

## Ten years of implementing the domestic energy strategy in the Niger

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### SUMMARY

Since 1989, the Department of the Environment has been implementing a new management policy for tree and shrub stands in the Niger's suburban areas. One of the aims of this policy is to ensure a long-term supply of fuelwood to the Niger's urban populations. The new policy is based on a reappropriation, without transfer of property, of forest masses by riparian village populations, to which the State, through suitable fiscal and statutory reforms, transfers responsibility for managing these renewable natural resources.

The rural fuelwood market, which is a tool of this new policy and a genuinely autonomous village institution, enables these populations to manage the exploitation and marketing of timber in the short term, and to assume responsibility in the long term through the various funds fed by the sale of timber, thus taking charge of regenerating these forest masses. Indeed, the absence of cash crop farming (especially cotton or groundnuts) makes the Niger's forest one of the most likely sources of funds for local rural development.

With regard to the forestry management techniques implemented, the approach chosen is to simplify them, since the aim is to enable riparian populations to master these techniques in order to ensure continuous follow-up to forestry development, both in its exploitation and marketing aspects, and in regeneration and protection, especially after the end of foreign financing.



## Overview

The Niger, a continental Sahelian country, is one of the hottest in the world; four-fifths of its area of 1 267 000 km<sup>2</sup> is covered by desert. The climate is Sahelian and is characterized by two main seasons: a long dry season lasting about eight months, and a short rainy season lasting about four months. Mean annual precipitation for the past 15 years has been lower than the mean for the preceding years, and the country experienced two very severe dry seasons, from 1972 to 1973 and from 1983 to 1984. These years of drought seriously degraded the natural environment.

The the Niger has four agro-ecological zones defined according to isohytes:

- a desert to semi-desert zone where annual rainfall is less than 200 mm, covering 62 percent of the country's total surface area;
- a pastoral zone covering 19 percent of the total surface area, found in a geographical fringe of 200 to 400 mm of annual rainfall, where natural vegetation can support only a low livestock density, thus making animal breeding precarious and making life difficult for the population;
- an agropastoral zone covering 10 percent of the total surface area, with considerable variations in climate and annual rainfall of 400 to 500 mm, poorly distributed over time; and
- a zone that is both agricultural and pastoral, with higher rainfall of between 500 and 800 mm annually, covering 9 percent of the total surface area. The plant growth period is from 90 to 135 days.

The Niger is bounded to the north by Algeria and Libya, to the east by Chad, to the south by Nigeria and Benin, and to the west by Burkina Faso and Mali.

The country's forest resources have been estimated at 13 million ha, of which 4.4 million can be developed



*There has been a continuous and rapid degradation of forest resources in the Niger*

(Planning and Use of Forests and Soils, 1984). There has been continuous and rapid degradation of these resources under the twin weights of natural and socio-economic factors, including clearing for farming, over-grazing, timber harvesting, economic and financial crisis, rapid population growth and drought.

The situation of the country's meagre forest resources is further aggravated by the poverty of the Niger's population, of which about 98 percent use wood as a source of fuel.

The country's economy is based on agriculture, livestock breeding, exploitation of forest resources, and fisheries. In the 1970s and 1980s, it was also based on the exploitation of uranium. Hence, the country's economy is rural, and is itself prey to the vicissitudes of climate and the degradation of productive natural resources. With an annual per capita gross domestic product (GDP) of US\$230 in 1994, there are serious inequalities in the distribution of wealth between rural and urban populations. In 1993, per capita GDP was US\$143 in rural areas, compared with US\$988 in urban areas.

Total population was estimated at 9.9 million inhabitants in 1998, with an annual growth rate of 3.3 percent. This high growth rate is a serious threat to the natural environment. It is evident that ecological, economic and demographic factors are not the most favourable.

All these factors help precipitate the entire country, and rural areas in particular, into a situation of uncertainty and absolute poverty, thus making the sustainable management of the country's natural resources difficult to achieve.



## The Niger: a poor country

In the past 30 years, plant cover in the Niger has seen unprecedented degradation, resulting in the continuous deterioration of the population's living conditions. Since then several strategies and approaches have been developed through programmes and projects to counteract the degradation of plant resources.

The supply of fuelwood to Niger's big cities is:

- an environmental issue because of the amount of timber harvested from seriously degraded forest masses;
- a social issue because practically all rural and urban dwellers are involved either as consumers or producers; and
- an economic issue because of the income generated directly or indirectly by this sector.

An assessment of the Niger's energy situation shows that fuelwood in 1995 accounted for 80 percent of national energy consumption. The annual turnover of the timber sector amounts to 3 750 million CFA francs (CFAF) for Niamey alone. Production turnover is 500 million CFAF. This illustrates the importance of the issues at stake and the need for the State to intervene so as to guarantee the long-term exploitation, which is inevitable because of population growth, of forest ecosystems that are known to be fragile.

Thus, since 1989, the Niger has been committed to the implementation of a new forestry policy that aims at improving the management and exploitation of natural forests, with a view to supplying major urban areas with fuelwood, with the participation of the riparian populations of forest masses. This new policy, which was named the Domestic Energy Strategy (*Stratégie énergie domestique* [SED]), is based on the premise that fuelwood is, and will be for a long time to come, the only household fuel of national origin that is cheap and easily accessible to rural and urban dwellers.

SED, supported from 1989 to 1998 by the Danish International Development Agency (DANIDA) and the World Bank, and since 1999 by the African Development Bank (ADB) and DANIDA, is based on a group of technical, statutory and legislative measures implemented and



*As much as 98 percent of the Niger's population uses wood as a source of fuel*

coordinated by forestry services through specific projects: the Energy II-Domestic Energy Project and the Natural Forest Development Project.

The approach used by this operation is pragmatic, and its aim is to give standing timber a value that will help raise the awareness of the populations to the fact that the forest, which to them has no value other than that given by traditional user rights, is a resource to be maintained and exploited, with prospects for the long term.

Ten years after the launching of this strategy, an assessment shows that it is possible to treat problems of forestry development in a sustainable and participatory framework in which all stakeholders involved in this sector will take part. This is the case for riparian villages that enjoy traditional user rights, for transporter-traders who transport the wood from the production areas to the cities, and for workers in forestry services, whether they are assigned to supervision in the field to monitor the technical exploitation conditions or whether they are assigned to the cities to ensure that the taxes owed by transporters are effectively paid.

In this paper, we shall treat: the current forest management and exploitation system; the first forestry development operations conducted in the Niger; the content of the new forest management policy; and the socio-economic and technical assessment of SED after ten years of implementation, especially in relation to the prospects offered by this new policy in terms of sustainable participatory management of forest resources, of local rural development and of the fight against poverty in rural areas.

## The current forest exploitation system

The supply of timber to Niger's cities grew for decades according to uncontrolled methods that enabled transporter-traders to carry out harvesting in the countryside with only the authorization of the forestry services and without limit as to volume or the designation of a precise harvesting area. No mechanism was in place to orient the exploitation according to the rarity or abundance of the resource. This led to rapid deforestation and the appearance of bald patches in the immediate vicinity of major urban centres.

In this system, riparian rural communities in forest masses are excluded. The main stakeholders are forestry workers who issue felling permits, or the right to exploit, and transporter-traders who perform the functions of production, transport and marketing of timber. Furthermore, the main beneficiaries have no obligation to replant the areas thus exploited and degraded.

It is obvious that such a sapping exploitation system does not permit sustainable management of forest resources. The first attempts at forestry development were made after this was realized, and their aim was to replace the system of unbridled exploitation with a supervised and participatory system.

## The first village forestry development operations: forestry cooperatives

At the beginning of the 1980s, the State initiated and tested a new policy by seeking, through means other than traditional plantations, a way to meet the inexorably growing urban demand. This is how the idea of the management of natural formations was born, as it was known at the time that they contributed to the majority of these populations' needs. Several attempts were then made, of which the best known was forestry development in the Guesselbodi Classified Forest, 20 km from Niamey.

All these operations, now ended, focused on the actual technical management of these forest masses. They

were followed by general development plans based on the standards of forestry development in use in temperate zones. These development plans considered forest masses as a whole by dividing them into 10 to 15 lots, determining an exploitation rotation of 10 to 15 years. This choice, which was fundamental, was never justified by considerations of the real productivity of forest masses, given the lack of research data, and it neglected to take into account the various traditional uses of these forests.

The main problem of this development was, therefore, that it considered forests only in relation to what they contained in terms of available resources, and that it subsequently sought a means of associating riparian populations in their management, notably through the setting-up of intervillage forest cooperatives.

These cooperatives did not attain the expected objectives because they produced limited quantities of wood, without having significant impact on the offer of timber in towns. Their decision-making organs were monopolized by a few self-proclaimed officials.

Moreover, these first attempts were based on existing forest legislation, which was not suited to effecting the desired changes, and which thus required reform. It was also necessary to revise the organizational structure with a view to making it more comprehensible and thus more useful to the riparian populations, and to consider village woodcutters as the main stakeholders of the sustainable management sought by all.

The challenge, then, was to transcend the cumbersome and spatially limited cooperation systems and adopt simpler, easily extendable systems on the scale of the supply areas of cities. In order to do this, it was necessary to simplify systems while maintaining efficiency, and to improve the methods tried and tested by pioneers during the 1980s.



## Setting up SED

Beginning in the 1980s, natural forestry development operations thus evolved, following the limited success of major reforestation projects. This production objective could not be reproduced, for financial and economic reasons, in the Niger's socio-economic context.

A new approach of rational and decentralized management of existing natural resources through rural forestry development operations was created, culminating in the designing in 1986 and 1987 of a new energy and forestry policy, SED, thus linking for the first time the offer of, and the demand for, fuelwood in urban and rural households. Activity would be at two levels. First, there would be the reduction, or at least stabilization, of consumption of wood-based fuels through substitution and economizing of wood. Second, there would be the gradual replacement of the unbridled forest exploitation system by a controlled, rational and sustainable system.

Thus, since 1989, the Government of the Niger has been developing a vast suburban standing timber management programme through the Energy II-Domestic Energy Project, which has two components:

- a substitution and energy economization component, whose activities are aimed at promoting substitute sources of energy and timber economization equipment; and
- a participatory forest management component, which is under the authority of the Department of the Environment and is the focal point of the new forestry policy of forest resource management.

### SED as a component of the development and management of village forests

The development of SED involved four specific areas of intervention.

#### *The master plan for supply (Schéma directeur d'approvisionnement (SDA))*

This is a planning and orientation tool that defines management methods and the optimal organization of the exploitation of fuelwood destined for urban consumption at the geographical, technical and socio-economic lev-

els. It is a document resulting from an overall physical, historical and socio-economic assessment of the milieu.

#### *The reform of timber legislation*

This reform is the central structural element of SED; it enabled the transfer of forest management to rural communities and restoration of their rights by the institution of rural fuelwood markets. It changed the roles of the stakeholders in the timber sector, both in primary production and in marketing of timber in rural areas to villagers, in transport and marketing of timber in urban areas to transporter-traders, and in monitoring, follow-up and advising of employees of forestry services. Fiscal reform also transferred the proceeds from the forestry tax levied on villagers and instituted a distribution of income to benefit all partners, including rural dwellers, territorial divisions, the national treasury and even forestry services, through the creation of the Forestry Supervision Fund (special account No. 3001).

This fiscal reform also obliges each partner to devote a part of his fiscal revenue to forestry development activities. It instituted a differential tax system that punishes and discourages uncontrolled, disorderly and highly taxed exploitation in favour of exploitation controlled by rural, low-tax markets. The instruments codifying these reforms are:

- Ordinance No. 92/37 of 21 August 1992, which relates to the organization of marketing and transportation of timber in large population centres, and the applicable taxation;
- Decree No. 96/390/PRN/MHE of 22 October 1996, which relates to Decree No. 92/297 of 21 August 1992); and
- Ordinance No. 39/MHE/DE of 15 July 1997, which sets taxation rates for fees received upon delivery of the timber exploitation permit (repealing Order No. 9/MHE/DE of 23 February 1993).

#### *Local structures for the management of forests and rural fuelwood markets*

Such structures were instituted by Ordinance No. 92/37 of 21 August 1992. They are rural organizations in charge of managing forests and producing fuelwood for supply to major urban centres.

A rural market development process comprises six stages that include informing villagers and training local officials. To avoid land disputes when the villagers see the actual transfer of currency from cities to the countryside, consultation must be effective and real. The total quantity of timber that can be exploited by the rural market each year is limited by an annual quota set by the forestry service. This quota depends on the calculated silvipastoral village land surface and surface unit potential for the kind of forest concerned.

Each village exploits its silvipastoral village land according to rules defined by an agreement document. In particular, together with the forestry service, the village determines the rights and duties of all stakeholders.

This quota system is, therefore, a starting point for the improvement of forest exploitation, and it is thus the first stage of forestry development that will be completed if these rural markets depend on forest masses in which it is possible to integrate exploitation smallholders.

#### ***Increased forest monitoring and administrative follow-up***

This is a guarantee of compliance with conditions for exploitation and sustainable management of forest resources. The support of forestry service employees is indispensable to the implementation of SED. The activities of forestry service employees were deliberately divided into two phases.

- A purely supervisory phase is called forestry supervision and applies mainly to transporter-traders (to combat all forms of fraud, for example), but also to rural markets (to ensure respect of such obligations as exploitation quotas and lot distributions, felling norms and payment of taxes). This phase is concerned with verifying the respect of the rules of the game by all stakeholders concerned and by the forestry police.
- A phase of support and/or advice to rural markets, called administrative follow-up, is mainly concerned with follow-up, training and guidance for rural dwellers in the implementation of development plans. It includes: support for training at the beginning of the exercise to identify the lots to be exploited; fixing of exploitation quotas and technical felling norms; sup-

port for identification, preparation and execution of operational files for forest regeneration works and village development activities, with follow-up and support and/or advice on the functioning of institutions; taxation and marketing; and support, at the request of villagers, in combating all forestry degradation activities. This is the role of the forestry expert as development adviser.

### **Technical and socio-economic assessment**

#### ***Technical activities***

These include designing a simplified form of participatory development. The activities of the development project are divided into three phases.

- 1 A preparatory phase of technical and socio-economic information gathering will be concluded by the mapping of the village lands concerned and will include broad-based negotiations linked to the limiting of village land between two neighbouring villages, the carrying-out of an inventory and the definition of an exploitation lot adapted to the local context. It is therefore essential to ensure that the distances between felling zones and marketing centres are not too great.
- 2 The development plan encapsulates all these technical elements and also includes the management method adopted, as well as the legal framework for exploitation (Rural Concession Act). It also provides for the technical activities to be undertaken (such as timber harvesting and exploitation of other products, soil- and plantation-enrichment activities, guarding, and marketing of products) and, of course, the exploitation quota.
- 3 A development plan implementation phase is concerned with the execution in the field of activities outlined in the development plan. It essentially involves the setting-up of the management structure and the training of villagers in literacy and management. It is important for populations to manage these structures themselves in order to be autonomous. A two-year time limit has been established for the achievement of the total autonomy of these rural markets.

The socio-technical assessment carried out in 1998, after financing for the project was interrupted for two years, shows that although there are still some problems in the forestry development plans for the villages of Bango and Tientiergou in the Say area, the villagers have understood the basic elements of the operation (Giraud, 1998; Montagne, 1999). The villagers have effectively gained control of the forest resources on their land, which they protect against all external destructive action.

The implementation of development plans shows that village exploiters generally have an adequate knowledge of such factors as lot allocations, exploitation norms, quotas, regeneration of various felled species, restoration activities and taxation. Thus, development rules are known even if they are not always strictly applied in some rural markets. Problems of the mastery and application of rules arise most often as a result of the involvement of new woodcutters who have not undergone prior training. These problems are also due to lack of follow-up and support from local forestry services.

### **Socio-economic activities**

SED is an efficient means of attaining poverty control and food self-sufficiency, and is a social and economic development strategy for rural communities. The network of rural markets set up between 1993 and 1997 currently covers about 100 villages in 5 regions with considerable production potential. In the past these villages had borne the brunt of uncontrolled exploitation by transporter-traders. They were thus able to enjoy a hitherto unknown income of 400 million CFAF.

They currently produce 15 to 20 percent of the fuelwood consumed in Niamey, that is, between 16 000 and 20 000 tonnes of fuelwood per year for a turnover of about 30 million CFAF for producers. The turnover per village is about 1.5 million CFAF. Individual income per woodcutter totals 30 000 CFAF; annual per capita income is 50 000 CFAF (Montagne, 1999). Some rural timber exploiters earn between 250 000 to 300 000 CFAF per crop year. The manager of some rural markets can earn income of up to 400 000 or 500 000 CFAF per six-month crop year. For example, the financial resources generated by the Kankani (Torodi canton) rural market from 1995 to 1997 amounted to 27 million CFAF, of

which 25.5 million was turnover (sale of timber) and 1.5 million was earned from taxes.

Income derived from timber exploitation fostered individual, and especially collective, investment to combat poverty. Resources were used for many purposes, including: the building and repairing of classrooms, health centres and mosques; training of rural dwellers; establishing village pharmacies and purchasing vaccines during epidemics; purchasing fuel for medical teams; establishing veterinary pharmacies; building and repairing village and pastoral water supply infrastructure; making petty trading loans to women; supporting employment; and providing agricultural equipment and inputs. These resources also contributed to the improvement of food security in the zone of action, where nearly all villages with rural fuelwood markets spontaneously acquired grain stores. At the individual level, the income from timber felled by woodcutters is used, in order of importance, to purchase foodstuffs.

SED also brought about a reduction in the rural exodus by creating jobs for young inhabitants of rural areas. Currently, between 1 500 and 2 000 young people (woodcutters and managers) are involved in timber exploitation and marketing.

Part of the income from taxes is set aside to finance forestry development activities. This income exists, and local initiatives have already been taken to carry out investment. Between 1993 and 1996, development funds created and reinvested in the forest by rural communities totalled 23.5 million CFAF, not including the voluntary participation of villagers, because most activities are carried out in the form of community labour. The following are some of the activities that were carried out:

- the creation of small nurseries for plant production and reforestation;
- the prevention of bush fires by the creation of firewalls;
- mulching and direct seeding; and
- maintaining surveillance of forests to protect against fraudulent exploitation and clearing for agriculture.



The socio-economic assessment shows generally satisfactory results at the level of democratic functioning and collective and individual rural investments. However, shortcomings have been noted in some rural markets with regard to such activities as the regular convening of general assemblies, the keeping of accounts and the sound management of funds by some officials, and regular follow-up by forestry services.

## Conclusions and prospects

From 1989 to 1997, SED was implemented through the Energy II-Domestic Energy Project, with financing from DANIDA and the World Bank. This original experience initiated by the Niger was noted all over Africa and especially in the Sahel subregion, where similar operations are being undertaken in Mali, Chad, Burkina Faso and Senegal.

Several relevant conclusions can be made.

- Rural dwellers are perfectly capable of conducting simplified forestry development activities while ensuring sustainability of the resource. This observation is buttressed by the fact that rural markets continued to function without the support of the project after the end of 1996, and without effective support from local forestry services (and sometimes despite their lack of support).
- The strength of SED lies in having carried out legislative and statutory reforms with regard to forest exploitation by questioning the concept of vacant, unowned bush. Indeed, the institutional reform of 1992 redistributed rights, roles and financial resources generated by the forest among the major stakeholders (government services, territorial divisions, transporter-traders and previously excluded rural populations). The most important element, it seems, is the re-establishment of the rights of rural communities as managers and owners of the forest resources on their lands.
- SED is a major force in the fight against rural poverty and in the attainment of food self-sufficiency. In brief, it drives local social and economic development.
- SED deserves to be continued and consolidated. It is still necessary to continue and intensify actions

undertaken, especially in the fields of: research on, and development of, the regeneration of exploited species; training and raising the awareness of forestry employees with regard to SED; rural extension work and village training; communication and raising the awareness of the general public; and setting up all instruments and structures provided for in the reform (such as blueprints, rural concession acts, quota-fixing committees, arbitration and conflict-resolution committees).

From the start, DANIDA expressed the wish to continue the implementation of SED through the financing of a second phase of the Energy II-Domestic Energy Project. The funding agreement has already been signed and the project is slated to begin in the first half of 1999. The African Development Bank has just provided financing for a natural forest development project, which has just begun. Several other development partners have displayed their interest in helping the Government of the Niger continue participatory forest management operations.

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