



## Does LWF's Environmental Education and Eco-Literacy Programme make a Difference?



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## **LIST OF ACRONYMS**

CBO	Community Based Organisation
CLO	Community Liaison Officers
LWF	Laikipia Wildlife Forum
EELP	Environmental Education and Eco-Literacy Programme
EELPO	Environmental Education and Eco-Literacy Programme Officer
WRUA	Water Resource User Association
CFA	Community Forest Association

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## EXECUTIVE SUMMARY

Laikipia Wildlife Forum's Environmental Education and Eco-Literacy Programme (EELP) is one of the eight programmes that the LWF secretariat runs on behalf of its members. It has been running for seven years focusing mainly on schools and increasingly on adults. It is now becoming a foundation programme of the LWF, expanding its outreach, and strategically aiming at becoming a service provider to other environmental education stakeholders in the Laikipia County. The EELP consists of an officer and a 4x4 bus. Its purpose is to help LWF achieve its objective of "*promoting and supporting locally relevant action oriented learning in schools and conservancies, and through community leaders and structures on the link between human life, livelihoods, the natural environment and natural resources*"; to contribute to "*increase the understanding of the need for and the value of wildlife and a healthy environment*" (strategic goal).

A strategy developed in the last two years is undergoing a review in order to enable the scaling up of the programme and to align it with more recent LWF strategic thinking.

There has been no in-depth evaluation of the EELP and no rigorous monitoring process established to measure whether the EELP makes a difference or not. An in-depth evaluation was needed to support and inform the on-going review process, and reflection needed to be carried out on how to monitor appropriately the EELP to capture its impact and inform its implementation.

An evaluation was thus carried out, investigating whether the EELP has made a difference in relation to knowledge, attitudes and behaviour in relation to environmental health. 26 Laikipia schools were randomly selected and two adult groups which had benefited from EELP trips in 2010. 143 pupils, 43 teachers were interviewed through a survey; and 36 group members through focus group discussions.

The findings suggest that the EELP has significant impacts on participants' knowledge, attitudes towards wildlife and some impacts in their involvement in environmental activities. Impacts are illustrated by the following comments and responses:

- "*The trip changed my life and my way of thinking about conservation*" (41 year old pupil)
- "*After the trip I started a tree nursery, and introduced indigenous trees at home and at school*" (20 year old boy)
- "*I want to be one involved in environmental conservation*" (14 year old girl)
- "*I realised that wildlife is part of us, and all are important*" (teacher)

The results also highlight a number of weaknesses which were picked up in a first stock take of the programme.

Findings show that teachers value environmental education as a thing that children need to learn from school along with life and social skills as well as self-confidence. The evaluation confirms the poor preparation of children for the trip. The lack of clear learning objectives at the class level is an indicator of this as well as the fact that all teachers would prepare the pupils for the trip differently next time. It is felt that the trip is a standalone event.

- ➔ More preparation would help in defining clear learning objectives and align, teachers', children's and LWF's learning objectives (preparation Guidelines for teachers are already being developed to that effect). It is recommended to build on teachers' suggestion and ensure that the whole class participates to defining learning objectives. It is suggested to make the trip part of a class project, as part of a wider learning process.

**Results suggest that the trip has impact on environmental knowledge.** 100% teachers and 97% of the children interviewed perceived having acquired new knowledge about the environment and wildlife through the trip. 97% teachers and 95% of the children feel they have obtained new knowledge about what to do to better care for the environment. New knowledge about the environment relates primarily to wildlife (diversity, characteristics and behaviour), importance of trees, the impact of pollution and the need to dispose of litter properly. Connectivity in the ecosystem and the fact that wildlife, human and livestock can coexist emerges as key learning for teachers.

Planting trees, managing litter, raising awareness on environmental health, soil conservation are the main categories of new knowledge on how to care for the environment by children and teachers.

Results suggest that the trip has had undeniable impacts on pupils' knowledge, beyond the realms of the trip participants. All pupils have confirmed that they shared their new knowledge with their friends, parents, siblings, other students and neighbours.

The knowledge acquired on the environment and wildlife is broad. No common message or key learning emerged strongly about the environment. The new knowledge provided during the trip about how to care for the environment reinforces what children and teachers are already doing, for example, planting trees, caring for trees (teachers), waste management but that the trip has increased children's understanding about why they are involved in these activities (e.g. planting trees for clean air, water retention, wildlife habitat). Caring for wildlife and not killing wildlife however emerged as a way of taking care of the environment which was not mentioned in the activities done prior to the trip.

- ➔ To promote more creative thinking about how to care for the environment, it is recommended that the trip should include a discussion on concrete, simple tools to enable teachers and pupils to acquire knowledge about environmental health. This could have the form of a tool kit which is discussed at the end of the trip, when teachers and pupils make a plan on using their knowledge.

The trip has had significant impact on children and teachers opinion about wildlife. 100% of pupils and teachers think that wildlife is important, mostly because of its economic value to the nation (foreign exchange earned through tourism).

More than 75% of the children and more than 50% of teachers interviewed had a very strong negative opinion of wildlife prior to the trip (danger, destruction). More than 85% of teachers and children claim having changed opinion in a positive way towards wildlife. The trip provided them with an opportunity to a) see wildlife (a large proportion had not seen wildlife before), b) see wildlife in a different context (non-conflict context) and c) bond with wildlife (admiring wildlife and in cases experiencing it through captive/tame animals). This translated in a wide array of positive opinions of wildlife being identified after the trip, one of the most notable being the fact that there is a potential for wildlife to coexist with humans and that wildlife has a role in the ecosystem (mainly teachers).

- ➔ Although the trip has had an impact on how teachers and children think of wildlife, the importance of wildlife is still perceived as mainly economic. It is recommended that the EELP provides interesting facts which relate to other values of wildlife including the role of wildlife in the ecosystem.

Findings suggest that the trip has a positive impact on the involvement of teachers and children in environmental activities both at home and at school. Tree planting, waste management are most commonly mentioned activities prior to the trip by children. Raising awareness emerges strongly in addition to these activities both at school and at home after the trip. The number of children involved in activities at home and at school increased from less than 80% before the trip to more than 95%, and from 81% before the trip to 92% increasing their involvement after the trip. One of the most interesting changes in involvement on the part of the pupils has been taking responsibility for environmental activities rather than considering them as a "punishment".

- ➔ Environmental activities in which children and teachers are involved are, for the vast majority, tree planting and litter collection. 17% of the children also mention being involved in household chores as environmental activities. The confusion between a healthy environment and "a-sceptic environment", suggests once again that a discussion needs to occur about concrete, simple ways in which to care for the environment. The development of a tool kit could support this discussion; for example, "how to be more environmentally friendly when performing daily chores such as cleaning the compound, clearing bush, cutting grass etc."
- ➔ Focusing on actions that can be done to improve environmental health is important as it was found that children in the secondary schools were often young adults (the average age of secondary pupils interviewed was 18, they would have been 17 at the time of the trip) and may have the capacity to influence their households and the power to apply their knowledge.

The trip is considered as a good to excellent experience and to support the school curriculum. It also builds the capacity of teachers by providing them with new ideas on how to teach environmental topics using real objects.

- The evaluation confirms the need for building teachers' confidence to teach in a more learner centred manner providing them with material or examples of lesson plans.

Discussions with adult groups taken on an exposure tour show the significance of the EELP impacts on adult groups. An increase in knowledge as well as changes in practices were immediate in one group, with positive results on livelihood perceived (increased crop yields for less work). In both cases, groups could show how useful the trip had been and believe that exposure is one of the best ways for group members to learn.

To ensure that the impacts of the EELP are captured and enable to inform timely decision making at the programme level, a monitoring process is suggested. The way in which the EELP is being scaled up involves increasing the number of adults' exposure tours, training community-based trainers, and reaching the general public through mass media and providing tools and training to other environmental education stakeholders.

The monitoring impact programme developed is thus designed to capture impacts on knowledge, attitudes and actions at the following level:

- Schools- pupils/teachers
- Environmental education stakeholders (other than schools)
- Community/general public

It will involve focus group discussions, surveys, follow ups. Data will be analysed and compiled on a quarterly basis for schools and on a yearly basis for other levels.

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# 1 INTRODUCTION

## 1.1 THE LAIKIPIA WILDLIFE FORUM

The Laikipia Wildlife Forum (LWF) is a membership based organisation which purpose is “to conserve Laikipia’s wildlife and ecosystem integrity and improve the lives of its people by bringing its societies together to conserve and sustainably use the natural resources on which they depend”.

The LWF seeks to serve approximately 300,000 people to achieve its vision for the future of Laikipia and Kenya which is “to provide a healthy and productive environment for people and wildlife, in a supportive policy environment accepted and understood in the wider community with optimum economic and sustainable productivity of land and other natural resources, widely and appropriately distributed in a peaceful context” (see Appendix 1).

The organisation is characterised by a diverse membership (large scale ranches, pastoralist communities, tourism operators, small scale farmers, community based natural resource management organisations, conservation and development organisations, and individuals) which gives LWF its strength. It offers two types of services to its members, coordinated and guided by the Secretariat. The “Forum platform”, the backbone of the organisation, which brings the people of Laikipia together to exchange ideas, pool resources and seek solutions to conservation, environmental and livelihood challenges. The “Forum” provides a neutral platform for members and other people of Laikipia to actively discuss issues and seek ways forward for Laikipia and beyond.

The Secretariat takes members’ ideas and translates them into programmes and other actions. The LWF effectively runs programmes on behalf of its members, and is therefore both a platform for action and a service provider.

The Environmental Education and Eco Literacy Programme (EELP) is one of the eight interlinked themed programmes that LWF Secretariat runs on behalf of its members including the Rangeland rehabilitation and management, Water Resource Management, Forest Management, Conservation Enterprise, Wildlife Conservation and Management (especially human/wildlife conflict mitigation), Tourism Sector Support and Security.

The work of the LWF stretches over an area of 10,000km<sup>2</sup> from the lower slopes of Mt Kenya and the Aberdare mountain range, across the extensive Laikipia plateau. Ecosystems of high importance are found in the higher lands and include the upper Ewaso Nyiro river system. Laikipia ecosystem is composed of a network of more than ten forest areas (parts of which are the largest remaining dry montane forest in Kenya); a mosaic of savannah, bush and scrub, the lifeline of which is the Ewaso Nyiro river. Laikipia is also the second most wildlife diverse area in Kenya and is home to critically endangered species such as black rhino *Diceros bicornis michaeli*, wild dog *Lycaon pictus*, Grevy’s zebra *Equus grevyi*, Jackson’s hartebeest *Alcelaphus buselaphus jacksoni*.

Most of Laikipia is semi-arid with a steep rainfall gradient moving north from the slopes of Mt Kenya and the Aberdare range. Livelihood systems reflect the ecological and climatic characteristics of the area. Livestock based livelihoods dominate in most of Laikipia, through large scale ranches and nomadic/transhumant pastoralism. Small scale rain fed cultivation can be found in the West and South of Laikipia where annual rainfall exceeds 600mm and small scale irrigation occurs along the rivers. Wildlife based tourism has steadily developed over the last decade both on individual and communal lands.

Food security is an issue in Laikipia, and food relief has become a coping strategy for many people living in the arid areas of Laikipia, notably the pastoralist communities (Malleret King/CARE, 2007). It is estimated that 35% to 40% of the population in Laikipia lives below the poverty line (GOK, 2005).

LWF recognises that all livelihoods in Laikipia are directly dependent on locally available natural resources. However, there is high pressure on these resources in the more densely populated pastoralist and small-holder cultivation areas. Poor livestock management in addition to water scarcity, erosion of appropriate management systems and increased population has led to the

degradation of large tracks of land and unsustainable use of natural resources (including grass, forests and water) have become common. Demands on ecosystem process and resources continue to grow with the risk of catastrophic consequences on livelihoods.

In order to reverse this trend, LWF focuses its activities, through its members, on equipping the Laikipia people with knowledge and tools to enable them to manage their resources better (e.g. through training and the strengthening of community based organisations-CBO).

In the last years, it has become apparent that for natural resource use to improve and ecosystem health to increase in Laikipia, there needs to be a fundamental shift in how resources are managed by the wider population. For this to happen, a critical mass of people in Laikipia need to gain a better understanding of environmental processes and management options. The EELP is becoming one of the main vehicles through which the LWF is seeking to make knowledge accessible.

## **1.2 THE ENVIRONMENTAL EDUCATION AND ECO LITERACY PROGRAMME (EELP)**

The increasing importance of the EELP as a vehicle to make knowledge accessible throughout Laikipia on environmental health (including wildlife) is reflected in LWF's strategic framework (2010-2015) where the programme is designed to support the achievement of the LWF's strategic objective *"Promote and support locally relevant action-oriented learning in schools and conservancies, and through community leaders and structures, on the link between human life, livelihood, the natural environment and natural resources"*. The EELP directly seeks to achieve LWF's strategic goal *"increased understanding of the need for and the value of wildlife and a healthy environment"*.

The programme consists of an EELP officer (EELPO) and a 4x4 bus with a capacity to transport 30 people (in the context of schools- 28 children and two teachers). The EELP purpose is to support action-oriented learning about environmental health (including wildlife) and its link with human wellbeing through schools and conservancies but also through community leaders and structures.

### **1.2.1 The EELP "school programme"**

In the context of the EELP's school focused activities, the programme seeks to expose school children from the Laikipia County to conservation efforts (especially wildlife) in Laikipia by taking them with the bus to wildlife conservation areas. The EELP serves 340 schools and taking children from class 5 and above (11 years old and above) on an "environmental discovery tour". Seven main wildlife conservation areas are visited, six of which have rhino sanctuaries. Pupils are taken for a wildlife drive through the conservation areas; to education centres and other relevant sites where the EELPO gives a lesson about pre-determined themes, drawing on what has been seen during the drive, and with the aim of supporting the school curriculum. The EELPO is supported by the conservancy education officers in this process.

An underlying objective of exposing school children to wildlife conservation areas is to promote the discovery and stimulate interest for wildlife in a County where human/wildlife conflict is an issue (crop raids, depredation, human safety), where poaching has recently become rampant; and where natural resources are increasingly being degraded, threatening people's livelihoods.

In the last seven years, the bus has done 633 trips, taking 1285 teachers and 18359 children to discover conservation efforts in Laikipia (see table below).

**Table 1 Number of trips per year**

Year	No of Pupils	No of Teachers	No of Trips
2004	3077	230	105
2005	3986	265	133
2006	2291	158	79
2007	2348	162	81
2008	2233	154	77
2009	2240	160	80
2010	2184	156	78
<i>Total</i>	<i>18,359</i>	<i>1,285</i>	<i>633</i>
<b>Average</b>	<b>2,645.3</b>	<b>183.6</b>	<b>90.4</b>

To access a bus trip, teachers have to follow a booking process described in the recently reviewed booking policy (Appendix 3). Teachers apply for the trip through the LWF office and should state in their application the theme they would like the trip to focus on. Once the application is received and accepted, the school has to pay booking fee of 50Ksh per passenger to ensure full commitment as the bus is in high demand. This is a token amount but sets the principle that the service is not free and therefore we hope it will be valued.

Initially the EELPO dedicated part of his time to giving lectures in schools. This was abandoned due to the high demand of the bus.

### **1.2.2 EELP's adults programme**

In the last years, the EELP has made the bus available to adult community groups to provide them with more opportunities to learn from others in Laikipia and exchange experiences. This is one of the most successful ways in which adults learn. In addition to this, the EELPO also uses opportunities provided by themed field days (e.g. conservation agriculture), World Environmental days (e.g. water, forest, environmental days), the annual Agricultural Show and more recently the Education Day to share knowledge and promote the EELP and LWF through posters and displays. 500 people participate on average in field and environmental days.

### **1.2.3 The EELP review process**

Recognising the need for the EELP to be more strategic and contribute to increasing knowledge on environmental processes in the whole of Laikipia, a review was initiated in 2009 (see Appendix 4).

In the course of the review a number of challenges were identified including the following:

- The lack of focus of the trip which overburdens the children and makes it difficult to measure impacts of the EELP on knowledge and attitudes.
- The poor preparation of the children before the trip
- The lack of identification of learning objectives for the trip by the teachers
- The lack of teachers' confidence and sometimes knowledge which prevents follow up to be done
- Lack of linkages of the programme to other initiatives in the County
- Lack of a monitoring process to establish whether the EELP makes a difference or not
- Need for broadening the scope of the EELP, focusing on children only may prevent the EELP from achieving its objectives

To make the programme more effective and support the delivery of LWF's strategic objectives, the following recommendations were made in relation to the following:

- *Narrow the focus of the teaching to focused and clearly defined learning objectives that meets LWF's objectives and the Teachers/children (relevant to the curriculum)*
- *Broaden the scope for delivering the programme*
- *Refine the mechanisms for effective delivery.*

An education sub-committee was created to act on the recommendations made during the review process. Further thinking also led the LWF to identify the need to significantly scale up the EELP and for it to become a foundation programme of the LWF.

Indeed, the lack of awareness and understanding of environmental health issues and their link to human health and prosperity; and the lack of knowledge on appropriate management options is a constraint for LWF members, especially community members and the wider population, wishing to take the conservation of their natural resources into their own hands. In addition to this, the scale of the issues to tackle often overwhelms people, partly due to the lack of knowledge about practical options and solutions (see Goal 1 of the strategic framework and objectives).

Becoming a foundation programme of the Forum, the EELP needs to become a **service provider** to environmental education stakeholders in Laikipia. The review recognised that the EELP does not operate in a vacuum and needs to broaden the scope of its message delivery, to build on the existing environmental education structures available in Laikipia (e.g. through Conservancies, government, CBOs, other LWF programmes and other initiatives in the area). This requires approaches and materials to be developed in partnership with these environmental stakeholders in order to ensure the harmonisation of conservation messages and effectiveness of educational methods.

The EELP will also act as a service provider for LWF's other programmes and will coordinate the development of awareness raising materials and strategies to be used by all programmes on cross cutting themes including environmental processes, environmental governance, climate change literacy, governance, leadership, community cohesion, rights and obligations in relation to resource use

Although the EELP will continue focusing on school children (as agents of change), more time will be dedicated to creating awareness and making environmental knowledge accessible to teachers, communities and Laikipia's wider population. This will be done through direct training as well as through the development and implementation of wide reaching awareness raising campaigns including cascade training and mass media campaigns.

An implementing strategy is to act on the above and this is currently being developed..

### 1.3 THIS EVALUATION

A SWOT analysis done in 2005 (SWOT, 2005) showed that despite the small scale of the EELP, the programme is a flagship programme for the LWF members. The bus is a highly valuable resource that motivates people become members of the LWF. In addition to this, LWF's internal impact monitoring suggested that the EELP bus trip has a positive impact on the level of tolerance of communities to wildlife (PIM, 2008). However no detailed evaluation had been done and no robust impact monitoring established to capture the EELP's impacts and inform the programme's implementation. The recent review and redesigning processes called for an in depth impact evaluation of the EELP.

The questions that the evaluation seeks to answer are: "*does the EELP make a difference?*", "*has the action-orientated learning resulted in tangible changes of behaviour?*".

The purpose of this evaluation is thus to:

- Establish whether the programme makes a difference
- Inform the EELP review process
- Establish the basis of an EELP impact monitoring process "*that will help the LWF to answer to know whether it is making a difference?*".

Section 2 of this report presents methods used for the evaluation; section 3 investigates the main results, section 4 discusses the results and makes recommendations, and section 5 proposes a draft outline of the EELP's impact monitoring process.

## 2 METHODS

### 2.1 METHODS

Focus group discussions and surveys were used in order to investigate the EELP's impacts. A survey was used with teachers and pupils who had participated in EELP bus tours in order to explore: their characteristics, opinions, behaviour change and knowledge acquired during the trip as well as their feedback on the experience (see interview guides and questionnaires in Appendix 5). Questionnaires were developed in consultation with Dr Maggie Esson, Education Programmes Manager at Chester Zoo and the EELP officers (previous and current) and comprised a mixture of open and closed questions. After being translated and tested, the questionnaires were carried out at a selection of schools, in respondents' preferred language (English or Swahili). Questionnaires are more extractive and can be less relaxed than semi structured interviews. Careful training of the enumerators was thus done in order to mitigate these disadvantages and investigate pupils' and teachers' individual opinions.

Focus groups discussions were carried out with CBO group members who had used the bus to go on exposure visits. An interview guide was developed to explore changes which resulted from the exposure visit (see Appendix 5). Focus group discussions, being more participatory, enable more relaxed in depth discussions and exchanges.

In addition to face to face interviews mentioned above, an audit of selected schools' environmental efforts was carried out to establish a baseline of these efforts and validate schools' claims to running "environmental clubs". Schools' efforts in relation to water, vegetation cover, energy savings, wildlife conservation, and environmental clubs were investigated. The purpose was to:

- Establish a baseline to measure progress in the context of a "best environmental effort" competition which the EELPO has set out to create
- To validate schools claims to environmental efforts

Teachers were interviewed about on-going conservation related efforts using a check list (see Appendix 4); the field team then checked and scored the level of implementation of the efforts/projects mentioned.

Data were collected throughout the month of May 2011.

### 2.2 SAMPLING STRATEGY

#### 2.2.1 Sampling schools

The selection was based on the EELP trip records. Because of the detailed nature of the questions and the short time available it was decided to sample schools that were easily accessible; and schools that took part in the trip within a year of the evaluation (May 2010 to January 2011). 78 trips were undertaken in 2010 by 73 schools (5 schools did 2 trips in 2010). 48 schools fitted the selection criteria.

26 schools were randomly selected from these 48. Geographical spread, level (secondary/primary), presence and absence of environmental clubs and conservancies visited were the factors checked for. One secondary school could not be visited and was replaced, last minute, by another. It was subsequently realised that the school had not done the trip within a year of the assessment. However, after discussions, it was decided to keep the interviews, as secondary students remembered the trip well enough and results did not differ from other schools.

Interviews were carried out in 26 schools (35% of the overall number of schools taken on a trip in 2010).

As shown in the table below, the schools targeted were a good representation of the schools which benefitted from the trip in 2010.

**Table 2 Representation of schools sampled**

Characteristics		Overall 2010	Sample (2010)
Level	Primary	61.6%	60.0%
	Secondary	38.4%	40.0%
Repeat	First	57.5%	52.0%
	Twice since 2009	42.5%	48.0%
Conservancy	Lewa	1.4%	0.0%
	Mugie	1.4%	4.0%
	OI Jogi	1.4%	4.0%
	Laikipia Nature Conservancy	26.0%	28.0%
	OI Pejeta Conservancy	69.8%	64.0%

## 2.2.2 Respondents

The bus carries on average 2 teachers and 28 children. The evaluation team set out to interview two teachers and six pupils (3 girls 3 boys for mixed schools) per school sampled. The six pupils (21% of the pupils taken on each trip) were identified by teachers and not randomly selected (no records of children's names were available).

Out of the 52 teachers targeted 43 teachers were interviewed (83% of the target). The nine teachers not interviewed were away or had changed schools. 143 pupils out of the 156 targeted (92% of the target). Pupils not interviewed (the case in two schools) had changed schools as they had participated to the trip when in their last year of school.

## 2.2.3 Groups and participants of focus group discussions

Two out of the three groups taken on an exposure visit in 2010 were interviewed (Gituamba Umbrella, Aberdare Conservation Action Group-ACAG). Participants in the focus groups were people who participated to the trips (all trip participants were interviewed in Gituamba and eight people out of the 30 in ACAG). 36 group members were interviewed (including 13 women).

Discussions were also carried out with the previous and the current environmental education officers (Ephantus Mugo and Sammy Njoroge).

## 2.3 DATA ENTRY COLLECTION, ENTRY AND ANALYSIS

A template was developed for data entry and basic quantitative data analysis was done through Excel and SYSTAT version 10.3 (a statistical package for social sciences). Data were entered by the team leader and field supervisor. Qualitative data were summarized in Word format tables.

To facilitate the visual interpretation of the results, categories of responses were colour coded according to themes. Throughout the report cylindrical bar charts relate to pupils' answers and cubic charts relate to teachers'.

## 2.4 LIMITS OF THIS STUDY

The evaluation sought to investigate change in knowledge, behaviour and opinions as a result of the trip. The evaluation is done long after the trip occurred and no baseline was established; thus change was investigated through "perceptions". It is likely that some responses were biased by a "desire to please". In order to minimise this, all closed questions were followed up by an open ended questions requiring the respondents to qualify their answers. In addition to this, some questions were asked both of the teachers and pupils in order to compare / validate responses.

### 3 RESULTS: INVESTIGATING IMPACTS OF THE EELP ON PUPILS AND TEACHERS

#### 3.1 SAMPLE CHARACTERISTICS

Pupils interviewed were on average 16 years old (14 for primary schools and 18 for secondary) which shows how “grown up children are” in schools. More than 66% of the pupils interviewed belonged to an environmental or wildlife club. Approximately half of the pupils interviewed were girls (the proportion was due to the sampling of a girls’ school). 58% of the pupils interviewed were from primary schools and 42% from secondary schools.

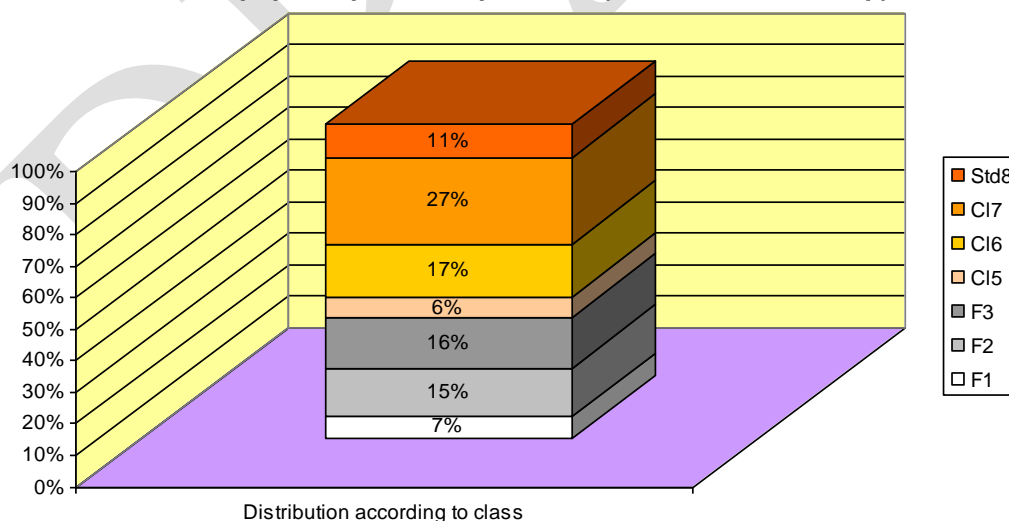
**Table 3 Sampled pupils’ characteristics**

School	Girls	Boys	Age	Environmental club
Primary	49.4%	50.6%	14%	65%
Secondary	55%	45%	18%	77.8%
Total	51.5%	48.5%	15.9%	70.1%

Distribution by class shows that the highest proportion of children interviewed were in class 6 and 7 primary, Form 2 and 3 (secondary) when they went of the trip. The majority belonged to the classes specifically targeted by the trip. However 11% of the pupils interviewed were in Standard 8 (last year of primary) when they did the trip; and others were in Form 4 pupils (last year of secondary school) but could not be interviewed as they had left school. The proportion of primary and secondary leavers would have been higher if those selected had been interviewed. The review process recommended that the programme avoids targeting Standard 8 and Form 4 pupils as these concentrate on final exams; the trip is then considered as a break rather than a learning experience (see Appendix 4).

Generally the class distribution reflects the schools that the EELP has set out to target, but more attention needs to be taken to the class composition of the bus participants; reasons for the “class targeting policy” need to be clearly explained to teachers.

**Figure 1 Distribution of pupil respondents per class ( at the time of the trip)**



Teachers interviewed had on average 14 years’ teaching behind them, 40% were women, 65% were from primary schools. 75% of the teachers interviewed taught a subject related to environment including “geography, environment, science” giving them a grounding in environmental related knowledge. In addition to this, 33% had received training on environmental related topics (e.g. focused on environmental conservation topics, planting and caring for trees, water conservation, sustainable development, importance of forests).

**Table 4 Sampled teachers' characteristics**

Characteristics	%
Women	39.6
Average number of years taught	14
Subject taught related to environmental topics	74
Belong to school environmental/wildlife club	69.8
Member of another conservation group	35
Received environmental related training	32.6

35% were members of a conservation group or conservation groups outside school (Self-help groups, conservancies, water resource users associations, community forest association, education/or awareness raising groups, networks). 70% mentioned being part of the school environmental club.

Most teachers interviewed were involved in environmental activities through groups or clubs; and teach environment related topics. Similarly the majority of the children interviewed were exposed or involved to environmental activities/aspects in school through the environmental clubs. Teachers and pupils interviewed were thus likely to have some knowledge and particular interest in environmental issues.

It is important to note that the sample is not representative of Laikipia pupils or teachers as a whole. The teachers are representative of teachers going on the trip, and pupils are also likely to be representatives of those going on the trip. The fact that teachers had to select the pupils may have introduced a bias in the sample. Teachers and children involved in the trip are likely to be interested and/or involved in conservation activities. Moreover, teachers who organise the trip are likely to be those who have particular interest in environmental education. Teachers often think that belonging to an environmental club/ or wildlife clubs is a requirement to be eligible to apply for a bus trip (Ephantus Mugo, pers. comm.).

### **3.2 SCHOOLS ENVIRONMENTAL EFFORTS**

The aim of the school environmental audit, as stated previously, was to investigate whether schools were involved in environmental activities, validate their claim and rate the level implementation of these activities. The purpose was to establish a baseline to monitor progress.

Categories included:

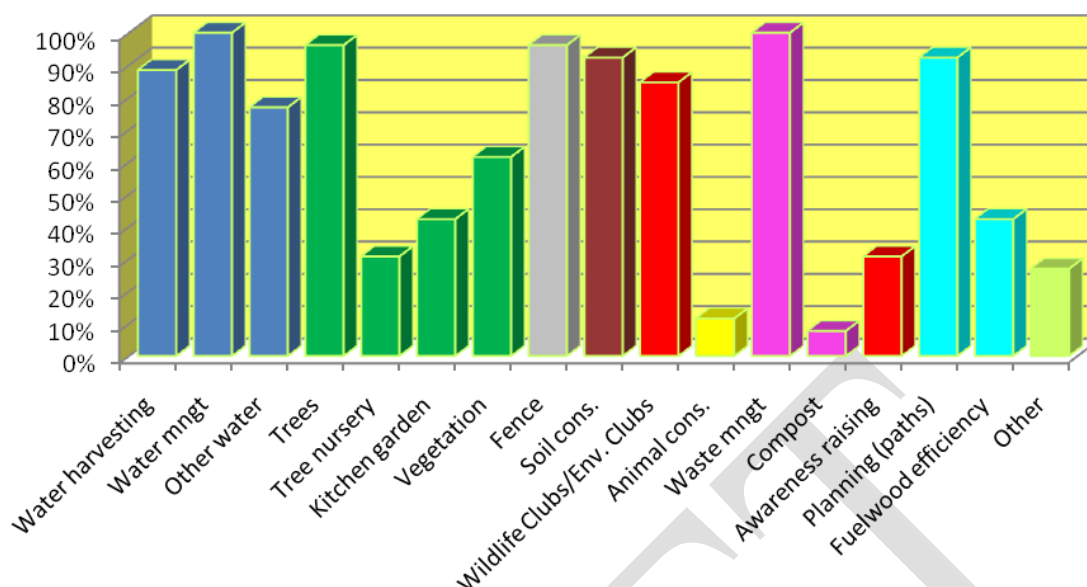
- Water (water harvesting, water conservation, other water projects)
- Vegetation (tree cover, tree nursery, kitchen garden, vegetation cover, fencing, dead/alive)
- Soil conservation (plant/soil)
- Wildlife (wildlife clubs, wildlife conservation)
- Pollution (waste management, composting)
- Compound (awareness raising in the school compound, compound planning)
- Energy saving (energy efficient cooking methods, lighting)
- Any other efforts

The field team interviewed teachers to identify the presence or absence of efforts in relation to the categories identified; then checked, with the teachers, the level of implementation of each of the activities which was scored on a 10 point scale. Photos were also taken for reference and establishment of a data base.

The figure below shows which activities sampled schools are currently involved in.



**Figure 2 Environmental initiatives in schools targeted**



All schools sampled had some on-going environmental activities. Most schools sampled had environmental/wildlife clubs were involved in water harvesting, water conservation/management, tree planting, soil management, waste management and compound planning. A minority were involved in composting, animal conservation (e.g. bird feeders), awareness rising (through visible environmental messages), tree nurseries.

**Table 5 Level of implementation**

Efforts	N school involved on the 26 audited	Average score of those involved	Comments
Water harvesting	23	4.5	The scores varied from 1 to 8 out of 10 depending on the proportion of buildings where water harvesting was set up (gutters) and whether gutters and tanks were connected
Water management	25	5.3	Scores varied from 1 to 8. Related to efforts made to avoid water wastage and water recycling. The scores depend on whether leaky pipes were noticed, open taps and recycling efforts
Water projects	19	5.8	Scores varied for 5 to 7. Pumping water, boreholes.
Tree cover	25	6	Scores varied from 1 to 8 and related to the number of trees, whether they were indigenous or not, and their maturity.
Tree nursery	8	4.2	Scores varied 3 to 8. Related to the size of the tree nursery.
Kitchen garden	9	4.7	Scores varied from 3 to 7. Related to the size of the kitchen garden.
Vegetation cover	26	6.1	Scores varied from 3 to 8. Related to the amount of bare ground in the compound.
Fence	25	5.5	Scores varied from 3 to 7. Related to the maintenance of the fence and whether the fence is live.
Soil conservation	24	5.9	Scores varied from 5 to 8. Related to what was planted and where.
Wildlife/environmental clubs	22	4.7	Scores 2 to 7. Related to the number of members and the level of activity.
Animals conservation	3		Most were inactive. Mostly related to rabbits and

			poultry projects. One school is planning to have a cow to produce manure.
Waste management	26	4.3	Scores varied from 3 to 7. Related to sorting of waste.
Composting	2		Only two schools have started composting.
Awareness raising	8	4.7	Scores from 3 to 7. Related to the extent of labelling and messages.
Planning	24	5.3	Scores from 3 to 7. Related to the extent and development of paths
Energy saving	13	6.8	Scores from 5 to 8. Mainly energy saving jikos and 1 school using solar for lighting

The level of implementation was generally medium as shown in the table above.

Changes in the type of efforts and the level of implementation of these efforts will be monitored for the schools that will participate in the best environmental efforts of the year competition. The audit will also expand to more schools.

Results show that there is a general effort to improve environmental health or reduce the schools' environmental impact. There is willingness to get involved, especially in activities that are directly linked to the school wellbeing (e.g. access to water and waste management) or promoted widely in Kenya (e.g tree planting). This is however not translated in action as shown by the "implementation scores". Some efforts require significant financial investments, others (e.g. water conservation) do not and rely more on people's commitment.

### 3.3 PREPARATION AND FOLLOW UP

#### 3.3.1 How important is environmental education?

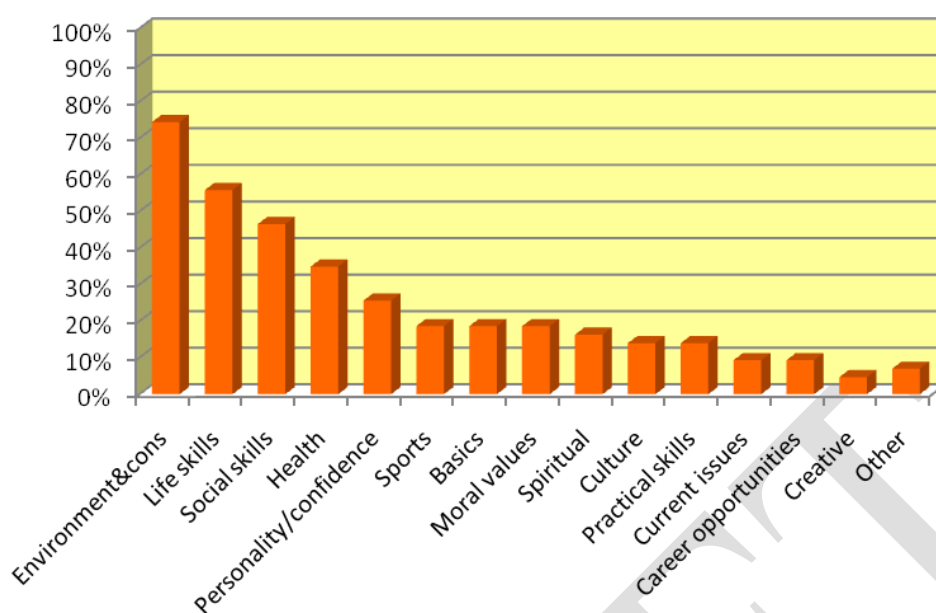
The survey sought to establish the context in which environmental education is taught in the schools sampled. The main question related to how much teachers value environmental education. Teachers were thus asked to list five things they thought children ought to learn from school.

Responses were varied but could be aggregated in the following categories:

- Environment & Conservation
- Life skills ( e.g. decision making, self-reliance, discipline, critical thinking)
- Social skills (e.g. how to behave in society, collaboration, integration)
- Health (e.g. health, hygiene, understanding of drug abuse and HIV)
- Personality/confidence (e.g. expression, self-esteem, character, leadership, pupils' discovery of themselves and their talents)
- Sports
- Basics (e.g. maths, reading, science etc)
- Moral values (e.g. honesty, respect, responsibility, tolerance)
- Spiritual (e.g. religious and spiritual)
- Culture (e.g. country, cultures, ethnic diversity)
- Practical skills (e.g. farming, technology...)
- Current issues (e.g. conflicts, climate change)
- Career opportunities (e.g. knowledge and career opportunities)
- Creative (arts, creative expression)
- Other (special needs, family...)

The distribution of responses across the categories is summarised in the figure below.

**Figure 3 Five most important things children need to learn from school (% responses)**



Teachers were not asked to rank these. The “importance” of a category was deduced from how frequently this category was mentioned, as illustrated in the figure above

The diversity of answers was surprising. Basic skills such as reading, maths were mentioned by 25% of teachers only. A wide array of things that teachers mentioned reflected the importance they put on the need for children to learn from school “how to live in the current world”. Teachers mentioned “life skills” (54%), “social skills” (46%) more commonly and then “health/drug abuse” related issues (35%). They also mentioned the importance for children to build their personality and confidence (26%).

The most frequently mentioned category however was “environmental conservation” (how to care for the environment), mentioned by 75% of the teachers. It is believed that responses may have skewed by the fact that interviews were carried out by the EELP, thus prompting the “environment related” answers as an aspect of willingness to please.

Teachers were then asked why they thought that environmental education was important. Reasons mentioned can be summarised in the following categories (frequency):

- Conservation/restore/improve (15) 35.7% - about improving, restoring, maintaining the environment
- About life (10) 23.8%- it is about all living things
- About caring (8) 19.0%
- All part of the same (5) 11.9%– environment is a whole to which we belong along with wildlife
- About respect and appreciation (4) 9.5%
- Important (4) 7.1%
- Provide economic opportunities (2) 4.8%
- This is where we apply what we learn (2) 4.8%
- Other (2) 4.8%

More than a third of the teachers struggled to give clear explanations as why they thought environmental education was important. Responses given were more about what environmental education is rather than why it is important (conservation/restore/improve: 35.7% of teachers).

However a majority could explain why they felt it important including “it is about life”; that “*we are part of it, it is part of us, we rely on it*” recognising the “whole we are part of and its interconnectedness”; the need for children to “be able and care for the environment” which they are part of. Others thought of environmental education as the basis for career opportunities.

It was thought that the high proportion of teachers who mentioned environmental and conservation as one of the five things to be learned from school may reflect the fact that teachers who participated in the trip are involved in environmental activities and teach environmental related topics. However when this was tested, no significant difference was detected (chi square,  $p=0.8$ ). Teachers who did not teach environmental related topics were as likely to mention environment as the others.

Teachers who participated in the trip are likely to have an interest in environmental topics. However, it believed that although the “environment/conservation” category would have appeared in the list of five things that need to be learned from school, it may not have been mentioned as widely if evaluation had not carried out by the “EELP team”.

### 3.4 PRE-TRIP ACTIVITIES

One of the concerns raised in the review process and through interviews with the previous EELPO was that teachers do not prepare children adequately for the trip. It is felt that the trip is seen more as an outing and the opportunity for a game drive, than as a learning experience. In the course of the booking process, teachers are asked to prepare children and discuss topics to be covered during the trip in order to ensure that the trip supports the school curriculum. According to the previous EELPO, this was rarely done.

In order to explore the issue further, the survey investigated whether the trip was discussed (before and after) and whether clear objectives could be detected. Teachers were also asked to specify how they would prepare children differently next time. Questions were asked to both the children and the teachers in order to cross check answers.

#### 3.4.1 Preparation and organization of the trip

In 60% of the cases the teachers interviewed were involved in organising or initiating the trip (whether on their own or in addition to other teachers). For the other 40%, the trip was someone else’s initiative.

Most teachers mentioned that they discussed the trip with the children prior to going by preparing questions, going over topics, briefing the children on what they could expect. This was confirmed by the children and 93% of the pupils’ interviews confirmed that the trip was discussed prior to going. The main topics of discussions were:

- How to behave during the trip (mostly)
- Preparing questions
- Discussing what to expect
- Being prepared to learn

Few mentioned discussing “what needs to be learned” or “how the trip links to the class topic”.

When asked how they would prepare children differently to the trip, next time, all teachers confirmed that they would prepare children differently; and their suggestions included:

- Going through the trip in more detail,
- Preparing questions for them to answer
- Going through the topics learned
- Three teachers mentioned that they would “*involve the children in the class who are not going to the trip*” and investigate further “*what the children want to learn*”.

77% of the pupils and 93% of teachers say there was a discussion after the trip. Not all children specified what the discussion was about. Those who did specify the discussion topic mentioned discussing and sharing with others in the class what was seen and learned; and some mentioned discussing in class how to use the knowledge acquired during the trip.

### 3.4.2 Bus trip Objectives

As suggested by the review process (Appendix 4), there are no clearly defined learning objectives for the trip. However, for the previous EELPO (pers. comm.) the main objectives from the perspective of the EELPO were for children to:

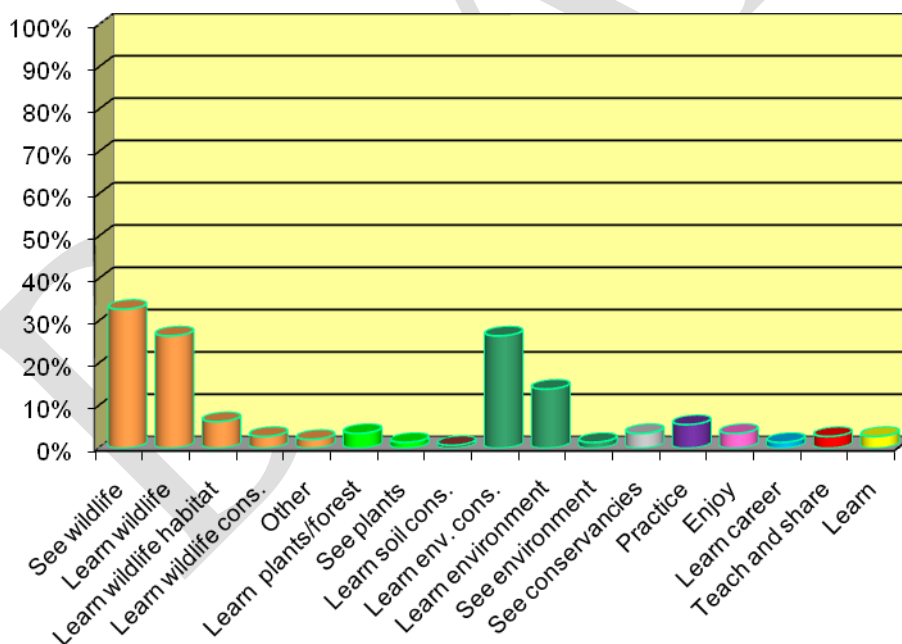
- Appreciate wildlife
- Understand how organisms fit in the ecosystem
- Understand differences in degraded/healthy environment
- Learn how plants adapt to introduce the dry/wet lands

To narrow down the learning objectives of the trip, the EELPO used to rely on the teachers. The EELPO used a series of 12 themes from which the teachers could choose. This was rarely done. With no clear learning objectives from the part of the EELP or the teachers, this left the EELPO trying to cover most topics, probably diluting the impact of the trip and overburdening the children. This also makes it difficult to monitor the learning impact of the EELP.

In order to investigate whether children and teachers had thought about what the purpose of the trip was at the preparation stage of the trip, they were asked to list their objectives for the trip.

**Pupils' objectives:** the lack of specificity of the children's objectives suggests that clear learning objectives are not identified by the children prior to the trip. The most widely mentioned objectives are not specific ("learn about environmental conservation", "learn about environment", "see wildlife" (that I have not seen) and "learn about wildlife"). The most commonly mentioned objectives were mentioned by up to 30% of the pupils. It is important to be aware of the fact that a high proportion of the children had not seen wildlife, and certainly not seen wildlife in such a context. The attractiveness of a game drive is thus extreme!

**Figure 4 Children's objectives for the trip**

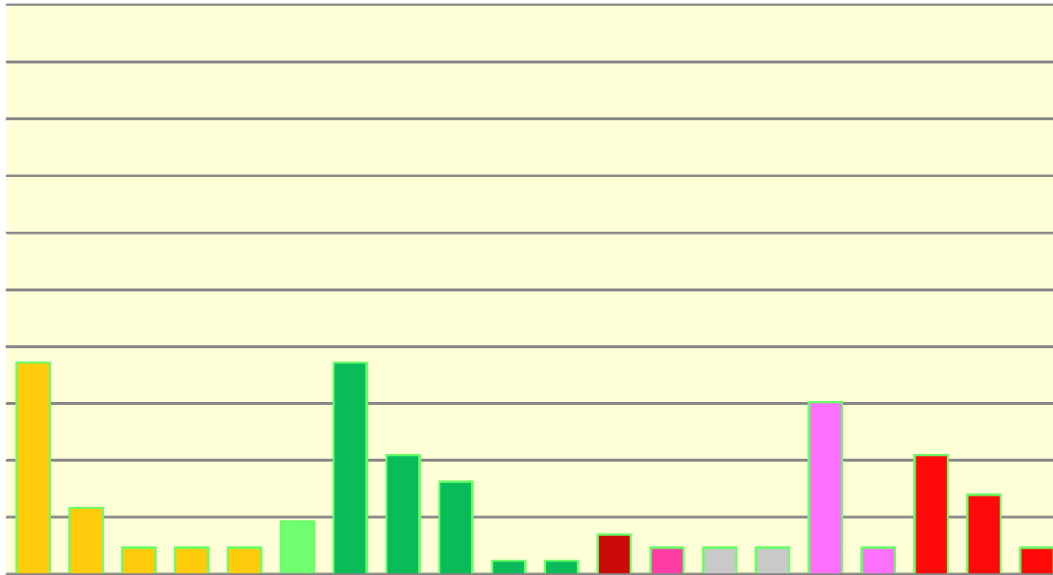


\*categories are colour coded in relation to topics: wildlife, plants/forest/vegetation, soil, general, conservancy related, learning types, emotion, future career, teaching/raising awareness.

It is also important note that the pupils were asked to state their objectives for the trip, after the trip. It is likely that the answers may have been affected by the trip itself. Prior to the trip there may have been responses such as "I don't know" This did not occur.

**Teachers' objectives:** Although teachers' objectives are diverse, more specific objectives emerged than that of the pupils. Objectives such as learning about connectivity in the ecosystem, coexistence between livestock/wildlife/humans, to support what is done in class with practical examples, expose children to their surroundings etc.

**Figure 5 Teachers objectives for the trip**



“Learning about wildlife”, “conservation”, “coexistence” as well as “enjoy/fun” for the children and “practical teaching” are the most widely mentioned categories.

Results suggest that there is little discussion on what the purpose of the trip is. Objectives of the children are not specific, and although slightly more specific, most of the teachers' objectives are also general. They do not seem to be integrated into a “class” learning exercise.

The results suggest that the preparation for the trip could be improved as was picked up in the previous review. Objectives are very varied even within a class. Pre-trip discussions are general and all teachers would prepare children differently for the next trip. The lack of clearly defined learning objectives at the class level probably also makes it difficult for teachers to guide the follow up process, although discussions are carried out after the trip.

One of the teachers mentioned that next time s/he would find “*more about what the children want to learn from the trip*” and several teachers said they would “*involve in preparations pupils who were not going to participate to the trip*”. Involvement of the whole class rather than a sub section of the class makes sense, the “discovery/exploration tour” should become a “class project”, as part of a learning process. One of the ways to do this could be for the class to decide on learning objectives; the children going to the trip would be “the researchers” collecting information and feeding back their findings to the whole class which then has to think about how to “analyse and interpret” this information in the context of the question they have set out. This could help prevent the trip being seen as a “reward” outing.

In order to address the lack of clearly defined learning objectives at the class level, preparation guidelines are currently being developed to guide teachers prior to the trip. In addition to this, a selection of teachers has been trained on how to prepare the children. In addition the proposed new day layout supports and guides the teachers in the follow up process by discussing “how to use the knowledge acquired during the trip”.

### 3.5 TRIP IMPACT ON ENVIRONMENTAL KNOWLEDGE (TEACHERS AND PUPILS)

The evaluation also investigated the trip's impact on participants' knowledge. As no clear learning objectives could be identified; open questions were used to explore knowledge acquired as a result of the trip.

All teachers and 97% of the children interviewed mention having acquired new knowledge about the environment and wildlife through the trip. 97% teachers and 95% children feel they learned new things about what to do to care better for the environment.

The natural environmental was defined as water, trees, plants, animals (insects, birds, predators, herbivores etc). Wildlife was left to the respondents' interpretation.

#### 3.5.1 New knowledge about the environment

Questions investigating new knowledge were opened in order to get a feel for the aspects that children and teachers learned. The diversity of responses was high. Responses were difficult to aggregate without losing the richness of the knowledge acquired. Tables below summarise the findings.

**Table 6 Children's new knowledge areas**

Category	Knowledge	% mentioned	Examples
<b>Wildlife related knowledge</b>	Diversity of wildlife	21.68%	Species of large mammals, birds, insects, diversity of species in one family..
	Wildlife characteristics	13.29%	Running speed, time in water, eye spacing
	Wildlife behaviour	12.59%	Mating, herd behaviour, eating
	Wildlife adaptation	11.19%	How wildlife is adapted to the natural conditions
	Wildlife needs to be protected and cared for	10.49%	Realising that some wildlife is endangered (rhinos) and that wildlife generally needs protection
	Benefits of wildlife	7.69%	Economic benefits of wildlife
	Not to kill wildlife but try and avoid it or chase it	7.69%	Wildlife should not be killed, wildlife can be chased rather than killed
	Importance of wildlife, unique	4.90%	Wildlife's importance, there is not wildlife like here in other places
	Killing wildlife is illegal	4.90%	Realisation that killing wildlife is illegal
	Wildlife role/pollination/products	4.20%	The role of wildlife (pollination, scavengers) and products that can be obtained from wildlife
	Wildlife and man can live together, wildlife is friendly	4.20%	Realisation that wildlife can be friendly and that man can coexist with wildlife
	Connectivity between Wildlife and habitat	3.50%	Connection between wildlife and habitat (engineer their habitats)
	Captive animals	3.50%	Learned about how to deal with captive animals
	other	3.50%	Wildlife should not be fed, natural
		We appreciated/saw wildlife and it is for all	2.80%
	Wildlife is a land use where man cannot farm	1.40%	Wildlife is a landuse. Not everywhere can be farmed.
<b>Water related</b>	Water harvesting and storage	9.09%	How to harvest and store water (pans, flood control), conserve water (not waste), recycle water
	Water is life	1.40%	The importance of water
<b>Vegetation related</b>	Tree planting	13.99%	Trees have a role. Learned the importance of planting trees for soil retention, attracting rain, beauty, wildlife etc.

	Plant adaptation	12.59%	Dry/wet climate adapted plants
	Importance	10.5%	Trees are important, they need to be diverse, even a fallen tree is important
	Plant/tree uses	6.3%	Medicinal use and tree products
	Not cut/impact tree cutting	5.59%	Learned about the impact of tree cutting
	Plant and tree sp	4.90%	Learned the diversity of tree and plant species
	Trees need to be cared for	1.40%	How to care for trees
<b>Soil related</b>	soil conservation	6.99%	Learn that soil can be conserved through organic fertiliser, soil cover, IPM
<b>Pollution and litter</b>	Impact of pollution	3.50%	Learned about how rivers can be polluted, the impacts of pollution on health
	Litter management	11.19%	Learned that it is important to not litter and collect and manage litter, for example using bins, burning, digging pits.
<b>Alternative energies</b>	Alternative energies	2.80%	Other energies than firewood and oil based exist (wind, sun)
<b>Education</b>	Educate others, the need for clubs	2.10%	Learned about the importance of raising awareness on environmental issues
<b>Other general</b>	Need to keep environment clean for health	5.59%	Learned that it is important to keep the environment clean to avoid diseases
	Could make comparison between conservancy and outside	2.10%	Learned the differences between inside and outside the conservancies
	Beautiful	1.40%	Learned how beautiful the environment is
	other	5.59%	
<b>Nothing</b>	Nothing new	2.10%	

As shown in the table above, wildlife-related new knowledge dominated including knowledge about wildlife characteristics, behaviour, diversity, the importance of wildlife were mentioned. The need to care for wildlife came out and the fact that human and wildlife can coexist was a key learning for some.

5% of the children have learned that killing wildlife is illegal; this suggests that hunting/poaching is not uncommon in the area.

Two children noted that wildlife conservation can be a land use, especially where land is not appropriate for farming. Two children also noted that wildlife is “for all”, not only for tourists (foreigners, whites). This possibly reflects widespread perceptions in Laikipia as the one of the only ways to benefit from wildlife is tourism, mainly international.

Other most mentioned categories include learning about the importance of trees, planting trees (in relation to rain, water retention, air and for wildlife habitat). Although not expressed clearly, elements of connectivity in the ecosystem have been learned (adaptation, role of wildlife).

The need to avoid littering, the impact of pollution and the need to dispose of litter properly also came out as a key learning. The link between health and clean environment was also new for 5% of the children interviewed.

As obvious from above, knowledge acquired is broad, rich and diverse. No common message or learning emerged strongly amongst the children.

Whilst analysing the data it became clear that children remember very specific facts even from a year ago such as, how fast a giraffe runs, how long a hippo can stay under water and the rhinos’ ears can do a 360 deg. turn. Facts and knowledge patterns were detected according to school children from the same trip remembering the same facts.



**Table 7 Teachers' new knowledge areas**

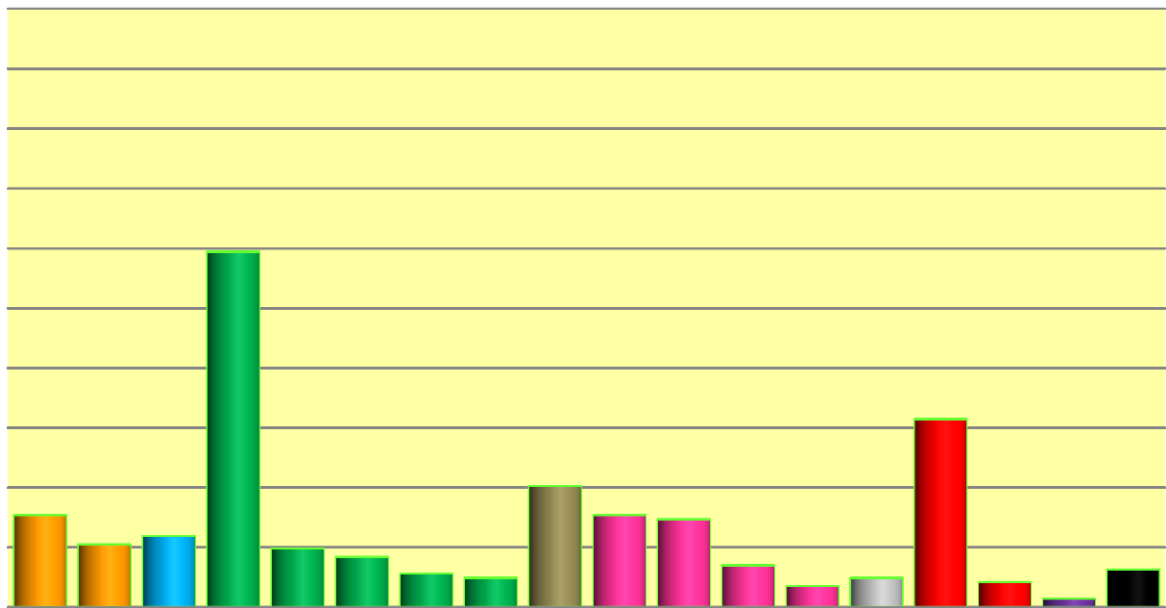
Category	New knowledge	N	% mentioned	Comments/detail
<b>Wildlife related</b>	Wildlife species	18	41.9%	Wildlife species in a family (e.g. white and black rhinos), wildlife includes insects, birds etc
	Wildlife behaviour	12	27.9%	Similar to what was learned by the children
	Wildlife characteristics	11	25.6%	Similar to what was learned by the children
	Animals in captivity	8	18.6%	Chimps, rhinos, learning about management of animals in captivity
	Co-existence	7	16.3%	Learned that wildlife, people, livestock can coexist, that wildlife can be friendly
	Wildlife habitat	4	9.3%	Learned about the diversity of wildlife habitats
	Importance of Wildlife	2	4.7%	Learned about the importance of wildlife (economic specifically)
	Wildlife endangered	2	4.7%	The fact that rhinos are endangered
	Fence can be used to manage wildlife/human conflict	2	4.7%	Learned that fences are to keep wildlife in the wildlife tolerant areas rather than to keep people out.
	other	3	7.0%	Wildlife products, adaptation, wildlife is a land use
<b>Water</b>	Water conservation	2	4.7%	Learned not to waste water including using drip irrigation to water crops
<b>Vegetation</b>	Plant species	5	11.6%	Diversity of plant species
	Plant adaptation	4	9.3%	Dry/wet climate plants
	Tree product and tourism	4	9.3%	Learned about plant products and forest based tourism
	importance/values of indigenous plants/role	4	9.3%	Importance of indigenous plants and their adequacy to the environment
	Care for trees	1	2.3%	How to care for trees
<b>Soil</b>	Soil conservation	4	9.3%	Learned about soil conservation including organic farming and increasing soil cover
	other	2	4.7%	geology, soil types etc
<b>Pollution</b>	compost	1	2.3%	Learned about waste management
<b>Alternative</b>	Energy	3	7.0%	Wind power, energy saving jikos
<b>General</b>	Connectivity in the ecosystem	5	11.6%	Learned how life is connected
	More about conservancies	4	9.3%	including museum and history, set up education centre
	Possible to do conservation in simple ways	2	4.7%	Learned that conservation can be done in simple and cheap ways
	Other	5	11.6%	law of nature, climate change, beauty

As for children, teachers' new knowledge is mainly wildlife related, especially wildlife species, behaviour and characteristics. The fact that wildlife can coexist with humans and livestock is also mentioned by 12% of teachers. Connectivity in the ecosystem is also one of the areas in which 11% teachers have increased their knowledge.

### 3.5.2 New knowledge about how to care for the environment

One of the most challenging aspects of environmental education is to encourage new knowledge to be turned into action. The EELP evaluation investigated whether the EELP contributed to the process of applying knowledge by providing information on how to care for the environment. Teachers and pupils were thus asked to list the three most important things they learned about how to care for the environment during the trip. Results are summarised in the following graphs.

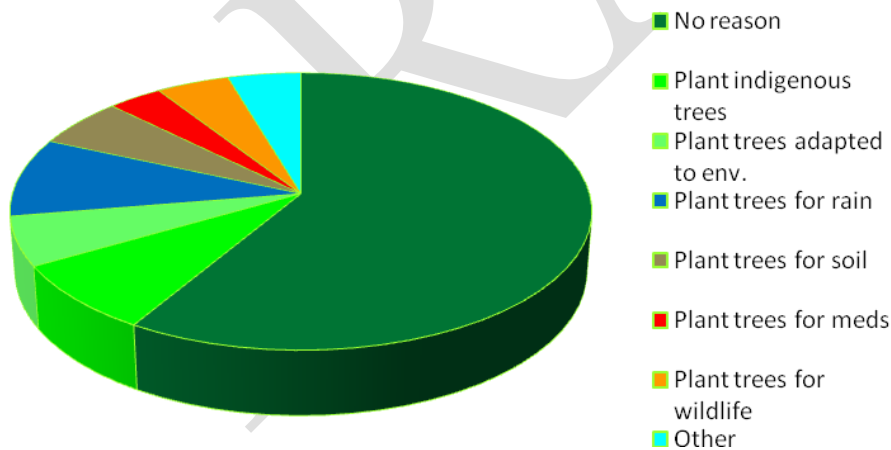
**Figure 6 What did children learn about what to do to care for the environment better?**



As shown above, the most commonly mentioned new knowledge categories are “plant trees” (63% of the pupils), “raise awareness on environmental issues” (34%) and in lesser proportion “conserve soil” (21%), “avoid litter” (15%) and improve “litter management” (16%).

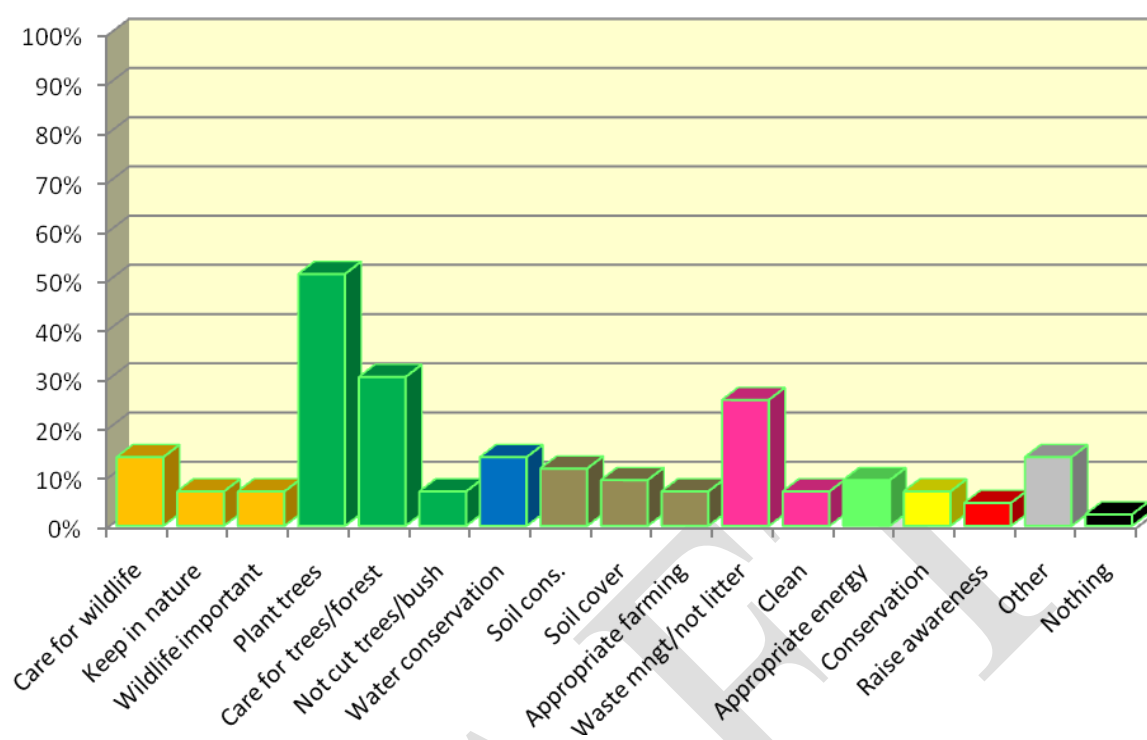
The category “care for wildlife” (16%) includes actions such as rescuing wildlife and making bird feeders; thus active interventions to improve animal welfare. Other noticeable categories are “not to kill wildlife”(missing stat?) “report poaching” (11%) and “how to conserve water” (12%).

**Figure 7 Reasons for planting trees (children)**



“Plant trees” was aggregated as one category; however in 50% of the cases pupils mentioned reasons learned for which it is important to plant trees and what types of trees need to be planted in order to take care of the environment. This category was thus unpacked according to these reasons (when mentioned). Along with learning that indigenous trees (8%) and adapted trees (6%) need to be planted to improve the environment, other common reasons learned included “plant trees to attract rain” (9%), plant trees to prevent soil erosion (6%).

**Figure 8 : What did teachers learn about what to do to care for the environment?**



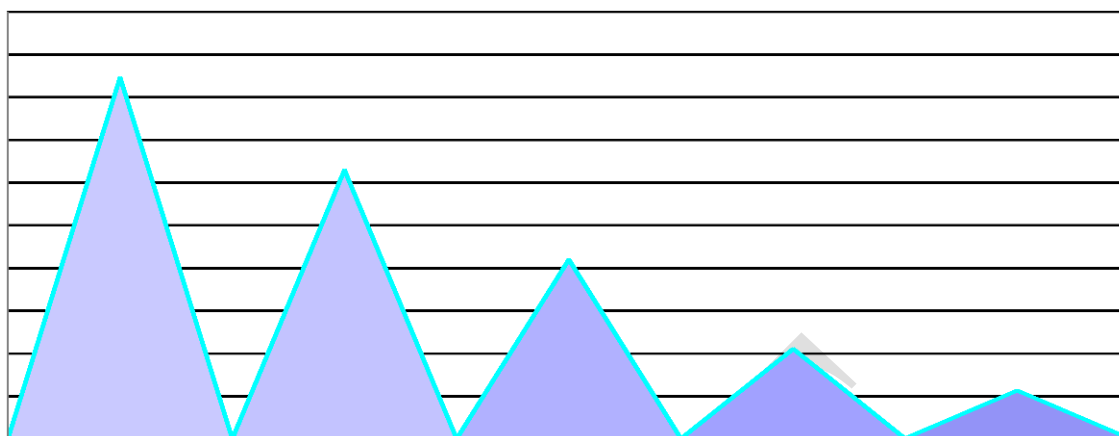
For teachers as for children, planting trees is the most commonly mentioned new knowledge about how to care for the environment. One of the categories that stand out compared to children is “care for trees and forest” (care for existing trees, 30%) as well as “water conservation”. Waste management emerges as a commonly mentioned category (26% of the teachers). “Soil conservation” and “appropriate farming” (e.g. organic farming, not farm on river banks) are also mentioned.

Results suggest that new knowledge is acquired on what to do to care for the environment and reinforces knowledge on activities that children and teachers are already involved in at large: planting trees, waste management especially, although new ideas also emerge such as raising awareness and water conservation. Responses were not always specific.

### **3.5.3 Sharing information about the trip**

Results suggest that the trip has an impact on teachers’ and children’s knowledge. The survey investigated whether the trip’s impacts go beyond the people directly involved. Children were asked to list whether they shared the experience of the trips and who they shared their new knowledge with. It was found that 100% of the children shared the knowledge gained through the trip and sought to raise awareness of issues discovered. They shared in priority with their friends (85%), their parents (63%) and their siblings (42%) as shown in the figure below.

**Figure 9 Who did the children share their new knowledge with?**



Children shared their new knowledge but also tried to raise awareness of issues discussed on the trip (e.g. importance of wildlife, importance of a clean environment) and give advice to their siblings and parents (e.g. not cut trees, not kill wildlife etc).

The results suggest that EELP, through the trip only, has an undeniable impact on knowledge about wildlife and the environment and that this knowledge is shared beyond the boundary of the trip participants.

However the lack of focused discussion on how to apply knowledge in relation to caring for the environment may prevent children and teachers from being creative and build on their previous knowledge with newly acquired knowledge.

The findings of the evaluation confirm concerns raised in the review process and are currently being addressed in the development of a new layout for the day trip, including supporting the EELPO and the teachers to:

- Define the EELP trip learning objectives
- Define children's and teachers' objectives (part of the pre-trip preparation)
- Include time to discuss what to do with the new knowledge (may be during the trip itself).

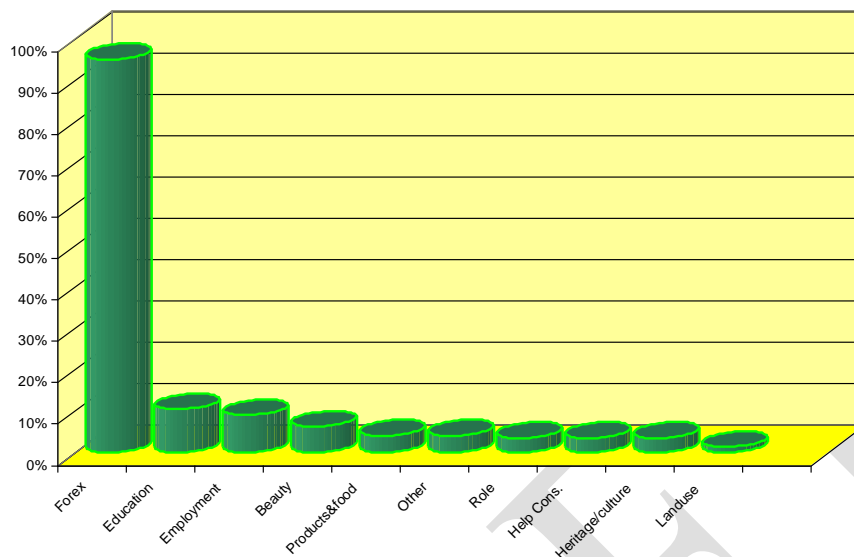
### **3.6 IMPACT OF THE TRIP ON PERCEPTIONS OF WILDLIFE**

As the law stands, although land owners bear the cost of wildlife, they don't own the wildlife (which is a national resource) and have little opportunity of getting value from wildlife except through photographic tourism. As a result, wildlife is of little interest to Kenyans, and Kenya is currently acknowledging a poaching crisis. Kenya is home to 597 black rhinos and a little less than half of these are in Laikipia. 50 rhinos have been killed in Kenya in the last 18 months. This has very few repercussions in the media. In addition to this, as resource scarcity increases and habitats are degraded, space for wildlife reduces and human/wildlife conflicts are exacerbated. Crop raids (more than 3000 crop raids by elephants per year in Laikipia), predation, and safety issues (due to elephants) contribute to people's negative perception of wildlife despite increased wildlife based tourism income in Laikipia.

Contributing to an increase in people's understanding of wildlife's importance and promoting interest in caring for wildlife is one of the key objectives of the EELP. At the same time, one of the most frequently mentioned objectives for the trip is to see or learn about wildlife (as the trip is often treated as a game drive), the enthusiasm is thus there. The biggest challenge for the LWF and the EELP is to make wildlife relevant to people's lives.

The survey investigated whether the trip had an impact on teachers' and children's perception of wildlife. The first question respondents were asked was whether they thought wildlife is important and if so, why? Results are presented in the following figures.

**Figure 10 Why is wildlife important (children's perspective)**



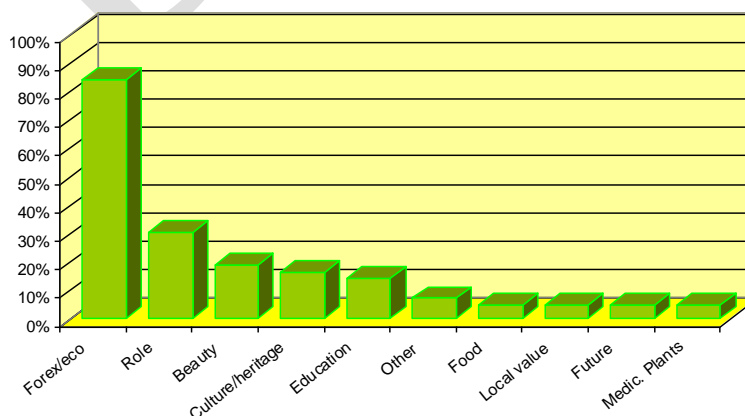
95% of the children interviewed consider wildlife important because of the income it generates for the country (mainly through foreign exchange). Other categories worth mentioning include:

- Education value: “the fact that wildlife exists helps us to learn about them” (15%)
- Employment it creates (10%).
- Conservation. Wildlife “helps conservation by giving us reasons to conserve”, protect trees.
- The aesthetic value of wildlife/more emotional value (Beauty) was only mentioned by 6% of the children; and cultural heritage (3.5%)
- The role of wildlife as part of the ecosystem (carnivores, herbivores, pollination etc) by a small minority the cultural heritage that wildlife represents is mentioned by a small minority.
- Wildlife products and wildlife as food is mentioned by 4% of the children.

The “education” and “conservation” categories reflect a certain degree of confusion among children (helping conservation and education), a “back to front logics” in relation to the linkages between wildlife, the ecosystem and values of wildlife.

97% of the teachers consider wildlife as important or very important (teachers were asked to rate the importance of wildlife on a scale of 1 to 5). The Figure below summarises the reasons why teachers think wildlife is important.

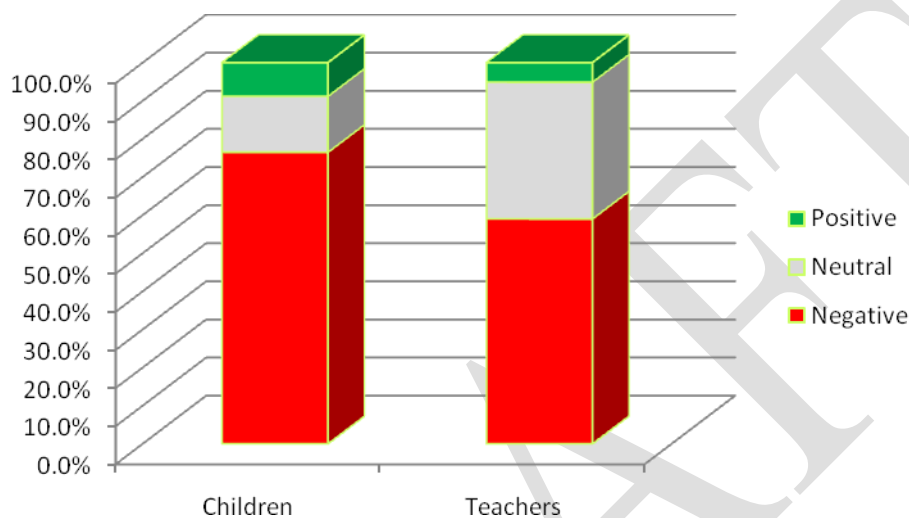
**Figure 11 Why is wildlife important (teachers' perspective)**



As for the children, the most commonly mentioned reason for wildlife's importance is its economic value (forex). The "role of wildlife" in the ecosystem is however more commonly mentioned by teachers (30%) than children (3%). Non market values of wildlife also come up more frequently such as "beauty" (18%) and "heritage" (16%). The "education" value (helps science) is also mentioned. Teachers' interpretation of wildlife is broader than children's as some of teachers include plants. The importance of wildlife as food is also mentioned by a minority.

Changes in teachers' and children's perceptions of wildlife were investigated in order to detect whether the bus trip has had an impact on attitudes towards wildlife. Respondents were asked what they thought about wildlife before the trip and after the trip. Results are summarised below.

**Figure 12 Teachers' and children's opinions of wildlife prior to the trip**

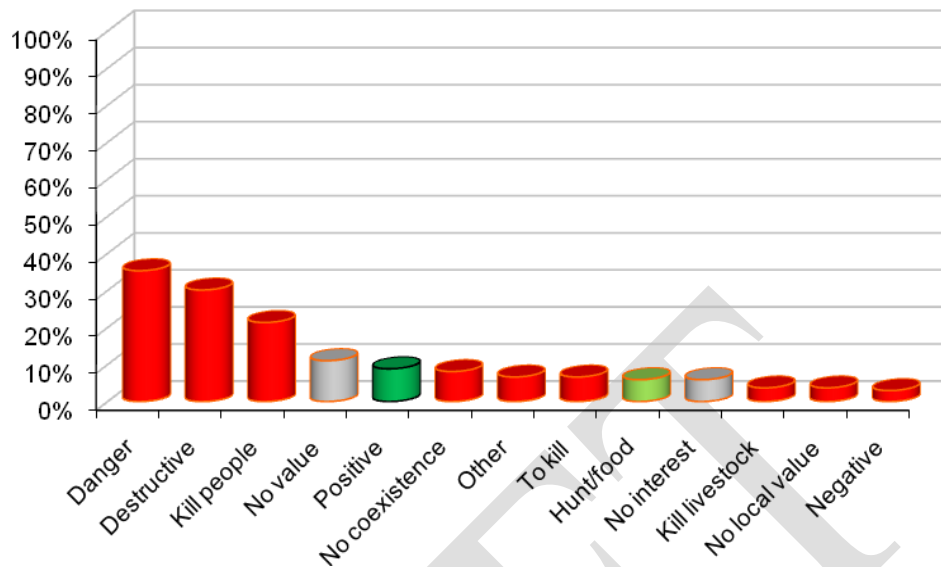


Answers were grouped into three categories: negative, neutral, positive opinion as shown in the figure above. 76% of the children who responded (136 out of 143) had a strong negative opinion of wildlife prior to the trip ("*wildlife is dangerous*", "*wildlife destroys our crops*", "*it kills people and livestock*", "*it should be killed*", "*it is only for tourists and other people*", "*man and wildlife cannot live together*"). A minority (9%) had a positive opinion (this included wildlife earns "*foreign exchange*", "*it is food*", it is "*beautiful*"), the last 15% did not express either negative or positive opinions (included answers such as "*no opinion*", "*wildlife has no value*", "*don't know*").

Similarly to pupils, a large proportion of teachers had a very negative opinion of wildlife prior to the trip. When aggregated, the results show that 58% of the 39 teachers who answered the questions had strong negative perceptions ("*they destroy crops*", "*kill people*", "*dangerous*", "*need to be killed*"), 33% of the teachers had a neutral opinion (e.g. "*no interest in wildlife*", "*wildlife has no importance*", "*no value*", "*no opinion*", "*narrow interpretation of wildlife*") and only two had a positive opinion (in conjunction with very negative opinion). The positive opinions related to the wildlife's role in the ecosystem.

Opinions of wildlife held by both teachers and children were mostly negative prior to the trip with the underlying feeling that wildlife and humans cannot coexist. The figures below illustrate teachers' and pupils' opinions in more detail.

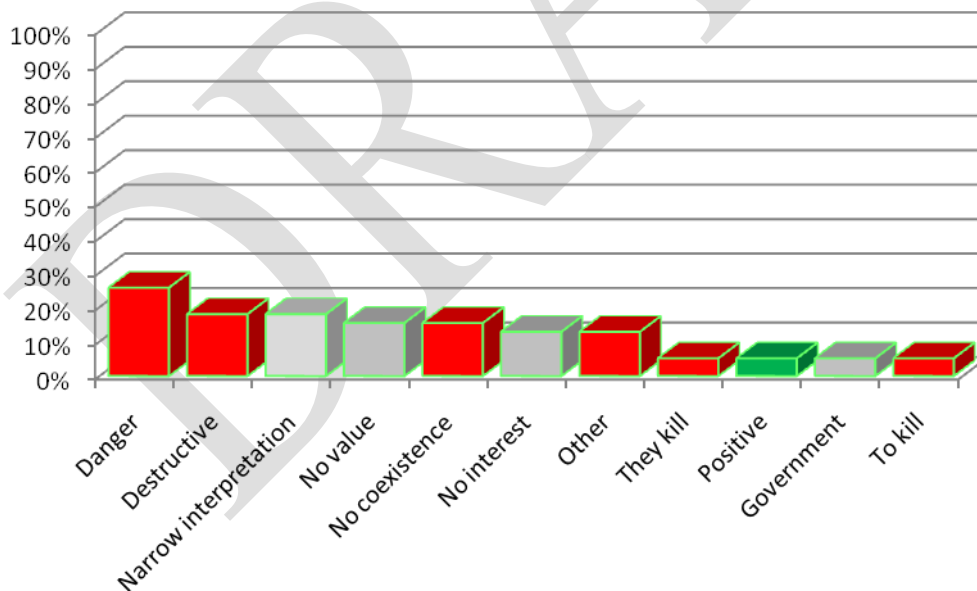
**Figure 13 Children’s perception of wildlife prior to the trip**



\*No coexistence: human and wildlife cannot coexist

Danger, destruction and killing people were the main categories describing their opinion of wildlife prior to the trip.

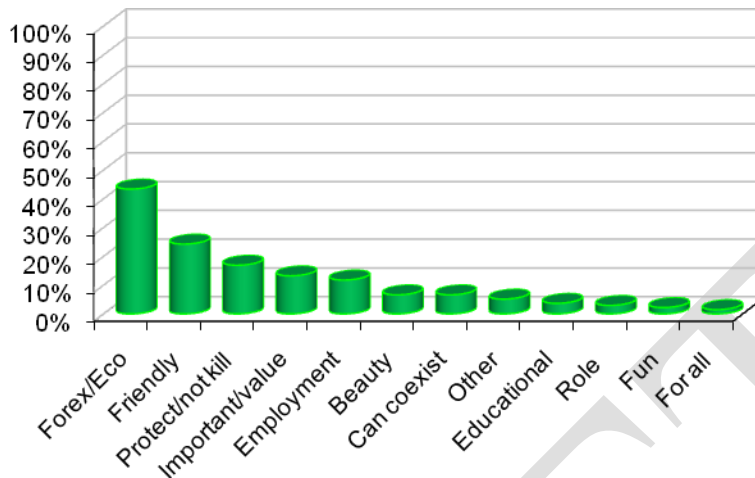
**Figure 14 Teachers’ perception of wildlife prior to the trip**



Although the majority of teachers had a negative opinion of wildlife prior to the trip, 33% had a neutral opinion, suggesting a lack of interest in wildlife. Some teachers mentioned their narrow interpretation of wildlife (equating wildlife with large mammals) as well as the perception that some wildlife is more important than others. For a few teachers, wildlife is not people’s responsibility as it belongs to the government. “No interest” and “no value” were relatively commonly mentioned.

85% of the pupils and 87% of the teachers interviewed say that they changed opinion towards wildlife in a positive way as a result of the trip. This is substantiated by the details provided on how their opinion had changed.

**Figure 15 Children’s perception after the trip**

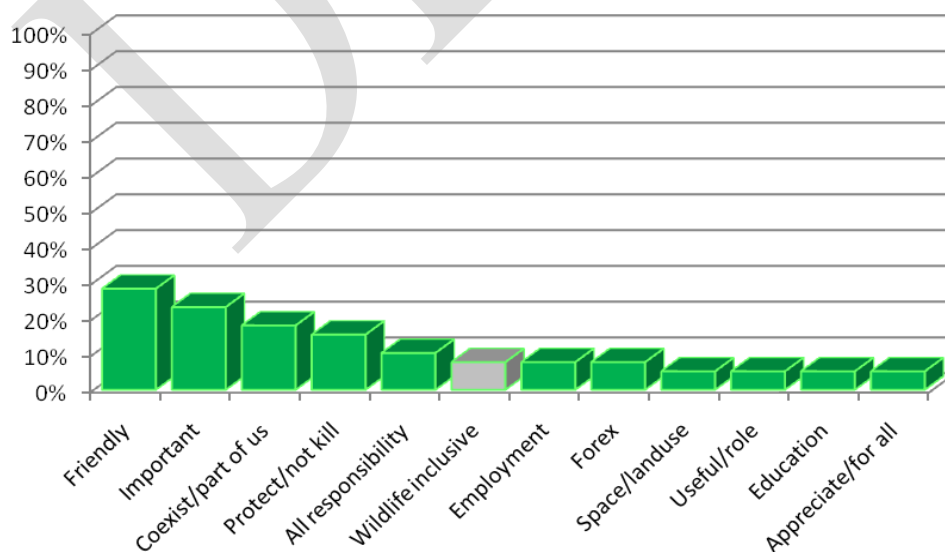


Results suggest that the trip had a significant impact on children’s opinion of wildlife. During the trip, children discovered “positive aspects” of wildlife. 40% mention wildlife’s economic value to the nation and the local communities. Other positive aspects include the fact that wildlife can be friendly if not disturbed, that it is possible to coexist with wildlife, that wildlife is important and has value and as a consequence wildlife needs to be protected, not killed (17% of the children interviewed). Beauty and fun were also mentioned. Beauty was part of the positive perceptions children had prior to the trip. The children who thought that wildlife was for foreigners or “whites” also changed opinion.

Although there has been a widening of understanding of the values of wildlife, very few children talked about the wildlife as integral part of the ecosystem.

To illustrate a “radical” change in opinion, the statement below is quoted from the response of a 13 year old girl after going to Ol Pejeta Conservancy: *“I thought that wildlife was on land that people should get for farming. After the trip I realised that not all land can be farmed, that animals are important. People who live on wildlife’s land should be kicked out!”*

**Figure 16 Teachers perception after the trip**





The trip also enabled teachers to see wildlife in another light. Again the idea that wildlife can be “friendly” and not destructive is emphasised by more than 25% of teachers interviewed. The fact that livestock and wildlife can coexist as well as human and livestock, noting that wildlife is important, understanding that wildlife is “*part of us*” and that wildlife needs to be protected (not killed) are all important changes in the minds of teachers.

Another change worth noting is the teachers’ broader interpretation of “wildlife” after the trip. Three teachers mention that their understanding of what wildlife is had changed; whilst they associated “wildlife” with large (is there something missing - mammals?) , they now include insects, birds, as well as plants and; and that they consider “*all wildlife is important*”. Wildlife also becomes “everyone’s responsibility” and not only the responsibility of the government.

Results suggest that the trip has had a strong impact on the children and on the teachers’ understanding and feelings for wildlife. The trip helped children see wildlife in a different light and in a different context. In the case of the teachers, the trip contributed to broaden their view of what wildlife is and the value and role of wildlife. To support the development of a broader interpretation of what wildlife is, it is suggested by Rose Hogan (pers. comm.) that the EELPO, and the EELP in general change the terminology used (in Swahili especially). Wildlife is often translated as *Wanyama pori* and refers to large mammals, other terms are more encompassing and need to be streamlined in the programme (LWF report, Rose Hogan, 2011).

### 3.7 IMPACT OF THE TRIP ON ACTIVITIES AND INVOLVEMENT

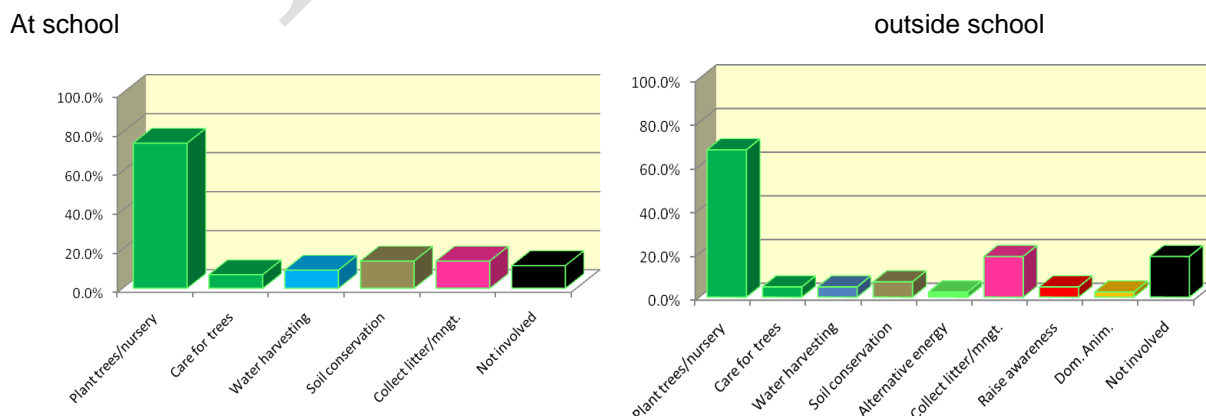
“Does the EELP make an impact on whether people take improving the environment into their hands and apply their knowledge?” was another central question of the evaluation. In order to investigate this, teachers and children were asked about environmental activities they were involved in before the trip (if any) both at school and outside and whether the trip had motivated them to do more to care for the environment.

#### 3.7.1 Which activities were teachers involved in at the time of the evaluation?

As illustrated in the respondents’ characteristics (section 3.1), more than 66% of the children and teachers interviewed were members of the school’s environmental club. The high proportion of involvement in clubs is probably due to the fact that teachers who apply for the trip are usually involved in a environmental activities, have a background or specific interest; and there is a perception that in order to benefit from the trip, one needs to have this interest (Ephantus Mugo, pers. comm.).

86% of the teachers reported being involved in environmental activities at school and 72% at home and 35% of the teachers were involved in environmental activities through other conservation groups.

**Figure 17 Environmental activities in which teachers are involved**



Activities in which teachers were involved, at the time of the interview, could be grouped into the following categories: “Plant trees and develop tree nurseries”, “water harvesting”, “soil conservation” (e.g. making gabions and promoting soil cover), “collect litter” and “litter management” (including burning, digging pits, clean ups etc), “alternative energy” (e.g. fuel efficient cookers, solar, wind), and “domestic animals” (a number of teachers? and very few children mentioned the rearing of poultry or rabbits as environmental activities. The rationale for the latter is not always clear).

Environmental activities in which teachers are involved most commonly both in school and outside of school are tree planting and nursery establishment (74% in school, 67% outside school), this is followed by litter collection and management (14% in school and 18% involved outside school). Twice as many teachers are involved in soil conservation activities in school as out (14% against 7%). Alternative energy (groups) and domestic animals appear as activities done by few outside school.

12% were not involved in any activities at school and approximately 19% not involved in activities outside school at the time of the interview.

Further investigations were made to understand whether teachers were connected to community wide environmental activities through WRUAs and CFAs. It was found that 11% were members of CFAs and 16% of WRUAs. Out of those who were not members, less than half were aware of these mandatory associations. This suggests that teachers are not always connected to “real life” sustainable use initiatives.

### 3.7.2 Teachers involvement before and after

88% of the teachers interviewed state that their school was involved in environmental activities before the trip, 81% were involved in these activities before the trip; 92% say that going on the trip stimulated them to do more than before to care for the environment.

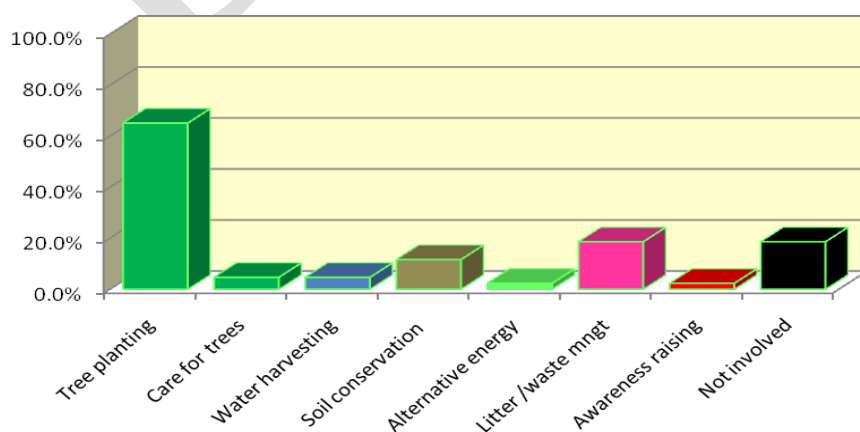
Schools were mainly involved in:

- Tree planting (most)
- Clean ups/litter management
- Soil conservation and cover
- Water harvesting

81% of the teachers who responded (41) were involved in the following activities prior to the trip mainly:

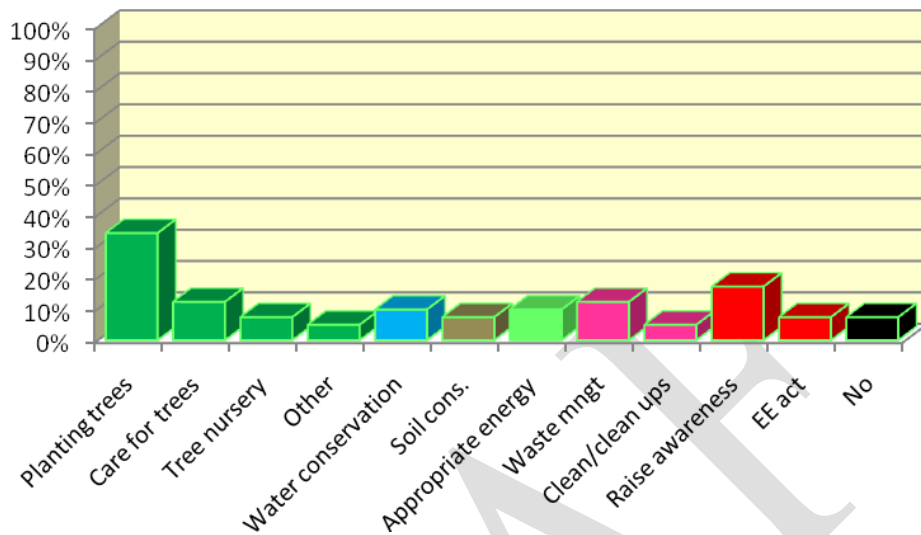
- Tree planting (65%)
- Litter/waste management (18.6%)
- Soil conservation (11%)
- 

**Figure 18 Activities in which teachers were involved at school prior to the trip**



93% teachers suggest that the trip stimulated them to do more to care for the environment. Teachers mentioned having increased their efforts in planting trees, caring for trees (which did not appear in activities prior to the trip), but also using energy saving jikos (firewood saving cooker), and raising awareness on environmental issues, including carrying out environmental education activities are all activities that have emerged after the trip, according to teachers.

**Figure 19 Areas of increased involvement in environmental activities after the trip**



Areas of increased involvement are generally similar to those in which teachers were involved prior to the trip.

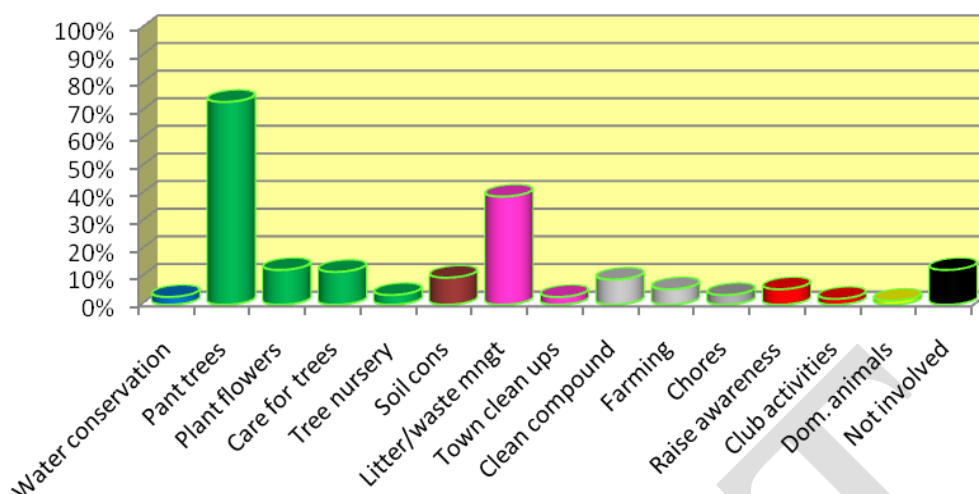
The information obtained through the second set of questions about which “activities” teachers have increased their efforts as a result of the trip, do not tally fully with the information obtained when asking them about the activities in which they were involved at the time of the interview. Areas of involvement are less broad when investigating the latter (e.g. raising awareness, alternative energy does not appear). In addition, although 7% of the teachers stated not having been stimulated by the trip to take up activities or increase efforts, 12% stated they were not involved in any activities. This could suggest a bias in the answers. However this would still infer an increase in the level of participation of the teachers as 19% were not involved in activities at school prior to the trip and this has dropped to between 7% and 12% that are currently not involved.

### 3.7.3 Involvement of children

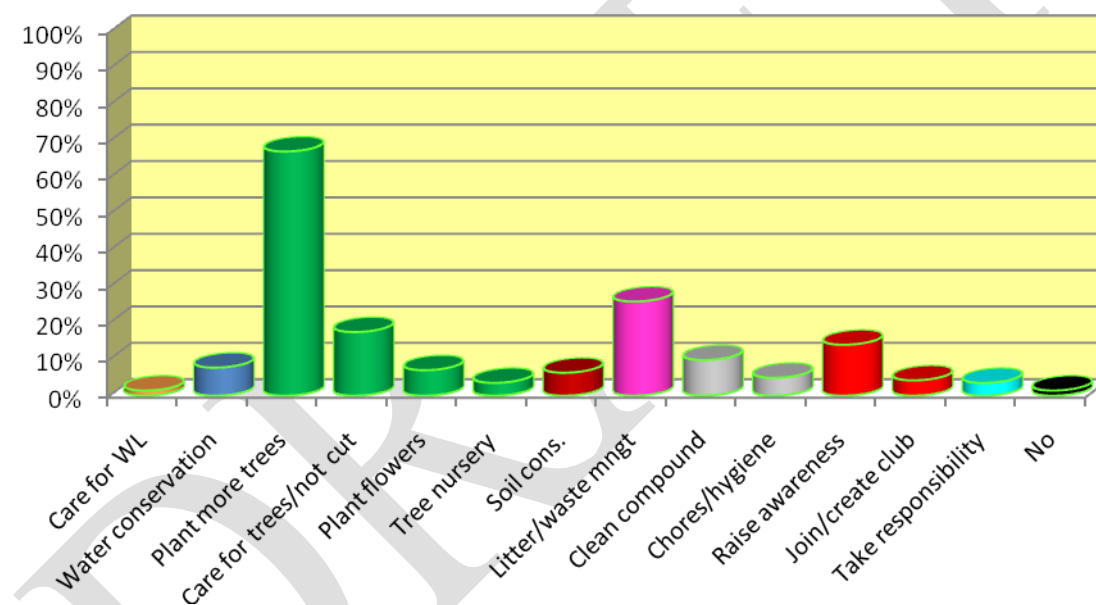
Activities in which children were involved at school and at home before and after the trip were explored, as well as how children would like to be involved in the future.

At school, prior to the trip, the large majority of children said being involved in tree planting activities (84%) and more than 33% in litter collection/management (39% including involvement in town clean ups). As apparent in the figure below, children equate cleaning activities (cleaning compound, and other chores such as sweeping, hygiene and farming) as environmental activities. 12% were not involved in activities to improve the environment. Domestic animals include raising poultry and/or rabbits.

**Figure 20 Involvement of children in environmental activities prior to the trip (at school)**



**Figure 21 Further involvement in environmental activities stimulated by the trip (at school)**



According to pupils, the trip resulted in new initiatives and attitudes. 12% of the pupils interviewed were not involved in environmental activities at school prior to the trip. 98% of them said that the trip motivated them to increase their involvement in environmental activities especially in tree planting (67%), in litter collection/waste management including digging pits, sorting waste (composting) and increasing or introducing dustbins in the school compound (27%).

Raising awareness of the importance of environmental health and how to improve it also increased children’s involvement in “raising awareness.” 14% of the children interviewed increased their involvement or got involved in such activities compared with only 6% involved prior to the trip. “Join/create clubs” emerged as a category of activity after the trip along with “caring for wildlife” (e.g. rescuing small wildlife and feeding birds).

Not commonly mentioned but worth noting is the emergence of a change in attitudes towards environmental activities after the trip. Five children mentioned that the trip motivated them to take responsibility for caring for environment, “*it is our responsibility to care for trees, to collect litter, this is not a punishment*”. This may reflect an increased understanding of the importance and meaning of these activities.

Only two children stated that they had not increased their involvement in school environmental activities since the trip.

Investigating change without a baseline reference and relying on “perceptions” often raises concerns about respondent bias to “please” the evaluator. In order to check for the bias, teachers were also asked whether they thought the trip had stimulated new initiatives at school by children. Teachers’ answers fully confirmed children’s responses.

88% of the teachers interviewed confirmed that the trip stimulated new initiatives at school (by pupils) including (frequency):

- Tree planting (14) and establishment of tree nurseries (6)
- Efforts to plant indigenous trees (5)
- Taking responsibilities for trees planted and litter collection (5)
- Caring for trees (4)
- Introducing rearing of pets (4)
- Beautifying the compound (4)
- Soil conservation and compost (4)
- Waste management including the building of dustbins (3)
- Caring for birds (3)
- Water conservation (2)
- Raising awareness (2)

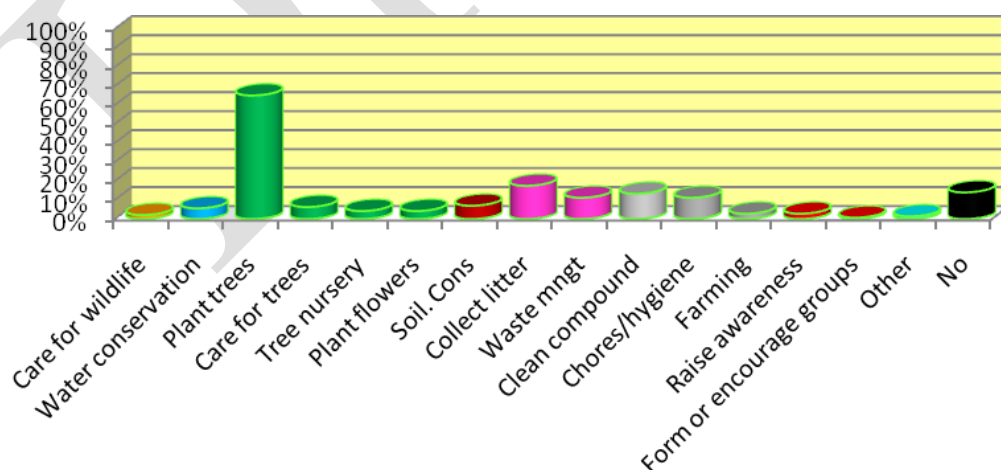
98% stated that they would do more at school for the environment especially:

- Increase tree planting (51%) but especially indigenous trees and diversity of trees (2.8%)
- Raise awareness of the pupils at school (29%)
- Supporting the development of tree nurseries (including providing seedlings) (11%)
- Water harvesting and conservation (11%)
- Create or encourage the creation of clubs (14%)
- Learn more about environment and have a career in conservation (1.4%)

As shown above, the children would do more of what they are doing, though time and school work is their main constraint. 29% desire to further raise awareness of other students.

The interviews investigated whether children’s efforts in environmental activity permeated the home environment and whether the EELP has an impact beyond the school environment.

**Figure 22 Involvement of children in environmental activities prior to the trip at home**

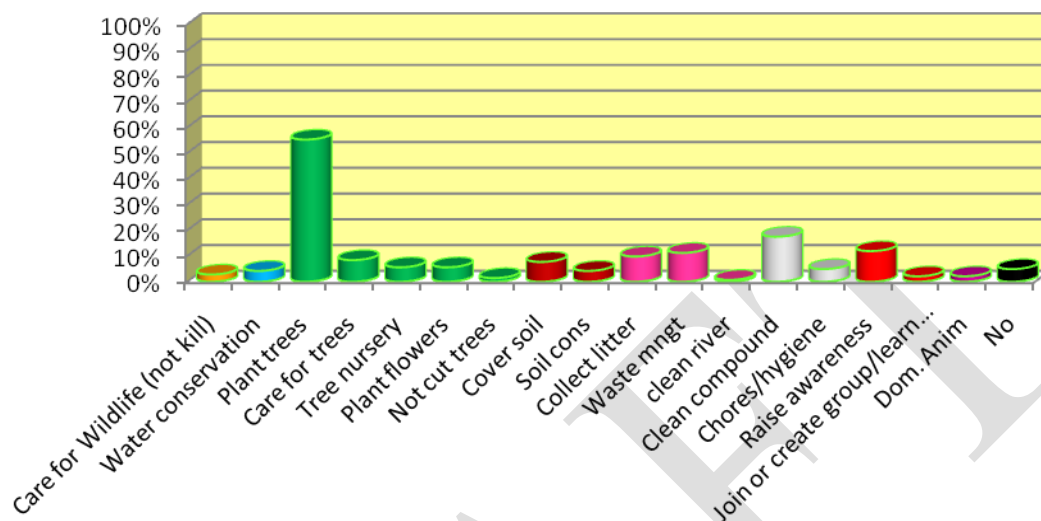


Prior to the trip, as at school, children were mostly involved in tree planting (70%) litter collection and waste management (28% all together). The waste management category includes burning litter mostly, composting and recycling (mentioned once).

Activities such as cleaning the compound (13%) and other chores (11%) are considered as environmental activities (cleaning, latrine digging, cutting grass and cutting bush are included in these categories).

14% stated not being involved in environmental activities at home prior to the trip (similar to the 12% not involved at school prior to the trip).

**Figure 23 Further involvement in environmental activities stimulated by the trip (at home)**



Planting trees (starting or increasing tree planting, creating space for trees) is mentioned by 55% of the children as activities in which they have increased their involvement. Other increased involvement is noted in relation to cleaning the compound (17%).

“Not kill wildlife” emerges as a category. Increased involvement in managing waste at home is also detected. As at school, involvement in raising awareness has increased for 12% of the children in the home context (e.g. awareness about the importance of environmental health, the need to conserve trees, to reduce charcoal burning). 3% were involved in such activities at home prior to the trip. Results suggest that soil conservation activities also increased after the trip especially in relation to soil cover (7%).

When investigating what else children would like to do to improve their environment in the home context, responses included:

- Planting more trees emerged as the most widely mentioned (38%) but also establishing tree nurseries (on a commercial basis for 3 children),
- Raising awareness among the community (29%)
- Caring for wildlife (5.6%) some through establishing a ranch, a conservancy, rescuing orphaned animals
- Joining/creating an environmental group (11%)
- Getting involved in conservation related careers (5%) such as ranger, warden
- Rearing livestock and domestic animals are also mentioned as an environmental activity which shows some of the confusion.

The data presented above indicates that the trip has had an impact on the involvement of teachers and children in environmental activities both at home and at school. Tree planting and waste management are most commonly mentioned activities prior to the trip by children. Raising awareness emerges strongly in addition to these activities both at school and at home. 12.6% of children were not involved in environmental activities before the trip and this reduced to 1.4% after the trip. 14% were not involved in activities at home prior to the trip and 5% were not stimulated to get more involved at home.

Increased understanding and knowledge is translated by children as taking more responsibility for the environment. This is confirmed by children’s mention as to why they would plant trees (e.g. clean air,



rain etc). The knowledge acquired during the trip may have enabled children to understand better the meaning of the activities they were involved in through school.

Pupils' desire to raise awareness and share knowledge suggests that the impact of the EELP spreads beyond the school environment, and the increased engagement in environmental activities at home confirms this.

Results also suggest that the EELP has had an impact on the level of involvement by teachers in environmental activities, at school at least; although discrepancies in the data suggest that responses may be biased. As for children, increased involvement related to planting trees and raising awareness, were the more commonly mentioned.

It is noticed however, that children confuse clean environment with "a-septic environment". This is why cleaning the compound, clearing bush around the house, washing hands are identified as environmental activities. The boundaries between the two may need to be discussed during the trip.

### 3.8 RATING THE TRIP AND IMPACT ON TEACHING

When asked to rate the trip overall and according to specific aspects on a 5 point scale the large majority of teachers and children rated the trip as good to excellent. Categories rated were:

#### Teachers

- Overall
- Knowledge
- Organisation
- Teaching skills
- Fun
- Material used

#### Pupils

- Overall
- Fun
- Interest
- Help to the school work
- Way of teaching
- New knowledge

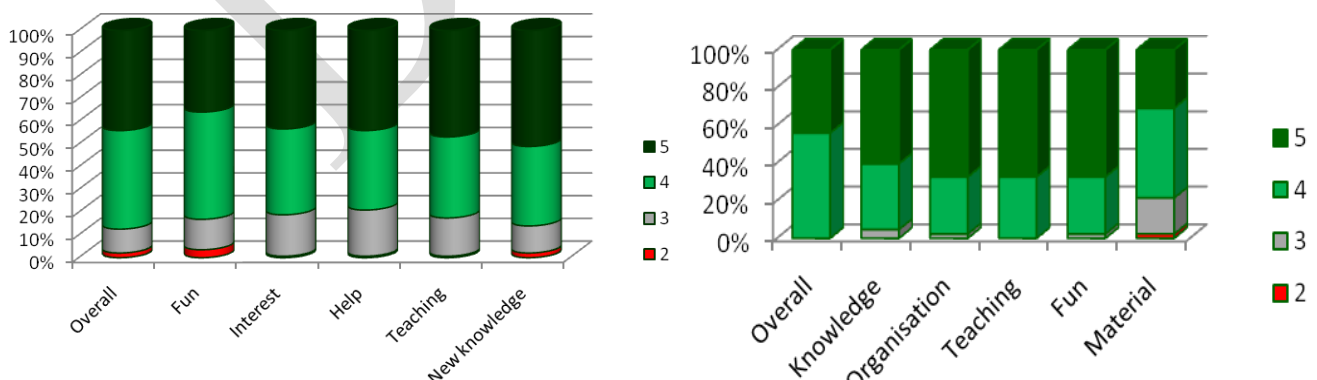
Results show that the lowest rating (good) by the teachers relates to the materials used (19%). This is also picked up in teachers' comments which suggest that the EELP distribute materials to children/teachers in order to enable:

- Better trip preparation
- Follow up from the trip

All teachers think that the trip supports the school curriculum (medium to strongly).

Between 10% and 20% of the children rated the different aspects of the trip as good. 20% rated "good" the trip's support to school work, 18% rated "good" the interest level and the ways of teaching as shown in the figure below.

Figure 24 Trip rating by teachers and the children



Generally the trip is perceived as a good to excellent experience. Again it is felt that these answers could be biased due to the fact that the EELP is carrying out the evaluation. However the desirability and the good experience of the trip is also picked up in the comments.

More than half the teachers suggest that there is a need for more buses and more trips which indicates that the trip is considered as a good and valuable experience. Other comments provide feedback on how to improve the trip:

- Teachers suggest that materials need to be distributed for children to be better prepared, and to be able to follow up and reinforce the experience (18% of the teachers). Material would include animal lists, reading material, magazines
- Teachers suggest ways to improve the organisation of the trip (14%) by ensuring that the EELPO has an assistant so he can concentrate on the teaching; the need for conservancy guides to have broader knowledge
- Teachers (7%) emphasise the need for the EELP to build the capacity of teachers in order for them to be able to follow up.
- 35% of the teachers state that the trip was a good experience and 60% suggest ways of increasing the number of trips and the access of the trip to more children

Children's comments mainly confirmed their enthusiasm for the trip (e.g. the trip was good, we want more trips etc) and to learn more. One child suggested that the EELPO go to the schools and provide follow up.

Comments which reflect children's enthusiasm generated by the trip.

- Children are disappointed if they do not see all the game during the trip! "*LWF should put all the animals together so that we can see them in one day!*". (18 year old boy)
- "*The trip changed my life and my way of thinking about conservation*" (41 year old lady who is back in school after having been denied the opportunity to go when she was young)
- When asked what she told her parents about the trip, a 13 year old said "*to enable me to do more trips*"
- "*After the trip I started a tree nursery, and introduced indigenous trees at home and at school*" (20 year old boy)
- "*I want to be one involved in environmental conservation*" (14 year old girl)

Some of the suggestions made are in line with the strategic recommendations and with current developments of the programme including the design of material, ensuring better follow up and training of teachers.

### 3.8.1 About teaching methods

97% of the teachers stated that the trip provided them with new ideas/tools on how to teach environmental subjects, especially using real objects (bones), going outside the classroom, and using more visual materials (pictures, graphs etc).

## 3.9 IMPACT OF THE EELP ON ADULT GROUPS

Two groups that went on an exposure visit through the EELP were interviewed about the knowledge gained and impacts of the trip from their perspective.

The first group interviewed was Gituamba umbrella, which was formed in 2009 in the Western part of Laikipia to bring 27 self-help groups together (approximately 675 members). Although the areas of focus of Gituamba Umbrella are education, health, microfinance, agriculture; the group has come to realise that the most urgent priority for the group to achieve its goal is to address the water management issue in the area. (Gituamba is located in an area where livelihoods are farming based.) The group thus decided to learn more about water conservation for? agriculture and went on an exposure visit to Lengetia farm, where zero till farming has been practised successfully for eight years.

The second group interviewed was the ACAG (Aberdare Conservation Action Group) which members reside across Laikipia West and Central Districts. The purpose of the group is to promote indigenous trees, establish indigenous tree nurseries and share information on indigenous trees. The group was taken to the Ngare Ndare forest to learn about indigenous forest management.



The purpose of the group trips and the changes and impact of the trip are summarised in the following table below.

**Table 8 Purpose, knowledge acquired and results of the trip**

Aspects/Group	Gituamba Umbrella	ACAG
Purpose	<ul style="list-style-type: none"> <li>• Learn how to use as little water as possible in farming</li> <li>• Learning about chemicals</li> <li>• Learn about farming without a tractor</li> </ul>	<ul style="list-style-type: none"> <li>• Have an opportunity to see conserved indigenous forest, understand better activities that are carried out in the forest</li> <li>• Interact with groups who are trying to protect forests</li> <li>• Chance to see a “pristine” indigenous forest as most of us live in already very degraded forests</li> </ul>
Key knowledge acquired	<ul style="list-style-type: none"> <li>• Possible to farm without ploughing, better returns as water is conserved</li> <li>• Need to plant fewer seeds per acre (21 kg of seeds rather than 3 to 4 bags)</li> <li>• Less cost and less work if one does not dig</li> <li>• Use of drip irrigation</li> <li>• Not to burn plant residue but mulch</li> <li>• Without tilling the soil becomes looser, much easier for farming</li> <li>• Less damage to the soil, less evaporation</li> </ul>	<ul style="list-style-type: none"> <li>• It is possible for communities to conserve forests</li> <li>• About how people can benefit from the forest in a sustainable way (grazing, fuel wood, eco-tourism)</li> <li>• If well organised (zoning for example) and there is a strong leadership, things are possible</li> <li>• Communities can fully own the resources and respect rules</li> <li>• “<i>What a well-protected forest looks like, what to strive for</i>”</li> <li>• Collaboration between communities and larger land owners (ranchers) who support the process</li> </ul>
Application of the knowledge	<ul style="list-style-type: none"> <li>• Some people have stopped tilling their land</li> <li>• Some people have stopped burning crop residues</li> <li>• Some have started mulching</li> <li>• Some have started to drip irrigate their kitchen garden</li> </ul>	<ul style="list-style-type: none"> <li>• One of the members has started to share with his community, teaching young men about eco-tourism potential.</li> <li>• One member has shared with the CFA to which he belongs what they have learned, the potential, gave idea on what can be done when CFA leadership is a strong</li> <li>• It may be difficult to apply in our area</li> </ul>
Results as a consequence of the new knowledge being applied	<ul style="list-style-type: none"> <li>• Increased return for those who did not till (the amount of rain may also have contributed to the increased yield)</li> <li>• Less soil erosion</li> <li>• Less work</li> </ul>	<ul style="list-style-type: none"> <li>• Increased cohesiveness as the trip helped us to bond (difficult to be a cohesive group as members come from different backgrounds and areas)</li> <li>• New ideas provided a moral boost.</li> </ul>

In both cases, results of the trips were significant and include:

- Increased knowledge
- Change in practices
- Increased crop yields (for the Gituamba group)
- Boost the morale (to know that it is working somewhere, what can be achieved)

There was strong consensus between group members about how valuable exposure trips are as a learning experience: learning first hand and seeing it with one’s own eyes, talking to people who share the same experience and seeing what people “like us” manage to achieve.

Participants confirmed that the information and knowledge was shared by the group representatives within their groups and that some of the members (who did not participate to the trip) are taking up some aspects of no till. Three plots were visited where mulching and no till was used and confirmed

that indeed the approach had been taken up. Neighbours have started enquiring and taking up the approach.

However, although changes have resulted from the trip, their members felt the need for further follow up by outreach officers to ensure that the approach is taken up correctly and to reach out to more farmers. Community Liaison Officers and programme teams should provide a role in this follow up.

Exposure visits have a key role to play in encouraging the sharing of knowledge and experience through exchanges between Laikipia people. The role of the EELP in supporting this process is important and needs to carry on building on adults' desire to learn ways to improve environmental health and discover livelihood opportunities through exposure visits and "field days".

## 4 DISCUSSIONS AND RECOMMENDATIONS

No rigorous impact monitoring process had been implemented in the seven years of the EELP's life. It was thus decided to carry out an in depth evaluation, whilst the programme is undergoing a review process.

The central question was "does the EELP make a difference?" This evaluation focused primarily on the EELP schools' programme, but also on two community groups, investigating whether the EELP trips made a difference in relation to knowledge, attitudes and how knowledge has been applied. Through surveys and focus group discussions the evaluation explored the EELP impacts. 26 schools and two groups who did a trip in 2010 were sampled as a longitudinal study in 2011. 43 teachers and 143 pupils were interviewed as well 36 CBO members.

Findings suggest that the programme makes a positive difference in knowledge, attitudes to environmental and wildlife and actions of the people who participate.

### 4.1 EELP SCHOOL PROGRAMME

The following reactions illustrate the types of impacts that the trip has had:

- *"The trip changed my life and my way of thinking about conservation"* (41 year old lady back in school after having been denied the opportunity to go when she was young)
- *"After the trip I started a tree nursery, and introduced indigenous trees at home and at school"* (20 year old boy)

#### ***On the characteristics of the pupils and teachers***

The evaluation shows that teachers and pupils taken on the trip are likely to have some grounding in environmental knowledge due to their participation in environmental clubs and school environmental activities. Most schools sampled that participated in the trip have on-going environmental activities (more or less implemented). The majority of teachers sampled teach environmental topics. 60% of the teachers interviewed were involved in organising the trip.

Environmental education was mentioned by 74% of teachers as one of the five things they think children need to learn from school along with life skills (54%), social skills (46%), health/drug abuse related issues (35%) and building personality and confidence of children (26%). It is believed that environmental education appeared more frequently than it would have if the evaluation had not been carried out by the EELP itself.

The class distribution of pupils who participated in the trip reflects more or less the policy of the EELP which is to take children of class 5 and above for primary; and all classes of secondary except the last. Pupils interviewed were on average 16 years old, 14 for the primary and 18 for the secondary (they would have been a year less on average at the time of the trip).

The fact that children are relatively older than would be expected is an asset for the EELP. They are more likely to be able to have the capacity to act on the knowledge acquired, especially in the secondary school context.

### ***On school preparation***

Although 93% of the children confirmed the trip was discussed prior to going, the discussions revolved around how to behave during the trip and what to expect. Little discussion was carried out in class about what the objectives of the trip are and what the teachers and pupils want to learn. This is reflected at the booking stage (most of teachers do not specify their learning objective). The lack of preparation was picked up during the first review of the programme and confirmed in this evaluation. No clear specific learning objectives were detected for the trip within classes or between teachers and children. In addition to this, all teachers mentioned ways in which they would prepare the trip differently next time, including going over the trip in more details, over the topics etc. Two of the ways mentioned which we feel worth noting are:

- Finding more about what the children want to learn from the trip
- Involve pupils who were not going to participate to the trip.

By involving whole classes (more than one usually) rather than the 28 pupils in trip preparation could prevent the trip being considered as an “outing”, “a reward”. The trip has to become part of a learning process, rather than an isolated event. It could become part a “school project”, where the class sets out a “research question”; the children going on the trip would be “the researchers” who collect the data which is then “analysed” in class.

More preparation would help in defining clear learning objectives at the teachers’, children’s and LWF’s levels. In order to address this, clear EELP learning objectives for the trip are being defined and preparation guidelines being developed. In addition to this, a selection of teachers has been trained on how to prepare the children.

### ***On knowledge***

The lack of properly defined learning objectives for the trip makes it difficult to respond to objectives.

The large majority of children and all the teachers perceive having acquired new knowledge about the natural environment, especially wildlife, and on how to care about the environment. The knowledge acquired was highly diverse and like objectives, no key messages or key learning emerged. This is expected to be a result of the lack of clearly defined learning objectives.

It was noted that children have a very good memory for facts, especially facts about wildlife. Children from the same trip would remember the same “funny”, “catchy” or interesting facts they had learned. This is important to build on, once learning objectives of the EELP are identified. It will be important to identify the facts that will enable children to pick up the wider issues.

One of the most challenging aspects of environmental education is to provide the tools to turn this new knowledge into action. New knowledge about what can be done to improve environmental health was also investigated. Results suggest that the new knowledge provided during the trip reinforces what children and teachers are already doing; for example, planting trees, caring for trees (teachers), and waste management/litter collection.

One of the EELP’s impacts is that pupils understand better why they are doing activities they are doing, and encouraging them to do more. For example, children mention a number of reasons why they would plant trees to improve the environment (e.g. for air, water, wildlife); and have a better understanding of the consequences of polluting the environment (e.g. through washing in the river, litter etc).

However, it is believed that, to be more effective, the trip should include discussions on concrete, simple tools for teachers and pupils to apply the knowledge acquired. This could have the form of a tool kit which is discussed at the end of the trip, when teachers and pupils make a plan about using their knowledge (as suggested in the new trip lay out).

The trip has undeniable impacts on knowledge, beyond the realms of the children or teachers involved. All pupils interviewed stated that they shared their new knowledge with their friends, parents, siblings, other students and neighbours.

### **Attitudes**

One of the objectives of the EELP is to create interest in wildlife, through the trip. Results suggest the trip has strong impacts on people's perception of wildlife. This is of critical importance in an area where numbers of human/wildlife conflicts are high, poaching common and little opportunities to get direct income from wildlife.

By the time of the interviews, more than 95% of the teachers and pupils considered wildlife important, mostly because of its economic value to the nation (foreign exchange earned through tourism). Teachers also considered wildlife important due to its role in the ecosystem.

Prior to the trip, more than 75% of the children and more than 50% of teachers interviewed had a very strong negative opinion of wildlife. They saw wildlife as dangerous and destructive, or mainly for tourists. A third of the teachers had no interest in wildlife or found it had no value. Very few had a positive opinion of wildlife. More than 85% of teachers and children claim having changed opinion in a positive way towards wildlife. The trip provided them with an opportunity to see wildlife (a large proportion had not seen wildlife before), see wildlife in a different context (non conflict context) and bond with wildlife (experience with captive animals). This translated into a wide array of positive aspects of wildlife being mentioned (economic and others). The trip contributed to broadening teachers' interpretation of wildlife (e.g. including insects, birds etc).

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Although the trip has had an impact on how teachers and children perceive wildlife, and introduced other dimensions, including emotional, the importance of wildlife is still perceived as mainly economic. It will be important to the EELPO to focus on the other non-market values of wildlife. This is also focused on, by introducing the web of life game in the new day layout to ensure that pupils understand the connectedness within the ecosystem.

### **On actions**

Findings suggest that the trip has an impact on the involvement of teachers and children in environmental activities both at home and at school. Tree planting and waste management (including collecting litter) are most commonly mentioned activities prior to the trip by children. Raising awareness emerges strongly in addition to these activities both at school and at home after the trip. The number of children not involved in activities at schools reduced from 12.6% before the trip to 1.4% after the trip and reduced from 14% of children interviewed not involved in activities at home to 5% after the trip.

Results also suggest that the EELP has had an impact on the level of involvement by teachers in environmental activities, at school at least. The proportion of teachers involved increased from 81% before the trip to at least 88% after the trip. As for children, increased involvement in planting trees and raising awareness were the more commonly mentioned.

Increased understanding and knowledge are translated in children taking more responsibility for the environment through their involvement. This is confirmed by children's mention as to why they would plant trees (e.g. clean air, rain etc). The knowledge acquired during the trip enabled the children to understand the meaning of the activities they were involved in through school.

The desire to raise awareness by children, as was already mentioned when investigating the sharing of information; suggests that the impact of the EELP may go beyond school, especially in relation to knowledge sharing.

It is noticed however, that children confuse clean environment with "a-septic environment". This is why cleaning the compound, clearing bush around the house, washing hands are identified as environmental activities. The boundaries may need to be discussed, or this is something that needs to be built upon during the trip to give tools to care better for the environment.

It is suggested that a "tool kit" is developed to increase creativity and support pupils and teachers with concrete and relevant ideas about what to do to care for the environment. The willingness of children to get involved in environmental activities and the confusion between hygiene/health and environmental health provides an opportunity for the programme to develop tools in relation to "how to be more environmentally friendly when performing daily chores such as cleaning the compound, clearing bush, cutting grass etc". It also needs to be understood that primary school children may not?

have influence over these chores. The advanced age of secondary children may give them more influence and decision power over their own actions.

### ***The experience***

The trip is considered as a good to excellent experience and to support school curriculum. It is found also to be a source of new ideas for teachers to teach environmental topics by using real objects, taking children out of the classroom. The latter results show how formal lectures are.

The EELP could provide opportunities for teachers to build the confidence to teach in a more learner centred manner through providing them with material or examples of lesson plans. This is something which is currently being thought about (Rose Hogan, pers. comm.)

The need for materials and capacity building for the teachers is also picked up in the “comment” section of the survey. Materials would enable children to learn by themselves, teachers to prepare the children better and ensure that teachers accompany the children better in their learning process, in animating environmental clubs etc.

Results of the evaluation show that the EELP school programme has encouraging impacts, children and teachers want more trips, are keen to learn and experience, and are keen to get involved in activities. The trip has results beyond the classroom, through knowledge sharing in school and at home. One of the objectives of the EELP is to reach the wider population. The EELP schools’ programme can contribute to this but will need reinforcement through the other LWF programmes.

The importance of narrowing the trip’s focus, discussing objectives, providing concrete simple tools for knowledge to be applied, and building the capacity of teachers are however areas that need careful thinking. Results confirm weaknesses which were picked up in the review.

## **4.2 ADULT GROUPS**

The discussions show the significance of the EELP impacts on adult groups. An increase in knowledge as well as changes in practices were immediate in one group, with positive results on livelihoods mentioned (increased yields for less work). Of course other factors may have contributed to the significance of these results, however in both cases, groups could show how useful the trip had been and believe that exposure is one of the best ways for group members to learn.

The EELP needs to carry on supporting exchange visits to enable Laikipia people learn and share knowledge between each other.

## **5 A PROPOSED MONITORING SYSTEM**

To date, no rigorous impact monitoring had been done. One of the objectives of this evaluation was to inform the design of a relevant monitoring process for the EELP. Although this evaluation focused on the EELP schools’ programme and exposure tours, by scaling this up, the EELP seeks to ensure that it is more strategic in reaching the wider population; communities through leadership, becoming a service provider to environmental education stakeholders (including other LWF’s programmes); increasing the bus availability for adults’ exposure tours, and sharing knowledge through the radio networks. The EELP monitoring system will need to capture the programme’s outcomes at the following levels:

- Schools- pupils/teachers
- Environmental education stakeholders (other than schools)
- Communities/general public

The following section presents a draft EELP monitoring process. The process was discussed with the EELPO and the Consultant in charge of guiding the implementation of the reviewed programme.

A complete version of the monitoring system process will be finalised and produced as a separate document once the reviewed programme implementation strategy is complete, and the monitoring

discussed with relevant EELP partners. It is important to note that the monitoring system will carry on being refined on the basis of experience as it is implemented and will be fully integrated with the LWF programmes impact monitoring processes.

## 5.1 AT THE SCHOOL LEVEL

Building on teachers' knowledge and enthusiasm is key to ensure that there is follow up and that the trip is not an isolated event but part of a "learning process", part of a lesson plan. As was apparent in the evaluation that the trip broadens teachers' creativity to use available teaching aids and has stimulated teachers to take children out of the classroom to discuss the environment. Investigation in teachers' creativity to deliver messages is key and has become a priority of the programme (see also report on EELP Conservancy Guides workshop, May 2011). Although the idea of a pre and follow up visit has been mentioned, it is unlikely that this will be able to be done for all trips. Trip preparation guidelines are thus being developed to enable teachers to prepare their students better. More investment into teachers' capacity to teach environmental topics is also planned; this should have a positive impact on the way in which knowledge is used.

The monitoring system in the context of the schools' programme will concentrate on investigating impacts of the following:

- Preparation/sharing of knowledge prior to the trip
- Knowledge acquisition (understanding of key messages)/sharing
- Opinion on the trip
- Processing and using the knowledge

This will be done as summarised in the following table.

**Table 9 EELP Schools monitoring process**

<b>What</b>	<b>How/When/ Who and How frequently</b>
Preparation/ identification of learning objectives	<p>The EELPO asks the children and the teachers to present their learning objectives for the trip and shares LWF's objectives with them. Clearly defined learning objectives for the class will be an indicator of the level of "preparation".</p> <p>The EELP investigates with the children how these objectives were developed and gets feedback about the preparatory guidelines from the teachers.</p> <p>This is done prior to ALL trips.</p>
Change in knowledge and understanding about the natural environment, Attitudes towards wildlife	<p>Self-administered questions (see example draft in Appendix 7) :</p> <ul style="list-style-type: none"> <li>• Teachers and children take a few minutes to fill one side of the individual form before going on the trip. The EELPO introduces the form and its purpose.</li> <li>• Teachers and children fill the other side of the form on the way back from the trip (this can be done in the bus on the way back). The forms will be filled by <b>one randomly sampled school every week</b>.</li> </ul>
Knowledge acquired in relation to LWF learning objective	<p>Teachers and children fill in the form (same as above) on the way back from the trip. The forms will be done by the <b>weekly randomly sampled school</b> (the same as above).</p>
Achievement of learning objectives	<p>Teachers, children and the EELPO evaluate by voting, whether learning objectives were achieved or not (this is integrated in the new day trip lay out). The EELPO takes notes on the score for each objective. This will be done by <b>ALL schools taken on the trip</b>.</p>
Feedback about the trip	<ul style="list-style-type: none"> <li>• Teachers and children fill in the form (same as above) on the way back from the trip. This will be done by <b>the weekly randomly selected school</b> (the same as above).</li> <li>• After lunch, when the children evaluate whether their objectives of the trip were fulfilled, the EELPO asks children to say what they liked least and what they liked most. Note it on a flip chart. This will be done by ALL</li> </ul>

	schools.
Making the knowledge relevant to children's life and applying new knowledge	<ul style="list-style-type: none"> <li>EELPO facilitates a discussion about what the teachers/children can do to apply their new knowledge (using the tool kit of concrete and simple tools to improve environment- if developed) and about what they are going to do. A short term and longer term "plan" is written up on a flip chart. The school takes the flip chart and the EELPO takes notes.</li> <li>Follow up: 10 random schools are visited by CLOs (2 per CLOs) <b>every 6 months</b> to investigate whether classes have applied their knowledge as planned or not and reasons why. CLOs will also collect feedback about materials distributed (if any).</li> </ul>
School environmental efforts	<ul style="list-style-type: none"> <li>An environmental audit is performed every year with the schools which would like to participate to the "environmental effort challenge". LWF CLOs and the EELPO participate to collecting the information for the environmental audit</li> </ul>

**Table 10 Data entry, processing and dissemination**

<b>What</b>	<b>Who/when and how</b>
Data entry	<p>Templates for data entry will be developed, with support from the M&amp;E officer.</p> <ul style="list-style-type: none"> <li>An assistant enters the list of objectives, scores on achievements and immediate feedback, every week for all schools under the supervision of the EELPO.</li> <li>The EELPO or assistant enters the data collected through the forms (1 randomly selected school per week)</li> <li>The CLOs enter the data collected on the implementation of the action plan follow up and send to the EELPO.</li> <li>Data collected on the environmental audits will be entered by an assistant on a yearly basis.</li> </ul>
Data analysis	<p>An analysis guide will be developed with support from the M&amp;E officer.</p> <ul style="list-style-type: none"> <li>Data collected through forms and discussions at the time of the trips will be analysed on a monthly basis and compiled on a quarterly basis. Trends will be investigated on an annual basis. This will be done by the EELPO with support from the M&amp;E officer.</li> <li>Data collected on the follow up will be analysed on a bi-annual basis and compiled on a yearly basis by the EELPO with support from the M&amp;E officer.</li> <li>Data on schools' environmental efforts will be compiled and progress investigated on a yearly basis by the EELP with support from the M&amp;E officer.</li> </ul>
Feedback	<ul style="list-style-type: none"> <li>Analysed data from the forms and discussions during the trip will be disseminated through the LWF E-news for members, partners and Education sub-committee members by the communications officer.</li> <li>An annual report showing trends and impacts detected will be produced, disseminated through the LWF newsletter and sent to schools, school teachers' network and partners by email by the EELPO. Results will also be disseminated through a poster presentation at the AGM, and Laikipia Education Day .</li> </ul>

#### **Other environmental education stakeholders**

It is proposed that the EELP's impact in relation to other environmental education stakeholders is investigated through a yearly meeting proposed as an activity of the EELP in the implementation strategy (bringing together conservancy guides, education officers, school teachers etc). This meeting will aim to discuss experiences, lessons learned, successes and failures, materials etc. A feedback session should be held on the service provided by LWF with recommendations. This report will be compiled by the workshop facilitators and disseminated to participants, partners and the Education sub committees.

Monitoring results will be used to improve LWF service and school trips.

## 5.2 ADULTS, COMMUNITY AND GENERAL PUBLIC

### 5.2.1 Exposure tour and groups

The purpose of the monitoring at the group levels is to detect impact of the trip on knowledge, use of this knowledge, and outcome in relation to environmental health and people wellbeing. Perception of change will be discussed within the context of the EELP. More objective measures of impacts on livelihood and environmental will be investigated through other LWF programmes' monitoring process as the trip is often made in the context of a programme.

The monitoring process in relation to exposure tours is summarised in the table below.

**Table 11 Monitoring impact of exposure tours**

What	How/When/ Who and How frequently
Information collected on knowledge acquired and application of this knowledge, and perceived environmental and livelihood impacts of application.	<ul style="list-style-type: none"> <li>• The EELPO and group participants share each others' learning objectives for the trip, prior to the trip. The learning objectives will have been discussed prior to the trip with the CLOs. This is done for ALL trips and notes are taken.</li> <li>• At the end of the trip the EELPO facilitates a vote on the level to which participants feel their objectives were fulfilled (scores)</li> <li>• The EELPO discusses, with the participants, how they intend to use the acquired knowledge. A short and longer term "activity plan" is noted. This is taken by the group and the EELPO. This is done on ALL trips.</li> <li>• Focus group discussions are carried out with random groups by the CLOs (in the course of their work) or by the M&amp;E officer in the course of the LWF programme monitoring, not more than 6 months after the trip, to follow up the implementation of the activities and outcomes. Follow up is done on an on-going basis, according to CLOs' /the M&amp;E officer's work plan. An interview template is designed with support from the M&amp;E officer.</li> </ul>
Data entry	<ul style="list-style-type: none"> <li>• Data on objectives and achievements, and "activity plans" are entered by the EELPO/assistant on a weekly basis</li> <li>• Data on follow up visits will be entered by an assistant/EELPO or M&amp;E officer.</li> </ul>
Data analysis	Data will be analysed on a yearly basis by the EELPO with support from the M&E officer.
Feed back	Monitoring results will be written as a report disseminated to the groups by CLOs, to the wider membership through the Enews and/or Newsletter, and an oral presentation will be made during unit meetings. Results on the impact of exposure visits will be disseminated along with impacts of the schools programme to partners, members etc.

### 5.2.2 General public

It is planned for the EELP to reach the wider population through mass media in order to disseminate key information on ecosystem processes, environmental laws, rights and obligations in relation to natural resource use and management. The content of radio programmes is still being developed. At the same time, the EELP will continue participating in field days, environmental days. Environmental messages disseminated through the EELP will reinforce messages disseminated through other LWF's programmes.

In order to measure the impact of the EELP and other programmes on knowledge and understanding of the general public, it is decided to take the opportunities of open days or environmental days where, on average, 500 people gather.



**Table 12 Monitoring impact of exposure tours**

<b>What</b>	<b>How/When/ Who and How frequently</b>
Knowledge	A random sample of 50 respondents will be interviewed through a quiz or a short questionnaire at two environmental/field days per year by a team of 5 enumerators. In total 100 people from the general public will be interviewed individually per year. Interviews will relate to knowledge, the source of knowledge and the use of the knowledge.
Data entry	Data will be entered by assistants twice a year (after each selected event).
Data analysis	Data will be analysed on a yearly basis by the EELPO by the M&E officer.
Feed back	The results will be disseminated to the environmental education stakeholders, other programmes, LWF members (including communities) along with other results mentioned above through the LWF News letter, E news, unit meetings, AGM, Laikipia Education Day etc.

In addition to this, the EELP monitoring will be integrated in the broader programme and internal monitoring of the LWF. The monitoring focuses on the people's understanding, uptake of knowledge and application of this knowledge. Specific questions about the source of knowledge will be inserted in programmes' impact monitoring in order to detect whether, radio programmes have an impact, and whether community based training has an impact on knowledge (see below).

### **5.3 EDUCATION AT THE COMMUNITY LEVEL**

The EELP is planning to train community based trainers to train others in the community. Impact monitoring will be integrated with that of other programmes on knowledge acquisition and application of this knowledge.

In addition to this a series of focus group discussions will be done in order to get feedback from groups, in communities, where the training has been done. Perceived changes will be investigated in relation to knowledge and knowledge application and feedback on the training will be discussed. Focus group discussions will be led by trained facilitators, data entered by assistants and analysed by the M&E officer and EELPO. Results will be compiled on a yearly basis and disseminated along with results above.

Training quality assessment will also be carried out. The EELPO/ CLOs/ M&E officer or trained assistants will participate to training sessions on a quarterly basis. An assessment form will be designed. The quality of the training will be discussed with the trainers at the time of the assessment. Results will be compiled on a quarterly basis and shared in the quarterly programme meeting in order to address issues detected rapidly.

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