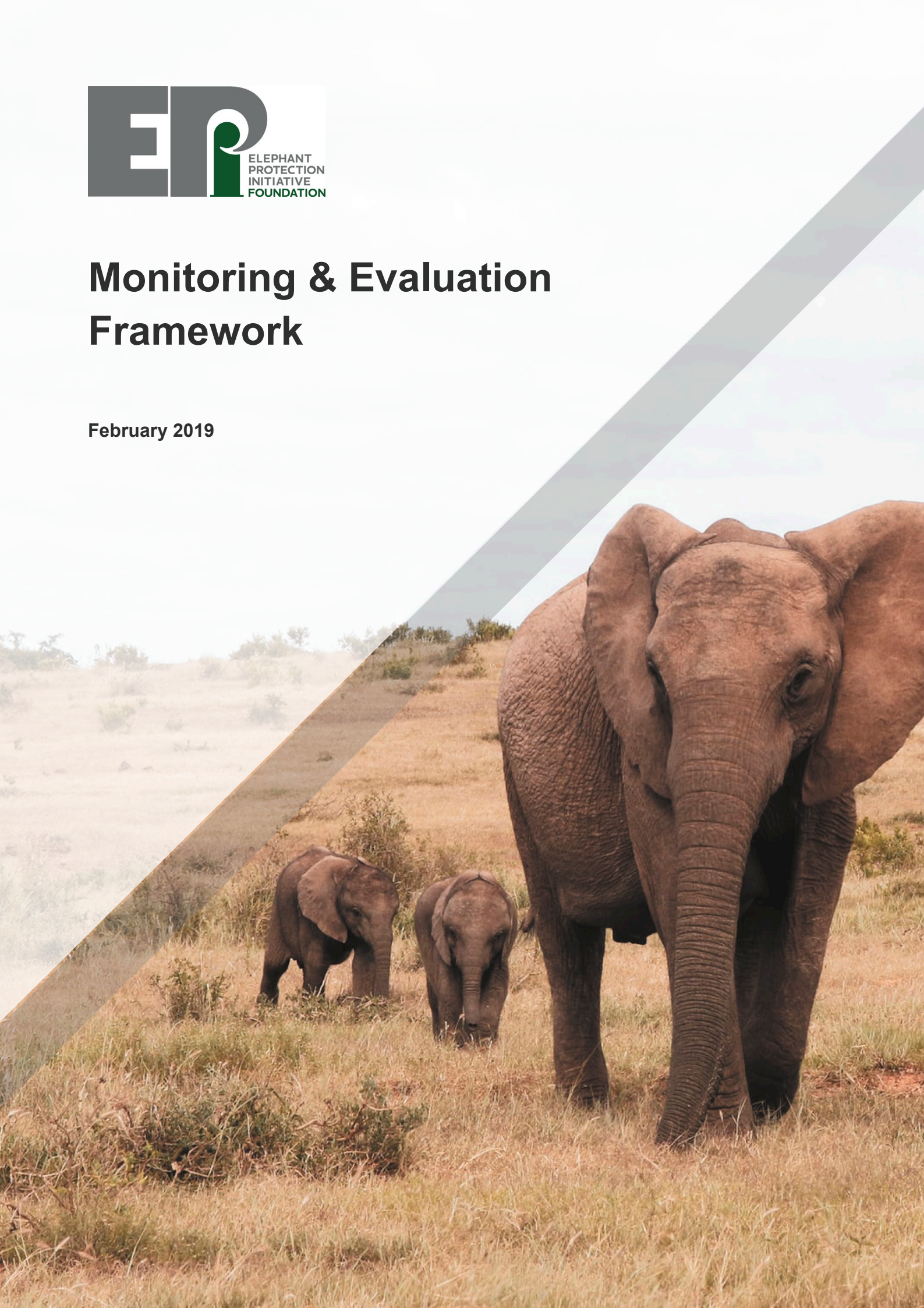
ELEPHANT PROTECTION INITIATIVE FOUNDATION

Monitoring & Evaluation Framework

February 2019



Contents

Acronyms

AEAP	**African Elephant Action Plan**
CITES	**Convention on International Trade in Endangered Species of Wild Fauna and Flora**
DNPW	**Department of National Parks & Wildlife**
ECZ	**Environmental Council of Zambia**
EPI	**Elephant Protection Initiative**
ETIS	**Elephant Trade Information System**
GPS	**Global Positioning System**
HEC	**Human Elephant Conflict**
ICCWC	**International Consortium on Combating Wildlife Crime**
INGO	**International Non-Government Organization**
IP	**Implementation Plan**
M&E	**Monitoring & Evaluation**
METT	**Management Effectiveness Tracking Tool**
MIKE	**Monitoring the Illegal Killing of Elephants**
MoU	**Memorandum of Understanding**
NGO	**Non-Government Organization**
PA	**Protected Area**
PIKE	**Proportion of Illegally Killed Elephants**

RCA	**Results Chain Analysis**
SMART	**Specific, Measurable, Achievable, Realistic & Time-bound**
SOP	**Standard Operating Procedure**

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Table 11: Example template to keep track of NEAP implementation progress.

Table 12: Example Monitoring & Evaluation Matrix for Malawi.

Introduction

Implementation of National Elephant Action Plans (NEAPs) is designed on the assumption that interventions, in the form of actions and activities under each of the 8 objectives aligned to the African Elephant Action Plan (AEAP), will lead to conservation of local elephant populations and consequently to the safeguarding and long-term survival of the species in general. Monitoring and evaluation are the primary mechanisms to assess whether actions and activities are meeting the objectives and their targets. This manual is intended primarily to assist Governments, NGOs, INGOs, consultants and other parties in the design and use of monitoring and evaluation (M&E) plans for NEAP implementation. Briefly, an M&E plan is a program of work which defines what monitoring activities will take place, when and by whom, and how that information will feed back into management decisions. An M&E plan should be simple, inexpensive, and sustainable in terms of the financial, institutional, and technical resources available.

Thus, the M&E plan provides a mechanism for continuing review and refinement. This mechanism should include ongoing compilation and review of data on the status of elephants, data on threats to elephants and their habitats, and data on the efforts taken to address these threats and build conservation and law enforcement capacity. It is important to define the spatial and temporal scales of monitoring activities, as well as the choice of suitable and meaningful indicators. Clearly identifying the assumptions for NEAP interventions will help identify indicators for monitoring both changes in threats and the effectiveness of interventions in mitigating those threats. Most importantly, indicators must be practical and realistic, and should, whenever possible, be meaningful at both the national and site level.

Periodic meetings, such as NEAP Review meetings or any other meetings called by those in charge of NEAP implementation, should be seen as a vital component of adaptive management. Such meetings should aim to monitor progress with implementing partners for both individual actions/activities as well as the overall NEAP (Goal), making recommendations for any changes required as necessary.

Elephant conservation needs good evidence-based approaches to management, while it also requires genuine adaptive management. This manual therefore starts with a brief section on Adaptive Management (1), followed by the Indicator Framework (2), where the Definition of Indicators (2.1), the Conceptual Framework (2.2) and Types of Indicators (2.3) are provided as theoretical background information, to end with Examples of Indicators (2.4) that can be used to monitor NEAP implementation. Section 3 describes the actual Monitoring & Evaluation Framework, starting with the Reporting & Review Cycle (3.1), followed by the Monitoring & Evaluation Matrix (3.2), with an example template to track NEAP implementation progress (Table 11) and an example template for a Monitoring & Evaluation Matrix, using data from Malawi (Table 12). The technical sections are hopefully of use in planning NEAP M&E, but for those countries with their own framework in place, the templates can be used as examples of standalone documents.

The two EPI manuals on developing NEAPs (Brief Manual and Detailed Reference Handbook; Hedges, 2017), contain limited information on M&E, and therefore should be used in conjunction with the M&E framework described here.

1. Adaptive Management

In its most simple form, adaptive management may be defined as a systematic approach for improving resource management by learning from management outcomes. Adaptive management is a framework and flexible decision-making process for monitoring and evaluation that leads to continuous improvements in implementation of an activity, a project or program to achieve the desired objectives. It provides a structured process that allows for taking action based on monitoring and evaluating outcomes, and re-evaluating and adjusting decisions as more information comes available. The framework that the EPI will be using encompasses three phases: Plan, Do, and Evaluate and respond (Fig. 1):

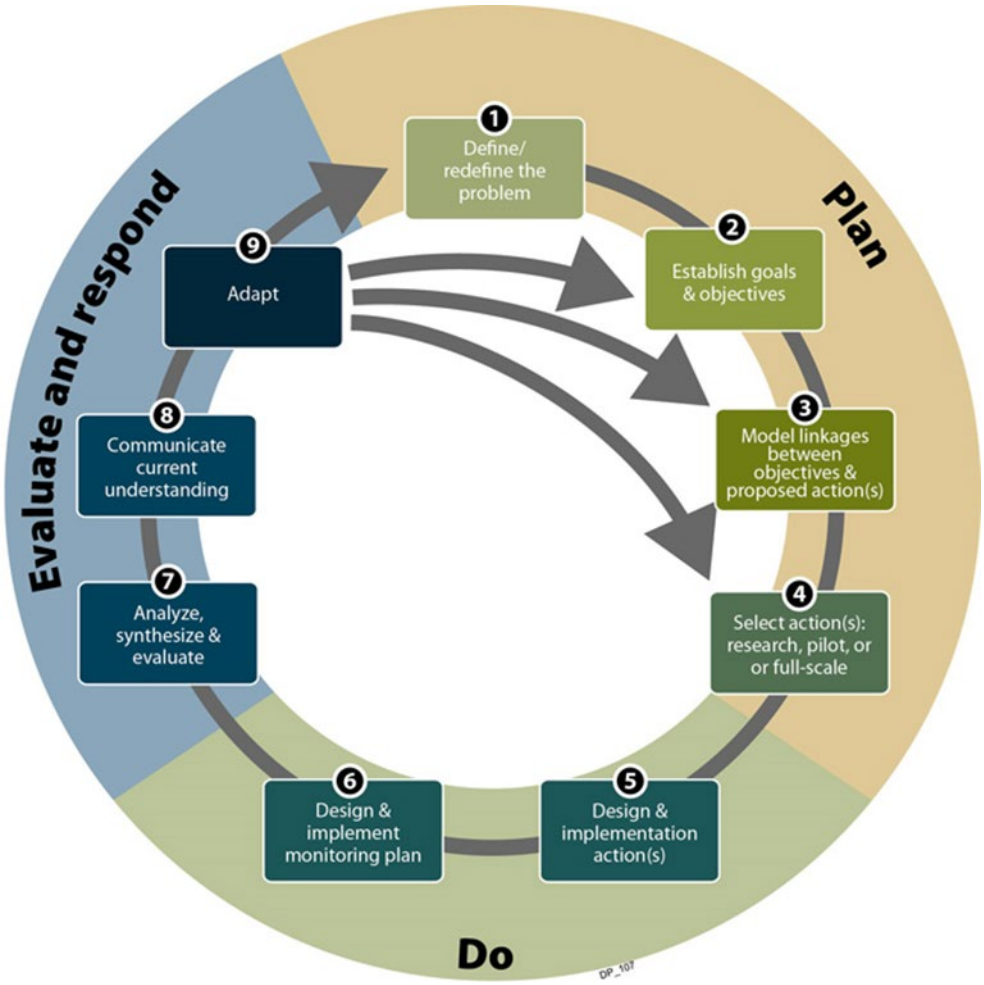

Fig. 1: Adaptive Management Cycle (source: California Fish & Wildlife).

A simplified version of the adaptive management cycle is provided below (Fig. 2):

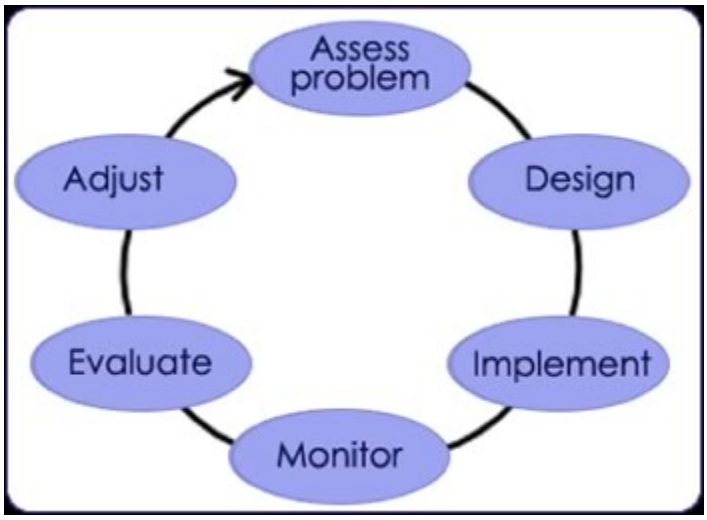

Fig. 2: Simplified version of the Adaptive Management Cycle.

In terms of NEAP development and implementation we can subdivide the 3 phases as follows:

PLAN: NEAP development through a series of stakeholder workshops, in which participants define the problem through a threats and constraints analysis, based on which a series of 8 objectives are formulated, aligned to the AEAP, that address each of the threats and constraints identified. The last step is for workshop participants to formulate sets of actions and activities for each of the 8 objectives that are most likely to lead to realizing these objectives.

a. *Define the problem:* Carry out a Status Review and Threats Analysis to define the problems and constraints.

b. *Establish Vision, Goal and Objectives*: Based on the Status Review and Threats Analysis we define a long-term Vision (100 years) that describes the desired future state for elephants and their relationship with people, as well as a shorter-term Goal (10 years) that redefines the Vision into an operational overarching objective. Realizing the vision and goal of a NEAP requires addressing a number of problems and constraints. The objectives specify the approaches to be taken to overcome those problems and constraints. Each of these objectives has a SMART target, to measure progress in achieving the objective.

c. *Establish linkages between the (8) Objectives and formulate Actions to achieve the Objectives*: The combined Objectives should eventually lead to achieving the Goal, but to achieve the Objectives we first need to propose Actions that may lead to realizing the Objectives.

d. *Select Actions*: Propose and select actions that most likely lead to achieving a specific Objective, and broadly determine the Activities required for these Actions.

DO: During an implementation workshop, participants formulate actions and their respective activities in detail, including indicators and budget estimations. This information is summarized into an implementation plan, the 'living' part of the NEAP, to be regularly updated during review

meetings. A selection of high-priority actions and activities is then further developed into detailed medium-term funding proposals for submissions with funding parties.

e. *Design and Implement Actions*: Describe the Actions and their respective Activities in detail, including indicators or metrics to measure progress, and estimated budgets. For a selection of high-priority actions and their respective activities, develop detailed proposals with budgets for the medium term (Funding Proposals). Summarize Actions and Activities in an Implementation Plan, detailing brief methodology, verification (Indicators), responsibilities, timeline and funds required. When funding is available, start implementation.

f. *Design and Implement a Monitoring Program*: Design and develop a Monitoring & Evaluation Program to track progress and to assist in adaptive management (this manual).

EVALUATE AND RESPOND: During review or other meetings, with all implementing stakeholders present, analyse progress of NEAP implementation, evaluate and adapt where necessary.

g. *Analyse, Synthesize and Evaluate*: Use Indicators or Metrics to analyse progress in implementation.

h. *Communicate current understanding*: Discuss progress with stakeholders involved, for instance during regular review meetings.

i. *Adapt*: When progress towards achieving the Objectives is according to plan or expectations, do nothing, but if not, adapt the design.

2. Indicator Framework

2.1. Definition of Indicators

Indicators are ways to measure change. There are many different definitions of an indicator, but here we use the following definition:

An indicator tracks progress towards achieving a desired state and provides evidence that results have or have not been achieved.

Indicators enable us to assess progress towards the achievement of intended outputs, outcomes, objectives and goals. Indicators can be used at each step of the results chain (i.e. a ‘chain’ or series of actions/activities which should lead to a particular result) and should link to each other up the chain (Fig. 3; Jachmann, 2013).

See examples of indicators in 2.4.

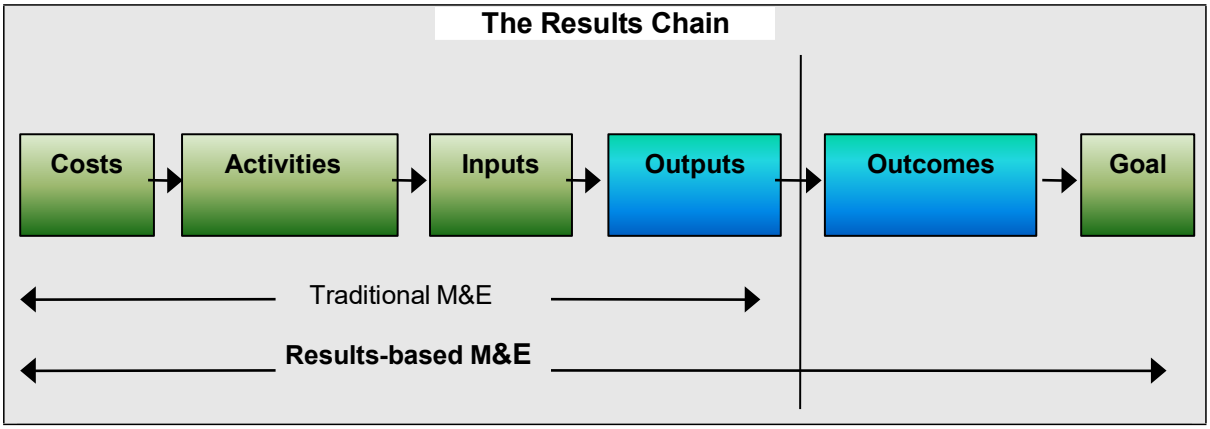

Fig. 3: The Results Chain.

2.2. Conceptual Framework

The desired outcome areas, or the 8 Objectives of the NEAP, require a range of strategic interventions; the Actions and Activities. They together provide guidance on selection of indicators. Results Chain Analysis (RCA) is then used to derive indicators from chain logic. First, it projects the situation where we want to go, thus it indicates what needs to change in the conceptual model, second, it clarifies the expected outcomes, thus it shows how interventions should lead to Outputs and Outcomes, and third, indicators are then derived from the chain logic (Jachmann, 2013). Simple conceptual models are developed by using strategies (Actions and Activities) required to convert indirect threats (opportunities) and direct threats (both derived from the Status Review and Threats Analysis in the NEAP) into desired changes and outcomes (The 8 NEAP Objectives).

As an example of this process we provide the conceptual model and results chain for investigations, being a crucial element of pro-active law enforcement and therefore a prerequisite to safeguarding viable elephant populations for future generations. The simple conceptual model for investigations (Fig. 4) shows the indirect and direct threats that lead to organized crime and money laundering, or the shortcomings of the system, whereas the results chain provides the situation whereby strategic interventions result in effective investigations leading to arrests and the eventual dismantling of organized crime networks (Fig. 5). If we follow the chain, logic will tell us what we need to measure in terms of Outputs and Outcomes to see if there has been any progress towards the Objective – that is effective investigations. However, it is important (Jachmann, 2013):

1. **To start with simple indicators.**
2. **To build capacity.**
3. **And once the system is in place,**
4. **To work towards more complexity.**

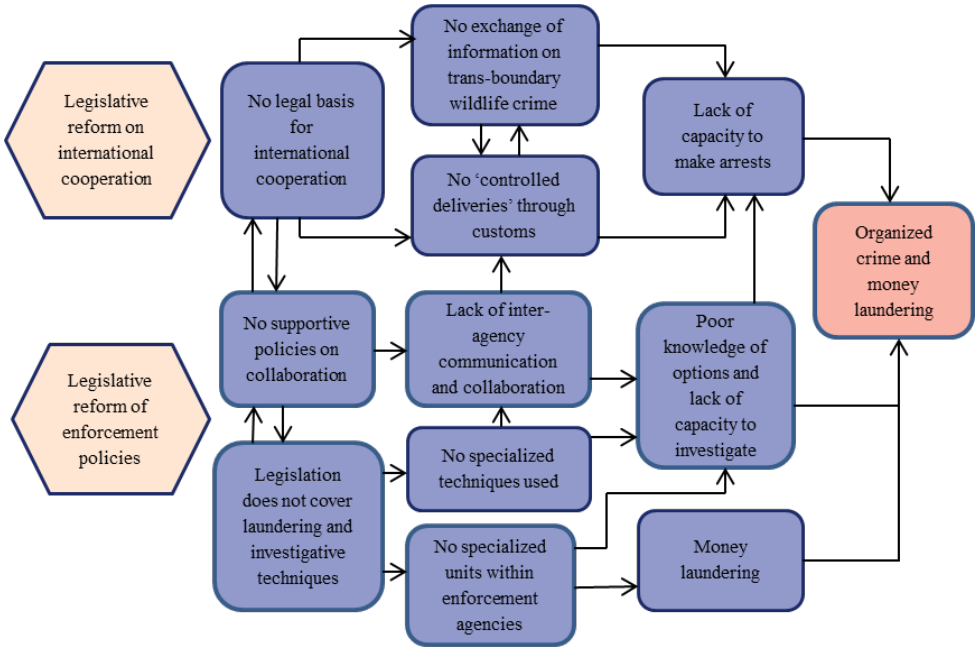

Fig. 4: Simple conceptual model for investigations (Jachmann, 2013).

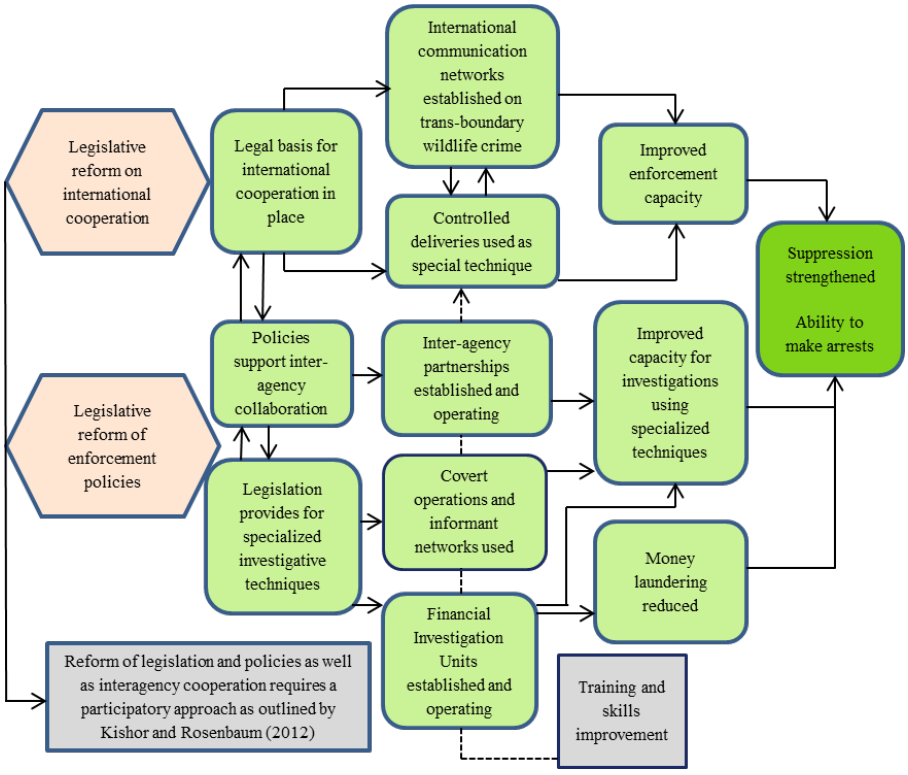

Fig. 5: Results chain for investigations (Jachmann, 2013).

2.3. Types of Indicators

Indicator terminology varies considerably, but here we use output and outcome indicators. For our purposes they are defined as follows: Output indicators (activity metrics or indicators of progress) are used to measure the quantity, quality and timeliness of the short-term results of an action/activity, project or program (for instance: changes in patrol staff performance). Outcome indicators are used to track progress of the intermediate results generated by program outputs (for instance: Proportion of Illegally Killed Elephants in key sites (PIKE), or elephant population trend in key sites). Outcome indicators are used to determine whether a Target for a specific objective has been achieved. We should note, however, that for most types of indicators we require Baseline data as a point of departure, or the initial state of the system for which we track progress. This is especially true for Outcome Indicators (Targets for the Objectives), whereas for most Output Indicators the baseline can be set when starting the activity. Ideally, for Outcome indicators baselines should be set at the year the NEAP becomes officially active.

Sometimes we use traffic-light indicators (dichotomous), merely showing whether a plan is available or a system is in place and they do not require further explanation, while others, such as changes in management capacity require methodologies such as the Management Effectiveness Tracking Tool (METT), which falls beyond the scope of this framework. Reform of legislation, policies and regulations may require specialized methodologies, but a description of whether the reform took place according to plan or not (dichotomous) is often sufficient. Scope indicators are sometimes used to indicate the number of places where work is underway.

Many of the output indicators for law enforcement, whether conventional or pro-active, relate to counts. Offences detected on patrol or arrests through investigations depend on the time spent by a particular number of staff who covered a specific area during a certain time span. These space and time parameters need to be included in a measure of effort to enable us to broadly measure trends. However, capacity building is an incremental process, the first step of which is securing buy-in, ownership, and putting systems in place. Indicators to measure the efficiency of the response and progress towards objectives can be identified and complexity increased if and when appropriate to determine broader impacts and effectiveness of the response. As a first step, an indicator could note simply the number of offences/number of arrests.

2.4. Examples of Indicators that may be used for NEAP Implementation

Tables 1 - 9 provide examples of the most frequently used output and outcome indicators for NEAP implementation (adapted from Jachmann, 2013; Jachmann, 2014). Because nearly all of the NEAPs are fully aligned to the African Elephant Action Plan (AEAP), indicators are provided for each of the 8 generic objectives of the AEAP. We should note that indicators are presented in order of complexity, whereby the indicators that require moderately complex datasets should only be used when accurate data and the manpower and the budget to analyse these data are available, and when management has the expertise to use the results to adapt law-enforcement strategies. Processing data for the sake of analyses or as an academic exercise is an expensive and labour intensive undertaking that will not aid adaptive management. **Also, it is advisable to start monitoring by using simple indicators only, to increase complexity if and when required and appropriate. The table describes indicators as ‘simple’ or ‘complex’ depending on the data required to measure them.**

Table 1: Example indicators for AEAP Objective 1a.

Indicator/(Units)	Type/(Complexity)	Explanation
Objective 1a: Reduce illegal killing of elephants (conventional)		
1. Number of patrol staff trained (per site or per range state)	**Output** (Simple)	Training may involve conventional law-enforcement skills, investigation techniques or simply SOPs
2. Number of patrol staff fully equipped (per site or per range state)	**Output** (Simple)	Provision of all basic equipment to do their job. This might include: Uniform, boots, rucksack, tent, binoculars, GPS, firearm, etc.
3. Patrol staff density (Number of effective patrol staff per km² per site or per range state, not involving administrative staff, management and staff on other duties)	**Output** (Simple, but ideally requires baseline)	Simple measure of potential law-enforcement effort that may be combined with other effort metrics to examine to what extend this potential effort is being deployed
4. Patrol frequency (Number of patrols per km² of site or range state per year)	**Output** (Simple)	Simple measure of effort showing the number of patrols deployed per unit area per unit time
5. Number of effective patrol days per staff per month (*see Note 1 below*) (Per site or per range state, as monthly or annual average)	**Output** (Moderately complex but important performance indicator, and ideally requires baseline)	This measure provides an indication of staff morale as well as leadership qualities of senior staff. Not including placement, time spent sleeping on overnight patrols or other duties, this should be a minimum of 15 effective patrol days per month (*see Note 1*).
6. Patrol Density (Number of patrol km per km² of site per unit time) (*see Note 2 below*) (Per site or per range state, as monthly or annual average)	**Output** (Moderately complex but important performance indicator, and ideally requires baseline)	This measure provides an indication of the surface area covered by patrols, which should ideally be used together with a map depicting patrol routes (spatial analysis)
7. Habitat corrected proportion patrolled (Area (km²) patrolled)	**Output** (Moderately complex but important	From the above it is clear that 1,000 patrol km in a forest site of 1,000 km² does not represent the same search effort as 1,000 patrol

(*see Note 2 below*) (Per site or per range state, as monthly or annual average)	performance indicator, and ideally requires baseline)	km in similar sized woodland savannah or open grassland sites. To correct for this and to obtain an estimate of the true area searched, the distance patrolled needs to be multiplied by the estimated mean strip width for that particular habitat (see Note 2).
8. Ratio of effective investigation days to effective patrol days (effective investigation days per year/effective patrol days per year) (Per site or per range state, as monthly or annual average)	**Output** (Moderately complex)	Investigations, when properly conducted, are more effective and efficient than conventional patrols. Investigations, however, require an informant's network, careful planning and ample expertise. Assuming that an adequate operational budget is available, the ratio would among others inform us about the seriousness with which site management is pursuing illegal activity.
9. PIKE for key sites (Per site)	**Outcome** (Moderately complex but important indicator)	Trend in Proportion of Illegally Killed Elephants (PIKE) = Carcasses found of elephants killed illegally/All elephant carcasses found by site
10. PIKE for national population (Per range state)	**Outcome** (Moderately complex but important indicator)	Trend in Proportion of Illegally Killed Elephants (PIKE) = Carcasses found of elephants killed illegally/All elephant carcasses found by range state
11. Elephant numbers or densities for key sites or for national populations	**Outcome** (Moderately complex but important indicator)	Trend in elephant numbers obtained from regular surveys using the same methodology and spatial coverage (CITES/MIKE Survey Standards)
12. Ratio of arrests during investigations to arrests on patrol (# arrests on investigations/# arrests on patrol; per year per site/region or range state)	**Outcome** (Moderately complex but important indicator)	Useful metric that informs us about the seriousness of management to tackle wildlife crime and the success rate of investigations in relation to conventional patrols, while sites and

		regions may be compared without analytical difficulties
13. Number of arrests per elephant found killed illegally per unit time (# arrests (patrols + investigations)/# elephants found killed illegally per year)	**Outcome** (Moderately complex but important indicator)	This outcome metric does not include a measure of effort and therefore avoids analytical difficulties in relation to the detection/deterrence curve.

Note 1*: Measure of effort (Indicator 5) uses effective patrol days. We need to define what we mean by an effective patrol day. In some sites patrols last for a few hours and are booked as a patrol day, whereas in other sites 12 hours of patrolling is booked as a patrol day. Furthermore, some sites distinguish between short and long patrols, where small sites tend to book a couple of hours as a short patrol and a full day as a long patrol, whereas long patrols in large sites may last for several days up to a week. Moreover, if we use effective patrol days, placement time and time spent sleeping on overnight patrols should not be included. To ensure we are able to compare data across sites and timespans within a country we need some form of standardization across all sites. The duration of a patrol needs to be measured in hours, with 8 hours of actively searching for illegal activity, which includes elephant carcasses, being an effective patrol day. Thus, a 4-hour patrol is 4/8 = 0.5 patrol day (Jachmann, 2008a&b, 2011). To simplify the measure, we can assume that the average patrol size is between 4 and 5 staff. Depending on habitat type, and types and seriousness of illegal activity, the relationship between patrol group size and detection follows an optimum curve i.e. illegal activity detection rates increase with patrol group size up to peak detection and then decrease with increasing group size. Under the majority of conditions, however, a patrol group size of between 4 and 5 relates to peak detection (Jachmann, 1998) i.e. is the most effective patrol group size to achieve the maximum detection rate.*

Note 2*: (Referring to Indicators 6 & 7): During a pilot study to validate PIKE-based inferences at the site level (Jachmann, 2012), the mean strip width searched on patrol in relation to the detection of elephant carcasses was estimated for open grasslands with scattered trees (Queen Elizabeth and Murchison Falls National Parks, Uganda), Guinea woodland savannah (Mole National Park, Ghana), and a mosaic of primary and secondary forest (Kakum Conservation Area, Ghana). Although the sample only comprises 4 sites, they are nevertheless representative of the main elephant habitats found on the African continent. The mean strip width for open grassland was 244 m, for woodland savannah 74 m, and for forest 35 m. Strip widths were corrected for lower visibility during the wet season (Jachmann, 2012). By multiplying the total distance covered on patrol per unit time by the mean strip width for that particular habitat, and assuming there is no duplication of patrol routes, the total area covered by patrols can be estimated. For sites that lack GPS units and computerized monitoring systems, but record patrol information on data forms, using an average walking speed of 5 km/hour, a standardized effective patrol day of 8 hours may be converted to a patrol distance of roughly 40 km. However, because patrol staff may regularly stop to inspect sites with suspected illegal activity, or may deviate from their route in pursuit of perpetrators, converting time spent walking to distance covered merely provides a rough indication of patrol route distance. In the absence of GPS, a better method is to immediately following a patrol have the staff draw the route on a grid map. Distance covered can then be estimated from the map.*
When comparing effort data for different habitat types, in terms of detection probability – that is area searched for carcasses or illegal activity – and deterrence (part of detection/deterrence curve where detection gradually declines due to increased deterrence), they need to be corrected for visibility profile (strip width). When comparing the 3 main habitat types (habitat type here is

defined as the most dominant habitat type in the site), using the mean strip widths from the pilot study (see above; 35, 74 and 244 m) effort data for the forest need to be divided by factor 7 and for woodland savannah by factor 2. When comparing forest with woodland savannah, the effort data for the forest need to be divided by factor 2. Thus, for a similar detection probability, patrol effort in the forest needs to be 7 times higher than in open grassland, and 2 times higher than in woodland savannah.

Table 2: Example indicators for AEAP Objective 1b.

Indicator/(Units)	**Type/**(Complexity)	**Explanation**
Objective 1b: Reduce trafficking in ivory (pro-active)		
Number (or %) of law enforcement officers trained in intelligence and investigations techniques (per year)	**Output** (Simple)	Pro-active law enforcement (i.e. intel driven) is per unit investment more effective than conventional patrols
Number (or %) of judiciary and prosecutors trained in dealing with serious wildlife crime (per year)	**Output** (Simple)	To optimally use existing wildlife laws and follow sentencing guidelines
Number of ivory seizures (# Seizures per year)	**Outcome** (Simple, needs baseline)	All ivory seizures (see ETIS criteria)
Ratio of arrests to prosecutions Independent of type of law-enforcement effort, the numbers of wildlife offenders arrested/numbers prosecuted per year	**Outcome** (Simple, needs baseline)	Useful metric, because it informs us whether the police force and the prosecutor's office consider wildlife crime to be a serious offence, whether corruption is involved and how serious the wildlife authorities are in pursuing conviction of perpetrators
Ratio of prosecutions to convictions Number of wildlife offenders prosecuted/number of wildlife offenders convicted per year	**Outcome** (Simple, needs baseline)	Another useful metric, because it informs us whether prosecutors and judges consider wildlife crime to be a serious offence and treat it accordingly
Rate of maximum penalty application	**Outcome** (Simple, needs baseline)	This measure informs us about the judiciary, whether they consider wildlife crime a serious offence

Number of maximum penalty applications/total penalty applications per year Or use number of sentences following judicial guidance/sentencing guidelines. I.e. maximum sentences are not always appropriate, so failure to give the maximum custodial sentence is not a failure if a high fine/appropriate custodial sentence was given?		

Note: For a comprehensive analysis of means and measures available to protect wildlife at the national level, use the UNODC Toolkit (UNODC, 2013). For a comprehensive self-assessment framework consult ICCWC (2016).

Table 3: Example indicators for AEAP Objective 2.

Indicator/(Units)	Type/(Complexity)	Explanation
Objective 2: Maintain elephant habitats and restore connectivity		
Number of elephants currently equipped with an active radio collar	**Output** (Simple, needs baseline)	Collaring of elephants to study movements to determine the locations and extend of corridors, or for protection purposes
Number of habitat corridors created	**Output** (Simple)	Connectivity is a measure of investment in ensuring elephants can access maximum suitable habitat
Surface area (km²) of new elephant habitat created through newly designated protected areas, buffer zones and corridors	**Outcome** (Simple, where baseline should be readily available)	Related to connectivity, creating large dispersal areas for the long-term conservation of viable populations
Proportion of elephant range being part of the protected area estate	**Outcome** (Simple)	Similar to previous one

Table 4: Example indicators for AEAP Objective 3.

Indicator/(Units)	Type/(Complexity)	Explanation
Objective 3: Reduce Human-Elephant Conflict (HEC)		
Length of elephant-proof fence erected (km) (km per year per range state)	**Output** (Simple, needs baseline)	NA
Length of elephant-proof trenches dug	**Output**	NA

(km per year per range state)	(Simple, needs baseline)	
Number of community members trained in HEC mitigation methods # people trained per year per site or in range state	**Output** (Simple, needs baseline)	NA
Number of field officers trained in conflict management # officers trained per year per site or in range state	**Output** (Simple, needs baseline)	NA
Number of HEC incidents reported # HEC incidents per year per range state	**Outcome** (Simple)	Trend in HEC incidents. This assumes a fixed number of locations from where HEC incidents are reported, covering the same area
Trend in number of human fatalities # Human fatalities per year per range state	**Outcome** (Simple)	This assumes a fixed number of locations from where human fatalities are reported, covering the same area, unless this indicator is used for a particular site
Surface area of crops damaged km² of crops damaged per year per site or range state	**Outcome** (Simple)	Trend in surface area of crops damaged per site or per range state. When used for the entire country, this assumes a fixed number of locations from where crop damage is reported, covering the same area

Table 5: Example indicators for AEAP Objective 4.

Indicator/(Units)	**Type/**(Complexity)	**Explanation**
Objective 4: Increase awareness on elephant conservation of key stakeholders		
Awareness raising tools created	**Output** (Simple)	Tools may be regular workshops, meetings, flyers, brochures, booklets, media broadcasting (radio, TV, internet, social media), course material, etc.
Number of people addressed per target group (Number of people per target group per year per range state)	**Output** (Simple)	Target groups may be elementary school children, high school students, college and university students, general public, communities, community

		elders, different business groups, extractive industry staff, judiciary, prosecutors, enforcement community, etc.
% of population reached **(% of population (all target groups combined) reached by awareness raising tools**	**Output** (Simple)	NA
% of population supportive of elephant conservation % per year (national)	**Outcome** (Moderately complex)	% of all target groups combined (survey sampling method should be representative of all target groups by proportion of population)

Table 6: Example indicators for AEAP Objective 5.

Indicator/(Units**)**	**Type/(**Complexity**)**	**Explanation**
Objective 5: Strengthen knowledge on elephant management		
Number of sites and open areas surveyed using CITES/MIKE survey standards **Alternatively, % of PA system or % of elephant range surveyed**	**Output** (Simple)	Surveys designed to provide results on elephant numbers, distribution and movements, but using a standardized design
Number of research projects underway	**Output** (Simple)	Only research to guide adaptive management should be included
Number of elephants equipped with radio collars	**Output** (Simple)	See Objective 2

Table 7: Example indicators for AEAP Objective 6.

Indicator/(Units**)**	**Type/(**Complexity**)**	**Explanation**
Objective 6: Strengthen cooperation with other range states		
Number of official collaboration protocols (MoUs) signed with bordering countries **For elephant management, or law enforcement, mutual legal assistance etc or any/all?**	**Output** (Simple)	For some countries on the coast this may be as few as 3, but more for land-locked countries

Maximum is number of bordering countries		
Number of joint cross-border patrols (# joint patrols per year for a particular cross-border region or trans-boundary conservation area)	**Output** (Simple)	NA
Number of joint border controls (# joint border controls per year)	**Output** (Simple)	Controls of vehicles at border crossings
Number of joint investigations (# joint investigations per year)	**Output** (Simple)	NA
Number of arrests per joint operation (Mean number of arrests of all joint operations combined per year)	**Outcome** (Simple)	Mean number of arrests from all joint operations combined
Number of seizures per joint operation or weight? (Mean number of seizures of all joint operations combined per year)	**Outcome** (Simple)	Mean number of seizures or mean weight of seized ivory? from all joint operations combined

Table 8: Example indicators for AEAP Objective 7.

Indicator/(Units)	**Type/**(Complexity)	**Explanation**
Objective 7: Improve collaboration with local communities		
Number of Protected Area Advisory Boards established or number of Village Natural Resource Committees actively engaged with Park Management or tourism generated funds from PAs paid to VNRCs?	**Output** (Simple)	Community members are important stakeholders on the board
Number of community conservancies established	**Output** (Simple)	Wildlife areas outside the PA system managed by communities
Number of community-based eco-tourism enterprises established	**Output** (Simple)	Cultural and nature-based activities managed by PA fringe communities
Number of community members trained in enterprise management	**Output** (Simple)	Setting up and managing an enterprise
Amount of tourism revenue generated by community enterprises	**Output** (Simple)	NA

(Revenue generated per year, national level)		
Number of elephants killed by community members (# killed per year)	**Outcome** (Simple)	Elephants killed in the vicinity of the community, either for economic gain or due to HEC
Number of snares collected (# snares collected per year per site)	**Outcome** (Simple, needs baseline)	Snaring is usually done for bush-meat by members of fringe communities

Table 9: Example indicators for AEAP Objective 8.

Indicator/(Units**)**	**Type/(**Complexity**)**	**Explanation**
Objective 8: NEAP effectively implemented		
Number of review meetings held	**Output** (Simple)	Meetings with all stakeholders dealing with implementation of the NEAP
Number of MoUs with government stakeholders	**Output** (Simple)	Government institutions that have roles and responsibilities in relation to NEAP objectives and actions
Number of MoUs with Non-governmental stakeholders / number of non-government stakeholders contributing to annual review document	**Output** (Simple)	Stakeholders that are important for implementation and funding
% of NEAP implemented (% implemented per year)	**Outcome**	

3. Monitoring & Evaluation Framework

Rarely will the available data and the abilities of those implementing a NEAP be adequate to guarantee that a plan will achieve the desired outcomes for a country's elephants without subsequent revisions. For this reason, adaptive management has to be integral to the NEAP approach. Therefore, implementation requires a monitoring and evaluation framework, including a process for monitoring progress of actions and activities and whether the relevant targets for each action or set of related actions have been met. More generally, the NEAP process needs to include a mechanism for continuing review and refinement. This mechanism should include on-going compilation and review of data on the status of elephants, data on threats to elephants and their habitats, and data on the efforts taken to address the threats and build conservation and law enforcement capacity. Periodic meetings of the coordinating body should be seen as a vital component of adaptive management. These meetings should aim to monitor progress with regard to individual actions and activities as well as the overall goal, making recommendations for any changes required as necessary (Hedges, 2014). The detailed implementation plans that form the

annexes to every NEAP are designed to allow for easy updating of a NEAP without having to modify the body of the document.

3.1. The Reporting and Review Cycle

Monitoring of implementation progress is the responsibility of the wildlife authorities, the NEAP Coordinating Committee (if available), the NEAP Coordinator (if available), and the various stakeholders respectively. Some range States do not have a NEAP Coordinator or NEAP Coordinating Committee, and these tasks are frequently performed by staff of the wildlife authorities in close collaboration with the relevant stakeholders, whereby implementation progress is evaluated during an annual review meeting. The NEAP Coordinator is among others responsible for preparing quarterly progress and annual reports, monitoring annual work plans and output indicators. The NEAP Coordinator will advise the wildlife authorities of any delays or difficulties faced during implementation so that appropriate support or corrective measures can be adopted in a timely and appropriate manner. The NEAP Coordinator reports to the wildlife authorities or to the NEAP Coordinating Committee. The NEAP Coordinating Committee should be comprised of the management of the wildlife authorities, and representatives of key stakeholders active in NEAP implementation, government as well as NGO. The NEAP Coordinating Committee should preferably be chaired by the director of the wildlife authority. First we need to summarize the key stakeholders who are active in implementation and their respective responsibilities with regard to M&E. (Table 10).

Table 10: Summary of stakeholders and M&E responsibilities.

Stakeholders (Events)	M&E Responsibilities
Wildlife authorities	In the absence of a NEAP Coordinating Committee, frequently the wildlife authority has the responsibility of coordinating NEAP implementation and M&E: 1. Prepare annual work plan and budget 2. Review progress reports and propose adjustments 3. Analyse, evaluate and prepare results in terms of Output and Outcome indicators, which includes Targets, to present during the annual NEAP Review Meeting 4. Check M&E plan and organize NEAP Review Meetings annually 5. Liaise with donors to source financing for NEAP activities
NEAP Coordinating Committee	The NEAP Coordinating Committee has more or less the same responsibilities as outlined above for the wildlife authorities, but the final responsibility and key decisions frequently rest with the wildlife authority

NEAP Coordinator	Day-to-day coordination of NEAP implementation, reporting to the wildlife authority and/or to the NEAP Coordinating Committee: 1. Regular contact with all stakeholders active in NEAP implementation 2. Monitor annual work plans and output indicators 3. Propose appropriate support or corrective measures when progress is not according to plan 4. Prepare progress reports (every 3 months) and annual report 5. Review and update the M&E plan annually for evaluation during the annual NEAP Review Meeting 6. Provide support in participatory M&E and for the design of impact assessments
Annual NEAP Review meeting	The annual NEAP Review meeting should bring together all stakeholders to evaluate progress in implementation of the NEAP and propose adjustments when Outputs and/or Outcomes deviate from the original plan. 1. Evaluate progress of the individual activities (Output) 2. Evaluate medium-term Outcome indicators (Objectives) 3. Evaluate progress towards achieving the Goal (long-term) 4. Discuss adjustments when required (adaptive management) 5. Update Implementation Plan (activities accomplished and those underway and planned, as well as budgetary requirements
Stakeholders	All stakeholders (NGOs, INGOs, Government, and Private Sector) should regularly communicate with the NEAP Coordinator or frequently the contact person from the wildlife authority to discuss progress of activities, projects and programs being implemented, providing updates on short-term Output indicators as well as information for medium-term Outcome indicators Stakeholders should be requested to provide formal, written updates on all activities they are implementing under the NEAP in a timely manner as requested by the NEAP co-ordinator ahead of the Annual Review meeting All key stakeholders should be invited to and participate in the Annual Review meetings

Although this will vary by range state, under tight management there should be a series of reports to monitor performance:

Monthly Progress Report
This brief report is prepared by the NEAP Coordinator or frequently the contact person from the wildlife authority and contains monthly activities and milestones for all stakeholders.

Quarterly Progress Report
This report is also prepared by the NEAP Coordinator or contact person from the wildlife authority and compares the approved work plan with the actual performance and identifies constraints and recommends remedial actions.

Annual Stakeholder Reports

These reports are prepared by stakeholders active in NEAP implementation and summarize activities carried out as compared with the work plan, as well as constraints and remedial actions taken. These reports are required in the absence of a NEAP Coordinator to assist the wildlife authority in their monitoring effort and compiling and evaluating information for the Annual Review meetings.

Annual NEAP Implementation Report
This report is prepared by the NEAP Coordinator in close collaboration with the wildlife authority. Without a NEAP Coordinator, the wildlife authority needs to prepare this report and incorporate the annual stakeholder reports for discussion during the Annual Review meeting;

a. A compilation of monthly and quarterly progress reports resulting in an account of actual implementation of activities compared to those scheduled in the annual work plan, and the achievement of short-term outputs and progress towards achieving the medium-term outcomes, based on the indicators as defined in the NEAP and in the M&E matrix.
b. Identification of any problems and constraints (technical, human, financial, etc.) encountered during implementation and the reasons for these constraints.
c. Recommendations for corrective actions in addressing key problems resulting in lack of progress in achieving results.
d. Lessons learned, and a detailed work plan for the next reporting period.

Technical and Field Reports
The results of technical studies commissioned need to be discussed during the Annual Review meetings.

3.2. Monitoring & Evaluation Matrix

In its simplest form, progress of NEAP activities implemented, underway and planned, as well as budgetary developments, may be done manually by merely using a hard copy of the Implementation Plan and indicating changes. Prior to the Annual Review meeting, these manual changes can be incorporated in the electronic version of the IP for printing and distribution. Without having to change anything in the main body of text, these changes can also be incorporated at regular intervals in the electronic version of the IP. However, when required, the below template may be used to keep track of implementation progress (Table 11).

Table 11: Example template to keep track of NEAP implementation progress.

Year: **Month:** **Objective:**						
Activity (# NEAP)	**Implementer**	**Timeline**	**Activity Status** (Completed) (Underway) (Not yet started)	**Financial Status**	**Verification** (Scope, Traffic-light, Output & Outcome Metrics)	**Comments**

Whereby:

Activity (# NEAP): Number should correspond with that in NEAP and IP (cross-referencing),
Implementer: The party responsible for implementing the activity,
Timeline: Timeline of the original work plan,
Activity Status: Indicate whether activity has been completed, is underway or not yet started as timeline if deviating from original work plan,
Financial Status: Provide details on budget, e.g. total cost of project/funds spent/funds remaining or still to raise,
Verification: Use Output and Outcome indicators when appropriate. Output indicators may be simple scope or traffic light (see above),
Comments: Any specifics not covered in previous columns.

The M&E of NEAP implementation focuses on the record of information related to the implementation process inputs, activities and outputs. A minimum data collection is required to enable stakeholders to track at regular time intervals the activities achieved versus those planned and differentiate between the effects of external factors and internal operations. This process results in lessons learned and remedial actions to keep NEAP implementation on track.

In this process, the M&E Matrix will guide the evaluation of results and impacts. To do so, reliable baseline data should be available for the year the NEAP became active and should also be collected at the start of each activity, while impact data will be collected when appropriate during NEAP implementation. To illustrate the development of an M&E Matrix we will use the Malawi situation as an example. Note that the M&E Matrix for Malawi is merely an example template, whereby most of the monitoring information is missing, and where years of assessment may vary by site and by range state (Table 12). This implies that different range states may use different assessment periods as those used in the matrix below!

In terms of impact assessment in Malawi – that is measuring whether we are on track in achieving our long-term goal (10 years) – we notice that it is difficult to determine whether we have reached our goal in terms of poaching and ivory trafficking, because 'acceptable levels' have not been defined, while 'carrying capacity' for elephants depends on the type of habitat and needs to be determined for each site separately (Table 12). However, some of the targets for the objectives are more specific, allowing us to use the same outcome indicators (see Targets) for measuring progress in long-term impact, while 'carrying capacity' needs to be determined on a trial-and-error basis, using both technical and aesthetic decisions to determine critical levels for each site containing elephants.

Table 12: Example Monitoring & Evaluation Matrix for Malawi.

Monitoring & Evaluation Matrix **(EXAMPLE!)** **Country**: Malawi **Year**: 2018 **Month**:								
Goal (10 years): Elephant poaching and ivory trafficking will be reduced to acceptable levels and key populations increased to carrying capacity within 10 years								
Impact	**Indicator(s) (Type)**	**Baseline(s) (Year)**	**Method(s)**	**Assessments**				**Comments**
				2018	**2020**	**2022**	**2024**	
Population size	Numbers/Density (Outcome/Impact) National population and/or by site	1,798 Elephants 0,16 El/km² (2015) (2015; elephant range is 11,507 km²)	Aerial sample and total counts					Baseline years vary by site from 2013 to 2015; Methods used should be standardized
Poaching	Proportion of Illegally Killed Elephants (PIKE)	PIKE < 0.5	Law enforcement data and information					

	Number of elephants known to have been killed illegally National and/or site levels	< 1% See Target 1a	(patrols, investigations, intelligence, informers)					
Ivory trafficking	Number of seizures (country-wide)	Zero (2025) See Target 1b	Airports, entry and exit points by land					
Objective 1a: To reduce illegal killing of elephants to acceptable levels by 2020 **Target 1a: By 2020 elephant numbers killed illegally to be reduced to less than 1% of the population annually**								
Outcome/Output	**Indicator(s) (Type)**	**Baseline(s) (Year)**	**Method(s)**	**Assessments**				**Comments**
				2018	**2019**	**2020**	**2021**	
Elephants killed illegally	**Outcome**	31 (1,72%) (2015)	Law enforcement data and informers					
PIKE	**Outcome**		Same as above but dividing by total carcasses found (this includes natural mortality and crop control)					
Patrol staff density (Number of effective patrol staff per km²	**Output**							

per site or per range state, not involving administrative staff, management and staff on other duties)	**(Target 1 staff/35 km² for DNPW managed sites)**							
Patrol frequency (Number of patrols per km² of site or range state per year)	**Output**							
Number of effective patrol days per staff per month (*see Note 1 above*) (Per site or per range state, as monthly or annual average)	**Output** (Ideal metric to track staff performance)							
Objective 1b: To reduce ivory trafficking and the illegal trade in ivory within Malawi to zero by 2025 **Target 1b: By 2025 Malawi experiences zero ivory seizures through trafficking at entry or exit points**								
Outcome/Output	**Indicator(s) (Type)**	**Baseline(s) (Year)**	**Method(s)**	**Assessments**				**Comments**
				2018	**2021**	**2024**	**2025**	
Ratio of arrests to prosecutions	**Outcome** (needs baseline)							

Independent of type of law-enforcement effort, the numbers of wildlife offenders arrested/numbers prosecuted per year								
Ratio of prosecutions to convictions Number of wildlife offenders prosecuted/number of wildlife offenders convicted per year	**Outcome** (needs baseline)							
Rate of maximum penalty application Number of maximum penalty applications/total penalty applications per year	**Outcome** (needs baseline)							
Number of seizures (country-wide)	**Outcome** (needs baseline)							
Objective 2: To maintain current elephant range and to improve connectivity by 2025 **Target 2a: No measurable loss in the size of the elephant range by 2025** **Target 2b: Connectivity improved for at least 2 populations by 2025**								
Outcome/Output	**Indicator(s) (Type)**	**Baseline(s) (Year)**	**Method(s)**	**Assessments**				**Comments**

				2018	2021	2024	2025	
Size of elephant range (PA estate)	**Outcome**	11,507 km² (2015)						
Number of corridors established	**Outcome**							
Objective 3: To reduce HEC to acceptable levels by 2025 **Target 3: 75% reduction in HEC incidents by 2025**								
Outcome/Output	**Indicator(s) (Type)**	**Baseline(s) (Year)**	**Method(s)**	**Assessments**				**Comments**
				2018	**2021**	**2024**	**2025**	
Number of HEC incidents per year	**Outcome**	Requires baseline 2015						
Number of human fatalities per year	**Outcome**	Requires baseline 2015						
Continue like this with the other objectives, using the indicators (or similar) provided in Tables 1 to 9 **Use assessment intervals that are convenient and appropriate for local circumstances (funding situation, data collection, etc.)**								

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