

# Indigenous Knowledge Systems: local Practices and their determinants in the management of the ecosystem in Akonolinga, Center province, Cameroon

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**Abstract:** In developing educational programmes targeting landscape/territories agronomy, it is imperative to incorporate an assessment that uses indigenous knowledge to provide preliminary information on the needs of stake holders especially the local population in terms of adapted farming systems and sustainable ways of managing natural resources. This research conducted from April to September 2006 aimed at assessing Local Practices (LP) and their determinants in the management of natural resources in Akonolinga, Centre Province Cameroon. A total of 40 households were examined. The main local practices identified were farming (100 % of the respondents), animal husbandry (77.5 %), fishing (75 %), Exploitation of Non-Timber Forest Products of plant origin (NTFPP) (65 %), hunting (52.5 %) and timber exploitation (52.5 %). Some practices were considered sustainable while others were not. Local practices are determined by technological, economic, social, cultural and geographical factors. Local practices in the tropics especially in Akonolinga are to a greater extent conditioned by economic (33%) and cultural (31%) factors.

**Keywords:** Natural resources, sustainability, determinants, local practices

## Background

Natural resources have been and continue to be very important in local as well as foreign communities (Eyong-Matig *et al*, 1999). The idea is to manage terrestrial, wetland, coastal and marine environments in such a way as to achieve the twin goals of economic growth for local people and the long-term sustainability of the natural and cultural resources on which their livelihoods depend (FAO, 1993). However there cannot be sound decisions and actions on management of the ecosystem at any level, whether local or global, without reliable information on their situation and evolution over time (FAO, 1993). Giving value to farmers own knowledge means no longer considering farmers as incompetent managers of the ecosystem, rather it entails the recognition of the importance of indigenous practices in ecosystem management (Jürger *et al.*, 2003). In order to ensure sustainability of forest zones in the tropics, it is necessary to study the practices of the local population. The main objective of this study therefore was to identify peasant practices in the management of the ecosystem and their determinants in order to give a basis for enhanced developmental interventions. Specifically, the study intended to determine: access to Natural Resources(NR), how the population exploits NR, the determinants of such practices and an evaluation of the sustainability of local practices/knowledge vis à vis ecosystem management.

## Methodology

The study was carried out in two villages: Mvan-Mvognyengue and Ndibidjeng (forest zones) in the Centre Province of Cameroon. Both primary and secondary data were used in the survey research. Data were collected from 40 households with an average of 9 persons per household. Verification, treatment and analysis of questionnaires were done with the aid of the computer programs SPSS and Microsoft Excel. All quantitative data used in the sample were estimates given by farmers. These were analysed and presented in percentages, frequencies & means. Qualitative analysis consists of grouping similar opinions on a particular variable and then according priorities to the highest recorded opinions. Interpretation of data was done with the help of tables, pie charts, bar charts and graphs.

## Results and discussion

Land and forest plantations in the area are acquired by inheritance. Access to water resources is not restricted. Generally access to resources in the area is not a major issue. The major local practices are: farming; clearing, felling of trees, slash and burn (Figure 2 below shows a newly burnt farm), planting, phyto-sanitary activities and harvesting. Figure 1 below shows that a higher percentage (56%) of respondents in Ndibidjeng is not contented with their conservation practice (way of exploiting the ecosystem) whereas only 44% of those in Mvan-Mvognyengue were unsatisfied. This is justified by the fact that inhabitants of Ndibidjeng are already experiencing a drop in productivity since they are closer to the town that makes them drift more from their local knowledge/practices. Three types of fishing methods were identified: hook, barrier and trap fishing. Three types of hunting were also identified: gun, trap and poisonous fruit hunting. Palm wine is the most exploited NTFPp. The main trees exploited are Sapelli (*Entandrophragma cylindricum*) and Iroko (*Milicia excelsa*).

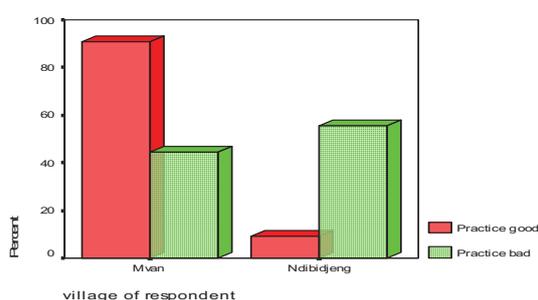


Figure 1. Perception of soil conservation practice per village



Figure 2. A newly burnt farm in Mvan

Increase need for money by the local population leads to uncontrolled TE hence continuous deforestation. Slash and burn farming besides being a way to get better yields is the cheapest way peasants clear their large forest farms. Cultivation in marshy areas, destroys the natural habitat of some species, but must be done because it is the main source of food in the dry season. Indiscriminate hunting (poisonous fruit hunting) threatens the availability of some animal species but must be carried out as it is the easiest way to get rid of crop destroyers and also because the population is ignorant of unsustainably exploiting their NR. The absence of social infrastructure like hospitals promotes unsustainable harvest of NTFPp (harvesting the roots, stem leaves, barks of small trees), which threatens the availability of these species. On the other hand, the bush fallow farming system prevents soil erosion while the tree crop system promotes forest conservation. Local knowledge is quite vital in development programs. In order to understand local knowledge and why LP are the way they are, a ranking of determinants is done in Table 1.

Table 1. Determinants ranked in order of importance

Category of determinant	Frequency of responses	Percentage (%)	Rank
Economic	80	33	1 <sup>st</sup>
Cultural	74	31	2 <sup>nd</sup>
Technological	36	15	3 <sup>rd</sup>
Social	27	11	4 <sup>th</sup>
Geographical	24	10	5 <sup>th</sup>
Total	241	100	

Economic determinants (33%) that include: low income level, price of products and increase demographic pressure are the most important elements that condition the way peasant exploit the ecosystem. The culture of the people also plays an important role in their management of the ecosystem as 31% of the responses showed that indigenous practices depended on cultural and traditional believes.

## Conclusion

The local population have practices that promote the sustainability of the ecosystem but to a greater extent their practices slowly degrad the ecosystem. Local practices in the tropics especially in Akonolinga are to a greater extent conditioned by economic (33%) and cultural (31%) factors. Ignorance of good exploitatve practices cannot be left out. In designing sustainable management programmes, it is therefore imperative to boost up the economy of the local population who are prime users of the ecosystem and also give more attention to their culture and tradition. Sensitizing and educating these people on best/adapted practices should be considered.

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