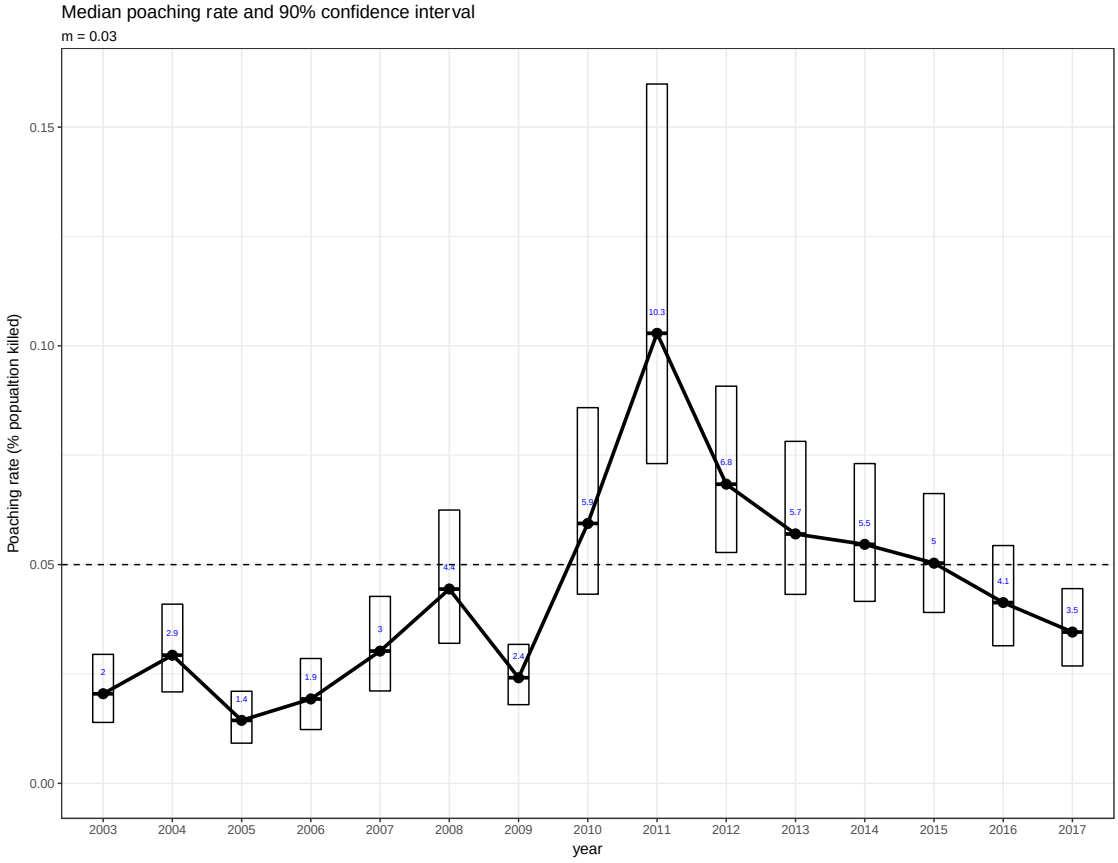

Figure 4. Trends in estimated poaching rates in African MIKE sites (median, black line) under a 3% natural mortality scenario. The boxes represent the 90% confidence interval derived from a Monte Carlo simulation framework. The dashed line at 5% represents an average growth rate of a large well-established population (de Silva, 2010). Poaching rates above this level are thought likely to result in net population declines.

MIKE objective ii): Assessment of effects of CITES decisions on levels of illegal killing of elephants

41. Previous reports to the Conference of Parties and Standing Committee reflected on the potential impact of CITES decisions relating to the international sale of government-owned raw ivory stocks from four populations of *Loxodonta africana* included in Appendix II (Botswana, Namibia, South Africa and Zimbabwe) to approved trading partners (China and Japan) on the levels of illegal killing of elephants (documents CoP16 Doc. 53.1 and SC65 Doc. 42.1). These reports indicated that no evidence was found to suggest that illegal killing of elephants increased or decreased as a result of the one-off ivory sales or the nine-year moratorium. The illegal ivory trade is a complex dynamic system involving many different countries and players with different drivers acting at different places and on different temporal and spatial scales along the trade chain. It is therefore difficult to determine causation of specific events and decisions. To understand whether a particular event has affected the illegal killing of elephants and the illegal ivory trade, its role would need to be assessed in relation to all other potential drivers of the trade. Any analysis should therefore look at the relative contribution of different drivers, rather than attempting to attribute any changes to a single cause. However, it is extremely challenging, and perhaps impossible, to disentangle these effects in the context of broader trends that lie beyond the control of CITES.

42. CITES decisions that could be considered relevant to changes in poaching rates include the National Ivory Action Plan (NIAP) process, and the amendments to Resolution Conf. 10.10 (Rev. CoP17) on *Trade in elephant specimens* agreed at CoP17 that included, *inter alia*, a recommendation that all Parties and non-Parties in whose jurisdiction there is a legal domestic market for ivory that is contributing to poaching or illegal trade, take all necessary legislative, regulatory and enforcement measures to close their domestic markets for commercial trade in raw and worked ivory as a matter of urgency.

43. A number of African elephant range States are involved in the NIAP process. The possible impact of this process on the levels of illegal killing of elephants in the countries concerned has not yet been analysed. In

the ETIS report to CoP18 (document CoP18 Doc 69.3), it is indicated that the ETIS analysis suggests a recent reduction in the quantity of illegally traded ivory, and that since this result coincides with four full years of implementation of the National Ivory Action Plans (NIAP) process, it is plausible that this result reflects a positive impact of this CITES oversight process on overall illegal ivory trade dynamics. The prospect of an increase in illegal ivory trade quantity in future iterations of the 2017 ETIS trend analysis can however not be discounted, owing to numerous seizure cases for that year being received subsequent to the CoP18 analysis. It should however be noted that any potential increase in the quantity of illegal ivory detected could be either a result of an increase in illegal trade or improved enforcement effort by Parties.

44. At SC70, the Secretariat provided information about the responses received from Parties relating to efforts to implement Resolution Conf. 10.10 (Rev. CoP17), including efforts to close domestic markets that contribute to poaching or illegal trade, pursuant to paragraph 8 of Resolution Conf. 10.10 (Rev. CoP17) (SC70 Doc 49.1). In the ETIS report (CoP18 Doc 69.3), the possible impacts of these actions are reflected on, but regardless of attribution, continued monitoring will be required to determine whether the recent decline in illegal trade in ivory and the gradual, ongoing decline in PIKE levels will be sustained.

Factors associated with levels of illegal killing of elephants

45. In the covariate analysis reported here, the choice of variates (Table 1), considered as potential drivers of poaching intensity, was guided by previous studies and analysis (Laurance, W. F. *et al*., 2001; documents SC65 Doc 42.1 and CoP16 Doc 53.1).

46. The model structure used remained similar to the previous analysis, in that covariates are categorized as global, country or site-level factors (SC65 Doc 42.1; CoP16 Doc 53.1). A new statistical approach was used for the analysis this year; i.e. a Bayesian lasso-regulated hierarchical regression model (Hauenstein *et al*., 2018).

Table 1: Proxies for supply and demand variables used as covariates in the analysis.

Covariate	Rationale	Proxy	Resolution	Source
Infant mortality rate (IMR)	Represents site-level poverty as a driver of poaching	Number of deaths of children under one year of age per 1,000 live births	Annual, site (interpolation of two datasets)	SEDAC, CIESIN (CIESIN, 2017), UNICEF (UNICEF, 2017)
Precipitation	Causes site-level changes in natural mortality rate	Mean annual precipitation in MIKE site	Annual, site	CHIRPS (Funk *et al*., 2015)
Corruption perceptions index (CPI)	Represents country-level corruption, hence poor governance, as a driver of poaching	Index range from 0 to 100, where 0 is high levels of corruption perception and 100 is low levels	Annual, country	Transparency International (Transparency International, 2017)
Poverty density (PovDens)	Represents site-level poverty as a driver of poaching	Density of people earning less than USD 1.25 per day	Single measure (2005), site	HarvestChoice (HarvestChoice, 2015)
Site area (Area)	Affects elephant density and potentially management effectiveness	Surface area of MIKE site	Single measure, site	MIKE (MIKE, 2017)
Law enforcement adequacy (LawEnf)	Represents site-level management effectiveness	Expert estimate of the adequacy of law enforcement provision	Single measure, site	MIKE (MIKE, 2017)
Large-scale ivory seizures (Seizures)	Represents global level of organised ivory crime	Weight of large-scale ivory seizures (>500kg)	Annual, global	Elephant Trade Information System (ETIS) (Milliken, 2014)

Ivory price (IvoryPrice)	A crude proxy for unmet demand for elephant ivory in consumer countries	Average import price of legal mammoth ivory to China, Hong Kong and Macao	Annual, global	UN Comtrade Database (UN Comtrade, 2018)

47. The contribution of relevant biophysical and socio-economic factors with levels of illegal killing was explored using a statistical model. Figure 5 shows the conditional relationships between key covariates and the estimated proportion of illegally killed elephants (PIKE) for: a) infant mortality; b) annual precipitation; c) corruption perception index; d) poverty density; e) site area; f) law enforcement adequacy; as well as annual g) large-scale ivory seizures; and h) Mammoth ivory price. In Figure 5, error envelopes represent 90% credibility intervals from 3,000 Markov chain Monte Carlo (MCMC) samples, and horizontal dashed lines illustrate the estimated intercept median. In the figure, the partial residuals (y-axis) show how the raw PIKE values correlate with the respective covariate of interest (x-axis). All plots are scaled the same to make effect sizes directly comparable.

48. All covariates, except for site area (Figure 5 e) showed non-zero correlations with PIKE, but only a subset showed 90% credibility intervals (CIs) that excluded zero (Figures 5 b, c and h). Specifically, strong correlation was found between ivory price and annual variation in PIKE (Figure 5 h), while site level variation was correlated with poverty density (number of poor people/km^2) and estimated law enforcement adequacy (Figures 5 d, f). Strong evidence that PIKE decreases with falling national corruption was also found (Figure 5 c). Additional information relating to the covariates is included in Annex 1 to this document.

49. As in all previous MIKE analyses, governance (as represented in the CPI) continues to emerge as the most important national-level predictor of elephant poaching. The consequences of bad governance are likely to manifest themselves throughout the ivory supply chain, facilitating the movement of illegal ivory from the site all the way to the point of export. As pointed out in the previous reports, governance is highly correlated with levels of human development, making the effects of each difficult to tease apart. It is likely that there is a two-way causal relationship between governance and human development, whereby limitations in one appear to preclude improvements in the other (CoP16 Doc 53.1).

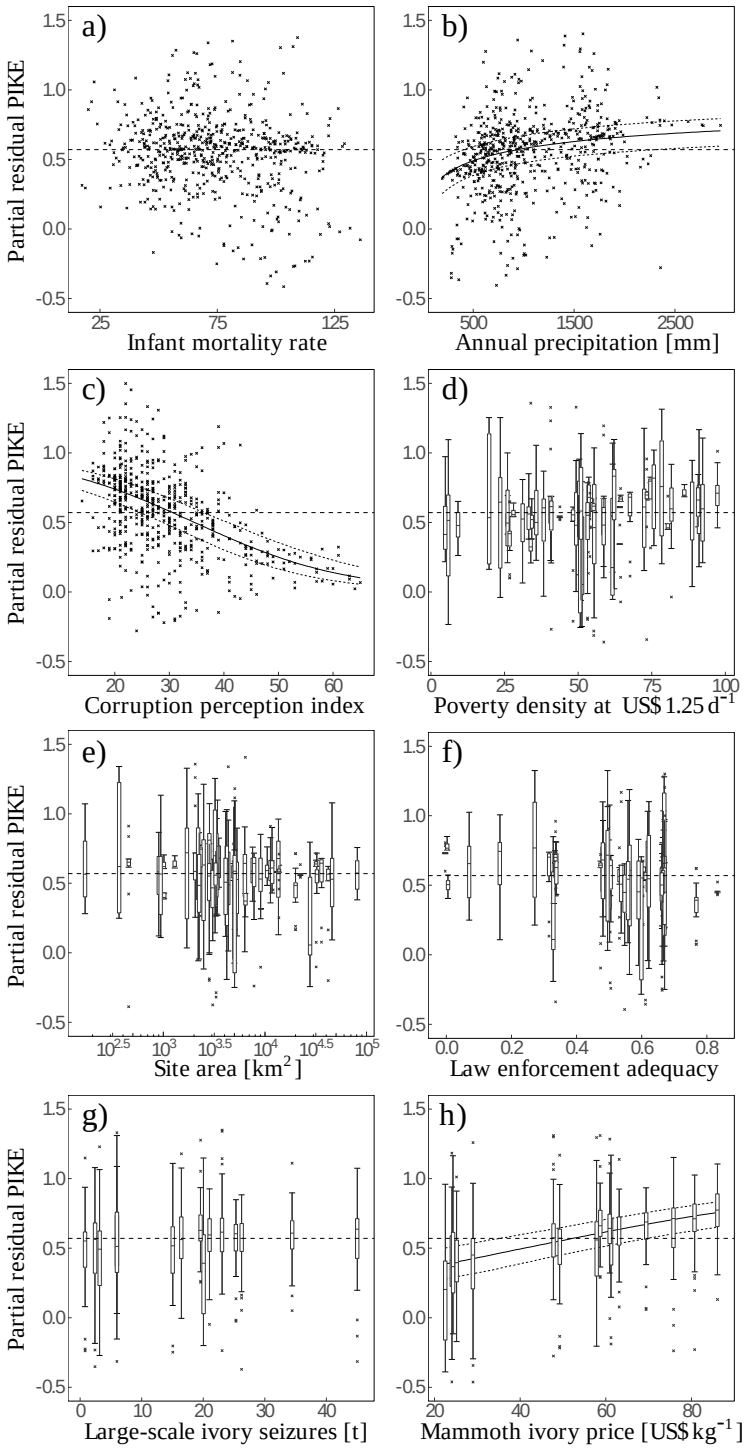

Figure 5 shows the conditional relationships between key covariates and the estimated proportion of illegally killed elephants (PIKE) for a) infant mortality, b) annual precipitation c) corruption perception, d) poverty density, e) site area, f) law enforcement adequacy g) large-scale ivory seizures, and h) ivory price (Hauenstein et al., 2018). The plots are overlaid with response-scale partial residuals (i.e. observed PIKE values minus the variance explained by all other covariates) (points for site and country by year covariates and boxes for site and annual covariates).

MIKE objective iii): Establishing an information base to support decisions on management, enforcement and protection needs

50. In order to complement the information base provided by MIKE on levels of and trends in illegal killing of elephants, the MIKE Programme developed a site-level Law Enforcement Capacity Assessment (LECA) in 2014 to assess the effort and resources employed by participating range States in the detection and prevention of illegal killing of elephants. This assessment, which was developed as part of the project entitled "Minimizing the Illegal Killing of Elephants and other Endangered Species" (MIKES) with funding from the

European Union, was also intended to help participating range States, and the wider CITES community, to better understand the status of wildlife law enforcement efforts at the conservation area level, to pinpoint key areas where investments and projects could potentially be targeted, and to monitor progress in strengthening wildlife law enforcement capacity in these areas.

51. The LECA was designed to be undertaken as a self-assessment by wardens or senior wildlife law enforcement officers based at participating MIKE sites. The assessment was administered in a standardized form, which could be sent by email and either completed electronically or printed and filled in manually. The assessment consisted of 41 questions organized into the following six law enforcement pillars:

    A. Law Enforcement finances and human resources (six questions)
    B. Law Enforcement patrols (twelve questions)
    C. Patrol operations (seven questions)
    D. Investigations and intelligence (five questions)
    E. Law Enforcement monitoring (six questions)
    F. Community participation in Law Enforcement (five questions)

52. A summary of selected aggregated results from the LECA assessments done in 51 MIKE sites is shown in Figure 6. The LECA is primarily aimed at informing site level management and activities, and the continental results mask many of the site-specific nuances. However, some inferences can be made from the results about the overall level of protected area law enforcement management capacity across the MIKE site network in Africa. For example, the majority of sites report that basic ranger training is adequate or good, advanced training is much less strong, while communications equipment and working conditions score low in most areas. Overall, investigations and intelligence were the lowest ranked pillar, with specialist staff and information management being the most commonly cited capacity issues.

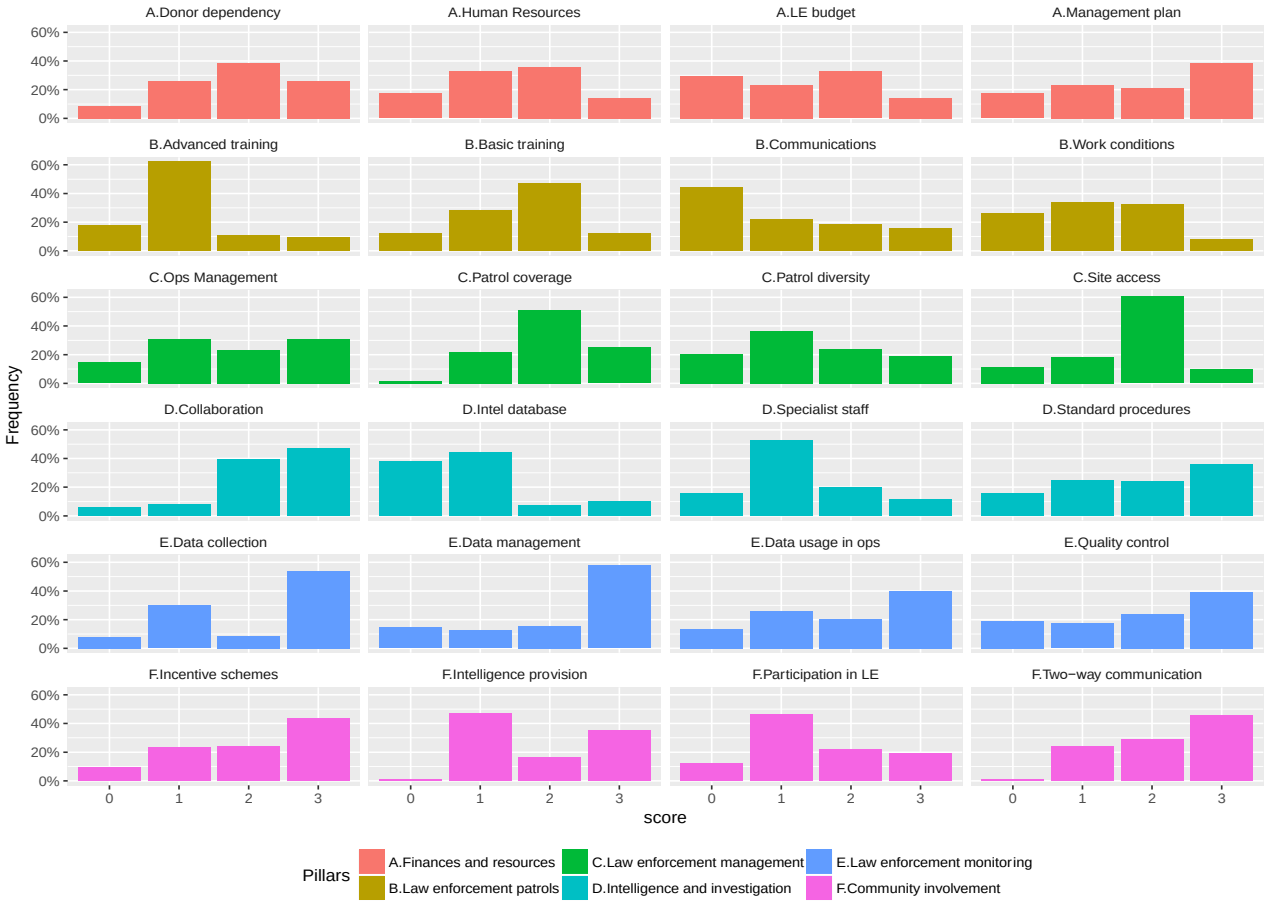

Figure 6: Selected aggregated responses to the LECA assessment from African MIKE sites showing the relative strengths of different aspects of site-based law enforcement capacity (where 0 is the lowest score and 3 the highest, and the y-axis shows the proportion of responses in each score category).

53. Despite the inherent limitations of self-assessments, feedback obtained from range States suggests that the MIKE Law Enforcement Capacity Assessments help site managers to evaluate their capacity and needs to effectively prevent and respond to wildlife crime in a structured manner. However, the form and format of the original LECA assessment had a number of weaknesses. Notably, the assessment took a long time to complete, the question format was not easy to comprehend, and there was no feedback on the results of the assessment immediately available to those involved in its completion. In response to these shortfalls, the format of the LECA has now been updated. However, the content remains largely the same and the responses between the original and updated assessments are comparable.

54. The updated LECA is now presented in an Excel workbook with restricted fields and drop-down menus that allow for standardised responses. This complements the previously used form with a menu of pre-set responses from which to choose. The Excel workbook also contains user-friendly display tools including a 'dashboard' and summary radar charts providing instant feedback to those completing the assessment on the responses they have included, and the overall strength of each pillar. The updated assessment has now been piloted in Africa and Asia and will be steadily rolled out to all relevant MIKE sites as visits by MIKE Programme staff take place.

55. It is no longer proposed that the assessment be completed as a self-assessment by site staff, but rather as a facilitated process with site staff led by MIKE Programme staff during a visit. Although this may result in less frequent responses, it is anticipated that the information collected will be more accurate. Experience has shown that the exercise is best completed by a group of participants who have a direct understanding of the situation in the MIKE site (i.e. the senior managers, law enforcement officers and patrol staff). The previous self-assessment will be retained and form part of the information requirements for new sites joining the MIKE network and will be implemented across a larger number of MIKE sites as and when required.

MIKE objective iv): Capacity-building in elephant range States

56. In accordance with its mandate under Resolution Conf. 10.10 (Rev. CoP17), the CITES MIKE Programme has focused its capacity-building efforts at the site level with the aim of improving the ability of site management to implement MIKE, to make use of MIKE data in managing and conserving elephants, and to enhance wildlife law enforcement.

Ability of site management to implement MIKE and make use of MIKE data

57. Reliance on ranger-based monitoring as the primary source of information has been one of the key strengths of the MIKE Programme. This bottom-up approach to data collection and analysis places a high value on practical information derived straight from site-level monitoring. In this way, MIKE is well placed to enable monitoring systems to be tailored to meet site-specific management needs, as well as to inform adaptive management. However, many sites also require significant additional resources and capacity-building support if this potential to support area management is to be fully realised and utilized.

58. The MIKE Subregional Support Units (SSUs) have led capacity-building efforts in this area and have focused on selecting and supporting suitable monitoring tools with regard to site capacity and management needs and strengthening the ability of sites to implement and make use of these tools as part of the MIKE system. This capacity-building has been achieved through a variety of site visits, on-site training, and technical support, including establishing and maintaining hardware and software, and support for data collection and management.

59. Work is ongoing to improve the targeting of training activities to meet site-specific needs and develop standardised training approaches and materials to improve the provision of training at the site level. Additional approaches are also being explored to expand the reach and impact of MIKE Programme capacity building. This includes 'training of trainers', for countries with several sites (e.g. Kenya), and working with wildlife training colleges (e.g. Southern African Wildlife College) to integrate the MIKE Programme requirements into the standard patrol training curriculum for law enforcement staff.

60. Between 2016 and 2018, site-based training events took place at 46 MIKE sites in Africa, reaching almost 950 staff in 25 African elephant range States. The main focus was in provision of technical support in collection and recording good quality elephant mortality data. Sites that are committed to deploying SMART (Spatial Monitoring and Reporting Tool) have received on site and remote support in basic and advanced SMART database management. Training is being provided to new voluntary sites in southern Africa, and to date has covered Lower Zambezi National Park and Kafue National Park in Zambia.

61. In Asia, since the re-launch of the MIKE programme in September 2017, 19 site visits have taken place, including a number of training events, reaching more than 430 staff in 10 Asian elephant range States.

62. Training in data management has involved a number of tools, such as the SMART. However, these systems require a relatively high level of technical capacity and IT infrastructure at the site, which has undermined their utility in many sites. The MIKE Programme's approach has remained to support implementation of the most appropriate tools in relation to existing management needs and capacity, rather than to focus on the promotion of a particular monitoring tool. In response, the MIKE Programme developed a simpler, spreadsheet-based 'MIKE Workbook', which is being used to record and report information in many sites. This workbook has helped improve and standardize reporting.

63. The MIKE Programme is also in the process of exploring a number of mechanisms through which information and MIKE analyses relevant to site and national managers can be made easily available to support use of MIKE Programme data where it is most relevant. In addition to the redesign of the LECA that aims to provide site managers with instant feedback on the relative strengths of their wildlife law enforcement management capacity, efforts are also underway to make MIKE elephant mortality data analysis and trends available to range States that have submitted the data through a new password protected online portal. Detailed data and analysis on their own sites will be restricted to the range States that have provided the information.

Enhancing wildlife law enforcement

64. The final evaluation of the MIKE Phase II project, which ran from 2006 to 2012 with funding from the European Union, recognized that, with the resources available to MIKE, it was not possible to build capacity substantially and sustainably across all MIKE sites in Africa. The evaluation recommended that, in addition to ongoing activities, MIKE provide specific and more substantial support focused on enhancing enforcement in a smaller number of sites. As a result of this recommendation, under the MIKES project, funds have been allocated for focused efforts to build law-enforcement capacity in eight 'focal sites'. The focal sites were selected in accordance with their importance for the protection of key populations of elephants and other CITES-listed flagship species, the scale and nature of the threats to these species, and the likelihood of mitigating these threats through targeted support for the protected area's law enforcement and management systems.

65. Activities under the project focus on supporting law enforcement capacity building and adaptive management in the eight '*focal sites*'. A brief summary of the activities supported in each of these sites is outlined below:

    a) *Boumba Bek National Park, Cameroon:* A major issue undermining the organization and management of activities is the complete absence of power at park headquarters. Under the project, an assessment was carried out and solar power has now been installed. Ranger field equipment and a patrol vehicle have also been procured and were delivered to the area. Properly organized ranger patrols are now taking place in the park for the first time in a number of years, with 240-man days of patrol effort during the first six months of 2018. Support for the remainder of 2018 and 2019 will focus on *in-situ* training in SMART data collection and management, and on providing basic support to maintain the improvements in patrol effort and coverage recorded during the first half of 2018.

    b) *Dzanga Sangha Protected Area, Central African Republic*: Training of patrol staff in the SMART tool and MIKE Programme data requirements and ranger-based monitoring data management have been ongoing; alongside the upgrading of a patrol planning and organization system. A patrol rations store has been constructed to provide patrol staff with access to rations at cost and enable better use of allowances provided. The first ranger training was recently supported at a newly established training base, with additional mentoring planned for senior management to enable them to make optimal use of a newly established and equipped operations control room. A vehicle and key equipment have been delivered to the site and are supporting operations. This goes some way to re-establishing the equipment and materials lost during the security breakdown in 2012 and 2013.

    c) *Katavi National Park-Rukwa Game Reserve, United Republic of Tanzania:* This has proved a challenging focal site in which to implement activities due to its extremely remote location and its complex institutional arrangements. At the time of writing, two vehicles to support law enforcement and elephant monitoring operations in both areas have been delivered and are in the process of being customized to meet field requirements. The installation of a VHF-radio network to cover the area is underway and work is expected to be completed in the first half of 2019.

    d) *Mana Pools/Sapi Conservation Area and Chewore Safari Area, Zimbabwe:* Park management

infrastructure has been developed throughout the area; this includes establishing and equipping two operational control rooms and additional support for a third. Support has also been delivered to improve the well-being of out-posted patrol staff through efforts to improve the provision of clean water to sectoral headquarters. Law enforcement management equipment has been provided and a new ranger base established (including patrol monitoring and communication equipment). A patrol boat for river patrols has been delivered, and two rangers trained as coxswains. A dedicated patrol vehicle has been procured and equipped to support wildlife law enforcement operations throughout the area. Support for ongoing wildlife law enforcement operations continues through the training of patrol staff (both basic and specialized riverine training).

e) *Niassa Game Reserve, Mozambique:* After a relatively slow start due to staffing difficulties, a law enforcement advisor was appointed and advised that a more dynamic and responsive mode of operation should be pursued. This entailed some adjustment of the budget, but data indicates that this approach has had a positive impact on reducing illegal activities. Support has been provided for the development of sectoral headquarters, which will decentralise operational management to key parts of the Reserve. Support continues to be provided for basic field equipment and results-based incentives for patrol staff. In 2019 it is expected that additional support will be provided to enhance communications infrastructure in key parts of the Reserve to enhance and support law enforcement operations.

f) *Okapi Wildlife Reserve, Democratic Republic of the Congo:* Some insecurity issues, combined with staff turnover in both government and non-government partners initially slowed activities. As a result, a project review was carried out in early 2018, and the priorities, activities and budget revised to take into account emerging issues. Since that time, critical field equipment for patrol staff has been procured along with communications equipment. The project has also supported a number of joint patrols throughout the area with other law enforcement agencies. The collection of intelligence to inform operations has also been strengthened through collaboration with a local non-governmental organization, alongside the tracking and monitoring of court cases. A number of the Congolese Institute for Nature Conservation staff have been trained and certified as 'Judicial Police Officers' with the aim of increasing the effectiveness of case development and prosecution in the regions around the Reserve.

g) *Parc W Protected Area Complex, Benin, Burkina Faso and Niger:* The tragic death in April 2018 in Parc W Niger of the MIKE Technical Advisor leading the implementation of this aspect of the project has severely impacted implementation in this focal site. A replacement has been recruited and activities re-initiated in the area. Equipment to support field-based patrol staff are in the process of being delivered to the site. Ongoing support is being provided in four of the five areas to help sustain patrol effort and coverage (which has been impacted by security incidents in some parts of the focal site). A preliminary assessment of radio communication needs was completed, and a call for proposals from service providers is in process to carry out a more accurate assessment of requirements. In addition, an intelligence expert has been recruited to help set up a simple intelligence system throughout the area (the same approach will also be supported in Dzanga Sangha Protected Area).

h) *Queen Elizabeth National Park, Uganda:* A law enforcement strategy for the park was developed (with co-funding from GiZ), setting out areas where priority support is needed. Key transportation equipment needs were identified, and a vehicle dedicated to law enforcement patrols is now operational in the park. Field equipment for 60 rangers to support law enforcement patrols has been delivered to the site, as well as digital radio equipment to improve communications between patrols and outposts throughout the site. Work is on-going and continues to focus on building the capacity of patrol staff through training, alongside providing support for key infrastructure in the forms of communications and VHF radios to enhance operations. Additional support is also being used to strengthen key infrastructure with strategically located outposts and the upgrading of parts of the headquarters building. Additional, complementary funds have been leveraged from the African Elephant Fund.

66. In 2018, the MIKE Programme was awarded additional funding from the European Union to expand support for MIKE Law Enforcement Focal Sites in Eastern and Southern Africa, with a special focus on transboundary protected areas, as part of the Cross-Regional Wildlife Conservation in Eastern and Southern Africa and the Indian Ocean (CRWC) Programme. This five-year European Union funded project is being implemented in collaboration with the United Nations Office on Drugs and Crime (UNODC) and the Convention on Migratory Species (CMS). Sub-projects have already been developed to continue support provided under the MIKES project for Queen Elizabeth National Park, Uganda, and Mana Pools/Sapi Conservation Area and Chewore Safari Area, Zimbabwe, with an added emphasis on strategic support building human resource capacity of law enforcement managers and the management systems they use. Additional activities have also been planned in other transboundary sites prioritised but not supported under MIKES, including Lower Zambezi National Park, Zambia, and Tsavo West National Park, Kenya.

67. In 2017, Japan also supported a project to complement work under the EU funded MIKES project to strengthen law enforcement capacity in Mana Pools/Sapi Conservation Area and Chewore Safari Area focal site in Zimbabwe. The project supported the development of a new ranger post at a strategic location in the Chewore Safari Area. An agreement has been concluded with Japan for a similar initiative in 2018 to support the development of a new outpost in Queen Elizabeth National Park, Uganda (again, as a complement to support provided under the EU funded MIKES project). In collaboration with CITES, Japan is also supporting the construction of a law enforcement operations base and a strong room to support better management and security of seizures and confiscated items in Niassa Game Reserve, Mozambique.

68. Finally, the Event Response Mechanism (MERM) was designed under the MIKES Project to provide support to national wildlife authorities and site managers in responding to sudden increases in illegal killing of elephants and other CITES-listed flagship species, as well as the international trafficking in their products. The first MERM action was implemented in the Gourma region of Mali in 2017. A 36-strong anti-poaching unit was created, with rangers selected on a competitive basis, and provided an initial training course of more than five weeks. All 36 rangers successfully completed the initial training course, which gave the new team training in basic anti-poaching operations, including tracking, surveillance, reconnaissance, tactics, crime scene investigation and interdiction.

69. A second MERM is currently being implemented to support wildlife law enforcement capacity building in South Sudan, along the border with the Democratic Republic of the Congo, focused on ranger training and re-establishment of basic infrastructure in a critical area buffering Garamba National Park in the Democratic Republic of the Congo. The final MERM under the MIKES project is currently taking place in Cameroon and Chad to help combat the increased elephant poaching that has been recorded in the Bouba Ndjida (Cameroon) and Sena Oura (Chad) transboundary protected areas. This will focus on supporting ranger training, equipment and support for patrols.

Summary and conclusions

70. The trends in PIKE at the continental level for the reporting African MIKE sites show a steady increase in levels of illegal killing of elephants starting in 2006, peaking in 2011, and thereafter following a slight but steady downward trend. A downward trend is also observed in terms of the estimated poaching rate. Caution should be taken in interpreting these trends, especially considering the reported continental decline in elephant numbers over the same period (Thouless, *et al.* 2016).

71. The trends in PIKE for the reporting Asian MIKE sites show a steady increase in average levels of illegal killing of elephants between 2003 and 2006, followed by slight decreasing trend up to 2018. In Asia, the impact of human-elephant conflict has been raised as an important element of illegal killing of elephants, and the MIKE Programme will be working with the range States to collect data relating to the cause of death for further analysis. Although significant progress has been made in Asia, the collection and consolidation of information from Asian elephant range States that have not submitted data to date will continue.

72. The MIKE Programme continues to build the information base needed to support elephant range States in their efforts to monitor and protect elephant populations. The development of the new database, improved reporting and feedback to the participating sites, as well as the new website, form part of the initiatives in this regard.

73. The Secretariat will provide a report on the progress made relating to the review of the MIKE analytical methodology at the 73rd meeting of the Standing Committee.

74. Subject to the availability of the substantial external funds required to implement MIKE, the Secretariat will continue to improve, refine and enhance the MIKE Programme in collaboration with the participating range States and the MIKE-ETIS TAG, and will also continue to report to the Conference of the Parties and the Standing Committee, based on the provisions in Resolution Conf. 10.10 (Rev. CoP17).

Support to the MIKE programme

75. The CITES Secretariat is grateful to the European Union for its financial support to the MIKE Programme in Africa and Asia. The Secretariat is also grateful to the Government of Japan for its support of the MIKE Programme in Africa.

76. The tentative budget required to implement and further strengthen the MIKE Programme is contained in Annex 2 to the present document.

77. Finally, the Secretariat would particularly like to express its gratitude to the African and Asian elephant range States for their cooperation in the implementation of MIKE, and specifically to all the rangers, MIKE site and national officers from participating sites and range States, NGOs and local partners whose dedication make the MIKE programme possible.

Recommendations:

78. The Conference of the Parties is requested to take note of this report.

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Covariates used in analysis relating to factors associated with levels of illegal killing

a) *Poverty indices:* Previous MIKE analyses have used human infant mortality rates in and around MIKE sites as a proxy for poverty. Infant mortality emerged in successive MIKE analyses as the single strongest site-level correlate of PIKE, with sites suffering from higher levels of poverty experiencing higher levels of elephant poaching. A new poverty-related variable, namely the proportion of people living in extreme poverty (defined as people living with less than USD 1.25 per day; Harvest Choice 2011) in and around MIKE sites was tested in the most recent analysis. This variable was found to be as strong a predictor of PIKE at the site level, with higher poaching levels found in and around sites where poverty is more prevalent.

b) *Precipitation:* This climate variable was included to allow for changes in natural elephant mortality to climatic conditions. Variation might arise from two processes. Sites with higher precipitation may identify denser habitats, where finding carcasses due to natural mortality is more difficult, and hence PIKE may be higher due to underestimated natural mortality. Secondly, lower precipitation (within or among sites) may increase natural mortality (Funk, C. et al. 2015; Moss, 2001) and thus lead to underestimated poaching rates because of lower PIKE values.

c) *Corruption perceptions index*: At the national level, the strongest correlate of PIKE is governance, as measured by Transparency International's Corruption Perceptions Index (CPI) or the World Bank's Worldwide Governance Indicators. High poaching levels are more prevalent in countries where governance is weaker, and *vice versa* (Figure 5 c). As reported before, this is likely to be a causal relationship, with poor governance facilitating the illegal killing of elephants and movement of illegal ivory, be it through ineffective law enforcement or active aiding and abetting by unscrupulous officials. CPI as a proxy for public sector and political corruption, which has been shown to affect the presence of illegal wildlife activities (Laurance et al. 2012).

d) *Site area:* The expected effect of the site area on poaching intensity is somewhat ambivalent. On the one hand, larger protected areas might exhibit less of the negative edge effect, on the other hand, smaller sites might be easier to patrol.

e) *Law enforcement adequacy:* Similar to the findings reported in the annex to document SC62 Doc. 46.1 (Rev. 1), law enforcement capacity adequacy at the site level is also a significant predictor of PIKE at the site level, with sites having better law enforcement capacity suffering lower levels of poaching overall. However, the variable used to estimate law enforcement, which is based on answers to two qualitative questions on the adequacy of law enforcement capacity, is relatively crude.

f) *Large-scale ivory seizures:* Annual weight of large-scale ivory seizures greater that 500 kg were included in the analysis (Milliken, 2014; CITES 2017). In cases, where worked ivory was part of the consignment, the values were converted to 'raw ivory equivalent', factoring in a 30% loss during processing. Note that time lags on this variable are not well known, so although the data are correct, there is uncertainty about the timescales of large-scale ivory seizures and how it might influence poaching. Consequently, it is difficult to know if not finding relationships here is meaningful. For 2017, these data were not yet available and treated as missing values.

g) *Ivory price:* Annual mammoth ivory prices in the main Chinese markets (China, Hong Kong and Macao) were derived from the UN Comtrade database (UN Comtrade, 2017). It was assumed that mammoth ivory prices are correlated with black market elephant ivory prices. It is worth noting that price for ivory is an emergent property of the interaction between supply and demand. For that reason, it is affected not only by factors influencing the amount supplied (such as the accessibility of elephants for poaching and ease of transfer through the supply chain), but also by factors affecting consumers' willingness to pay for ivory. These include more general conditions of the economy, changes in consumer incomes, changing consumer preferences and availability of alternatives. To correct the obtained trade values for varying inflation rates, World Bank consumer price indices (IMF 2018) were used. As ivory prices rise, demand seems to change relatively little (Do, 2018), but the results of the model suggest supply changes strongly (Hauenstein et al. 2018).

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

According to Resolution Conf. 4.6 (Rev. CoP16) on *Submission of draft resolutions, draft decisions and other documents for meetings of the Conference of the Parties*, the Conference of the Parties decided that any draft resolutions or decisions submitted for consideration at a meeting of the Conference of the Parties that have budgetary and workload implications for the Secretariat or permanent committees must contain or be accompanied by a budget for the work involved and an indication of the source of funding.

The estimated budgets for MIKE operations in Africa (2020-2023) and Asia (2020-2023) are presented below. The European Union has expressed interest in continuing its support to the MIKE programme in Africa, and a formal proposal has been submitted for consideration by the European Union. The European Union indicated that it will not be able to provide funding to cover the full cost reflected in the budget below. Funds for MIKE operations in Asia must still be secured, and a formal project proposal for consideration by potential donors will be developed by the MIKE programme.

MIKE implementation in Africa

Result Areas	EUR Budget
Information systems for monitoring the status and illegal killing of elephants across the MIKE site network (60+ sites) in Africa and the illegal ivory trade maintained and enhanced to inform site level conservation action and national and international decision-making and awareness	€2,679,000
Range States wildlife management agencies' efforts to protect priority populations of elephant and other target species in key conservation landscapes strengthened	€6,622,000
Management practices and procedures aimed at enhancing elephant and other target species conservation across the MIKE site network promoted and strengthened, including the implementation of relevant CITES decisions	€3,042,000
National actions supporting the effective management of MIKE sites and the implementation of CITES decisions concerning target species and related conservation action strengthened	€1,107,000
Communications and visibility actions	€109,000
Evaluation and Audit	€182,000
Administrative Costs (PSC @ 7%)	€962,000
Total	**€14,703,000**

MIKE Implementation in Asia

Result Areas	EUR Budget
Information systems for monitoring the status and illegal killing of elephants across the MIKE site network (28 sites) in Asia maintained and enhanced to inform site level conservation action and national and international decision-making and awareness	€1,820,000
Management practices and procedures aimed at enhancing elephant conservation across the MIKE site network promoted and strengthened, including the implementation of relevant CITES decisions	€1,450,000
Communications and visibility actions	€26,000
Evaluation and Audit	€42,000
Administrative Costs (PSC @ 7%)	€233,000
Total	**€3,571,000**