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Perception of the Forest as a “Green Bank” Evolved among Rural Population in the Test Zone of Dankou, Sénégal

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Abstract

The degradation of forestry resources is one of the major causes for desertification and the resulting increase in poverty among the rural population in Sénégal. Thus, ongoing deforestation of the indigenous forest and bush savannah not only provides a risk for the environment but also irreversibly aggravates the socio-economic situation. An intact and continuous forest surface offers enough dead wood alone to provide energy for households in rural societies. In addition, a forest area supplies a variety of non-timber forest products (NTFP). Many of those products not only contribute crucially to the nutrition but also allow for commercialisation within a system of micro-enterprises that are established in market chains. Thus, the forest enables the surrounding population to earn considerable additional income in the informal sector and therefore represents a “Green Bank”.

1. Introduction

The bush-savannah forest of the sudano-sahelian zone in the peanut basin of Sénégal constitutes an entity of ecological and economic value (Bergeret 1993; Stratégie nationale). About 80% of the energy requirement in Sénégal is covered by wood and charcoal, most of it within the household energy sector. Overexploitation of the vegetative surface is augmenting also in areas distant to densely populated regions. Deforestation is followed by desertification and only few years later poverty often is the default consequence.

The household energy project in Sénégal, West-Africa, PSACD/PERACOD (Projet Sénégal-Allemand Combustibles Domestiques / Programme de Promotion de l'Electrification Rurale et de l'Approvisionnement Durable en Combustibles Domestiques) is carried out by the GTZ (Gesellschaft für technische Zusammenarbeit), commissioned by the BMZ (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung). It contributes to poverty reduction in rural areas in a sustainable manner with respect to environmental and socio-economic issues by carrying out the conception and completion of sustainable management for domestic energy resources. The project includes advising the Sénégalese government to safeguard a long-term and stable energy balance for providing households with energy in an efficient manner through national energy and forestry policies. It is an integrated project concept consisting of two complementary components:

- (1) First, an energy planning component analyses the energy consumption and promotes economic development, e.g. by providing alternative energy supplies (LPG, petroleum, biomass, e.g. charcoal). It also introduces renewable energy supplies (e.g. solar energy) by testing and introducing photovoltaic and hybrid installations and by supporting ASER (Agence Sénégalaise Électrification Rurale).
- (2) Second, a forestry component aiming at sustainable wood resource management of regional forests operates the 3500 ha forest test zone of Dankou in the province of Kaolack (Fig. 1). This is executed in cooperation with both the local authorities and the forestry department and is managed in a participative manner together with the indigenous rural population of the surrounding 16 villages in order to secure sustainability (Fig. 1, Diouf & Diop 1998; Chesneau 2000; Chesneau 2002). The success of the participative management already convinced the government to pass the forest operation nationwide as a general principal.

The project PSACD/PERACOD reasons that both technological energy solutions and sustainable forest management aim at the same goal of poverty alleviation. In addition to wooden resources of the forest, non-timber forest products (NTFP) are widely discussed in their economic asset for local rural populations in tropical and subtropical areas (Becker 2003; Schneider 2001; Frank 2002). When imbedded in a system of micro-enterprises and implemented in a functioning market chain system, NTFP ensure both direct and indirect outcome. Thus, forestry operators are “shareholders” investing in forest management, with the forest being perceived as a “Green Bank”. Our rationale behind the term “Green Bank” is that a forest area provides greater nutritional and economic benefits than an agricultural area of the same size.

2. Method

This study, carried out from August to November 2002, assessed the evolution of perception of the participating villagers over the past six years in the forest test zone of Dankou in the department of Nganda, province of Kaolack (Fig. 1). It included the villager’s judgement of both

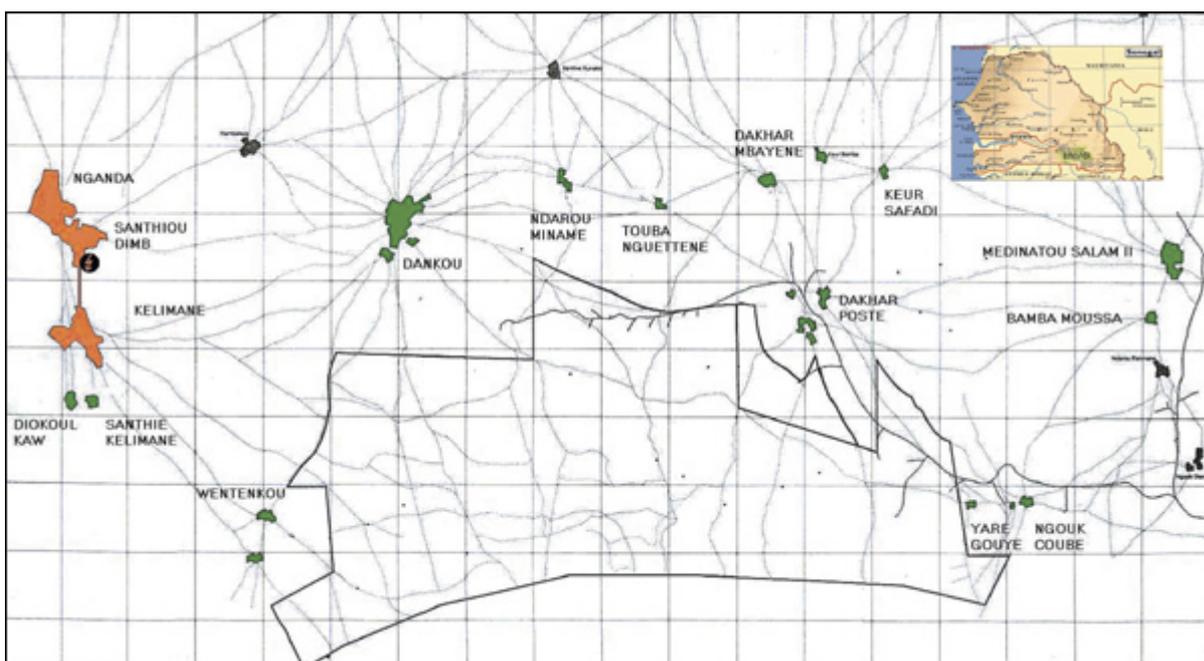


Fig. 1 : Map of the forest (line) and surrounding villages in the test zone of Dankou.

the sense and progress of the project, and their ideas, requirements, and visions for the short-term and long-term direction of the project. The method of an ethnographical analysis was applied to investigate different aspects of the relationship between the rural population and the forest in the past and present: their observation of environmental and ecological changes, the motivation to operate the forest, their wish to extend forestry activities, and their learning effect concerning the project. The enquiry focused on key groups within the population: elderly, women, special knowledge carriers, and village representatives to the PSACD/PERACOD. Thorough questionnaires were created and applied to several informants out of each focus group in several villages. As a qualitative – not a quantitative – study it aimed at gathering as many as possible facts to allow for an effective judgment of the past actions and the future proceedings within the forestry component of the household energy project.

3. Results

Interrogation of representative members of the key groups revealed a cross-sectional public opinion among the rural population. Six years of forest operation by the PSACD/PERACOD result in multiple effects. The survey shows that initial scepticism subsided once the first results of the participative cooperation started to emerge. The forest was described as having gone through different stages (Fig.2). Having been an intact forest some 30 years ago, it underwent degradation until the forest was almost dead and without ecological and nutritional value for the rural population. However, it started to recover since the forest operation was set up in 1996 by the PSACD and the forestry department (Fig. 2).

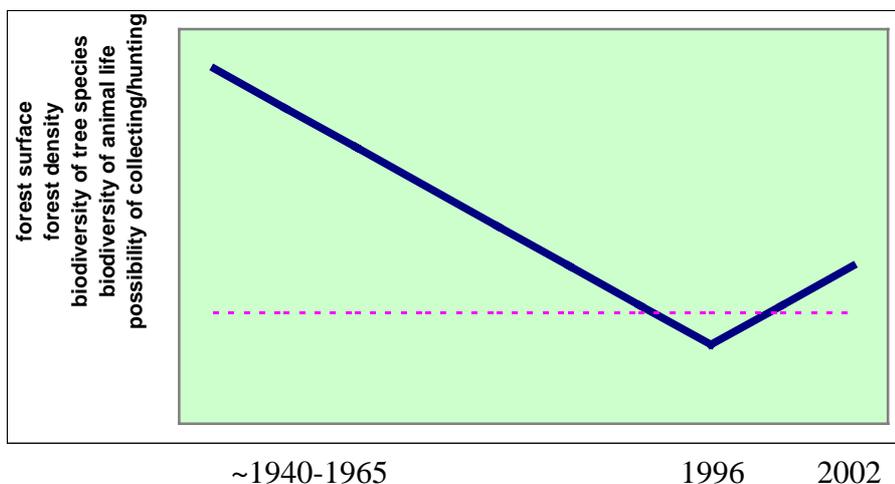


Fig. 2: Villagers describe the degradation and rehabilitation of the forest
 (--- described threshold of a functioning forest)

Obvious effects were described for both the rehabilitation of the forest and for possibilities to implement micro-enterprises for selected NTFP.

3.1. Rehabilitation of the forest

- (1) Wood - After six years of forest management, enough naturally dead wood is extractable to satisfy the needs of the local population and beyond: there is no need for further

chopping of living trees, and extracted dead wood can even be commercialized and exported to neighboring regions.

- (2) Pasture ground - In addition, savannah forest allows modest keeping of livestock which is not possible for agricultural surfaces.
- (3) Biodiversity - As every healthy ecological system an intact forest is depicted by high biodiversity. Several flora and fauna species reappeared again in the test zone after having vanished for some three decades: bushes and trees of nutritional, medicinal, social, or religious impact were observed by the survey participants, as well as birds, reptiles, small rodents, wild boar, hyenas, and monkeys.
- (4) Balanced nutrition - Leaves, roots, seasonal fruits, honey, mushrooms, etc. serve as a substantial variety of nutritional needs. Insects, birds, and reptiles, small and large animal life now provide an unexpected meat resource.
- (5) Medicine - Several plant components, effective for treating general diseases substitute for prohibitively expensive pharmaceutical products. Special knowledge of medicinal plant products of commercial prospect was gathered from elderly people, women, and traditional healers (Tab. 1).

	Woloff name	Scientific name
Fruit bearing species	Dimb	<i>Cordyla pinnata</i>
	Dankh	<i>Detarium microcarpecum</i>
	Sidém/Jujub	<i>Ziziphus mauritiana</i>
	Hottoboutel	<i>Eucalyptus camaldulensis</i>
	Teumb	<i>Strychnos spinosa</i>
	Buy/Gouye	<i>Adansonia digitata</i>
	Diakhagne	<i>Burkea africana</i>
	Lung	<i>Vitex modiensis</i>
	Pos	<i>Gardenia ternifolia</i>
	Dakhar	<i>Tamarindus indica</i>
	Darkassou	<i>Anacardium occidentale</i>
	Nébédaye	<i>Moringa oleifera</i>
	Nété	<i>Parkia biglobosa</i>
	Son	<i>Lannea acida</i>
	Mango	<i>Mangifera indica</i>
	Goyave	<i>Psidium guajava</i>
Medicinal species	Vène	<i>Pterocarpus erinaceus</i>
	Bara/Sekhau/Kinkéliba	<i>Combretum micranthum</i>

Tab. 1: Some of the most promising forest species for implementation in a market chain system for the test zone of Dankou, Sénégal

3.2. Implementing of micro-enterprises

- (1) Timber and non-timber products emerged from this research as potential resources for commercialization measures within a system of micro-enterprises similar to the Market Analysis & Development concept of the FAO (MA&D). Small loans are given to members of the rural community to enable them to collect, transport, sell and re-sell forestry products.
- (2) An already established market chain for the seasonal juice of the Baobab fruit guarantees a fixed end-price paid by consumers in the cities, therefore offers revenues for several participants within the market chain and thus feeds several families.
- (3) Several elderly villagers remembered that wild bees once inhabited the forest trees which provided the population with honey. As a consequence, the project is presently installing a

modern apiculture system together with villagers. This is planned to be set-up in a market chain system in order to provide revenues.

- (4) A system is presently being established for other non-timber forest products which constitutes a substantial contribution to nutritional safeguarding. Apart from seasonal fruits and honey, rubber and medicinal plants hold considerable market potential (the most promising species are listed in Tab. 1).

3.3. Action in participative management

The entire community of rural smallholders from 16 villages is involved in the operation of the forest. The duties include creating and maintaining anti-fire aisles, tree nursing and planting, re-introduction of vanished, indigenous plant species, allocation of responsibilities among the rural population, and mutual control for keeping the accepted rules. This combination secures sustainability of the implemented project. The thus operated forest shows enormous efficacy in its rehabilitation process (Decleire 2001).

A documentary video about the first success of the project was produced in the test region, interviewing many representatives to the PSACD about their experiences with the participative operation (Aménagement participatif des forêts - Dankou crée l'espoir, 2000). The film was already broadcasted several times in the Sénégalaise TV program extending this perception throughout the country.

Participative management secures the self-understanding of the villagers as “shareholders” of the forest and strengthens the perception of the forest as a “Green Bank”.

4. Discussion and outlook

Exact observation of the forest, active contribution to its operation, and receiving resulting revenues led to an increase in the villager’s understanding of both the ecological and financial value of the natural forest as a “Green Bank”. The participant’s expertise and knowledge is generating new ideas and visions that already have and will continue to have an influence on the actions of the program PSACD/PERACOD. The concept of participative management will be extended to other areas of intervention in Sénégal by the project.

In addition to the commercialisation of the Baobab fruit and of honey, respective micro-enterprises are already being implemented and will add considerable income to be invested in energy development. Further non-timber forest products including medicinal plant components represent encouraging prospects for similar market chain systems. The latter secure sustainable financial income and will further enhance the perception of the rural population as shareholders and nutritional developers of their local “Green Bank”.

Rehabilitation of the forest by participative management started restoring a healthy ecosystem which not only secures timber production but also increases prosperity by supplying with a balanced nutrition, increasing sustainable harvesting of medicinal plants, and lowering the dependence on seasonal agricultural products. Since the forest both presents a renewable household energy source and enables implementation of various micro-enterprises it serves as an active element in the battle against poverty.

Literature

BECKER, MICHAEL (2003). NTFP in tropical forestry – disappointed expectations, undervalued resources. Abstract Deutscher Tropentag www.tropentag.de

BERGERET, ANNE (1993). L’arbre nourricier en pays sahélien. Editions de la maison des sciences de l’homme. Paris

- CHESNEAU, CHRISTOPHE (2000). Des outils à la disposition des populations pour initier une mise en aménagement: Manuel de terrain pour la gestion des forêts. PSACD Dakar
- CHESNEAU, CHRISTOPHE (2002). Mise en aménagement participatif des forêts: Bilan d'une expérience réussie au Sénégal. PSACD Dakar
- DECLAIRE, YANEK (2001). Régénération, Dankou crée l'espoir... Communication pour le colloque sur la lutte contre la désertification du 12 au 14 février 2001, Sénégal
- DIOUF, LATYR & ABDOULAYE DIOP (1998). Expérience pilote d'aménagement de la forêt de Dankou; Etude diagnostique des villages riverains de la forêt de Dankou dans les communautés rurales de Nganda et Médinatou Salam II. PSACD, Dakar
- FAO: MA&D. Community-based tree and forest product enterprises; Market Analysis and Development; Booklet A Manual; B Defining where you want to end up; C Assess the existing situation; D Identify products, markets and means of marketing
- FRANK, ANDREAS (2002). Résultats des enquêtes sur les Produits Forestiers Non-Ligneux (PFNL) au niveau des marchés dans les régions de Kaolack, Dakar et des ménages dans l'arrondissement de Nganda. PSACD, Dakar
- SCHNEIDER, BERIT (2001). Enquête auprès des ménages sur la consommation des Produits Forestiers Non-Ligneux (PFNL) dans la forêt aménagée de Dankou. PSACD, Dakar
- STRATÉGIE NATIONALE. Biodiversité, République du Sénégal

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