CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA
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Monitoring the Illegal Killing of Elephants (MIKE)
Seventh meeting of the Technical Advisory Group
Nairobi, 12-13 January 2009

Summary minutes

In attendance:

- Colin Craig, MIKE TAG member, Southern Africa
- Iain Douglas-Hamilton, MIKE TAG member, East Africa
- Martin Tchamba, MIKE TAG member, Central Africa
- Moses Kofi Sam, MIKE TAG member, West Africa
- Raman Sukumar, MIKE TAG member, South Asia
- Aster Li Zhang, MIKE TAG member, Southeast Asia
- Holly Dublin, MIKE TAG member
- Anil Gore, MIKE TAG member
- Hugo Jachmann, MIKE TAG member
- Simon Hedges, MIKE TAG member
- Esmond Bradly Martin, ETIS TAG member (for agenda items 1 to 7)
- Bob Burn, co-opted member MIKE Sub-TAG
- Tom Milliken, *ex officio* member MIKE Sub-TAG
- Tom De Meulenaer, *ex officio* member MIKE Sub-TAG (Chairman)
- Stephen Nash, CITES Secretariat
- Julian Blanc, MIKE Central Coordination Unit
- Mahaman Sani Massalatchi, MIKE Sub-regional Support Unit, West Africa
- Boafo Yaw, MIKE Sub-regional Support Unit, West Africa
- Sebastien Luhunu, MIKE Sub-regional Support Unit, Central Africa
- Martha Bechem, MIKE Sub-regional Support Unit, Central Africa
- Edison Nuwamanya, MIKE Sub-regional Support Unit, East Africa
- Tapera Chimuti, MIKE Sub-regional Support Unit, Southern Africa
- Diane Skinner, IUCN/SSC African Elephant Specialist Group

Absent with apologies:

- Liz Bennett, MIKE TAG member
- Kenneth Burnham, MIKE TAG member

1. Adoption of the agenda .... TAG07 Doc. 1 (Rev. 1)

   Item 14 was proposed to cover the collaboration with both the IUCN/SSC African Elephant Specialist Group and the IUCN/SSC Asian Elephant Specialist Group. With this modification, the draft agenda of the seventh meeting of the MIKE-Subgroup of the Technical Advisory Group (TAG7) was adopted.

2. Adoption of the working programme ....TAG07 Doc. 2

   The working programme was adopted.

3. Minutes of the 6th meeting of the Technical Advisory Group and of TAG7 .... TAG07 Doc. 3

   The MIKE Subgroup of the Technical Advisory Group (TAG) took note of the summary minutes of the sixth meeting of the TAG (TAG6), held in Entebbe on 3-4 March 2008. The MIKE Central Coordination Unit (MIKE CCU) will continue producing similar summary minutes for the present and future meetings of the TAG, including a list of agreed action points (see Annex 1). They will be circulated to the meeting participants and TAG members for comments and finalized within a reasonable timeframe, normally not exceeding 3 months after the meeting took place.

4. Progress on the action points agreed to at TAG6 ....TAG07 Doc. 4

   The MIKE CCU presented document TAG07 Doc. 4, which gives an overview of progress in the implementation of 43 actions points that had been agreed to at TAG6. 17 had been completed, 21 were ongoing, of which several were expected to be concluded at TAG7, and two had not been executed (see Annex 2).

   The TAG took note of the progress in the implementation of the action points emanating from TAG6, and recognized that a number of actions points remained relevant as they were of an ongoing nature. The TAG agreed to address and be kept informed about these action points until their completion.

5. The MIKE and ETIS Technical Advisory Group (MIKE and ETIS TAG) ....TAG07 Doc. 5

   The mandates of the current members of the MIKE TAG were renewed with two years until 1 January 2010. All current members had wished to continue. The vacancy left by the retirement of Richard Barnes had been successfully filled by Simon Hedges. The membership of the MIKE TAG, consisting of 12 individuals, was thereby again complete. One vacancy remains in the ETIS TAG, which is currently composed of 5 instead of 6 members.

   Based on recommendations agreed to at TAG6, the MIKE CCU presented a revision of the current Terms of Reference for the tasks, scope of work, structure and *modus operandi* of the MIKE and ETIS TAG. These were generally welcomed with minor word changes, a proposal to move parts of 1 b) to 1 a), and Holly Dublin and Tom Milliken agreeing to provide alternative language for a few sentences in paragraph 2 a). It was also recommended to include provisions indicating that TAG members should be able to attend the meetings of the MIKE-ETIS Subgroup of the Standing Committee. It was furthermore suggested that TAG members could meet in smaller working groups to target specific issues, rather than to only meet in plenary. The MIKE CCU will consolidate these recommendations in a new version.

   It was explained that further amendments could be required pending the outcome of the discussion on scientific guidance for the TAG under agenda item 6, which the MIKE CCU would incorporate in the new version.

   The final Terms of Reference would be circulated to the full TAG and the MIKE-ETIS Subgroup of the Standing Committee, and communicated with a Notification to the Parties to CITES. Thereby, Terms of Reference for three important bodies of the MIKE structure (the TAG, the MIKE Sub-regional Steering Committees and the MIKE-ETIS Subgroup) had been created or updated since TAG6.

Bob Burn introduced the subject, apologizing that contrary to the decision at TAG6, he had not circulated a vision for the operation of a group that could provide scientific guidance to the TAG. He explained that such a group could focus on scientific and technical issues concerning MIKE and ETIS, seek associations with other researchers and institutions, and enhance the scientific robustness of the methodologies used in the programmes. Following discussions during the meeting, the outputs of an *ad hoc* working group and further consultations, the following was agreed:

a.   The scientific advisory body would be called the MIKE-ETIS Research Network.

b.   The MIKE-ETIS Research Network is a sub-entity of the MIKE and ETIS TAGs. It has an open membership and initially, all members of the MIKE and ETIS TAGs will take part.

c.   The use and analysis of MIKE and ETIS data by external researchers will strictly follow the data handling policies of the two monitoring programmes. Under no circumstances can MIKE or ETIS information be used or published without prior consent from the relevant programme(s).

d.   Communication will mainly be electronically through a Google Group, to be created by the MIKE CCU. Group discussions and the Network's operation will be moderated and animated by B. Burn and H. Dublin.

e.   The Network would address research questions and priorities identified by the MIKE and ETIS TAGs.

f.   Where appropriate and possible, the TAG members of the Network should undertake research themselves, possibly in collaboration with colleagues from other organizations and institutions on a case-by-case or project basis. In instances where the TAG members of the Network are not undertaking the research themselves, they should provide the necessary leadership and guidance. The results of the research can be submitted for publication in peer-reviewed scientific journals. The TAG members of the Network will spearhead the outreach activities, and they should be the ones that ensure that the research results and relevant recommendations come back to the TAG.

g.   Through interactions with other research groups, the Network should encourage the wider scientific community to engage in research relevant to MIKE and ETIS.

h.   The Network can seek the endorsement of the MIKE and ETIS TAGs, the MIKE programme or the CITES Secretariat in support of research funding proposals.

i.   The members of the Network will inform the MIKE and ETIS TAGs of progress with and results of their research activities and make recommendations as appropriate.

In the course of TAG7 and the succeeding meeting of the ETIS TAG, a number of research questions and needs were identified. It was recognized that some of these research activities are an essential part of the operation of the MIKE and ETIS programmes as they concern outputs determined by the CITES Parties, and therefore those are to be led by the MIKE CCU and TRAFFIC respectively. The other proposed research topics were prioritized in terms of importance to MIKE and ETIS. It was agreed that the proponent of each of these proposals would write an explanatory paragraph justifying his/her suggestion and outlining the nature of the research that would be envisaged. The TAG also recognized that some research topics might benefit from rewording and in some instances regrouping. The priorities should be the starting point for the activities of the MIKE-ETIS Research Network.

The list of research topics (and the proponent or leader) is as follows:

1. Updated analysis African and Asian MIKE data for CoP15. (MIKE CCU)

Essential - pending technical assignments

2. Developing methods to identify sources of ivory (using DNA as a tool). (MIKE CCU)

3. Identify databases containing data sets that are of possible interest for the MIKE and ETIS analysis. (MIKE CCU)

Possible research topics **(priorities are indicated in bold)**

MIKE-ETIS linkages

4. How many elephants are required to service domestic, unregulated ivory markets in Africa - i.e. update tentative study by Hunter, Martin, & Milliken. (TRAFFIC)

5. **Research Central African trade routing of ivory from source to interception/destination. (MIKE CCU; TRAFFIC)**

6. Data analysis strategy: suggest modeling for all MIKE and ETIS data (and information from the African Elephant Database). (Bob Burn)

7. Develop a methodology for using latent variable modeling for the MIKE and ETIS analysis ("Bayesian approaches"). (Bob Burn)

Research relevant to MIKE

8. **Identify and apply proxy covariates for MIKE sites for undertaking the site-level analysis of MIKE data. (MIKE CCU)**

9. **Examine the extent to which MIKE can operate as an "early warning" system concerning illegal killing of elephants or the impact of remedial measures. (Bob Burn**)

10. Undertake surveys of elephant carcass in forest sites using sniffer dogs. (Simon Hedges)

11. Undertake aerial carcass surveys in areas where poaching is known or expected to be high (sub-sampling sites if necessary). (Colin Craig)

12. Continue refining the analytical value and use of Portion of Illegally Killed Elephants (PIKE). (Iain Douglas-Hamilton; MIKE CCU)

13. **Investigate correlations between site management effectiveness indices and PIKE. (MIKE CCU)**

14. **Investigate methods for quantifying the probability to detect carcasses. (Bob Burn)**

15. Identify research approaches for investigating the impact on elephant populations of elephant meat off take. (Holly Dublin)

16. Research changes in Asian elephant population structures, using DNA, field observations, etc. as a proxy for levels and impacts of illegal killing. (Raman Sukumar)

17. Explore the possibility of adapting and extending existing methodologies from industrial quality control to MIKE. (Anil Gore, Bob Burn, MIKE CCU)

18. Develop a spatio-temporal model of dung decay (and correlation of dung decay with environmental factors). (Julian Blanc)

19. Develop appropriate methodologies for surveying elephant population and carcasses in very large survey blocks (forested and/or mountainous). (Simon Hedges, Sebastian Luhunu)

20. Identify or develop methodologies for surveying and detecting trends in small elephant populations. (Yaw Boafo)

21. Identify and apply a measure of overall elephant mortality rate. (Colin Craig, MIKE CCU)

Research relevant to ETIS

22. Identify suitable macro-economic indicators for use in the ETIS analysis for CoP15. (Hugo Jachmann)

23. Determine the amount of ivory wasted in the carving industry. (Bob Burn)

24. Determine a valid raw-ivory equivalent for carvings and worked ivory. (Bob Burn)

25. Assess the usefulness of biannual CITES reports for the ETIS analysis. (TRAFFIC)

7. Current and long-term objectives of MIKE .... TAG07 Doc. 7

The MIKE CCU recalled the overall objectives, structure and *modus operandi* of MIKE as contained in Resolution Conf. 10.10 (Rev. CoP14) on *Trade in elephant specimens*. It noted that the relevant provisions and the original three objectives of the monitoring system had evolved little since the adoption of the initial Resolution in 1997 and the establishment of the MIKE system in 1999, perhaps the major changes being the addition a fourth objective ("building capacity in range States") in 2000 and the creation of a MIKE-ETIS Technical Advisory Group in 2002.

The MIKE CCU remarked that the stable formal CITES context in which MIKE has operated for the last 10 years may suggest that the Parties broadly remained in agreement with the purpose and overall design of MIKE. However, expectations as to what MIKE should achieve might have evolved while questions about its long-term sustainability remained. In this regard, the MIKE CCU pointed out that the Resolution poorly defines the role of the elephant range States in maintaining and implementing the MIKE programme. It remarked that while the future developments of MIKE ultimately lied in the hands of the Parties, it seemed timely for the TAG to reflect upon the long-term technical and scientific objectives of MIKE, including its overall scope, coverage, design, outputs, practicality and sustainability.

The MIKE CCU clarified that any changes to the objectives, scope or organization of MIKE (or ETIS) would have to be agreed upon by the Conference of the Parties through amending or replacing the current Resolution Conf. 10.10 (Rev. CoP14).

The TAG recognized that the MIKE programme has evolved adaptively both in design and implementation to meet its objectives. It confirmed that overall, the technical set-up had remained sound, and it would be prepared to provide formal affirmations in this regard. However, the TAG recognized that some of the original features of MIKE had functioned poorly or had been unrealistic and over-complex (e.g. the MIKE data base; certain forms and protocols), while weak implementation remained a major concern.

To guide further reflections by the TAG and stimulate discussions about the further evolution of MIKE, the MIKE CCU presented a number of questions to the TAG that appeared relevant in the context of the future of the programme. The TAG provided initial feedback to some of them.

a. Should the MIKE design and implementation in Asia, where hardly any illegal killing of elephants has been recorded through the MIKE system, be different from Africa?

The TAG felt that overall, the implementation of MIKE in Asia and Africa should not be fundamentally different. MIKE received broad support from Asian elephant range States. The absence of permanent Sub-regional Support Units in Asia was considered a major handicap, but no ready suggestions could be formulated as to how to overcome this structural and organizational problem.

b. How would the utility and robustness of MIKE data be affected if Asia were to be excluded from future analysis?

The TAG thought that it would be essential to maintain Asian data in the MIKE analysis. The TAG indicated its willingness to produce a statement indicating the importance of retaining Asia in the programme.

c. How can MIKE be simplified and made into a leaner monitoring system?

The TAG recognized concerns about the heavy structure and complicated processes under which MIKE has operated, which were expensive to maintain and not always effective. It agreed to determine the minimum activities and information required to meet MIKE's objectives.

d. Could MIKE operate as an "early warning" system that e.g. predicts instances and areas prone to increased illegal killing, and if so, how?

The TAG acknowledged that although MIKE was formally not mandated to operate as an early-warning system, it could potentially become a more pro-active tool to help countries determine circumstances and situations that might encourage elephant poaching, and a system to quickly asses the seriousness of illegal killing or the impact of remedial measures. It was agreed that the MIKE-ETIS Research Network should examine the extent to which MIKE could be speedily reactive or 'predictive', and the conditions under which it could operate as such.

While acknowledging their importance, the TAG did not immediately provide guidance or comments on the following questions that were put forward:

e. What are the timelines for MIKE to achieve its objectives?

f. How should or could the distinct tasks of MIKE, i.e. the actual data collection, monitoring and analysis on the one hand, and the general capacity building component on the other hand, evolve?

g. What elephant monitoring systems could be envisaged that could or should accompany the implementation of the Decision concerning mechanisms for future ivory trade?

h. Could MIKE practices or structures be applied in the context of trade in other CITES species?

The MIKE CCU stated that all these issues will require further attention by the TAG, which should formulate clear scientific and technical responses to provide firm guidance on the future developments of the MIKE programme for the benefit of the elephant range States and the CITES Parties.

Technical matters

Analytical issues

8. MIKE standard analytical and reporting framework .... TAG07 Doc. 8

After MIKE Phase I (2001-06), it had been recommended to develop a Standard Analytical and Reporting Framework (SARF) for the MIKE system. This was discussed extensively at TAG6. The TAG had agreed that the SARF should include: (a) an analytical strategy at the site, national, sub-regional and continental level; (b) a concise checklist of the summary statistics and indices that will be generated routinely from the field data obtained at the site level, in the format that they will appear; (c) approved format and content of regular reports at all levels (site, national, subregional, regional and global); and (d) a table of contents for annual reports to show how the assembled data from Law Enforcement Monitoring (LEM) and its analysis in relation to influencing factors will be integrated and discussed, and conclusions drawn by "triangulating" the lines of evidence given by discrete data sets. The TAG also recognized that the adoption of the MIST system would take care of each of these aspects.

As recommended at TAG6, an email-based working group was established to address outstanding issues in connection with the SARF, and specifically to:

a. determine whether the current MIKE sample size in terms of their numbers and bio-geographical representativeness is sufficient for meaningful analysis at the local or national level;

b. determine possible and practical indices of elephant poaching intensity and mortality that can be used by the MIKE programme to monitor trends in the level of illegal killing of elephants;

c. determine and incorporate measures of searching effort into MIKE analyses;

d. consider the merits of PIKE (Proportion of Illegally Killed Elephants) as an index of poaching intensity;

e. identify and correct possible sources of bias in PIKE that could affect the outcome of MIKE analyses; and

f. suggest possible proxies or indices of overall elephant mortality that could be used effectively by the MIKE programme.

Although the SARF working group recognized that many of these issues would be addressed by the implementation of MIST in MIKE sites, a number of them remained unresolved. However, the SARF working group endorsed PIKE as a potentially interesting component for MIKE analysis but noted "the need to refine it further".

The SARF working group reconvened during the meeting. In its feedback to TAG7, the working group confirmed the continued need for a measure of (patrol or survey) effort, but perhaps a crude one. It also made it clear that any biases in PIKE would be taken care of by better covariates. But mostly, it indicated that some of the questions it had been tasked to address or had identified could better be tackled by the MIKE-ETIS Research Network (see item 6). It mentioned in this regard: developing pilot project on finding and counting carcasses, aerial carcass counts in high poaching situations, dedicated carcass surveys is some sites, application of some measure of effort, and measuring overall elephant mortality rate.

While the SARF working group had not provided all the expected inputs, it was nevertheless maintained. Further SARF matters, including the organization of a dedicated workshop, will however have to be led and taken forward by the MIKE CCU.

9. MIKE continental analysis for Africa 2008 .... TAG07 Doc. 9

The MIKE CCU presented the results of the analysis of MIKE data for Africa, which had been circulated to the TAG in 2008 for review and comments. The feedback from the TAG had largely been positive.

The MIKE CCU announced its intention to submit for publication in the peer-reviewed scientific literature a suitably modified version of this analysis using updated data, a more refined analytical

method (hierarchical logistic regression) and improved covariates (including World Bank Governance indicators and a more refined measure of conservation effort). The TAG would be asked to comment on this manuscript before its submission. TAG members who would provide substantive comments would be invited to appear as co-authors, at their discretion.

The TAG supported each of these initiatives, recommending that it would be important to establish a clear cut-off date for the collection of new MIKE data. The TAG made a strong statement in favor of the need to have the results of MIKE analyses peer-reviewed in the scientific literature, but it recognized that eventual publications of the analysis in scientific journals would need to take account of the reporting obligations of the MIKE programme to the CITES Standing Committee and the CITES Parties, and that the African elephant range States would have to be kept informed.

10. Covariates working group and site-level analysis ....TAG07 Doc. 10

The MIKE CCU explained that at TAG6, it had been agreed that appropriate covariates should replace the "influencing factors" used in the MIKE baseline analysis, and that these covariates should be, to the extent possible, quantitative, spatially explicit and externally gathered variables. It had provided a list of such variables to TAG6. The working group that had been established to consider and review these variables had however not provided input or feedback since its inception in 2008. The MIKE CCU therefore announced that in the course of 2009, data for the variables it had proposed would be compiled and tested by conducting an analysis. The results could be presented to the working group, which in itself would justify its continuation. The TAG supported this approach.

Concerning CCU's proposed list of covariates, a series of suggestions and considerations were brought up in the ensuing discussion:

   a.   rainfall seasonality could be considered as a covariate;

   b.   spatial imagery for forests sites does not provide sufficient detail on variables such as surface water availability and an alternative would need to be investigated;

   c.   very large MIKE sites would display different covariates for different parts of the sites (but this would be addressed by the use of spatial datasets);

   d.   human population densities in buffer zones adjacent to the sites might be an interesting covariate ("human footprint");

   e.   the level of Human-Elephant Conflict should best be quantified by a simple Yes or No;

   f.   levels of extractive activities in sites might be a useful covariate if quantifiable;

   g.   economic proxies (GDP, World Bank indicators, …) would be very important, and in this regard an investigation of what exactly the World Bank and organizations such as USAID analyze in elephant range States would be of interest; and

   h.   'ivory market scores', as applied by ETIS and which consider *inter alia* local ivory prices and law enforcement efforts, should be useful covariates.

The MIKE CCU agreed to consider each of these suggestions, indicating that several were already reflected in one way or another in the list originally proposed. The TAG furthermore recommended the MIKE CCU to identify datasets that contain information and data that are of possible interest for both the MIKE and ETIS analysis.

10.1   Proportion of Illegally Killed Elephants (PIKE) and land use
       in Samburu-Laikipia (Kenya)..TAG07 Doc. 10.1

       Iain Douglas-Hamilton gave a presentation on the variation in PIKE across different land uses and over time in the Samburu-Laikipia MIKE site in Kenya. The presentation also

touched on the variation of PIKE values across MIKE sites in the Baseline analysis conducted in 2007 for the Standing Committee. It emerged that, in general, PIKE averages tend to lie between 30-40%, and that sites with higher levels of PIKE tend to be those perceived to be suffering from high poaching activity, whereas sites with lower than average levels of PIKE seem to be those in which poaching is well under control. The TAG congratulated Iain Douglas-Hamilton for his excellent presentation, and suggested that further research into the properties of PIKE would be appropriate. It was also noted that, while PIKE alleviates the need for a precise measure of search effort, a crude measure thereof would still be required. The Probable Fraction (PF) variable used in the 2008 analysis may be a crude measure of effort, but its properties and alternatives – such as management effectiveness at the protected area level – should also be studied.

The presentation triggered feedback and discussions on a variety of related issues. The following was mentioned:

− A PIKE of 40% is apparently compatible with an increasing elephant population.

− Herder search efforts could be estimated if the number of informants and the average distance covered by a herd in a day are known.

− It would be worthwhile to compare the carcass detection rates of both traditional patrols and participatory methods.

− PIKE relieves questions about effort but SARF requires effort measurement, as PIKE alone does not gives the percentage of what it is measuring.

− Precise measure of effort for MIKE is not really necessary; a crude "probability of detection" of elephant carcasses may be good enough.

− This first in-depth analysis is fine but needs to be looked at generalization and possibilities for duplicating aspects such as the participatory research for carcasses.

− Land use is an important aspect that should be explored in other sites.

− Problem Animal Control (PAC) and PIKE are mixed, particularly in poaching hotspots.

− In Indian sites, 2.5% of the expected carcasses are eventually found.

− PIKE is fine but should be helped by a measure of carcass detection probability.

− The presentation excluded those sites in which PIKE was based on a sample of less than 30 carcasses. It was suggested these be include in the charts, but flagged as being of low data quality.

− The possibility of using quantitative indices of "management effectiveness" as a covariate in MIKE analyses needs to be explored. It was mentioned that such indices are probably available in datasets from GEF projects and UNEP-WCMC was also suggested as a possible source of information on this. Alternatively, a management effectiveness ranking could be arrived at through questionnaires (India is doing this as well). It was also pointed out that PF was originally intended as a surrogate for management effectiveness. A Central Africa Protected Area Network exercise in 2008 produced management effectiveness scores, and their correlation with PIKE should be investigated.

11. MIKE/ETIS linkages and analysis for CoP15 ....*no document*

T. Milliken confirmed that MIKE and ETIS would produce separate analysis of their data and information for submission at CoP15, but that a collective analysis of joint research results could be presented as well.

In this regard, the TAG suggested updating and expanding a tentative study by Hunter, Martin, and Milliken of 2005 that researched the number of elephants that would be required to supply ivory markets. Another valuable joint MIKE/ETIS study would be to research Central African trade routing of ivory from source to interception or destination, with an indication of trends over time and incorporating information from the African Elephant Database.

12. MIKE analysis for CoP15 ....TAG07 Doc. 12

The MIKE CCU explained that in compliance with the reporting requirements in Resolution Conf. 10.10 (Rev. CoP14), the CITES Secretariat has to provide an updated report on information collected, as part of the MIKE monitoring programme, at each meeting of the Conference of the Parties. CoP15 will be held on 16-28 January 2010 in Doha, Qatar. The deadline for the submission of amendment proposals and working documents such as the MIKE report is therefore 19 August 2009.

The MIKE CUU, representing the CITES Secretariat, planed to submit a report that will address: administrative and institutional matters; a refined and updated continental analysis of African MIKE data (see agenda item 9); an analysis of the Asian MIKE data; and a site-level analysis of MIKE data (see agenda item 10). In addition, a document showing integrated MIKE and ETIS data or analyses would be considered. The TAG suggested in particular a MIKE/ETIS analysis concerning Central Africa, and an update of information of the number of elephants needed to supply illegal ivory trade (see item 11).

The TAG further recommended that the MIKE report for CoP15 contain an evaluation of the performance of each site and participating elephant range State in terms of implementing the MIKE programme in compliance with provisions in Resolution Conf. 10.10 (Rev. CoP14).

The TAG agreed to review the MIKE (and ETIS) reports for CoP15 before the August 2009 deadline. The next TAG meeting late in 2009 should discuss the submitted reports and documents, address eventual external comments, and review possible updates or additional research that could be incorporated in revised versions or be presented at CoP15 as information documents (for which no deadline exists but which are not formally discussed at CoP15 nor translated in the three CITES languages).

Processes and procedural issues

13. Validation of site sample

13.1   Working group report ....TAG07 Doc. 13.1

The MIKE CCU explained that following TAG6, an email-based working group had been created with the TAG members from the six subregions, two specialist members, the MIKE Subregional Support Officers and the MIKE CCU. The terms of reference included the revision of the parts of document TAG06 Doc. 12.1 that were relevant to their respective regions, and to provide for each for the sites mentioned a technical recommendation and a suggested way forward. However, only the subregional member from Southern Africa (Colin Craig) and one of the specialist members (Anil Gore) had provided input.

The TAG agreed that each of its subregional members will produce a critique of the MIKE sites in its sub-region in line with the comments circulated by C. Craig, and which should address: (a) the knowledge about the site's boundaries, (b) the elephant population, (c) the reason why there might be lack of MIKE information, (d) whether the site covers an entire elephant population or part thereof, (e) whether it's protected or unprotected, and (f) whether management across the site is uniform. It was agreed that this information and other criteria would be put together and circulated to the members of the working group as guidance for the task.

13.2   Site boundaries .... TAG07 Doc. 13.2

The MIKE SSO from Central Africa introduced this item. It had been agreed at TAG6 that the exact boundaries of all MIKE sites would have to be delineated. She gave an overview of current problem sites in Central, East and West Africa, as well as the suggested changes to the boundaries and the implications for MIKE, range States and other stakeholders.

The TAG agreed to all the recommendations emanating from the work of the MIKE SSUs from Central, East and West Africa, as presented in document TAG07 Doc. 13.2

The TAG noted the intention of the MIKE programme to complete the process of defining and confirming site boundaries for all MIKE sites in Africa and Asia. This information, which will include details of the surface, eventual 10km-buffers, and wherever possible maps, will be compiled in the next coming months and circulated to the relevant TAG working group and the MIKE-ETIS Subgroup of the Standing Committee.

R. Sukumar offered assistance in completing this work for the MIKE sites in India.

However, the TAG did not provide advice regarding two important questions posed by the MIKE programme, i.e. the relevance of having 10km buffers around the 'core' of MIKE sites, as done in some instances by a consultant in 2003; and the practicability of using a reasonably consistent approach, be it an ecosystem approach or otherwise considering the different regional peculiarities. These two issues will therefore be put again to the relevant working group (see item 13.1), which will have to produce its recommendations in writing by early May 2009 at the very latest for reporting back to the Standing Committee in July 2009.

Research issues

14. Collaboration with the IUCN/SSC AfESG and AsESG..*no document*

The IUCN/SSC African Elephant Specialist Group (AfESG) was contracted by the MIKE programme to undertake a comprehensive study on the impact of trade in elephant meat; integrate MIKE population survey data in the African Elephant Database; support annual meetings of African elephant range States; and help disseminate MIKE information, principally through the journal *Pachyderm*.

The representative of the AfESG reported to have consulted widely on the elephant meat trade study for over a year (including the TAG, which formulated its recommendations at TAG6). However, the scope and nature of the research remained unclear. Experts acknowledged that elephant meat represented only a tiny fraction of the bushmeat trade in Africa, and rarely or never reached city markets, which made investigations very difficult. Also, it was doubted if there was still a need for undertaking a study to assess the importance of the meat trade as a driver for elephant poaching as it had become clear that the main reason for illegally killing elephants in Central Africa was for their ivory, with meat mainly being a 'by-product'. The question was raised whether the funds for the study should be redirected to a more pertinent research topic.

Three research projects in Central Africa had been identified to which the AfESG study could contribute or be linked with:

a. Collaborating with IUCN and TRAFFIC in an ongoing Law Enforcement and Forest Governance initiative.

b. Linking up with other research initiatives concerning bushmeat (3 ongoing major projects lead by WWF Germany, CIFOR and ZSL).

    c.   Conducting pilot studies in a few MIKE site and their environs, particularly those surrounded by logging concessions.

The TAG encouraged the AfESG to collaborate with these initiatives. The TAG further commented that there might be local trade in elephant meat, and that *in situ* research of such trade could be linked with some key Central African MIKE sites. The bushmeat trade, including meat from elephants, might actually be on the increase as a consequence of the global economic downturn, sharp declines in timber exports from Central Africa, and unemployed forest workers turning into hunters. It was also pointed out that in South and Southeast Asia elephants were occasionally killed for both ivory and meat.

The TAG concluded that the MIKE CCU and the AfESG needed to agree on a new approach to move the elephant meat trade study forward. Subsequently, the TAG would provide inputs and suggestions as required.

The representative of the AfESG then informed the meeting that the second issue of *Pachyderm* for 2008 had been canceled, and that the next issue would not be published before June 2009.

With regard to collaboration with the IUCN/SSC Asian Elephant Specialist Group (AsESG), it was reported that skepticism existed amongst some of its members regarding the MIKE programme, but no clear recommendations were provided on how to address this situation.

The AsESG and the AfESG, with support from MIKE and other donors, were developing a global African and Asian elephant Data Base, modeled after the AED.

Logistical Issues

15. Hardware and software used by the MIKE programme...*no document*

The MIKE CCU gave an overview of the status of deployment of handheld GPS machines, solar-powered computers and MIST, referring to relevant information disseminated at TAG6 (see documents TAG06 15 to 18). The hardware will be installed on an 'as needed'-basis because insufficient resources are available to re-equip all sites in Africa, and none at all for sites in Asia. It was stressed that MIST, as a new software system to collect, store and analyze MIKE data, had a "bottom-up" design with powerful local reporting potential.

This could significantly improve the feedback loop between the providers and the analyzers of MIKE data, and thereby enhance data collection, analysis and utilization.

With regard to data collection forms, it was noted that the MIST recording system also simplified the MIKE forms, but that it remained important to continue looking for ways to ease the reporting burden and determine the minimal essential information that is required for MIKE.

It was pointed out that one of the drawbacks of MIST was its insistence on GPS coordinates for all observations whereas in reality, in many sites GPS are unavailable, not being used or broken down. It was proposed that the MIST developer be contacted to modify the software to allow data entry using grid squares as well as GPS. This approach would be combined with investigating the possibility of deploying cheaper and more user-friendly GPS Receiver Data Loggers that automatically track positions and store location details, or using receivers in combination with mobile phones.

The TAG endorsed the approaches taken by the MIKE CCU regarding MIKE hardware and software.

Conclusion of the meeting

16. Any Other Business...*no document*

In response to some questions, the MIKE CCU explained what quality control mechanisms are in place to verify MIKE data and analysis, i.e. population estimations and patrol data, and how these would be executed using MIST.

A number of remarks were made regarding the way in which population estimates had been presented in the MIKE Baseline report of 2007 for the Standing Committee, and it was suggested that for future reports, basic details on the surveys (such as method used, sample size, confidence limits, etc) be presented. The MIKE CCU committed to include this information in its reporting to CoP15.

Colin Craig presented an analysis he had conducted using the data previously presented by Iain Douglas Hamilton (see item 10.1). The analysis showed that the number of elephants existing in situations where the PIKE exceeds 50% is only about 5% of the overall population (or 40% and 10%, and so on). The analysis illustrated that there are many more animals in populations which have lower levels of illegal killing than the site-average of PIKE. The main implication is that population sizes should be taken into account to get a reliable index of the sustainability of killing for the whole population, because the mean PIKE site value will not suffice unless animal numbers are evenly spread on each side of it. A representative sample is also needed to do this as one site won't do. As pointed out by Holly Dublin, one would also need knowledge of absolute mortality to be able to estimate the absolute sustainability. Speculations and discussion of the importance of small, insecure populations to the overall conservation problem could be stimulated as well.

17. Determination of the time and venue of the next TAG meeting ....*no document*

It was agreed that the eight meeting of the MIKE and ETTIS Technical Advisory Group would take place in Kenya in December 2009.

**ACTION POINTS AGREED TO AT THE SEVENTH MEETING OF THE MIKE TECHNICAL ADVISORY GROUP
NAIROBI, 12–13 JANUARY 2009**

Agenda item (Document)	Action point	Action by	Progress
1. Adoption of the agenda TAG07 Doc. 1 (Rev. 1)	• Item 14 was proposed to cover the collaboration with both the IUCN/SSC African Elephant Specialist Group and the IUCN/SSC Asian Elephant Specialist Group.	MIKE CCU	• Done
2. Adoption of the Working Programme TAG07 Doc. 2	• None.		
3. Minutes of the 6th meeting of the Technical Advisory Group (TAG6) TAG07 Doc. 3	• Circulate summary minutes of TAG7 to TAG members and participants for comments, and finalize within 3 months.	MIKE CCU	• Done. TAG07 Summary Minutes available on CITES website.
	• Indicate action points agreed to at TAG7 in a Table.	MIKE CCU	• Done
4. Progress on the action points agreed to at TAG06 TAG07 Doc. 4	• Verify action points agreed to at TAG6 that are ongoing and need to be maintained, and bring to the attention of the TAG.	MIKE CCU	• Done. See Table attached.
	• Keep TAG informed about the ongoing action points until their completion, including during next meetings.	MIKE CCU	•
5. The MIKE and ETIS Technical Advisory Group (MIKE and ETIS TAG) TAG07 Doc. 5	• Consolidate amendments and recommendations made in a revised version of the Terms of Reference for the TAG.	MIKE CCU	• Done
	• Circulate revised Terms of Reference circulated to the full TAG and the MIKE-ETIS Subgroup of the Standing Committee.	MIKE CCU	• Circulated to TAG; circulated to MIKE-ETIS Subgroup of the Standing Committee; discussed at SC58 (July 2009).
	• Communicate final Terms of Reference to CITES Parties through a Notification to the	MIKE CCU	•

	Parties.		
6. Scientific guidance for the TAG TAG07 Doc. 6	• Establish the MIKE-ETIS Research Network to investigate scientific and technical issues concerning MIKE and ETIS in accordance with the structure and *modus operandi* described in document TAG7 Doc. 6.	MIKE CCU; Bob Burn; Holly Dublin.	• Done. Google Group created to facilitate communications.
	• Animate and moderate Research Network discussions, and actively support its operation.	Bob Burn; Holly Dublin.	•
	• Proponents of each of 25 research topics identified by the TAG to write an explanatory paragraph justifying his/her suggestion and outlining the nature of the research that would be envisaged (see TAGT07 Summary minutes and overview below for assignments of responsibilities).	MIKE CCU; TRAFFIC; Bob Burn; Simon Hedges; Colin Craig; Iain Douglas-Hamilton; Holly Dublin; Raman Sukumar; Anil Gore, Sebastian Luhunu; Yaw Boafo; Hugo Jachmann	•
	• Inform the MIKE and ETIS TAGs of progress with and results of esearch activities and make recommendations as appropriate.	Research Network members	•
7. Current and long-term objectives of MIKE TAG07 Doc. 7	• In response to questions conc. scope, coverage, design, outputs, practicality and sustainability of the MIKE programme formulate scientific and technical responses to guide future developments of the MIKE programme.	TAG members	•
	• Bring to the attention of the TAG relevant questions, and animate discussions.	MIKE CCU	•
8. MIKE standard analytical and reporting framework	• Organize a dedicated workshop to address outstanding SARF matters, particularly those that were not referred to the Research	MIKE CCU	•

TAG07 Doc. 8	Network (see item 6).		

12. MIKE continental analysis for Africa 2008 TAG07 Doc. 9	• Submit for publication in peer-reviewed scientific literature a modified version of the analysis using updated data, a more refined analytical method (hierarchical logistic regression) and improved covariates (incl. World Bank Governance indicators; more refined measure of conservation effort).	MIKE CCU; Bob Burn	
	• Comment on the manuscript.	TAG members	
	• Invite TAG members providing substantive comments to appear as co-authors.	MIKE CCU	
	• Take account of CITES Standing Committee and the CITES Parties reporting obligations when considering eventual publication.	MIKE CCU	
	• Keep the African elephant range States informed about this.	MIKE CCU	
10. Covariates working group and site-level analysis TAG07 Doc. 10	• Consider suggestions formulated at TAG7 concerning suitability of CCU's proposed list of covariates.	NMIKE CCU	•
	• Compiled and make a test-analysis of proposed variables in the course of 2009.	MIKE CCU	•
	• Working Group to review the results of the test-analysis, and formulate comments for use in MIKE analysis.	Covariates Working Group	•
	• Identify datasets that contain information and data that are of possible interest for both the MIKE and ETIS analysis.	MIKE CCU	•
10.1 Proportion of Illegally Killed Elephants (PIKE) and land use in Samburu-Laikipia (Kenya)	• Request Iain Douglas-Hamilton to continue study and explore relevant variables, and to prepare a contribution to the CoP15 MIKE	Iain Douglas-Hamilton; MIKE CCU	•

TAG07 Doc. 10.1	report.		
	• Conduct further research into the properties of PIKE.	MIKE CCU; Research Network	•
	• Further research the Probable Fraction (PF) variable used in the African continental analysis 2008 (see item 8).	MIKE CCU; Research Network	•
	• Determine a measure for carcass detection probability and of 'effort'.	MIKE CCU; Research Network	•
	• Further research management effectiveness at site-level, taking into consideration suggestions formulated by the TAG (incl. using quantitative indices as covariate in MIKE analysis).	MIKE CCU; Research Network	•
	• Investigate correlation of PIKE with the management effectiveness scores produced by A Central Africa Protected Area Network exercise in 2008.	MIKE CCU; Research Network	•
11. MIKE/ETIS linkages and analysis for CoP15 *no document*	• MIKE and ETIS to produce separate analysis of their data and information for submission at CoP15.	MIKE CCU; TRAFFIC	•
	• Evaluate feasibility to undertake joint research and analysis for CoP15 on: - Update study (Hunter, Martin, Milliken; 2005) on number of elephants required to supply ivory markets - Central African trade routing of ivory from source to interception or destination, with an indication of trends over time and incorporating information from the African Elephant Database	MIKE CCU; TRAFFIC; AfESG; Bob Burn	•

12. MIKE analysis for CoP15 TAG07 Doc. 12	• Produce a MIKE report for CoP15, taking account of deadlines for submission of CoP15 documents, with the following:
	  - administrative and institutional matters;
	  - updated continental analysis of African MIKE data (see item 9)
	  - analysis of Asian MIKE data
	  - a site-level analysis of MIKE data
	  - evaluation of performance of sites and elephant range States conc. implementing MIKE in compliance with Resolution Conf. 10.10 (Rev. CoP14)
		MIKE CCU; MIKE SSUs; Bob Burn	•
			•

	• If feasible (see item 11) produce one or two reports for CoP15 showing integrated MIKE and ETIS analyses on:
	  - Central Africa elephants and ivory trade
	  - Update of information of the number of elephants needed to supply illegal ivory trade
		MIKE CCU; TRAFFIC; Bob Burn	•

	• Review the MIKE (and ETIS) reports for CoP15 before the submission deadlines in 2009, and submit comments in writing.	TAG	•
	• Discuss the submitted reports at TAG8 (late in 2009); address eventual external comments; review possible updates or additional research for incorporation in revised versions or information documents.	TAG; MIKE CCU	•
13. Validation of site sample			

13.1 Working group report TAG07 Doc. 13.1	• Subregional members to produce a critique of the MIKE sites in their sub-region which should address: (a) the knowledge about the site's boundaries, (b) the elephant population, (c) the reason why there might be lack of MIKE information, (d) whether the site covers an entire elephant population or part thereof, (e) whether it's protected or unprotected, and (f) whether management across the site is uniform.	Colin Craig; Iain Douglas-Hamilton; Martin Tchamba; Moses Kofi Sam; Raman Sukumar; Aster Li Zhang	•
	• Information and other criteria are circulated to the Subregional members of the working group as guidance for the task.	MIKE SSU; MIKE CCUs	•
13.2 Site boundaries TAG07 Doc. 13.2	• Complete defining and confirming site boundaries for all MIKE sites in Africa and Asia.	MIKE SSUs	•
	• Circulate boundaries to the Working Group and the MIKE-ETIS Subgroup of the Standing Committee.	MIKE CCU	•
	• Address relevance of having 10km buffers around the 'core' of MIKE sites, and the practicability of using an ecosystem approach or another for delineating Site boundaries; formulate recommendations by early May 2009 for reporting back to the Standing Committee in July 2009.	Working Group	•
14. Collaboration with the IUCN/SSC AfESG *no document*	• Agree on a new approach to move the elephant meat trade study forward.	MIKE CCU; AfESG	•
	• Incorporate recommendations of the TAG (see item 14 of TAG07 Summary minutes) in developing and undertaking the elephant meat trade study.	AfESG	•
	• Provide inputs and suggestions on the new approach as required.	TAG members	•

15. Hardware and software used by the MIKE programme *no document*	• Modification MIST software to allow data entry using grid squares as well as GPS	MIKE CCU; MIST developer	•
	• Investigate the possibility of deploying cheaper and more user-friendly GPS Receiver Data Loggers that automatically track positions and store location details, or using receivers in combination with mobile phones.	MIKE CCU	•
16. Any Other Business *no document*	• Include basic details on surveys (such as method used, sample size, confidence limits, etc) in MIKE reporting to CoP15.	MIKE CCU	•
	• Circulate analysis presented by Colin Craig.	MIKE CCU; Colin Craig	• Done
17. Determination of the time and venue of the next TAG meeting *no document*	• Convene MIKE TAG8 and ETIS TAG2 in Kenya in December 2009.	MIKE CCU	•

ACTION POINTS AGREED TO AT THE SIXTH MEETING OF THE MIKE TECHNICAL ADVISORY GROUP (TAG6, ENTEBBE, 2008) THAT REMAIN INTO EFFECT OR ARE ONGOING AFTER TAG7

Agenda item (Document)	Action point	Action by	Progress
6. MIKE standard analytical and reporting framework TAG06 Doc. 6	• Involve one of the authors of the 2004 evaluation (Mike Norton-Griffiths) in developing a new standardized analytical and reporting framework	MIKE CCU	•
9. Spatial representation and significance of patrol coverage TAG06 Doc. 9	• Incorporate recommendations on operational levels and nature of spatially explicit measures and analysis into the MIKE standard analytical and reporting framework	TAG members; MIKE CCU	•
12.3 MIKE Site criteria TAG06 Doc. 12.3	• Apply the agreed minimum criteria for adding new MIKE sites on a voluntary basis	MIKE CCU	•
13. Population surveys and MIKE standards TAG06 Doc. 13	• Apply agreed priority-setting system for providing support to elephant population surveys in MIKE sites	MIKE CCU; MIKE SSU	•
	• Ensure that MIKE-supported or co-funded surveys remain geopolitically balanced	MIKE CCU	•
15. Hardware at MIKE sites TAG06 Doc. 15	• Implement the agreed hardware strategy	MIKE CCU; MIKE SSU	•
16. MIKE database development and software TAG06 Doc. 16	• Explore possibilities to adopt open source software for database backends; SQLite at site level; and PostgreSQL at global level	MIKE CCU; MIKE SSU	•
	• Implement the agreed data management strategy and architecture, and reporting framework	MIKE CCU; MIKE SSU	•
	• Ensure that the MIKE standard analytical and reporting framework reflects the software for developing the MIKE database (incl. SQLite and PostgreSQL)	MIKE CUU	•

17. Design and use of MIKE reporting forms TAG06 Doc. 17	• Establish a working group to make recommendations concerning essential data that needs to be captured in MIKE forms and the further simplification of the forms	Working Group (four TAG members)	•
	• Collect models of all forms that are currently used in MIKE sites to record biodiversity-related information; forward copies to MIKE CCU for use by working group	MIKE SSU; MIKE CCU	•
	• Present new MIKE reporting forms at sub-regional level	MIKE CCU; MIKE SSU	•
	• Field-test new forms in two sites per sub-region and incorporate improvements before formal adoption.	MIKE SSU; MIKE CCU	•
18. GPS and data capture and transmission equipment TAG06 Doc. 18	• Explore and field test options to move MIKE from paper-based data collection systems to other technologies, in particular using mobile phone technologies, along with Bluetooth GPS units	MIKE CCU; MIKE SSU	•
	• Investigate possibilities to tie the deployment of new technologies to performance-based incentive systems	MIKE CCU	•

**ACTION POINTS AGREED TO AT THE SIXTH MEETING OF THE MIKE TECHNICAL ADVISORY GROUP
ENTEBBE, 3–4 MARCH 2008**

Agenda item (Document)	Action point	Action by	Progress by December 2008
1. Adoption of the agenda (TAG06 Doc. 1)	• none		
2. Adoption of the Working Programme (TAG06 Doc. 2)	• none		
3. Minutes of the 5th meeting (TAG06 Doc. 3)	• Circulate summary minutes to TAG members and participants for comments, and finalize within 3 months	MIKE CCU	Done. The summary minutes of TAG6 were finalized and circulated in time (see document TAG07 Doc. 3).
4. Institutional arrangements and funding for MIKE Phase II (2007-2011) (TAG06 Doc. 4)	• Circulate a vision of operation and Terms of Terms of Reference for a scientific group linked to the TAG	B. Burn	Ongoing. The issue will be discussed under item 6 of TAG7.
5. The MIKE and ETIS Technical Advisory Group (TAG)			
5.1 Terms of Reference of the TAG (TAG06 Doc. 5.1)	• Revisit existing Terms of Reference for the TAG and circulate to the TAG for review and comments	MIKE CCU	Done. Draft Terms of Reference have been prepared for discussion and adoption (see item 5 of TAG7 and document TAG07 Doc. 5).
	• Have new or revised Terms of Reference adopted	MIKE CCU	Ongoing (see above).
5.2 Membership of the TAG (TAG06 Doc. 5.2)	• Invite all TAG members to continue their term of appointment for a further two years until 2010	MIKE CCU	Done. The membership of the MIKE Sub-TAG was updated. Simon Hedges agreed to replace Richard Barnes as a member of the MIKE Sub-TAG in the 'Global expert' category.
	• Communicate responses through a Notification	MIKE CCU	Ongoing. The Notification to the Parties announcing the new composition of the

	to the Parties		MIKE Sub-TAG has not yet been circulated. It should also communicate the revised Terms of Reference and, if possible, the full membership of the ETIS Sub-TAG
5.3 *Modus operandi* (TAG06 Doc. 5.3)	• none		
6. MIKE standard analytical and reporting framework (TAG06 Doc. 6)	• Draft terms of reference for a workshop aimed at developing a standardized analytical and reporting framework, taking into account document TAG06 Doc. 6 and the *MIKE Data Analysis Strategy*	Drafting group (B. Burn. J. Blanc, C. Craig, K. Sallee)	Done. The drafting group concluded that the MIST system would likely take care of most, if not all, the requirements of the standard analytical and reporting framework, and that it would therefore be premature to draft terms of reference at this stage.
	• Circulate terms of reference for comments to all TAG members shortly after the meeting	MIKE CCU	Done. See above. Instead, the TAG was requested to consider possible indices of poaching levels and overall mortality, which will be further discussed at TAG7.
	• Involve one of the authors of the 2004 evaluation (Mike Norton-Griffiths) in developing a new standardized analytical and reporting framework	MIKE CCU	Ongoing. Mr Norton-Griffiths can still be engaged depending on the outcome of deliberations of TAG7.
	• Convene workshop	MIKE CCU	Ongoing. See above.
7. Analytical approach: baseline analysis and trend analysis (TAG06 Doc. 7)	• Individual patrol reports to be produced for forthcoming analyses	MIKE CCU; MIKE SSU	Done. Raw patrol data were obtained for an analysis of carcass data conducted in May 2008. It transpired that much of the data was unusable – due in part to the poor design of the MIKE database (which allows freeform values to be entered in its fields), and in part to unsatisfactory compliance by rangers in completing forms and recording GPS coordinates.
	• Recommend additional types of MIKE data analyses, such as spatial and trend analysis, through the MIKE standard and analytical reporting framework	TAG members	Ongoing. See under item 6 above.

8. Quantitative approaches for influencing factors and site variable characteristics (TAG06 Doc. 8)	• Conduct work on influencing factors to develop quantifiable covariates and recommend practical and cost-effective data collection	Working Group (J. Blanc, C. Craig, M. Tchamba; two other TAG members)	Done. A working group was established using Google Groups, and members were asked to contribute to specific questions. No responses have been received to date. The issue will be discussed at TAG7 (see document TAG07 Doc 10).
	• Invite two other TAG members for working group	MIKE CCU	Done, with membership extended to 6 members, as follows: Bob Burn, Ken Burnham, Colin Craig, Simon Hedges, Raman Sukumar, Martin Tchamba
	• Outputs circulated to the TAG for review by the end of 2008 prior to TAG7	MIKE CCU	Done. No outputs have been generated by the working group other than the initial document produced by the MIKE CCU that will be discussed at TAG7.
9. Spatial representation and significance of patrol coverage (TAG06 Doc. 9)	• Incorporate recommendations on operational levels and nature of spatially explicit measures and analysis into the MIKE standard analytical and reporting framework	TAG members; MIKE CCU	Ongoing. To be completed pending implementation of MIST and the results of the covariates working group.
	• Coordinate with the working group on influencing factors	TAG members; MIKE CCU	Done. This task was requested of the members of the covariates working group.
10. Development of MIKE/ETIS linkages and analysis (TAG06 Doc. 10)	• Triangulate ETIS and MIKE data analysis for presentation at CoP15 (Doha, 2010)	MIKE CCU; TRAFFIC	Ongoing. The issue was informally discussed with Bob Burn and Tom Milliken, and will be further address during TAG7 under agenda item 12.
	• Liaise on information that should be exchanged, including a list of compatible influencing factors	MIKE CCU; TRAFFIC	Done. The liaison took place (see also agenda item 12 of TAG7).
11. Measurement of effort (incl. in non-patrol situations) (TAG06 Doc. 11)	• Explore options for undertaking MIKE-funded research to quantify search effort from cattle herders in the Samburu Laikipia MIKE site	I. Douglas-Hamilton; MIKE CCU	Done. Considerable communication has taken place between I. Douglas Hamilton and Julian Blanc on this issue, and ways to measure herder effort – or to avoid the question of effort altogether - have been discussed.

	• Consider experiments to quantify search efforts and measure the relative success of patrol efforts, such as trials to determine the degree of detection of carcasses or other elephant specimens hidden for patrols	MIKE CCU; TAG members	Not done. No relevant experiments have been identified or undertaken.
	• Make raw patrol-level data available to B. Burn for future analysis and determining how and to what extent patrol efforts are connected with elephant carcasses	MIKE CCU; MIKE SSU	Done. It is expected that the MIST system will generate better-quality patrol data.
12. Validation of site sample			
12.1 List of MIKE Sites (TAG06 Doc. 12.1)	• Establish a working group and address agreed MIKE Sites issues	M. Tchamba; three other TAG members	Done. Members are the subregional TAG members plus Anil Gore. Comments have been received from Colin Craig and Anil Gore.
	• Invite the members of the TAG to participate in the working group	MIKE CCU	Done. See above.
12.2 Site boundaries (TAG06 Doc. 12.2)	• Delineated the boundaries of all MIKE site by the end of 2008 through liaising with National and Site MIKE Officers, national and local authorities, IUCN's African Elephant Database, and other stakeholders	MIKE CCU; MIKE SSU	Ongoing. The results of the work in Africa, and possibly in South Asia, will be presented and discussed at TAG7 under agenda item 13.2.
12.3 MIKE Site criteria (TAG06 Doc. 12.3)	• Apply the agreed minimum criteria for adding new MIKE sites on a voluntary basis	MIKE CCU	Ongoing. The criteria were communicated to Ethiopia and Sudan, and brought to the attention of the MIKE Sub-regional Steering Committees.
13. Population surveys and MIKE standards (TAG06 Doc. 13)	• Apply agreed priority-setting system for providing support to elephant population surveys in MIKE sites	MIKE CCU; MIKE SSU	Ongoing. It is apparent that logistical and political considerations sometimes override the established priorities but overall, MIKE has been able to support surveys in categories 1 and 2 [on a scale of 10].
	• Ensure that MIKE-supported or co-funded surveys remain geopolitically balanced	MIKE CCU	Ongoing. Priorities for each of the four African sub-regions have been identified, and funds allocated to high priority surveys

			in West, Central and East Africa.
14. Elephant meat trade impact study *(no document)*	• Convey recommendations to IUCN/SSC AfESG	MIKE CCU	Done. The issue is to be further discussed at TAG7 under agenda item 14.
15. Hardware at MIKE sites (TAG06 Doc. 15)	• Implement the agreed hardware strategy	MIKE CCU; MIKE SSU	Ongoing. An Inveneo machine is in the process of being purchased for testing. Kevin Sallee has tested MIST on Linux with promising results.
16. MIKE database development and software (TAG06 Doc. 16)	• Explore possibilities to adopt open source software for database backends; SQLite at site level; and PostgreSQL at global level	MIKE CCU; MIKE SSU	Ongoing. Implementation depends on the implementation of MIST software.
	• Implement the agreed data management strategy and architecture, and reporting framework	MIKE CCU; MIKE SSU	Ongoing.
	• Ensure that the MIKE standard analytical and reporting framework reflects the software for developing the MIKE database (incl. SQLite and PostgreSQL)	MIKE CUU	Ongoing. This depends on the implementation of MIST software.
	• Collect feedback from current users of MIST; request an elephant range State that uses MIST to present experiences at an African elephant meeting in June 2008; field-test MIST in one or two MIKE sites	MIKE CCU	Done. Uganda presented its experience with MIST at the African elephant meeting and elicited considerable interest.
17. Design and use of MIKE reporting forms (TAG06 Doc. 17)	• Establish a working group to make recommendations concerning essential data that needs to be captured in MIKE forms and the further simplification of the forms	Working Group (four TAG members)	Ongoing. It was agreed that this would be deferred pending piloting and implementation of MIST.
	• Invite four TAG members to participate in working group	MIKE CCU	See previous point.
	• Collect models of all forms that are currently used in MIKE sites to record biodiversity-related information; forward copies to MIKE	MIKE SSU; MIKE CCU	Ongoing. Forms have been identified but not compiled pending the establishment of the working group (see above).

	CCU for use by working group		
	• Present new MIKE reporting forms at sub-regional level	MIKE CCU; MIKE SSU	Ongoing. This depends on the implementation of MIST software.
	• Field-test new forms in two sites per sub-region and incorporate improvements before formal adoption.	MIKE SSU; MIKE CCU	Ongoing. This depends on the implementation of MIST software.
18. GPS and data capture and transmission equipment (TAG06 Doc. 18)	• Explore and field test options to move MIKE from paper-based data collection systems to other technologies, in particular using mobile phone technologies, along with Bluetooth GPS units	MIKE CCU; MIKE SSU	Ongoing. Kevin Sallee has agreed to provide the requisite mobile phone software. Bluetooth GPS and mobile phone link tested successfully and can be demonstrated to TAG. It will be piloted under extreme conditions at an upcoming survey of Sapo NP (Liberia).
	• Investigate possibilities to tie the deployment of new technologies to performance-based incentive systems	MIKE CCU	Ongoing.
19. Any Other Business (no document)	• Contact COMIFAC to help resolve the organizational problems in Equatorial Guinea	MIKE CCU; M. Tchamba; MIKE SSU- Central Africa	Done. Targeted actions have been undertaken to improve the implementation of MIKE in Equatorial Guinea. These included formal communications to the responsible Ministers and meetings with the MIKE National Officer. However, these have remained without positive response and the Mont Alén MIKE site is still nonoperational. In December 2008, the matter was brought to the attention of the MIKE-ETIS Subgroup of the Standing Committee.
20. Determination of the time and venue of the next TAG meeting (no document)	• Convey MIKE-ETIS TAG7 in Nairobi, Kenya, in January 2009	MIKE CCU	Done.