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## **Evaluation Report**

### **Teachers' Training in Environmental Education**

2012

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## Introduction

Marine and coastal ecosystems face increasing pressures as a result of growing coastal populations especially in the developing countries where poverty levels are high and literacy levels low (Samoilys et al., in prep). Countries such as Kenya, have put in place different mechanisms to reduce anthropogenic effects on the environment while supporting the recovery of ecosystems. These include a legislative framework that supports establishment of protected areas, such as marine and terrestrial parks; collaborative management efforts that empower local institutions such as Beach Management Units (BMUs) and the incorporation of environmental education into the national curriculum. Many non governmental organisations (NGOs) also attempt to address these environmental challenges through ecological monitoring, carrying out environmental education as well as providing support for livelihood activities.

Education is generally considered to address environmental and developmental issues (UNESCO, 2005) with environmental education focussing on natural systems and human interaction with them. Although the outcomes of education are intended to promote sustainability and analytical decision making, focus is sometimes only on enrolment and certification. Such environmental education does little to influence attitude, impart values or share knowledge and skills that compel people to take action for the environment. Successful environmental education must therefore lead to attitudinal and behavioural shifts towards action for sustainability.

The teachers' training in environmental education program is designed to meet the environmental education needs of primary school teachers with a focus on marine and coastal environments. Training is carried out in Kenya through seminars for patrons and head teachers combined with follow up activities to provide support. Such follow up activities include visits to the schools, telephone support, financial support and facilitation of network meetings and peer-to-peer learning activities. Additionally, patrons are required to develop an environmental project through which knowledge and skills transfer to students is carried out, establish or strengthen an existing club and recruit fellow teachers to serve as assistant patrons for the clubs. Head teachers are required to prepare environmental action plans for their schools

in consultation with the teachers and students, delegate club responsibility to an assigned patron and provide space, time and financial support where needed.

Patrons' seminars were held annually between 2003 and 2008. The first three of those seminars focussed on teachers from Mombasa only while participants in the seminars held from 2006 were drawn from Mombasa, Kwale, Malindi and Lamu area. Head teachers' seminars were held in 2009 (Mombasa) and 2011 (Kwale and Malindi). Each of those seminars focussed on head teachers from that respective area. For cost effectiveness and to promote active participation by all the participants, only 10 – 18 teachers were allowed per seminar. Since 2003, 55 patrons and 49 head teachers have been trained.

Seminar participants receive a certificate of attendance for full and active participation in the seminar and afterwards a certificate of merit if they are successful in implementation of EE transfer. Participating teachers develop a school project whose implementation is assessed and they are awarded a certificate of merit if deemed successful. The patrons' seminar is carried out over a 5-day period during which topics covered include: marine and/ or terrestrial ecosystems, project management and demonstrations of practical project activities such as making paper mache or preparing seed beds. The head teacher seminar is held over 2 days during which topics covered include: global and national environmental challenges, school cultures and leadership styles.

The purpose of the evaluation was to determine the impact of the teachers' training in environmental education program by examining activities that are carried out by patrons and head teachers who have been trained. The research questions were therefore:

- i. To find out whether trained teachers carry out any environmental related activities
- ii. To find out whether the activities are successful
- iii. To find out challenges faced in implementing activities
- iv. To find out their (patrons and head teachers) aspirations for the future

## **Methodological background**

The evaluation adopted a case study approach in which only teachers who had been trained either as club patrons or head teachers were targeted. The trained teachers were contacted by phone and suitable date and time for

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school visits agreed upon. As much as possible schools in the same locality were visited on the same day or adjacent days. Evaluation packs were posted to teachers in Lamu county and remote areas of Kwale county with an addressed and stamped return envelope included in the pack. Random sampling of the trained teachers was done, based on availability of the teachers and students during the period of data collection. Data collection was carried out through the use of quantitative and qualitative instruments.

The main data collection instruments were a self assessment form for the patrons and a questionnaire for head teachers and supplemented by observations in both cases (see Appendix 1 and 2). Actual data collection was carried out by visiting the school where a trained teacher was currently teaching and administering the self-assessment sheet in the case of patrons or the questionnaire in the case of head teachers. Visits ranged from one hour to two and a half hours during which the evaluator interacted with the students, made and documented observations using photos and toured the school projects. In the case of school patrons, the evaluator would also fill out a validity assessment form which would later be used in comparing the self assessment form.

Data from the patrons self assessment forms was entered and cleaned in excel. Descriptive statistics were used to provide summarised information while coding was used to identify key themes in successes, challenges and visions. Ratings from the validity assessment form filled out by the evaluator were also entered in excel and percentages calculated. Data from the summarised table of the head teacher questionnaires was entered into excel while responses to in-depth questions were coded in order to identify key themes.

## Results

This section presents all the results from the evaluation followed by discussions of the same in the subsequent section. The distribution of schools whose patrons and head teachers were evaluated is tabulated below:

Count of Schools (Teacher evaluation)	
Place	Total
Kilifi	5
Kwale	7
Lamu	4
Malindi	5
Mombasa	12
Grand Total	33

Count of Schools (Head teacher evaluation)	
Place	Total
Kwale	10
Malindi (blank)	12
Grand Total	22

Results from the patrons self assessment show that each of the 33 patrons evaluated had established a club with membership ranging from 11 students to 138 students. Average club membership per school was 41. Sixteen of the patrons are assisted by one patron while 11 patrons have 2 assistants. Three patrons have 3 assistants each and carry out at least 3 three different projects; while 3 of the patrons (2 of which are also head teachers) are working with the entire school staff. All patrons and head teachers evaluated had been trained through the environmental education seminars. However, only 40% of the head teachers evaluated reported that the club patrons in their schools had undergone training (in some instances, the trained head teacher was transferred to a different school, occasionally to a school whose patron had not been trained).

Projects implemented at the time of evaluation ranged from 1 to 5 per school. Tree planting is the most popular project and is carried out by 76% of the patrons evaluated. Additionally, 7 out of the 9 patrons who are implementing a single project are involved in tree planting. A similar pattern is observed in the head teacher evaluation where 77% of them reported tree planting as a project activity while 5 out of 6 head teachers reported it as the only project activity. Other popular club activities as identified by both patrons and head teachers include school beautification and waste management.

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21 out of 22 head teachers reported that there was a club promoting environmental awareness in their school and in some cases, up to 5 different projects being carried out in the school. Additionally, they reported that the projects benefit the schools. The most important benefit of the projects according to the head teachers was the income generated from projects; for example, from the sale of seedlings or timber from nurseries and woodlots. Other benefits mentioned included: keeping the school cool, preventing soil erosion and usefulness as teaching aids. Project success as mentioned by the head teachers included improved aesthetic value of the school, sale of project products and a clean environment. Patrons on the other hand reported the survival of trees, teacher-teacher and teacher-student cooperation as well as school beautification as their greatest successes.

All patrons and head teachers indicated that there were challenges in carrying out environmental activities and projects. Head teachers highlighted the main challenges as livestock destroying planted trees, unfavourable weather during drought and inadequate resources. They also indicated that some of those challenges provided opportunities to involve the parents (e.g. requesting students to carry water for seedlings from home) and therefore increased environmental awareness in the community. Patrons identified the main challenges as inadequate resources (e.g. equipment, time and space), theft of project products and negative attitudes.

The aspirations of the patrons were focussed on changing the attitudes of the students in order to create model schools that other students and the community could learn from as well as increasing the greenery of their school by planting even more trees. The aspirations of the head teachers included planting trees; having their school club patrons trained and receiving support to improve the school (e.g. construct fences, toilets and classrooms).

Results from the evaluators' ratings of some patrons (representing a count of the appearances) are presented in the table below:

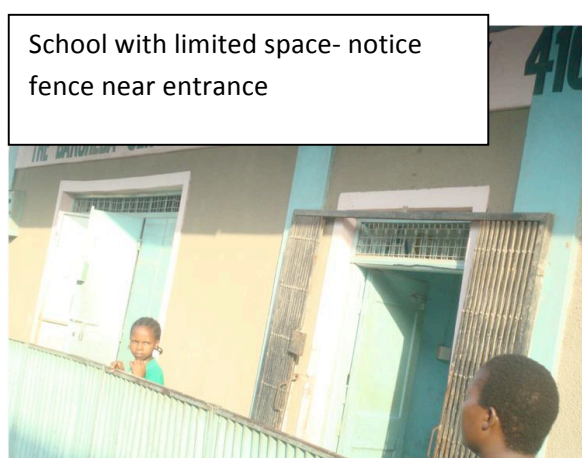
Rating area	Rating $\geq$ 80%	Rating $\leq$ 40%
Patron commitment	7	0

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Head teacher assistance	7	3
Pupil enthusiasm	8	2
Project effectiveness	9	0
Validity of assessment	7	1

Factors, which lead to the success of projects (schools with an evaluators rating similar or higher than 80%)	Factors, which lead to the challenges of projects (schools with an evaluators rating similar or less than 40%)
<ul style="list-style-type: none"> <li>• Choice of project</li> <li>• interest and enthusiasm of pupils</li> <li>• financial and in-kind support from the head teacher and</li> <li>• commitment from the club patron</li> </ul>	<ul style="list-style-type: none"> <li>• None commitment of club patron</li> <li>• hence inadequate interest among the pupils</li> <li>• inadequate support from the head teachers e.g. allowing time for club activity or allocating space for school projects</li> </ul>

The photos below show the situation in some of the schools evaluated (e.g. limited space is sometimes a challenge whereas other schools have very successful projects).







Teaching aids made from paper mache in a waste management project



Mature wood lot in background

## Discussion

The evaluation sought to find out whether trained teachers are carrying out any activities in their schools, the level of success as well as challenges and aspirations for the future. The Patrons evaluated were spread over all the areas (five) from which the seminar participants have been drawn. Head teachers evaluated were however drawn from 2 out of 3 areas where seminars have been conducted.

It is evident that many of the trained teachers are carrying out environmental activities through various projects in their schools, even in cases where they have been transferred to new schools. The degree of the trained teachers' engagement with other teachers and students in their school differs as well as the extent to which they are successful in implementing the school projects.

It is notable that all the patrons have at least one assistant in their schools which is assumed to be useful in enhancing sustainability of projects in case patrons leave the school (e.g. when transferred to another school). It was however not possible to confirm the enhanced sustainability aspect as the evaluation was conducted in the schools where the patrons are presently teaching. The design of the evaluation was such that focus was on the trained teacher, hence if a teacher was trained while at school A then transferred to school B, the evaluation of the teacher was conducted in school B. However, in some cases there was an opportunity to visit the former schools of patrons while evaluating head teachers. In such instances (3 in total) it appeared that

school projects had deteriorated since the departure of the trained patron, in spite of the head teacher having been trained. That highlights the need for training of patrons and is consistent with the results of evaluators' ratings where increased patron commitment translated to an increase in the number as well as success of school projects.

Trained patrons mainly work with students through clubs and seek the involvement of fellow teachers as patron assistants. In the 3 schools where the patrons had 3 assistants, the clubs seemed to be able to carry out more activities and register higher success in the activities. This is probably because the teachers share responsibility and therefore do not feel overburdened or pressured academically and can therefore commit to extracurricular activities such as club projects. It could also be because the teacher student ratio is fairly low therefore the teachers can engage the students in depth and enlist greater interest from them. This observation is consistent with the head teacher ratings of well executed projects where the student teacher ratio is similarly relatively low with 10 – 18 students per teacher.

The project successes and aspirations as perceived by head teachers differed from what the patrons identified as successes and aspirations with head teachers emphasising financial or management relevance while patrons highlighted ecological and sustainability based relevance. For example, in a tree planting project, head teachers were pleased that some income was generated, while patrons perceived the survival of trees as very important. Similarly, head teachers indicated that they would be happy to have more trees planted and the school infrastructure improved whereas the patrons indicated that they would like to have students attitudes changed and impact the community by being model centres.

The most striking difference between schools with a high evaluators' rating (80% and above) and schools scoring 40% and below in the evaluator rating is the lack of Patrons' commitment. This shows that the commitment of the patrons is very important as it has a direct bearing on the effectiveness of projects and enthusiasm of the pupils.

The challenges highlighted by the head teachers appeared to be more external such as or livestock disruptions (related to community) and unfavourable weather whereas, the patrons highlighted internal challenges such as

inadequate resources and theft of project produce (including head teachers harvesting trees to sell without informing the club patrons and students).

Although the differences highlighted in perceptions of the head teachers and patrons over issues point to a greater environmental awareness among the patrons, it is interesting to note that head teachers who promoted a whole school approach after their training also appreciated having a clean environment and the aesthetic value of trees. That points to the need to promote a greater environmental awareness among head teachers and use their leadership positions to promote both whole school and community engagement.

Apart from the noted successes, the large number of students (over 1300 in patron mentioned projects and over 2500 in head teacher mentioned projects) who are involved in projects is also very impressive. That also shows that investing in head teachers is likely to yield higher returns in terms of the possibilities of students that can be reached. Additionally, head teachers may be more influential than patrons in the communities, thus there is a possibility of being able to make a greater impact by directing training opportunities at head teachers. Nevertheless; skilled, knowledgeable and enthusiastic patrons are needed for successful implementation of projects.

## **Conclusion and recommendations**

Although the evaluation has provided information on the progress of the program, there are gaps which have been identified and need to be addressed in future evaluations. These include:

1. Visit schools where trained patrons have moved on from and discuss sustainability issues with present patron or school head teacher as a way of learning lessons to strengthen the project
2. Seek former club members (in secondary school, formal and informal employment) and find out whether their club experiences were useful and continue to be relevant
3. Evaluate head teachers in Mombasa in order to compare the performance, priorities and support of head teachers in rural and urban areas. This is useful as urban schools do not often engage in tree planting (which was the dominant project)

Clearly, the evaluations shows that the program has been successful when judged by the number of teachers trained, the number of students involved in projects and the vibrancy of on-going projects. The main recommendations are therefore to:

1. Document the training and follow-up process as a case study that others may learn from
2. Prioritise training and follow-up of head teachers as a way of expanding impact to entire schools and neighbouring communities
3. Continue to provide ecologically based seminars and learning opportunities such as networks and exchange visits for trained patrons and those from schools where head teachers have been trained
4. Consider training secondary school patrons as new program direction

## References

Government of Kenya (2011) Integrated coastal zone management action plan for Kenya, 2011---2015. Towards an integrated management of Kenya's coastal and marine resources. NEMA, Nairobi

Melita Samoily, George Waweru Maina, Julie Church, Brigid Mibei, Marta Monjane, Doris Mutta and Mine Pabari (in prep) Situation analysis for Mangroves for the Future: Understanding the resilience of coastal systems

UNESCO. (2005) UN Decade of Sustainable Development 2005-2014. Paris:UNESCO

## Appendices

### Appendix I: Patron evaluation



#### Teachers Training in Environmental Education

##### Self-assessment

Name of the school

Name of the Club patron	
Teachers involved	
Pupils enrolled	
Years of attending seminars	
Date of teachers certification	
Project done for the certification	
Current projects/activities	
Successes	
Challenges	
Visions	
Remarks	

Date:

Signature Club patron:

Signature Head teacher:

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Assessment of the school (converted to percentage by considering and adding the highest rating (2) of commitment of patron, assistance of head teacher, pupil enthusiasm, project effectiveness and validity of self assessment)

Engagement/commitment of the club patron:	<input type="checkbox"/> ++ <input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> -
Assistance from the head teacher:	<input type="checkbox"/> ++ <input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> -
Happiness/enthusiasm of the pupils:	<input type="checkbox"/> ++ <input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> -
Effectiveness of the projects:	<input type="checkbox"/> ++ <input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> -
Validity of the self-assessment:	<input type="checkbox"/> ++ <input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> -
Remarks:	<input type="checkbox"/> ++ <input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> -

Date:

Signature observer

## ***Appendix II: Head teacher evaluation***



### HEAD TEACHER ASSESSMENT

Name:

1. Year of attending head teachers' seminar
2. Does the school have an established club    yes    no
  - a) If no why not?
  
3. Has the patron been trained    yes    no
  
4. Are there any projects being conducted in the school currently    yes    no
  - a) If not why not?
  
  - b) If yes, please list the ongoing projects and describe status of each
  
5. Benefits of the projects:
  - a) Are the projects beneficial to the community    yes    no
  - b) If yes, explain the projects are beneficial.
  
  - c) If no, why not?
  
6. Challenges:
  - a) Are there any challenges implanting projects    yes    no
  - b) If yes, describe and explain the challenges.

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7. School cooperation
- a) Are you promoting whole school cooperation in environmental issues    yes    no
  - b) If yes, explain how you are encouraging that cooperation
  
  - c) If no, why not?

8. Involvement of the community:
- a) Have you managed to involve the parents and general community?    yes    no
  - b) If yes, in what way?
  
  - c) If no, why not?

9. What plans do you have for your school regarding environmental issues?

10. General remarks you would like to inform us?

Date of Visit:

Sign H/T:



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Project title	When started	No. of students involved	No. of teachers involved	Benefits of project	Challenges of project	Overall rating Poor/Fair/Good/Very good