

**THE IMPACTS OF MINERAL EXPLOITATION AND ASSOCIATED TRADE ON WILDLIFE
IN THE DJA-BOUMBA MINING AREA EAST CAMEROON: RSG I.D: 13305-B**



Moustached baby monkey recovered by the members of the community based ecological monitoring committee © M.L.

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Progress Report

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1.0. Evaluation of the Dja-Boumba Conservation and Development Project

1.1. Project Description

The Dja-Boumba forest supports high densities of endangered species as forest elephants, western lowland gorillas and chimpanzees. There is rapid degradation of wildlife resources caused by mining and infrastructure development. If adequate measures are not taken by the all the stakeholders in collaboration with local communities, with the support of the government, wildlife resources will be extinct and the environment degraded forever.

The goal of the project is the continuous bottom-up, participatory approach community based ecological monitoring of bushmeat harvest and trade levels, determination of carrying capacity of the forest(using relative abundant) and building capacity of local communities on alternative sources of nutrients, income and resource governance reforms through awareness campaigns.

The target groups of the project included; decision makers, stakeholders of the mining sectors, common Initiatives groups, hunters associations, women groups, youths and Baka pygmies.

The key outcomes of the project were:

The empirical indicators from the community based ecological monitoring data enabled the local communities to have knowledge on the carrying capacity of their forest and to manage and conserve their wildlife resources. Awareness among the stakeholders in the mining sector and other economic operators has resulted in the integration of development with the exploitation of wildlife for sustainable development. This is a milestone in the conservation of natural resources in the Dja-Boumba mining area.

There is improved knowledge, skills, attitude and best practice amongst local communities (women, youths, hunters) of their potential role in ensuring sustainable wildlife resources.

Biodiversity conservation is promoted through options for alternative sources of nutrients and income, more value is added to wildlife resources, and improvement in livelihoods of the local communities in the mining area.

Capacity building has ensured greater participation of the communities in the implementation of the project and eventual appropriation and continuity at the end of RSG.

Project visibility, results, key achievements, skills and lessons learned documented and shared with other actors operating in protected areas in east Cameroon.

The project major activities during the life span of the project were; the collection of ecological monitoring data on bushmeat harvest and trade levels using field surveys, interviews of hunters and market vendors. Determine the abundance and distribution of wildlife species in the Dja-Boumba forest through reconnaissance walk. Training and capacity building on the techniques of vegetables production and the rearing of domestic animals(chickens and ducks) as an alternative to hunting and the development of beekeeping initiatives for the minority Baka pygmies. Awareness campaigns through workshops, seminars, theatre, media and conferences. Reinforce capacity building to sustainably integrate wildlife management into development projects. Dissemination and communication of results and lessons learned to target groups in order to shared project key achievements.

1.2. Purpose of the evaluation

The purpose of the project evaluation was to assess the level of participants' involvement in the project activities, identify the project's short and longer-term impact, and monitor the activities to demonstrate the project's success.

1.3. Evaluation stakeholders

Internal evaluators: project coordinator, 2 members of the monitoring committee, a female from the Christian women group.

External evaluators: the conservator of the Dja Biosphere Reserve, the chief of post for forestry and fauna and the coordinator of FM radio programme in Lomie sub division.

The evaluation questions were formulated using a combination of questions related to the activities, outputs/impacts and lessons learned from the project. See appendix 1.

1.4. Participatory evaluation methods

Evaluation was carried out through a combination of conventional mixed methodologies. This approach was a cocktail of participatory tools including desk review of existing reports on the project, focus groups discussions, interviews, questionnaire, field visits, direct observations and anecdotal records or stories.

Table 1. Hierarchy of Program Evaluation Evidence

Project levels	Project indicators
Outcomes	What long-term changes occurred as a result of the project?
Changes in practices and behaviour	How did practices change as a result of project participation?
Changes in knowledge, attitude, skill, and aspirations(KASA)	How did participants' knowledge, attitudes, skills, and aspirations change as a result of the project participation?
Reactions	How did participants react to the project activities?
Participation	Who participated and how many?
Activities	In what activities did the participants engage through the project?
Inputs	Which personnel and other resources were used during the project?

The Dja-Boumba project evaluators worked as an inter-disciplinary team within each of the villages where the project was implemented. Accordingly, two different focus groups were arranged to meet simultaneously in each village. The evaluators conducted structured, semi-structured interviews, questionnaire, and focus groups discussions with the target population, followed by visits to fields and at homes to observed levels of crops and domestic animals production and income generated. Meanwhile, the 2 members of the ecological monitoring team conducted a series of participatory exercises to facilitate the evaluation of project impacts. This was done through evaluation stories and impact matrix. The evaluation stories were based on collecting and reviewing stories of significant change associated with the activity or action being evaluated. Stories were collected from those most directly involved in the project.

Data were also collected by listening, watching, and documenting what was seen and heard. Through asking questions, and by noting comments, behaviours and reactions, useful information was provided to the evaluation process. The participant observation method gathered accurate information about how the groups and project operated in the field.

Direct measurement of the project was conducted through the review and examination of reports, awareness campaigns and environmental education materials produced.

1.5. Analysis and interpretation of results

Basic analysis of quantitative information was done using numbers, percentages, frequencies, averages, ratios, ranks and orders.

Qualitative data was analysed using categories of themes, patterns and concepts, lists of commonalities and differences, definitions of approaches and attitudes, and anecdotes records that support other results.

1.5.1. Sex ratios

A larger proportion of the participants (54 %) reached were female while only (46%) were male.

1.5.2. Age groups

The majority of the participants comprised those between the ages of 21-25, 41-45, 46-50 and above 60 who are still relatively active in various aspects of project activities including ecological monitoring, alternative sources of proteins and income and awareness campaigns. The youth between the ages of 21-25 (16%) are active in their wildlife club activities (songs, music, drawing, dance and drama).

Table 2. Age groups, number of participants and percentage of response

Age group	Number of participants in the three villages	Percentage
15 - 20	10	8.1
21 - 25	20	16.1
26 -30	12	9.7
31-35	07	5.6
36- 40	37	30.0
41- 45	14	11.3
46- 50	13	10.5
Above 50	16	13.0

Fig.1. Age groups of participants

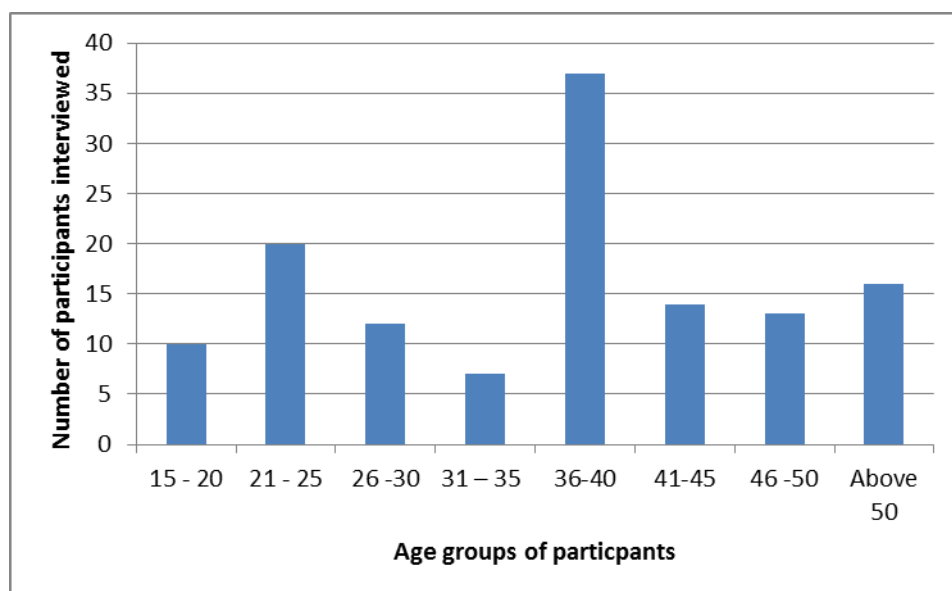


Fig.2. Age ratio of participants

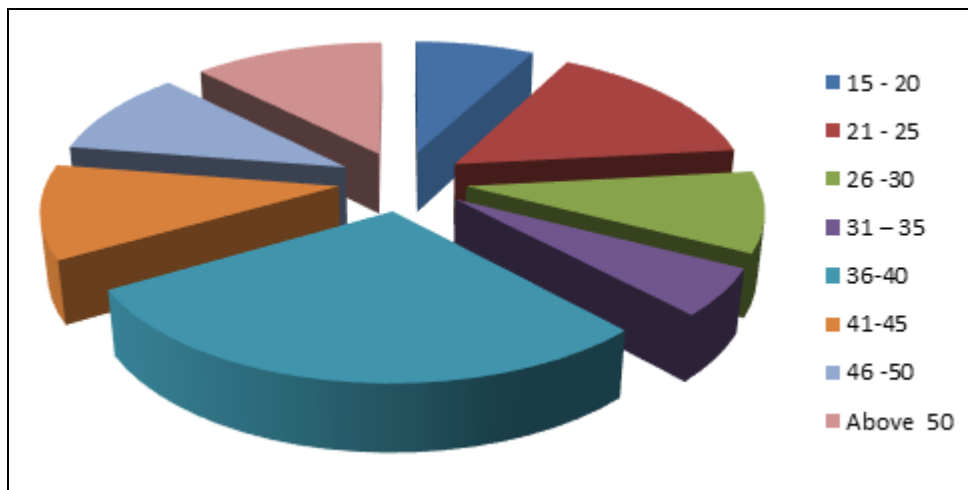
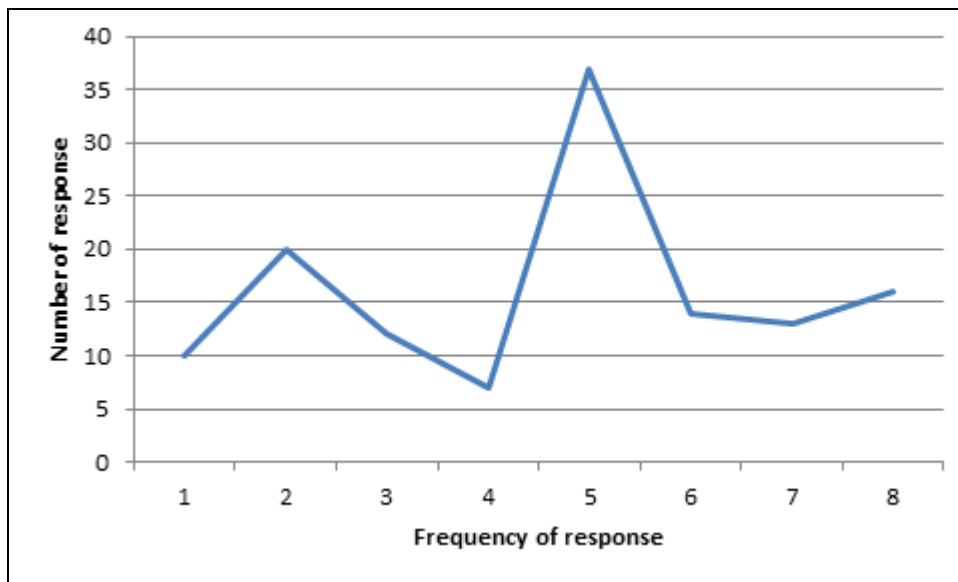


Fig.3. Frequency of response of participants



In the three villages the participants implemented all the activities of the project: community based ecological monitoring of bushmeat harvest and trade levels, determination of carrying capacity of the forest (using relative abundant), building capacity of local communities on alternative sources of nutrients and income, beekeeping and reinforcing awareness campaigns amongst youths, women groups and hunters. According to the evaluation results 95% of vegetable species found in the gardens were tomato roma, hybrid carrot, pepper, Batavian lettuce blonde, okra volta, cabbage and condiments of various types. The head teacher of government school Kongo gave an anecdotal record that the project has taught them a number of technical skills through simple training in vegetables gardening techniques, including how to manage a nurseries and how to deal with pests and diseases in their vegetable gardens (Fig.4. video record). They now sell vegetables in the villages at giveaway prices in order to encourage villages to eat leafy instead of bushmeat which has caused decline in wildlife species in the area. The project will soon establish marketing outlets in some urban towns and cities of Bertoua and Yokadouma.

Data from the ecological monitoring of bushmeat hunting and trade and field surveys have improved on the knowledge of the local communities on the status and trends of wildlife exploited and the relative abundance of species. "Thus the relevance of the goal and objectives of the project was ranked, 4". Eighty five percent of participants said that they have acquired knowledge, attitude, skills and aspirations changes as a result of the project.

The participants clearly identified the key factors as training, capacity building and reinforcing awareness as the objectives of the project that has strengthened them towards wildlife management. The relevance of these objectives was ranked, 4."

The field observations and reports of field activities revealed that the personnel and the resources made available to the participants were effectively used to achieve the outcomes of the projects. There were increases in crop diversity and production, giving more income to the local communities. 90% of the individuals and groups (CBOs and Common initiative groups) given chickens showed positive outputs in the reproduction and redistribution of the chickens to other members of the communities. The context of the severity of the diverse difficulties and mistakes encountered during the implementation of the project was assessed and there was a decreasing order of 4 to 1.

The evaluation revealed that the impetus of the component of the project that was directed to sustainability and self-reliance of the local communities had the highest frequency of response.

1.6. Lessons learnt

1. With the assistance of evaluation, successes and failures of the project have been interpreted. Based on those experiences, the project will be improved.
2. The evaluation has raised the awareness and the profile of the project within the local communities. Many people including military officers' wives and local job seekers have shown interest to engage with the project now that they are aware of the aims and benefits.

1.7. Suggestions and recommendations

The evaluation process has established the differences the project has made; ensure that successes are repeated and the mistakes are not; and demonstrate to funding bodies that the project was worthwhile. The results of the evaluation have to be disseminated to the Dja Biosphere Reserve management committee, the stakeholders of the mining companies and other local communities around the project area. This will help sharing conservation experience within the area and integrate conservation into development activities. The local communities are mostly illiterate and the difficulties and mistakes were encountered mostly during treatment and monitoring of growth vegetable gardens. Recommendation: a biologist has to be permanently at the site to monitor day to day activities of the project during the next phase of the project implementation.

2.0. Awareness Campaign Activities

2.1. Drawings

"The adage that a picture or drawing is worth a thousand words" still holds true today. Drawing or picture is a significant tool to use in raising the awareness of the population because it has three stages: conception, recognition and interpretation. The students of the wildlife clubs used drawings and asked the participants to describe the environmental situations, identify the problems, their causes and possible solutions and plan action to put their solutions into practice. See figure 5.

2.2. Participatory conferences on the sustainable wildlife management

Commemorative Days Celebrations (World Environment Day, World biodiversity day, wetlands day), students of the wildlife clubs carried out the active participation and sensitisation of the general public on the sustainable management of wildlife. The school wildlife clubs in the project area jointly organised several round table discussions, debates and plays to strengthen youth participation in conservation and wildlife management; and to build a culture of youth entrepreneurship within the project area. Discussions centered on; the identification of individuals or groups involved in the unsustainable hunting and trade in wildlife species in the project area; Wildlife species most affected by hunting; long-term conservation measures that could be implemented in collaboration with the local communities, the government and other stakeholders operating in the project area.

From the community based ecological monitoring data it was revealed that the hunting and trade in wildlife species by the local population, especially endangered species is highly significant in all the three villages. The local communities should be aware of the fact that hunting is changing the biological composition of the wildlife in the Dja-Boumba mining area. Primates and large-bodied species were most severely affected by hunting, and most of the wildlife species are effectively extirpated from the project area.

Table 1 contains primates hunted and traded, major threats and proposed conservation measures of each species in the project area. With this list a whistle blowing strategy was developed by the wildlife club members in collaboration with members of the community based ecological monitoring committee.

Table 3. List of threatened primates in the project area

Common name	Local name	Threats	Conservation measures
Western lowland gorilla	Ngui	Hunting, diseases such as Ebiola, malaria, habitat loss from mining and logging, exported	Enforced law on the hunting and sale of gorillas, Awareness campaigns
Chimpanzee	Waa	Hunted for meat and rituals, diseases, forest degradation, captured and kept in captivity, exported	Chimpanzees are protected by law, but there no restriction on trade, sensitisation of local communities
Crested mangabey	Sino	Hunting and deforestation, captured and kept in captivity	Enforcement of laws and restriction on hunting are essential
Moustached monkey	Osok	Habitat destruction and hunting	Enforced laws particularly in regard to hunting, sensitisation of immigrants
Grey cheeked mangabey	Kak	Habitat destruction from logging, agriculture, mining and hunting	Effective protection is needed
putty nose monkey	Avembe	Captured and kept in captivity, hunting	Permits are required to trap or hunt
Black and white colobus	Nvone	Hunting, captured and kept in captivity, exported	Need effective protection against hunting and forest loss
De Brazza 's monkey	Foung	Habitat destruction, clearance for cultivation, hunting	Suggest gallery forest for community forest to protect specie
Crowned monkey	Esouma	Captured and kept in captivity, hunting	Practical and effective control of hunting are needed in the area

3.0. Organisation of Awareness Campaigns by the Christian Women Associations

When it comes to spreading awareness about sustainable wildlife management that the communities of Kongo, Achip and Melen are faced with, the Christian women associations developed an effective alternatives of reaching the hunters, their wives, female vendors, local immigrants and the wives of military officers. The group of Christian women associations from various denominations in the mining area felt that the method of communication, which is traditionally well known was the most appropriate choice for sustainable wildlife management with a large communities of almost one thousand people. Story telling, songs, theatre and dances were used in old times to pass on information from old to young generations. This included also issues like discouraging hunters and bushmeat vendors from hunting and trading in wildlife species. Nowadays, it is even more relevant to grow vegetable and rear domestic animals which are attractive sources of income all year round.

These methods were chosen because of the advantage that they bring the villagers together to share the experience of being entertained and educated. The point of humour that provide laughter, those of tragedy that tickle their sense of sympathy and pity, including the hushed-up comments from the audience, are more meaningful when shared. As the audience walks home, chatting about the performance, one can learn from each other how to improve their nutrients, economic situation and their lives generally through vegetables cultivation and the rearing of domestic animals and danger involved in wildlife degradation.

4.0. Organisation of Radio Programme by the Old Hunters Association

The old hunters association through brainstorming established a radio programme with the FM 108 radio Lomie.

Title of the radio program, after a lot of deliberation, consensus was reached as follows:

Title: Decline in Wildlife Species in the Dja-Boumba Mining Area.

Signature tune; Two hunters went out on a field trip to record chest drumming sounds of gorillas and chimpanzees. The signature tune was produced. It followed the following sequence. Instrumental music punctuated with chest drumming sounds of ape.

The jungle tune was also produced which lasted about 45 seconds before the presentation of the programme.

Following the above conductor, the sounds and focus group discussions on the decline of wildlife species in the Dja-Boumba were recorded using a chrome cassette. The sounds were then transferred to a computer using sound forage 4.0 and the master was produced. The programme is aired every 6-7am and 6.45-7.30 pm every Saturday and Sunday.

The entire radio programmes were signed by the secretary of the old hunters association. The scripts of the programmes were produced in French and in the local vernaculars of the three villages.

5.0. Conclusions

Successful approaches to conservation have been comprehensive and include a variety of development, training and conservation activities among a broad sector of the local communities. The project has devised a system that combines rural development with conservation awareness campaigns to encourage the local communities in the protection of natural resources. Training, supports to capacity building, sensitisation were included in the project activities, so that villagers can become increasingly self-reliant and less dependent on wildlife as the only sources of nutrients and income.

6.0. Appendix

Evaluation questions

1. Sex of participants; male or female.
2. How old are you?
 1. In what **activities** of the project did your village participate?
 2. Who participated in the activities and how many individuals or groups were **involved**?
 3. Do you feel that the goal and objectives of the project has been **achieved**?
 4. How did the participants' **knowledge, attitude, skills and aspiration** change as a result of the project activities?
 5. Were the personnel and resources made available to the local communities used **effectively** to support the project?
 6. Were the participant involvements in the project likely to contribute to the **sustainability and self-reliant** of the project?
 7. How has this project strengthened the **capacity** of the local communities towards wildlife management?
 8. What are the **difficulties and mistakes** of the project that need to be improved?