

CITES MIKE PROGRAMME

MINUTES OF THE 3rd TECHNICAL ADVISORY GROUP (TAG) MEETING

HELD IN ACCRA, GHANA, ON THE 28TH – 29TH APRIL 2003

- In Attendance :
- Martin Tchamba, TAG member for C. Africa
 - Iain Douglas-Hamilton, TAG member for E. Africa
 - Colin Craig, TAG member for S. Africa
 - Moses Kofi-Sam, TAG member for W. Africa
 - Raman Sukumar, TAG member for S. Asia
 - Richard F. W. Barnes, TAG Specialist member
 - Kenneth P. Burnham, TAG Specialist member
 - Holly T. Dublin, TAG Specialist member
 - Hugo Jachmann, TAG Specialist member
- Nigel Hunter, MIKE Director and Chair of the Meeting
Sebastien Luhunu, MIKE Support Officer for C. Africa
Edison Nuwamanya, MIKE Support Officer for E. Africa
Sani Massalatchi, MIKE Support Officer for W. Africa
- Absent with Apologies :
- Zhang Yue, TAG member for S.E. Asia
 - Philip Stander, MIKE Support Officer for S. Africa
 - Philippe Bouché, MIKE Support Officer for W. Africa
 - Geoffrey Howard, IUCN EARO Programme Coordinator
- Invitees:
- Nick K. Ankudey, Executive Director, Wildlife Division of Ghana
 - Rene Beyers, Resource Specialist
 - Bob Burn, Resource Specialist
 - Steve Blake, Wildlife Conservation Society
 - Karen B. Willett, Resource Specialist
- Rapporteur : Linda Yeo

Welcome and Opening

Welcome and opening remarks were made by Mr N. Ankudey, Executive Director of the Ghana Wildlife Division. On behalf of the Minister and Chief Executive of the Forestry Commission, Mr Ankudey formally welcomed the TAG members to Ghana. He reported that through the MIKE programme, Ghana has achieved both aerial and dung count surveys in the Mole and Kakum National Parks. The national and site officers have been trained in the use of GPS and MIKE forms. At the Kakum Ecological Centre, a three year programme in Elephant Biology and Management has been instituted in collaboration with Conservation International with the aim of training nationals from the sub-region. Through the MIKE programme, the wildlife staff of Liberia and Uganda have received training in dung count methodology for forest elephant populations. Ghana and Cote d'Ivoire are in the final stage of developing a project for managing elephant corridors between western Ghana and eastern Cote d'Ivoire. There is also a new project under

the Ministry, the Northern Savanna Biodiversity Conservation Project (NSBCP), that would be managing the Sissili-Nazinga and the Red Volta - Po National Park elephant corridors between Ghana/Burkina Faso and Ghana/Togo. The NSBCP is to contribute to the conservation of elephants and their habitats in the Ghana portion of the Sissili-Nazinga-KTP-Red Volta corridor. He expressed gratitude to Dr Richard Barnes for undertaking the baseline surveys and spearheading the crop raiding programme in Kakum, and to Dr Holly Dublin for her part in formulating the Elephant Conservation Strategy in Ghana which had been developed with the financial and technical support from WWF International and IUCN African Elephant Specialist Group.

The Chair then introduced the TAG members and participants. He thanked the Ghana Wildlife Division, in particular the Executive Director and Moses Kofi-Sam, in facilitating the meeting and visa arrangements.

Apologies were given on behalf of Zhang Yue, Geoffrey Howard and the two MIKE Sub-regional officers (SSOs), Philip Stander and Philippe Bouché.

Baseline Information for MIKE

Before the first agenda item was tabled, the Chair reported to the meeting that in line with Decision 12.33 taken at CoP 12, the definitions for the baseline information for MIKE duly approved by the 49th meeting of the Standing Committee in Geneva on 22 – 25 April 2003. [See Annex I.](#)

1. Minutes of the last meeting

The Chair informed that no comments had been received on the draft minutes of the last meeting in response to a request for such comments. Therefore the minutes had been posted to the CITES MIKE website.

2. Matters Arising

2.1 GPS Limitations

The previously reported technical limitations of the Garmin E-trexes have now been overtaken by the new Garmin 72, a successor model to Garmin 12. The new Garmin 72 overcomes the operational limitations of the E-trexes vis-à-vis the protocols required in the LEM forms (i.e. the inability to set a time frequency for getting way points automatically on the track-log as well as the inability to record the time of each way-point log when downloaded).

The Director was requested to provide feedback to the TAG on the possibility that a programme be written to enable the waypoints to be downloaded directly and to facilitate the conversion of UTM readings to degrees and decimal minutes. [\[Action – Hunter, Beyers\]](#)

The Director reported that there was a recent donation of 55 units of Garmin 72 with PC interface cables by the International Elephant Foundation. It is hoped that a further 110 GPS units could be sourced to fulfill the aim of having 5 GPS units per site within Africa.

2.2 Data availability

The Director reported that data had been provided from three MIKE sites (Etosha, Kruger and Chobe) to the Data Support Team. However, the data proved to be insufficiently varied to enable a proper test-run analysis of data for two reasons; firstly, there were very few catch (illegal activity), and secondly, the spatial measurement of effort (i.e. maps of patrol routes) which is needed for “catch-effort” indices was not always available.

2.3 Analytical Strategy

The Director apologized that this had not been concluded as intended, mainly due to the presence of other activities. However, a specific agenda item had been scheduled for this topic.

2.4 Survey Standards

Aerial Survey Standards

The revised draft of the document titled “Aerial Survey Standards” by Dr Craig was tabled for review. The modifications to the standards were accepted by the TAG and the final draft is attached in [Annex II](#).

It was agreed that the Aerial Survey Standards would be posted to the CITES MIKE website. A recommendation was made that the reference materials referred to in the standards be collated and made available at the CCU library.

2.4.2 Forest Survey Standards

The draft “Forest Survey Standards” by Dr Barnes was tabled. It was agreed that the deliberations on the draft document be deferred to the next TAG meeting in view of the subsequent decision by the TAG that a taskforce should meet in July/August to decide on technical issues regarding the use of transect dung count methods. (see section 7.3)

2.5 Survey Effort & Power

Dr Barnes provided a submission on this topic in regards to forest population work as an annex to the draft “Forest Survey Standards”. Subsequent TAG discussion centred on the determination of the relationship between effort and power. The value of having systematic repeats within a site and the value of having replication over several sites was emphasized.

It was therefore agreed that Dr Barnes would work with Dr Burn, Dr Sukumar and Dr Craig to prepare a draft statement clarifying the relationship of power, effort, covariance and time, that could be approved by the TAG at the next meeting. [\[Action – Barnes, Burn, Sukumar, Craig\]](#)

2.6 Aerial Distance Sampling technique

Dr Jachmann presented his evaluation on the use of distance sampling for aerial population surveys based on the available results and information from the aerial counts in the Madikwe

Game Reserve (RSA), Kruger NP (RSA), Kafue NP (Zambia) and Botswana and based on his recent exchanges with Curtis Griffin. As a result it was recommended that aerial distance sampling technique should not be used for MIKE monitoring as the application of distance sampling using fixed-wing aircraft proved to give highly variable results, compared to that of standard strip counts. The principles of the distance sampling technique are valid, but its application from a platform that moves at great speed, under often turbulent conditions, lacking a proper view beneath the plane made its use very difficult. In the context of estimating elephant abundance therefore, distance sampling should be done with a slow flying aircraft such as a helicopter. However, the use of helicopter increases the cost by a factor of about 5 times compared to that of regular strip counts using fixed wing aircraft. The conclusion therefore was that aerial distance sampling is not a recommended technique for the MIKE monitoring system.

2.7 Cybertracker technology

The Chair reported that EC funding for the Cybertracking Monitoring Programme (project no. B7-6200/02/0407/TF) has been approved. The project had referred to the MIKE programme as a beneficiary, however, it was not clear how exactly the project could help MIKE progress. It was recommended that the SSO for Central Africa should follow up with Jean-Marc Froment to indicate how MIKE might benefit from the development of cybertracker technology under this project. However the TAG was also of the view that MIKE should keep abreast of other similar evolving technologies“ [\[Action : Luhunu\]](#)

There was a suggestion that GPS-linked camera could be a potential technology in carcass monitoring and the Director was requested to follow up on that lead.

The Director requested the members to keep him informed of any lead on new technology relevant to the MIKE process so that a follow up may be carried out.

3. Progress Report

3.1 Africa Sub-regions

The SSOs provided their brief reports on the progress being made in their respective sub-region, with particular reference to LEM and population work. Problems highlighted included the high turnover of MIKE range states staff; inconsistent inputting of data in using the MIKE forms; the difficulty of transferring data from sites; and the delay in submitting population survey reports.

The Director reported that the SSO for Southern Africa would be leaving the programme to return to the Ministry of Environment & Tourism, Namibia. Recruitment for his replacement is underway and the current SSO would continue to handle MIKE implementation until a handover is completed. In the absence of the SSO, it was agreed that a written progress report on the Southern Africa sub-region would be circulated to the TAG. [\[Action : Stander\]](#)

The concern was raised by the TAG that in terms of its monitoring aims, ‘data reliability’ and ‘flow’ would be tougher problems for MIKE than elephant survey work and middle- level management problems. It was recommended that the SSOs provide a site-by-site routine status report to the Director that would include the potential problems of data reliability and flow. Any constraints and bottlenecks would be followed up by the Director with the Steering Committee member of the range State in question. [\[Action : SSOs, Hunter\]](#)

However, the TAG was of course particularly interested in technical problems and issues. It was recommended that the SSOs should work closely with the TAG member of their sub-region to present a formal report to the TAG under this agenda item on any technical matter occurring within their sub-region. [Action – SSOs, Douglas-Hamilton, Tchamba, Kofi-Sam, Craig]

3.2 South Asia and Southeast Asia Sub-regions

The Director reported on the status of MIKE implementation in Asia. Following the range states meeting in Nairobi on September 2002, the Director undertook a visit to the 13 range States within the two sub-regions. Subsequent to that visit, implementation meetings were held in Delhi and Bangkok in February and March 2003 whereby the range States agreed to the institutional arrangement for MIKE and made their nominations for their Steering Committee members, National and Site officers. The platform for implementing MIKE was agreed and the process of recruitment for the SSOs for both sub-regions is now underway. The equipment procurement and LEM training would take place once the funding is in place.

A technical meeting took place in Bangkok on 18 – 19 March 2003 to address the issues surrounding population survey methodologies for sites in Southeast Asia. A similar meeting has been convened in Bangalore in June 2003 to explore the appropriate methodologies as well as adaptation of the MIKE forms to the Asian context.

4. Data Analytical Strategy

Dr Burn of the University of Reading, Statistical Services Centre, next gave an overview of the data analytical strategy for MIKE.

He noted that the objective of the data analytical strategy must derive from the objectives of the MIKE/ETIS programme. It needs to be an evolutionary strategy which allows feedback and adaptation to changing requirements as more data become available. Data flow is important in that raw data and not just summarized or aggregated data should be transmitted from sites up to the sub-regional and MIKE Central Coordinating Unit (CCU) levels for analysis. The data analysis needs are required at all MIKE levels, i.e. site, national, sub-regional and at regional (CCU) level. At the national level, it is recommended that the range states decide for themselves what they require in terms of analysis, in addition to what is expected of National officers in support of site and sub-regional levels. At the sub-regional level, analysis can be done in conjunction with regional (CCU) level.

Dr Burn suggested the types of analysis that could be achieved at site level: (i) data summaries for routine reporting (e.g. carcass counts, mortality statistics, illegal killing, population survey results, patrol effort summaries, maps, covariate summaries); (ii) simple ad hoc statistical analysis which enables site staff to get more out of their data, and (iii) the facility to select subsets from the MIKE database (queries). An issue on patrol data analysis was highlighted because of the lack of randomness in selecting patrol routes.

Most of the “in-house” analytical capability should be at the CCU level for the main reason that advanced methods (e.g. multilevel modelling, generalized linear models, etc.) would be required and the expertise would be both scarce and expensive. The Bayesian network modelling could be developed for the regional analysis and would particularly assist in the decision-making objectives of MIKE.

Dr Burn then summarized the following tools for analysis at the various levels:

1. Site level analysis tools
 - Tabulations and graphs
 - Database queries
 - Regression, analysis of variance, comparison of groups
 - Trend estimation
 - Estimating abundance (transect surveys or aerial surveys)
 - Mark recapture analysis

2. Sub-regional/Regional (CCU) level analysis tools
 - Advanced regression methods for analysis of trends, survey data, investigating associations with covariates :
 - Generalized linear models
 - Smoothing and generalized additive models
 - Multilevel modelling
 - Bayesian network modelling

He then summarized the software that could be used to assist such analysis as follows :

- For simple analysis :
 - MS Excel (possibly with add-ins)
 - MS Access

- For abundance estimates:
 - DISTANCE program for line transect surveys
 - Program MARK for mark-recapture

- For statistical analysis :
 - Genstat or similar statistic package
 - Netica for Bayesian network modelling

In the context of software for analysis, Dr Burn raised the question whether there was a standard method of analysis for aerial surveys and if a standard software is available. The response was that a standard method (usually referred in Africa to as the Jolly II method) was used in aerial sample surveys but that there are various software presently used for applying this method and selection of software was very much an issue of individual preference. It was therefore agreed to put this question on hold for the time being.

Dr Burn went on to highlight the need for training on data management and statistical analysis appropriate to the various MIKE levels. The Director agreed to incorporate this into a training plan for consideration under the next funding phase. In this regard, it was noted that the responsibility for undertaking data management and analysis lies with the MIKE CCU. This does not contradict the need for specialist inputs and support from external sources.

As a contribution to the analytical strategy, the Director tabled some essential questions that MIKE needed to address and the data sets that were currently being collected. It was noted that getting the questions correctly formulated was the key to further developing the analytical process required by MIKE. It was then agreed that the Director and Rene Beyers would work on the site and national level questions, and that the Director and Dr Burn would work on the subregional

and regional level questions. There would then be a need to identify the data sets relevant to those questions and to develop further analytical ideas that would address these questions.

[Action : Beyers, Hunter, Burn]

5. Database Development

Rene Beyers next presented the overall MIKE database design and the practical issues concerning the data management, transfers and backups.

At the site level, the MIKE database comprises a database developed in MS Access that would be used to collate LEM data, population survey data (transects), ground, aerial and other site characteristics (e.g. land-use changes, etc.). The version 1 of the site database is at the final stage of development and would be ready for testing and training at the sites in May/June 2003.

At the CCU level, it was recommended that the MIKE database be integrated to a SQL server linked to Arc GIS8.X (geodatabase) as the main data management system. This would allow for displaying of patrol data and patrol routes, carcass locations (patrol and non-patrol), measurement of patrol effort spatially and the spatial analysis of covariates to support spatial modelling of population survey and LEM data.

It was noted that at the initial stage of development of the MIKE database, there should not be an expectation created that MIKE would undertake full spatial modelling analyses for all sites. What is needed at this stage would be descriptive analyses of sites in Africa and Asia as agreed under the baseline definition. A complex spatial model that would require massive amount of spatial data should also be avoided for it would overburden the system.

6. Measuring of Effort

6.1 Information network effort

Dr Douglas-Hamilton was invited to give an overview of the work conducted by Save the Elephant in collaboration with the Kenya Wildlife Service to monitor elephant deaths using local knowledge in the Samburu/Laikipia MIKE site. This is an example of a site that lies mainly outside officially protected areas and where there is little patrolling by the wildlife authority.

In such conditions, Dr Douglas-Hamilton showed that patrols and aerial surveys had limited success as a means of first discovering carcasses. The results indicated that patrols discovered only 29% of the carcasses compared to 62% located from the information network. But he felt there were two essential ingredients that could affect the information network method. The first was a positive attitude of the government wildlife agency towards local people as this was essential to build a relationship of trust on which the flow of information would depend. Secondly it was important that the method did not use financial incentives.

However using the information network system raised the question of quantifying the effort involved so that correct trends could be deduced. Dr Douglas-Hamilton's current approach was to use the proxy measure of carcasses found versus cumulative verification days. However he also highlighted another important issue related to trend analysis. This was that interpreting the frequency of carcasses found against the year in which they died must take into account the visibility decay rate of carcasses. He therefore felt that the carcass forms should include more specifically a question estimating the year of death.

The use of proxy measures of effort in a situation like Samburu/Laikipia was deliberated and it was agreed that the measure of effort should also be linked to “effectiveness” of effort. It was also recommended by the Director that, whilst no further specific ideas as to other possible proxy measures were immediately forthcoming, research on information network effort and in particular the determination of appropriate proxy measures should be encouraged to continue as a contribution to exploring and evolving ways of trying to measure effort for capturing information where routine patrols are not active.

It was suggested that the Director should explore other systems for measuring intelligence gathering effort and provide feedback to the TAG. It was further recommended that the Director and SSOs in Africa and Asia should undertake a review of the existing sites to ascertain which sites could be appropriate for this approach and whether anything has been done to measure effort in their circumstances. [Action : Hunter, SSOs]

In making his presentation, Dr Douglas Hamilton indicated that he had also given much thought to early warning indicators that might potentially signal illegal killing, some of them already covered by MIKE, e.g.

- An increase in the absolute number and ratio of carcasses found on successive aerial censuses
- A decrease in elephant numbers recorded in successive aerial censuses
- A decrease in the ratio of single animals as measured from aerial census (an example of this is Selous 1986)
- An increase in poached carcasses found on the ground by patrols or investigators
- An increase in the “poached” category compared to other measures of death.

Dr Douglas-Hamilton felt the following should also be considered:

- An absolute increase in intelligence reports of elephant poaching
- An influx of new elephants into “safe havens”
- A decrease in the proportion of large tuskers (particularly valid for sites like Kruger or Niassa)
- A change in the sex ratio of bulls to females (particularly relevant to Asia)
- A reduction in the proportion of big ivory from old bulls
 - seen on living elephants
 - recovered from tusk hauls
- A reduction in mean tusk weights
- An excess of deaths over births derived from registration studies.

Regrettably there was no time for discussion of these indicators and how they could be properly sampled. It was agreed to table them for future consideration.

6.2 LEM Patrol Effort

R. Beyers presented his approach on the calculation of ‘catch effort’ indices using existing datasets and highlighted the problems in measuring ‘effort’. He was concerned that different approaches gave different results. From this preliminary work, he was recommending the following way forward :

The ‘patrol effort’ can be measured spatially using GIS, plotting patrol routes on the map (from Patrol Forms) and overlaying a grid with fixed cell size (5x5 km). The distance covered by the patrol within a grid cell is then calculated to give a rough index of the effort spent by a patrol per grid cell. ‘Catch’ was calculated as the number of illegal activities of a certain category or type

(e.g. carcasses recorded, poachers encountered, poachers' camps observed etc.) recorded on patrol within a grid cell. The 'catch-effort' is then calculated from the 'catch' per grid cell divided by 'effort' per grid cell. The result is a map on which effort, catch and catch effort are displayed and color-coded for each grid cell. At this stage, the approach is descriptive and visual and could help managers to make decisions about patrol deployment in different areas within a site. The assumption made is that there is a relationship between the catch/effort index of a particular illegal activity and its real density in an area, however this relationship needs to be tested against real data.

Furthermore, patrol effort depends on a variety of possible covariates such as habitat, transport type, number of people in the team, etc. For example, patrol effort and the chance of observing illegal activities is higher in the open savannahs with good visibility than in closed forest situations with the restricted visibility. Mr Beyers proposed to further investigate these co-variables of effort and correct for these as much as possible. This is especially important if one is to compare effort between different areas and over time.

The TAG agreed that Hugo Jachmann and Rene Beyers should work together on progressing the measure of patrol effort in consultation with Dr Ken Burnham and Dr Bob Burn using real data and report to the TAG on their findings. [Action: Jachmann, Beyers]

Dr Douglas-Hamilton noted that this approach is promising not only in the context of ground patrols, but could be particularly applicable to aerial reconnaissance patrol in the savannah as a means to achieve direct measure of effort of aircraft route and "catch" in elephant encounters.

7. Population Survey Approaches for Southeast Asia

Dr Dublin next reported on the technical meeting held in Bangkok on 17 – 18 March 2003 and stated that with regard to population survey approaches for Southeast Asia some interesting issues that were relevant to the TAG had been raised.

These issues related to circumstances that were thought to be of key importance to this particular sub-region. Firstly, some of the MIKE sites start with very little information in regard to elephant numbers, distribution and densities. Secondly, some of the sites with low numbers and/or low densities do not lend themselves to line transect dung survey methods. Thirdly, where line transect dung surveys are appropriate, there were key questions as to whether the approach adopted in West and Central Africa could be followed in Southeast Asia.

7.1 Sites with no or little information

In sites with no or little information, the Bangkok meeting had recommended the use of the Patch Occupancy approach for (i) determining an initial assessment of presence, absence and distribution, (ii) determining appropriate subsequent survey techniques and (iii) stratifying line transect dung counts in future.

The preliminary assessment provided by the TAG was that there needed to be a clearer distinction between reconnaissance surveys and patch occupancy approaches¹. This was felt to

¹ Patch (site) occupancy approach is usually viewed as a means of estimating the proportion of patches (sites) occupied by a species of interest. In essence, it is a form of mark-recapture method to monitor what proportion of patches are occupied. The method involves multiple visits to patches during the appropriate period and the patterns of detection and non-detection revealed over the multiple visits allow estimation of detection probabilities and an estimation of the proportion of patches occupied (Mackenzie et al. 2002). Its underlying mathematics are a case of mark-recapture in a defined sector to track an animal's existence.

be a key issue, because patch occupancy has inherent in it the following assumptions or conditions:

- (1) well defended, meaningful patches,
- (2) multiple (independent) visits to each patch in a time frame wherein occupancy does not change (i.e. no movement into or out of patches in the said time frame).

Neither of these conditions would seem to hold in sites with little or no information, thus making it difficult to know how the area would be partitioned into patches. To achieve this requires the same process of stratification required for any sort of ground sampling. The nature of the multiple visits would also need to be clear and satisfying the “no movement” aspect would seem unlikely unless the patches are big (which is not normally the case in patch occupancy).

It was suggested that a better sampling strategy for sites with little or no information would be a systematic reconnaissance survey (SRS) to be distinguished from an SRF, systematic reconnaissance flight survey, often used for elephants in savanna habitats. The purpose of the SRS is to cover as much ground as possible to find out the distribution of elephants in the site and use this as a basis for determining appropriate subsequent survey techniques (including patch occupancy) and determining stratification, where necessary. In this sense, SRS could be seen as a precursor to implementation of the patch occupancy model. SRS would require superimposing a grid on the area under consideration and then randomly or systematically selecting the blocks to be sampled. If funds do not allow a quick look at all plausible places then setting up strata and selecting which strata to look in should use best available knowledge/information/intuition. The exact design (i.e. grid cell size and number) would need to be decided on an individual site basis.

7.2 Sites with low numbers and/or low densities

In sites with low numbers and/or low densities, the Bangkok meeting had recommended serious consideration of mark-recapture methods to survey such sites, using dung DNA or camera trapping to establish the requisite individual identification or “markings”.

In considering this suggestion, the TAG first agreed that some qualification would be helpful in regard to elephant numbers and site area for Southeast Asia. Thus, for the purposes of the discussion, it was agreed to consider the following as very rough guidelines, which will need further consideration:

small elephant numbers as being < 50 eles
medium elephant numbers as being < 100 and > 50
large elephant numbers as being > 100 eles
small site areas as between 100 – 250 sq. km.
medium site areas as between 250 – ?1,000 sq. km.
large site areas as between ?1,000 – 10,000 sq. km.

In this context, it was agreed that mark-recapture would be appropriate for small sites where elephants are in small numbers (i.e. < 50 eles and < 250 sq. km. scenario)².

However, the TAG was concerned that mark-recapture methods could have high cost implications and that fecal DNA and camera trap methods were not yet readily available as

² During the process, it was also agreed that a systematic reconnaissance survey would be appropriate for large sites with small elephant numbers (i.e. <50 eles and > 250 sq.km. scenario), and line transect dung surveys for large sites with relatively large numbers of elephants (i.e.>100 eles and > 250 sq. km. scenario).

proven methods for individual identification or “markings”. It was recognized though that the fecal DNA approach could add value by assisting the determination of male/female ratios and thereby enabling the monitoring of highly threatened male tuskers.

Since further work was needed before such methods could be adopted as a standard for MIKE, the TAG wished to encourage further R & D. But it was agreed that it should not be an expectation that MIKE would be a ready source of funds for such work.

It was suggested that the Director would work on the Southeast Asian sites to classify these sites in relation to population levels and area sizes and graphically chart the relationship. Following verification where these sites fit on the chart, the design for population estimation surveys could then become clear. [Action: Hunter]

7.3 Line Transect/Dung-counts for surveying elephants in forest habitats

The Bangkok meeting had raised several technical issues regarding the use of transect dung count methods for surveying elephants in forest habitats. These issues are highlighted in section 4.6 of the Bangkok meeting minutes (available on the CITES MIKE website).

It was agreed that there was a need to have further consideration of these issues because different models and sampling techniques may be needed for different situations in Africa and Asia. Ultimately, matching standards will have to be developed for any sampling techniques used to conduct forest populations surveys in MIKE sites.

The TAG then agreed the Director should go ahead with his recommendation to have a taskforce to consider these issues and come up with a recommendation for the way forward. The taskforce should meet in Washington, D.C. in July/August and its work should be facilitated by Dr. Dublin.

It was further agreed that Dr Barnes’s draft on “Forest Survey Standards” should be put on hold until the taskforce had met.

8. Central Africa Forest Population Surveys

Steve Blake provided an update on the forest population survey work in Central Africa led by WCS and funded by WWF and MIKE. The training has been carried out to get these surveys underway in 5 sites and he has liaised with Dr Burnham over design issues. The current thinking was to have teams comprised of the best people from the 5 sites to then undertake the work on the remaining 2 sites in early 2004.

An important institutional issue was highlighted in that population survey capacity is poor in each department. The Director informed that he would take this up with wildlife directors on how to build this capacity on a sub-regional basis.

9. TAG Roles

In introducing this agenda item, the Director raised three issues that he felt would benefit from some discussion. These issues were (1) clarification of the TAG roles, (2) improvement in TAG processes, and (3) interaction between SSOs and sub-regional members of the TAG (already covered in section 3.1)

9.1 Clarification of TAG roles

It was felt that there was still some confusion over whether the TAG was a peer review group or a group that could be more active in providing technical inputs into MIKE processes.

A careful review of the TAG's ToRs suggest that the intention was to engage TAG collectively and individually on providing inputs, which can and should include technical review as part of good professional practice. However there would be situations when the TAG could not be regarded as "independent" because they would be reviewing their own inputs, and it was important to recognize this.

It was further agreed that under this clarification, it would be important to have on occasion an independent peer review undertaken, particularly in regard to analytical reports that will have been reviewed by the TAG before such reports are submitted by the CCU to the Conference of the Parties.

With the above in mind, it was confirmed that TAG members could and should be used to provide inputs which further MIKE science and technical approaches. Where this involved the delivery of specific outputs, then it would be reasonable to pay for such work, where the TAG member is not covered by a salary.

It was important to also understand that TAG members would therefore take responsibility for the work and inputs provided by the Group both individually and collectively. It was agreed that such responsibility did not interfere with freely expressing differences of opinion within the TAG context but that outside the TAG arena, such differences of opinion would not be used to criticise other members or to discredit the MIKE programme, but instead would be used to find a constructive way forward.

In discussing the access to data for the purpose of the TAG review process, it was clarified that analytical reports undertaken by the Data Coordinator at the CCU will be put to the TAG for their input and review. However where TAG members were assisting with technical/analytical commissioned work based on the use of raw data, it was agreed that the TAG members involved would abide by the MIKE data access and handling policy that has been approved by the range States.

9.2 Improvement on TAG processes

The Director readily acknowledged that there was a need to have better interaction between meetings. There was an urgent need to get on with the recruitment of the CCU Data Coordinator, who could then take on responsibility for facilitating the interaction.

Other improvements would include the involvement of the TAG members in evolving solutions to problems; putting questions needing technical inputs to the TAG as and when they arise; providing the agenda and documentations at least a month in advance of meetings.

10. Any other Business

The Director reported that at the CoP 12, it had been decided that ETIS must have a TAG. At the SC49 (CITES Standing Committee), the MIKE Subgroup had been renamed as the MIKE/ETIS Subgroup.

The terms of appointment of the TAG member for a period of 2 years was raised as an issue that required attention. The Director agreed to consult with each TAG member on their re-

appointment. The Director will recommend to the Sub-group that the MIKE TAG be expanded by 2 technical experts with specific Asian experience.

11. Next Meeting

It was proposed that the timing and venue of the next regular TAG Meeting be scheduled in December 2003. Details of the venue would be followed up with the TAG members.

The Chair concluded the meeting by thanking members of the TAG, MIKE staff and the Resource Specialists for their input to this TAG Meeting.

ABBREVIATIONS

CCU	Central Coordinating Unit
CoP	Conference of the Parties of CITES
EC	European Community
ETIS	Elephant Trade Information System
LEM	Law enforcement monitoring
SSO(s)	Sub-regional Support Officer(s)
SRS	Systematic reconnaissance survey
TAG	Technical Advisory Group

Action Plan
(on issues relating to TAG meeting, Accra, 28 – 29 April 2003)

Action Points		Action By
2.0 Matters Arising		
2.1	GPS Limitations Explore the possibility of written programme to enable the waypoints to be downloaded directly and to facilitate the conversion of UTM readings to degrees and decimal minutes.	MIKE Director, Beyers
2.5	Survey Effort & Power Prepare a draft statement clarifying the relationship of power, effort, covariance and time.	Barnes, Burn, Sukumar, Craig
2.7	Cybertracker technology Link up with Jean-Marc Froment on the developments in cybertracker.	Luhunu (SSO)
3.0 Progress Report		
Africa Sub-regions		
3.1	Circulate written progress report on Southern Africa sub-region.	Stander (SSO)
3.2	Institute site-by-site routine status report to Director that include potential problems of data reliability and flow.	SSOs
3.3	Institute formal report to improve the coordination between the SSOs and TAG member on technical issues arising in their sub-region.	SSOs
4.0 Data Analytical Strategy		
4.1	Identification of data-sets and list of questions to develop further analytical ideas at site, sub-regional and regional levels.	MIKE Director, Burn, Beyers
6.0 Measuring of Effort		
6.2	LEM Patrol Effort Develop further on methods of measuring LEM patrol effort using real data from sites.	Jachmann, Beyers
7.0 Population Survey Approaches		
7.1	Southeast Asia sites Classify the SEA sites in relation to population levels and areas to determine the design of appropriate population survey approaches.	MIKE Director
7.2	Line Transect Dung Count survey Constitute the taskforce to consider the technical issues surrounding dung count methodology in Washington in July/Aug.	MIKE Director
9. TAG Roles		
9.2	Recruitment of Data Coordinator to facilitate interaction of TAG members between meetings.	MIKE Director
10. Any other business		
10.1	Reappointment of TAG members.	MIKE Director
10.2	Expansion of MIKE TAG by 2 technical experts with specific Asian experience.	MIKE Director

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

Forty-ninth meeting of the Standing Committee
Geneva (Switzerland), 22-25 April 2003

Interpretation and implementation of the Convention

Elephants

BASELINE INFORMATION FOR MIKE

1. This document has been prepared by the MIKE Central Coordinating Unit (CCU) and IUCN.
2. At its 12th meeting (Santiago, 2002), the Conference of the Parties adopted the following Decision:

12.33 By its 49th meeting, the Standing Committee, in consultation with the MIKE Central Coordinating Unit and IUCN should define the geographical scope and the nature of the data that constitute the baseline information from MIKE that must be provided before any exports can be approved.

3. The following definitions are recommended to the Standing Committee¹:

Geographical scope

- a) For Africa, the geographical scope will cover the scenario 3 option of 45 sites as agreed by the Parties [see document SC41 Doc. 6.3 Annex 1, presented at the 41st meeting of the Standing Committee (Geneva, February 1999)]. In the circumstances that MIKE data can not be collected at some sites in countries such as Côte d'Ivoire or the eastern part of the Democratic Republic of the Congo, owing to civil strife, the situation will be inferred from ETIS data and other expert sources.
- b) For Asia, the geographical scope will meet the original scenario 3 criteria as agreed by the Parties (see document SC41 Doc. 6.3 Annex 1). Recent discussions with the Asia range States have opened the prospect for improving the sample of the MIKE sites for Asia in a sub-regional context, whilst guaranteeing at least the precision required under scenario 3.

Nature of the data

For each reporting site, the following information would be presented:

- a) at least one population survey²;

¹ The recommendation were adopted by SC with the addition of footnote ².

- b) levels of illegal killing derived from a minimum of 12-months' (Africa) / 6-months' (Asia) data obtained from patrol forms and carcass forms and summarized in monthly reports;
- c) a descriptive report on the patterns of influencing factors;
- d) an assessment of the effort made in providing the illegal killing information; and
- e) a preliminary baseline analysis of paragraphs a) to d) above.

² The population survey must not be older than 3 years i.e. must not predate 2000.