ESSENTIAL PARTNERSHIP

THE FOREST AND THE PEOPLE.

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ETHNOBOTANY, CONSERVATION AND SUSTAINABLE DEVELOPMENT.

by

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ABSTRACT

The current attempts to concentrate on medicinal plants as sources of drugs is a welcome development which must be accompanied with adequate conservation strategies through research, education and training, ex - situ and in - situ conservation.

Conservation is necessary if the dignity of life is to be maintained. However, plant taxonomy as a discipline, particularly the aspect of floristic taxonomy, should serve as the 'bedrock' of any conservation strategy. Data from such studies which are well documented in efficient and well equipped herbaria in an easily retrievable manner will facilitate better co-ordinated effort at mapping out strategies for bioconservation and sustainable living. The setting up of Botanical and Zoological gardens is also crucial to conservation programmes.

Taxonomists, conservation experts and policy makers must work in harmony and at more organised setting to provide solutions to conservation problems.

INTRODUCTION:

Man's quest for the basic necessities of life; like food, clothing, shelter and most importantly, good health has impressed it upon him to re-assess the impact of his contribution to the destabilisation of the ecosystem which he is part of.

Early man enjoyed relatively balanced ecosystem, thus he could obtain and satisfy his needs from the forest. Nature still provides vast resources in the forest regions particularly in Africa from which the present and future generations can satisfy their needs if properly managed. However, our forests today are being destructively exploited for timber, fuel wood, fibres, food, ornamentals, and pharmaceutical products without genuine efforts to replenish them.

Of the 4614 plant species recorded for Nigeria (NEST, 1992), 490 were known to be threatened (Gibile et al. 1981) due to excessive debarking (for medicines) and over exploitation for timber. Traditional communities depend on these plant materials for their day - to - day needs. There lies the need for conservation and sustainable management and utilisation of plant materials in the forest.

ETHNOBOTANY AND CONSERVATION:

Ethnobotany studies particularly on medicinal plants in recent past have assumed a high propensity. These have reawaken the interest and dependence of the people on local flora and the over-exploitation of some plant species for the production of drugs. The increasing exportation of medicinal plants from the developing to the developed countries for drug production without proper regulation and efficient modes of collection, to ensure their survival, is a matter of concern. The consultative forum held in Thailand in

88 amply expressed the need to protect the total environment in which medicinal and other useful plants are found. The forum emphasised the importance of indigenous knowledge in the use, identification, and collection of medicinal and useful plants. In view of this, ethnobotanical studies should aim at conserving traditional ecological knowledge. Ethnoconservation studies and results in and around National parks, Botanic gardens and reserved forests should form part of the programmes of the management. Information from these studies, when gathered and documented need to be integrated into the scientific methods of conservation. This will greatly enhance the knowledge and capability of the modern conservationist on how to incorporate and further develop systems to cope with the present prevailing conditions for the sustenance of the forest and other natural resources. More of ethnobotanical studies are now needed especially to discover new forest resources which could be used to improve the life of the people as well as generate revenue for the government, and identify raw materials for the production of drugs for good health of the people.

PLANT TAXONOMY AND CONSERVATION:

The strategy for sustainable living (IUCN, UNEP and WWF, 1991) considered the fact that if a better quality of life is to be built on earth, then values, economies and societies different from what operate today must is needed. Conservation as noted by the World Conservation strategy (IUCN, ENEP and WWF 1991) is not the opposed to development but signifies the protection and the rational use of natural resources in order that the people who live on earth today may have a life of dignity while the future generations would also be assured of a sustainable existence. The three objectives emphasised include:

a) the maintenance of essential ecological resources and life support systems.

b) preservation of genetic diversity

c) sustenance of any useful species or ecosystems.

It is in appreciation of the meanings of these objectives that we can actually project the essence of conservation in this part of the world. Nevertheless, some pertinent questions need to be answered: To what extent do we in Africa know of our environment to enable us map out strategies for the conservation of its resources particularly those of the forests? With what sincerity have we been pursuing the challenges of conservation and sustainable living? Do we ever imagine what our environment would look like and the life therein in another one or two centuries given the present rate of destruction?
Studies on biodiversity are crucial to the understanding of strategic plants for bioconservation and hence sustainable living. We can only conserve when we know what to conserve. Heywood (1992) reported that many tropical plants species are poorly known from their population distribution to variation within the species thus making it inimical to assess their conservation status with any degree of confidence. There is the urgent need, according to him, to intensify the basis of genetic resources conservation of wild species in order to cover a greater range of crops especially those used in local socio-economic systems in the developing countries . A sound knowledge of taxonomy is basic to any assessment of biological diversity and hence conservation. Taxonomists are particularly relevant in the conservation of germplasms of wild species in sampling, identification and handling of the materials. When the different kinds of plants, their range of distribution and the variations within and among them are known at least, to a fairly satisfactory extent, them can any sound conservation strategies be explored (Heywood, 1992). Not all species of plants need protection, it is from such data that those needing preservation would be known, conditions necessary and inimical to the conservation identified. The floristic and faunistic richness of our countries

need to be ascertained often. This calls for enormous funding for research and equipment but the long-time gain from these exercises no doubt outweighs the sacrifices made. Through these many undiscovered plants which would have been lost will be described and saved for their potentials to mankind. Moreover, data from such floristic studies could be used to plan strategies for the conservation of genetic diversity. (Hedberg and Hedberg, 1992).

DATA BANKS AND CONSERVATION:

A herbarium is a collection of dried, pressed and treated plant specimens. It is a repository of knowledge on plants and thus essential in mapping out strategies for conservation. Apart from being able to provide information on any plant brought for identification, it could also highlight threat to vegetation types and groups of plants e.g. timber species, and medicinal plant species. A herbarium should serve as a repository for reference specimens of plant materials; holding voucher specimens for a gene-bank acquisition of any wild plant, a reference sheet for published information on chromosome number, chemical contents, medicinal use or any other use. Locally, the deposition of voucher specimens of plants in recognised herbaria in the region should be encouraged if not made mandatory for researchers in universities or research institutes with adequate information sheets attached. Information gathered from these sheets are useful in various strategies for planning. Moreover, through herbarium specimens and regular inventories of Forest reserves, National Parks and Games reserves, information about the distribution of every known plant species in a particular region could be provided. These information become more relevant in the event that the areas is open to exploitation and or alteration. Experienced herbarium taxonomists who are involved in field inventories are at a vantage position to ascertain which species and ecosystems are threatened and to suggest appropriate measures for their conservation (Herberg and Hedberg, 1992).

Botanical gardens play a significant role in conservation. Useful but endangered or threatened plants can be protected or save by conserving them ex situ in botanical gardens. Some gardens now specialise in re-introduction of endangered plants by propagating and transplanting them into wild areas that correspond to their original habitat (Martin, 1995). These function are apart from their roles in education, training and identification. The establishment of a National Herbarium and Botanical garden in Abuja (on going projects) is a welcome development. It is only envisaged that these data banks would be adequately and continuously funded to serve the purposes for which they are established. The herbarium of the Forestry Research Institute Ibadan (FHI) is gradually undergoing decay. Studies in biodiversity and conservation could benefit immensely from this edifice if properly funded and managed in such a way that information are easily stored, processed and retrieved. This is the main herbarium that serves the West African sub-region having being enriched with a lot of collections and data by early collectors. It is thus essential to conservation policies within and around the sub-region. All the aforementioned data banks are the main repository of knowledge needed for effective realisation of our conservation strategies.

CONSERVATION OF GERMPLASM

An effective means of saving many plant species on the brink of extinction is to maintain and preserve the habitat in which they exist - in situ conservation. The re-introduction of plants by propagation and transplanting into wild areas - ex situ conservation is also another effective method. Botanical gardens, Arboreta, Natural reserves, Games reserves, Forest reserves and National parks are important in this regard. However, considering the slow pace of efforts at achieving technological development in the developing world particularly in our continent, conservation of genetic resources outside their origin (ex

situ) involving pollen and seed storage, clone banks, clone tissue or meristem culture for storage under artificial conditions are hampered by funds and generally by government policies on scientific research in the developing countries. Nonetheless, the Forest Research Institute, Ibadan has embarked on storage and conservation programmes for some timber species. A number of our exploited timber species from the south-western high forest zone of Nigeria are said to have had their pollen stored at -17^{0}C and at a low humidity of 3 - 5% within the storage tubes (Gbile, 1992). There is a great need to conserve the genetic resources of some of our wild vegetables most of which are rarely cultivated. These include *Cucurbita maxima, Crassocephalum rubens, Crassocephalkum biafrae, Hibiscus sabdariffa, Celosia trigyna* and *Launea taraxacifolia* (syn. *Lacstuca taraxasdcifolia)*. Some economic plants on which conservation efforts have to be intensified include *Chrysophyllum albidum, Synsepalum dulcificum, Dioscoreophyllum cumminis, Thaumatococcus danielli, Carapa procera, Blilghia sapida, Spondias, mombin, Tetracarphidium conophorum* and *Milicia excelsa*. The future availability of the genetic resources of these species and others as well as forest resources can be safeguarded by the establishment of the gene banks already alluded to above.

The Cross River National Park

This park is reputed to be the protector of the last significant area of the undisturbed lowland rain forest in Nigeria. The floristic and faunistic richness of the Cross River State forests has long been acknowledged (Keay, 1979). It is thus imperative that the park should be effectively managed through adequate and appropriate conservation strategies and policies which would ensure the self sustenance of the forest.

Ethnobotanical studies in the park are crucial to the planning and formulation of policies for the sustainable development of the park. The extent of the work to be done in this regard as it affects the forest resources will involve their diversity, distribution range, uses, means and methods of collection and conservation. The reckless exploitation of the forest by timber and pulp companies without any sustainable precautions should be prevented. The tendency to grant licences to these companies to operate should not be based on sentiments considering the grievous implications on the environment.

MEDICINAL PLANT CONSERVATION

There has been growing concern over the trade on medicinal plants in the region (Cunningham, 1993). The rate of exportation of medicinal plants abroad by individuals and organisations without concern for their sustainable growth need to be stemmed through proper laws and policy guidelines. Prior to the Government's recognition of the practice of traditional medicine in the country, the larger part of the rural populace depended on the forests for their cure with sustainable harvesting ensured. This is why the rural people get stunned when confronted with the question of extinction of medicinal plants from the forest. However, with this recognition coupled with the impoverishment of the people of the developing countries, more of the urban populace are exploring the traditional medicine alternative. The consequence of this is that the forest will have to support the greater number of users, many of whom may not have the concern for its sustainable existence as the rural people do.

Cunningham (1993) suggested the following areas for the conservation of medicinal plants:

a) In situ conservation: preservation of the natural habitats of vulnerable medicinal plant species

b) Ex situ conservation: maintenance of seeds and gene bank of vulnerable medicinal species as percussion against extinction.
c) Research
d) Education and training.

There should be continuos fora for co-ordinated effort among Biologists, Conservationist, Ethnobotanists, and the like. Findings should be adequately documented at such fora is an easily accessible and retrievable manner. Adequate public enlightenment should be intensified Gardens of medicinal plants should be encouraged while results of researchers into sustainable harvesting of medicinal plants should be made available to the people. The exportation of plant materials should be controlled in such a way that prices paid for them would cover replacement or management cost. The conservation threatened plants in the wild should be encouraged (Cunningham, 1993).

CONCLUSIONS

The urgent need to obtain and document information on indigenous uses of economic plants particularly of medicinal plants should be matched with the storage of the information in an easily retrievable manner. This call for a co-ordinated efforts on the part of ethnobotanists and conservation experts.

A regional and National journal specifically for conservation of biodiversity where results of researchers from educational institutions, parks, museums, gardens, governmental and non-governmental organisations can be documented should be a priority. To sustain such an endeavour, these bodies should be encouraged to subscribe to the journal. This to a large extent would ensure better co-ordination of activities of biodiversity conservation experts. Furthermore, Environmental Impact Assessment studies should be strictly enforced on companies and for governmental and non governmental projects which directly or indirectly have any bearing on the environment particularly on biodiversity. Post construction studies should be pursued in like manner. These studies will enable us to know the extent of the destruction or otherwise of the forest resources and implications on the environment.

To map out strategies for a sustainable environment, we must work in conjunction with the policy makers of the government on whose shoulders the implementations of the various strategies rest. Our sustainable existence depends on the state and sustainable use of our environment. We can not afford to sacrifice our environment for development. Taxonomists, conservation experts and policy makers of our countries must work in harmony and constantly too to build a sustainable environment for ourselves and the future generations.

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