

Chapter 3: Reinventing Sustainable Use: Local Management of Natural Resources in Southwest Niger

Thomas Louis Price and Bawa Gaoh Ousmane

The Gaya region in Niger is blessed with rainfall and resources scarce elsewhere in this arid, Saharo-Saharan country. Over 80,000 people in 80 villages reside in the midst of a landscape with superior conditions for agriculture dominated by a resource unique in potential and diversity of use: The Ron Palm, *Borassus aethiopum*. Since the early 1990s, farmers in collaboration with district government have progressively re-established localised, sustainable forms of use based on their knowledge of the surrounding natural resources. The palm is of particular interest given that a wide range of products are harvested from different parts of the plant, with benefits to most of the rural population.

The key lessons from the experiences here are that:

1. A key entry point must be found to catalyse change and mobilise interest from a broad range of local groups to conserve biological diversity.
2. Natural resource use can be a basis for better governance, localised management, and shared gains in the economy.
3. Government must formally recognise new forms of association and collective action, with direct implications for national policy.
4. Effective local empowerment results when collective action in the community promotes trust, transparency, and equity.
5. Local mobilisation and effective action depend on involvement of all interest groups and an equitable redefinition of roles and responsibilities.
6. Programmes must establish a process of experiment, adaptation, and action that both build on local reality and result in national influence in order to promote sustainable use.

1. Introduction¹

The continuing availability of natural resources is central to rural and urban concerns in West Africa. This is true in all countries of the region, but particularly important to the people of the Sahel, as in the République du Niger.

Dramatic fluctuations in annual rainfall and a rugged climate call for flexibility, resilience, and resourcefulness in rural communities. Access to the multiple *goods* and *services* provided by forests, animals, bush and fallow lands, and water and wetlands, largely determine the quality of life of these communities.

Local residents in the midst of groves of the Ron Palm, *Borassus aethiopum* in the Gaya region have taken the initiative to better use their resources. The results are leading to a new perspective on community management of natural resources for sustainable development in Niger. State agencies, applied research institutions, and other organisations are in the process of building new relationships to support local initiatives for use and regeneration, and offering practical solutions to common constraints.

Since 1978, the Government of Niger, with financial and technical support from first France (through the *Fondues Daido à la Cupertino*) and then Switzerland (the Swiss Agency for Development and Co-operation) has initiated projects for the reconstitution and management of the Ron Palm population. Support initially focused on 'technical' forestry solutions with interesting results on the restoration of Ron Palm stands, but without cumulative effect and guarantee of future conservation. The subsequent approach has evolved towards incorporating social and political dimensions to place rural communities and local governance at the heart of decision-making and action.

In 1993, a new programme came into being with assistance of IUCN and other partners, with the aim of optimising the role of the Ron Palm ecosystem as a factor in the economic and social development of the region. The Programme to Support Local Management Initiatives for the Ron Palm ecosystem (PAIGLR – *Programme d'Appui aux Initiatives de Gestion Locale des Rôneraies*) in the Gaya region aimed at building conditions and capacities for sustainable, local initiatives. This programme has become a reference point on key questions related to the decentralisation of natural resources management and developing agreements with rural communities. To achieve successful management, the programme has emphasised investing in the capacity of local human resources through capitalising on local interests, building trust, and putting operational tools and methods at their disposal.

Since 1998, efforts have reached a new stage of maturity and localised governance with a general programme for support to local institutions and infrastructure, with continued Swiss support. *The Programme d'Appui au Développement Local* and two associated programmes reinforce regional transport, communication through rural radio, functional literacy for adults, and other facets of economy and society in the Gaya region.

This paper begins by focusing on the history of the Ron Palm groves starting with the period before colonisation and ending with contemporary trends. An examination of emerging forms of local organisation and the importance of the Ron Palm to the communities and the economy follows. Finally, the lessons of this experience for sustainable use of renewable natural resources will conclude the discussion.

2. The Ron Palm Region

The Ron Palm is in two distinct but adjacent areas: 1) the Dallol Maouri palm groves cover an area of 85 kilometres in length and varying in width from 5 to 30 kilometres on a north south axis in the Gaya administrative district; and 2) groves which run along the Niger River for 100 kilometres in the Sambera sector in Dosso and the

¹ This paper was inspired by the contributions and exceptional support for the programme from the communities in the Ron Palm ecosystem, the Direction de l'Environnement in Niger and the Swiss Agency for Development and Cooperation.

Gaya canton and city suburbs. According to survey information available in 1998, the Ron Palm groves cover an area of nearly 32,000 hectares (Figures 1 and 2).

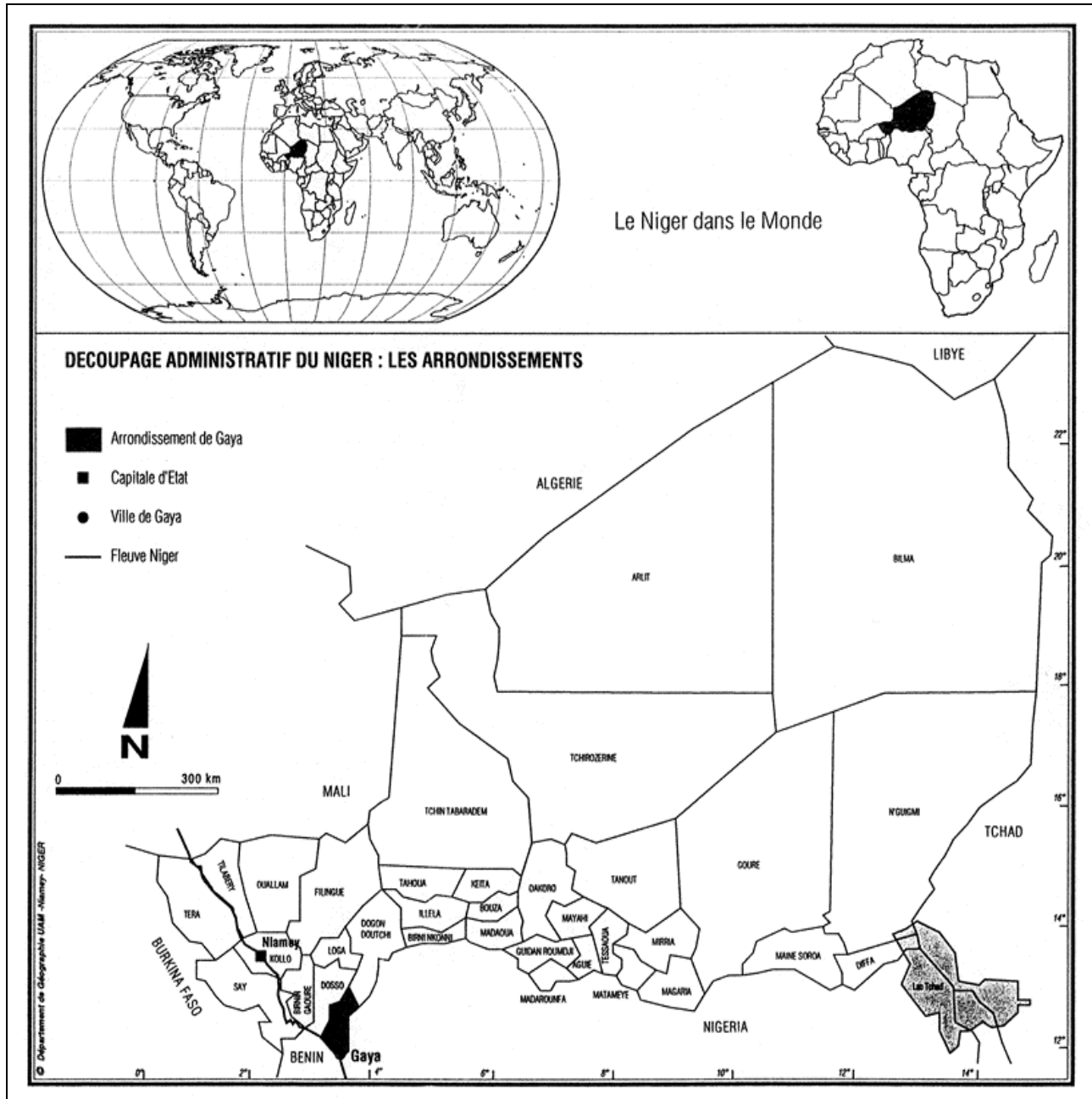


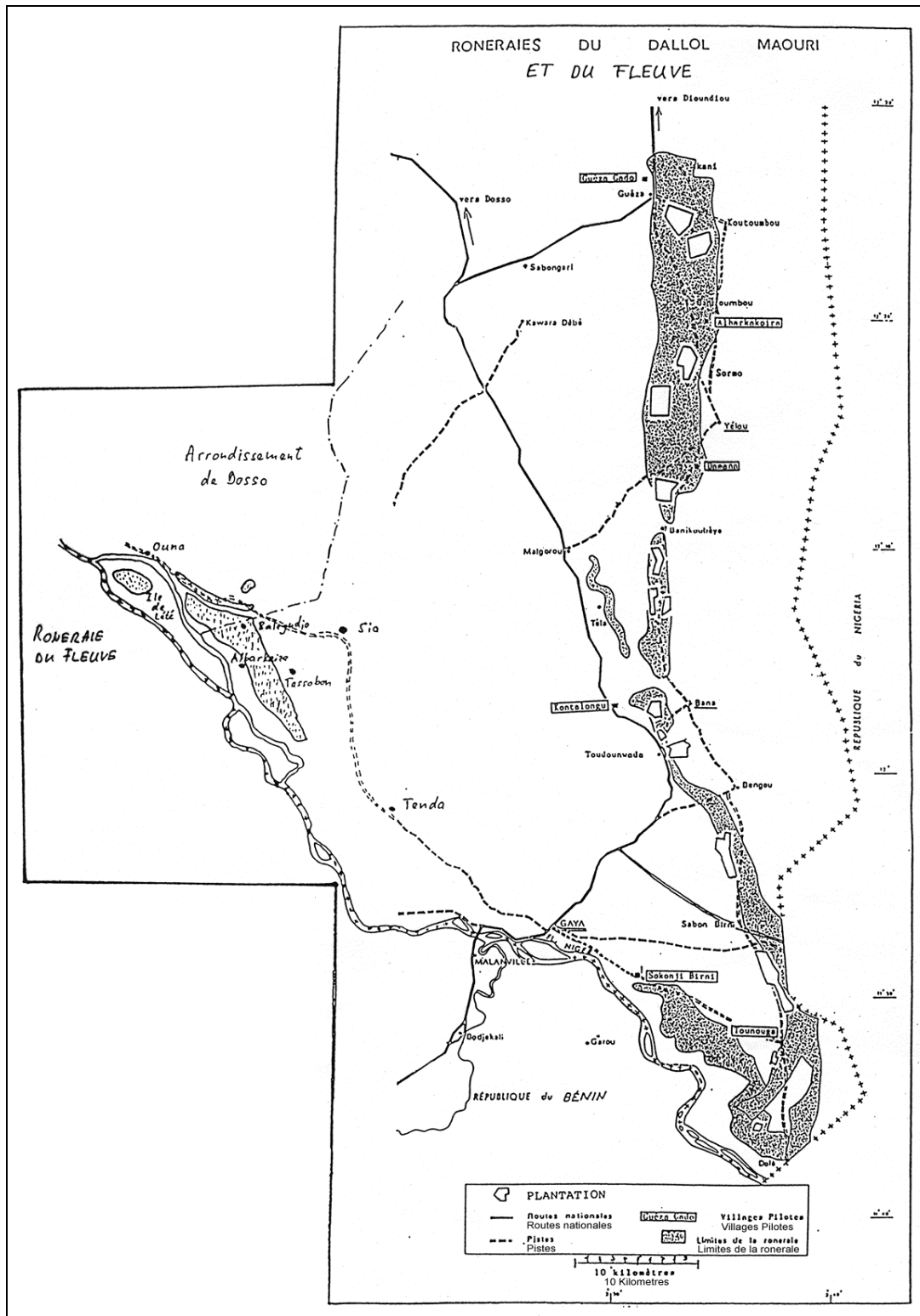
Figure 1: Map of Niger.
Source: Swiss Agency for Development and Co-operation.

The population bordering the Dallol Maouri palm groves has 64,336 inhabitants (1998 General Population Census) distributed throughout 58 villages, in four cantons in the administrative district of Gaya. The Sambera sector in Dosso district contains 20 villages. The overall region has a total of more than 78 villages with a population of more than 80,000 persons.

The Ron Palm, *Borassus aethiopum* is a tree from the monocotyledon palm family. It is a splendid tree with a single, straight trunk, which is more or less smooth and reaches 15 to 20 metres in height. It lives for between 80 and 100 years. There is another species in Asia, *Borassus flabelifer*, which is also an important resource for

rural communities (Johnson 1991).

Figure 2: Map of the Gaya Region.
Source: Swiss Agency for Development and Co-operation.



The Ron Palms are dispersed in farmers' fields and in natural forest areas as 'groves' or 'stands.' The palms are regularly spaced over large areas in the region. Their natural habitat is in the sandy plains at the bottoms of dry fossil valleys (the *dallols*), on the banks of the Niger River, and on the alluvial plains adjacent to the river. The water table must be shallow for growth and regeneration. The Gaya region has some of the highest potential in terms of agriculture, animal husbandry, wildlife, and fishing in Niger given the relative abundance of water. The ecosystem can host more biological diversity than the rest of the arid essentially Sahelian and Saharan country. Migratory birds from Europe come to this area as do mobile, aquatic wildlife. The region is blessed by nature, in that the rains are more abundant and longer lasting than many other areas of the country, with an annual rainfall of approximately 900 millimetres. The soil is also more fertile and the vegetation more dense.

The economic and social importance of the region reflects the qualities of the natural environment. The density of the rural population is greater and their activities more diverse. Rain-fed agriculture is generally more productive here than in other areas of the country – focusing on millet, sorghum and cowpea, and also cotton, gumbo, hot peppers, and other crops. There is production of rice, cassava, onions, fruit, and vegetables, which depend on irrigation or the river flood plains. Fishing takes place in the river and in seasonal pools. The fruit of the palm tree is not the only one gathered; other species harvested are the baobab, the tamarind, the fig, and the kapok tree. Finally, livestock benefit from the permanent water supply and there is sufficient grazing to support local herds all year round.

Agricultural production supports change and trade. Craft items are produced for trade and home consumption. Transformation and sale of food products are for local and regional markets, and also sent as exports to destinations as distant as Côte d'Ivoire and the Sahara.

The palm groves have served as places of refuge during periods of drought for communities from the plateau and other areas bordering on Gaya, as well as for immigrants from much farther away in Niger. Entire villages sprung up in the palm area following the famine years of 1955, 1965, 1973, 1984, and 1998.

The palm tree is central to agro-forestry systems in this region of Niger. The non-timber products are worth far more than the wood for various beneficiaries. The Ron Palm provides a diverse range of benefits and products for farming, household or individual consumption, local marketing, and long distance trade:

- The palm provides organic matter and NPK (nitrogen, phosphorous, and potassium) as fertilising elements for the soil.
- Both green and ripe fruit provide nutritious foods for animals and humans (used, for example, in the preparation of porridges or as snacks).
- Male flowers of the palm make excellent fodder for livestock (bromatological analysis by Atta (1997) indicates that the nutritional value is the same as cowpea and richer than groundnuts).
- The palm is also used in the craft industry and in traditional medicine (Figure 3a and 3b).

3. Historical Trends in Managing the Ron Palm

West African rural societies had different methods of community and family management of natural resources. This management took place under the supervision of the local authorities - dignitaries, elders, village chiefs and heads of families - who became those traditionally responsible for natural resources before colonisation. The Ron Palm - like the shea butter, *nééré*, tamarind, baobab, and other trees - has long had economic, social, and cultural value. For this reason, rural communities protected and used them in a way to maintain production and the natural benefits, and to ensure regeneration.

Figure 3a: "The Ron Palm is our mother, our survival depends on us saving it".

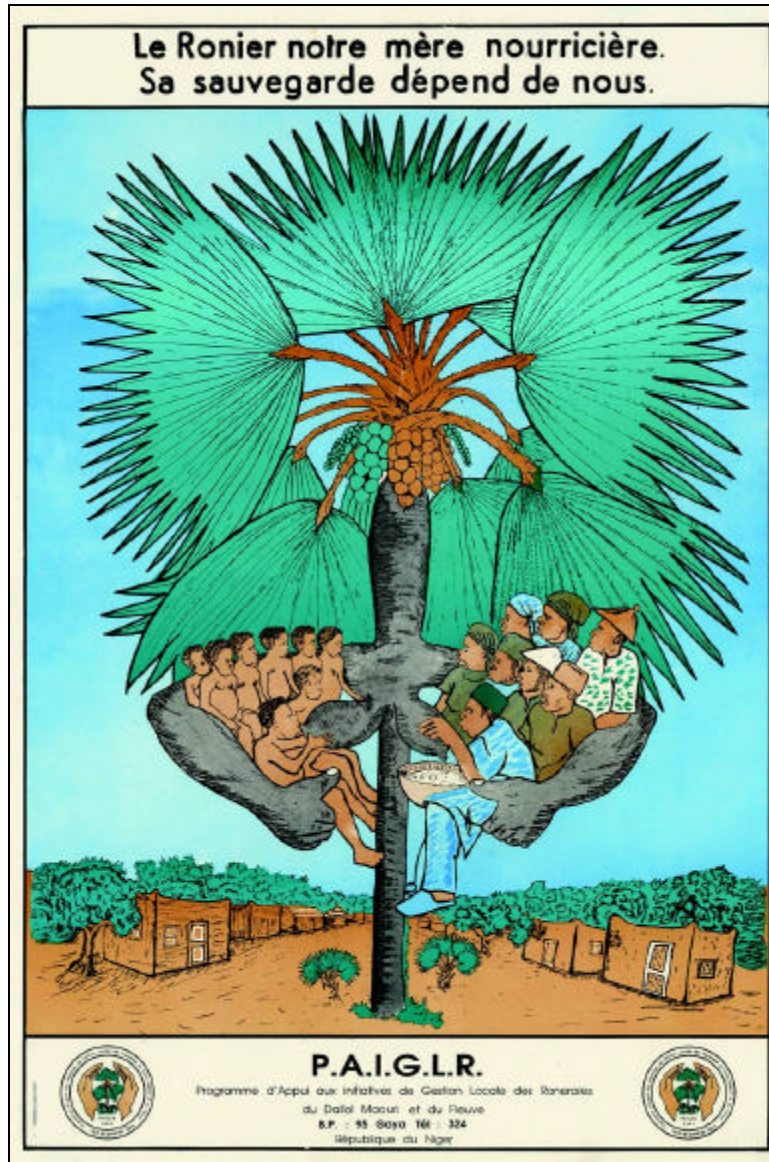
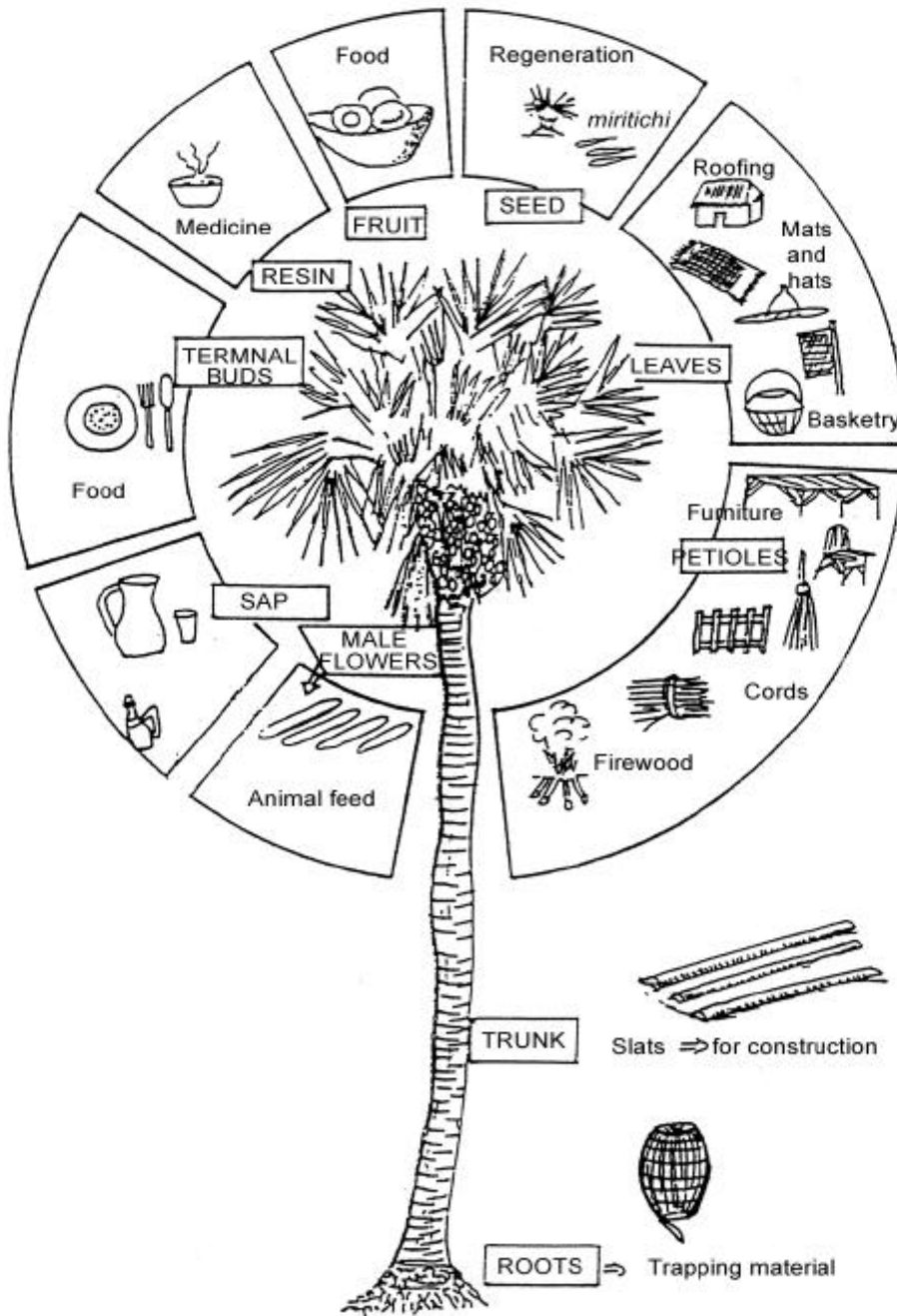


Figure 3b: The multiple uses of the Ron Palm



Because of the products and services that they offered, the local communities appropriated the Ron Palm groves to protect and work them using localised systems of management based on practical experience and detailed knowledge of ecological conditions.

With the advent of colonialism and in the years following independence, agencies of central government assumed exclusive rights of control of all natural resources. They became, in fact, the masters and legitimate owners of all resources defined as 'common' by State law. Traditional management structures were decreed null and void. Administrative and environmental officials (from the *Eaux et Forêts Service*) took on the powers for assessing, managing, and disposing of these resources.

Control and exploitation of the Gaya Ron Palm groves devolved to the national Forestry Service. Only the Service could authorise the cutting down of trees for commercial and even non-commercial purposes. The State privileged this option as the greatest value of the palms, from their perspective, for revenues and national interest.

The preferential issue of permits to traders from outside the region (in Niamey and elsewhere) and the abusive use made of these permits caused intense resentment within the communities settled in the Ron Palm groves. In fact, the local population, which had a multi-functional vision of the importance of the Ron Palm groves found it difficult to understand this new method of use of management and reacted with such force that the confrontation with the traders was on the brink of open violence. Their focus was on the multiple uses of each palm and on the cumulative effect of the values drawn from the Ron Palm ecosystem over a long period of time, which include soil quality improvement and other basic functions of agroforestry.

In fact, local residents considered that they had long protected the Ron Palms, and continued to do so. They were being treated unjustly, losing all their rights to the public authorities who were favouring outside traders. No consideration was being given to conservation of these resources and no profits were being returned for development of the local economy or the land.

Once the Head of State at that time, General Seyni Kountché learned of the growing frustrations of the population and of possible confrontation with the wood traders, he intervened personally to forbid any further cutting down of living palm trees. He listened to community representatives and decided to act against the external commercial interests and the Forestry Service. He then appealed for technical and financial support from international agencies in order to conserve the Ron Palm.

In response to local protests and in order to redress grievances, the government initiated the first project to reconstitute the vitality of the Ron Palm groves in 1978, with financial support from the Fund for Aid and Co-operation (FAC) of France and the National Investment Fund (FNI) of Niger. In 1981, this project was taken over by the Project for the Management of the Dallol Maouri Ron Palm Groves (Projet d'Aménagement de la Rôneraie du Dallol Maouri – PARDM) with Swiss funding. This project, carried out in three successive phases, ended in 1991 (see Table 1).

The main objective of the PARDM was to find better 'techniques' for the protection, regeneration, and use of the Ron Palms. Its approach was based on the 'planned economy' method of the Forestry Department in Gaya, which was responsible for supervision and which organised the employment of community members in planting the palms in return for payment. All planting took place in areas that were selected and demarcated by the forest service. Since the State was at that time considered by the government as the exclusive owner of all lands, most planting took place on village territories. The Bana Classified Forest was the only protected natural forest that was included in the planting scheme. In fact this is the only protected area in the regional Ron Palm ecosystem. No consideration was given to traditional land tenure and access rights when selecting the planting areas. As a result, government officers regarded farmers as users but not as the owners of their farmland. The most striking consequence of this attitude was that foresters were not concerned about reconciling Ron Palm regeneration with farmers' interests. So, no dialogue was established on this issue and other concerns of local groups. Building

consensus was not part of the PARDM approach. For example, requirements for crop production were not part of the planning process for planting trees in farmers' fields and the density of planting was detrimental to cultivation. The number and density of young palms thus became a source of friction.

Table 1: Comparison between the PAIGLR and PARDM programmes.

	PAIGLR (1992 to present)	PARDM (1978 - 1991)
Protection	<ul style="list-style-type: none"> • 311 village 'brigadiers' for the protection of the Ron Palm groves. • Participation of traditional chiefs (district or village chiefs, dignitaries, <i>etc.</i>). • An association of 'brigadiers' for the Protection of the Environment. 	<ul style="list-style-type: none"> • 8 forestry posts. • Employment of guards for protection of parcels of land.
Regeneration	<ul style="list-style-type: none"> • 42 village nurseries. • 175,766 plants produced. • 5,352 hectares of new palms. • And individual adoption of regeneration practices. 	<ul style="list-style-type: none"> • 55,086 hectares (as mono-plantations of Ron Palms). • Production of 76,000 plants.
Exploitation and Marketing	<ul style="list-style-type: none"> • 15 'Rural Markets'. • Sale of 5,291 fallen palms: 17,000,000 FCFA (Approximately 170,000 French Francs) • Income (from the sale of boards). 	<ul style="list-style-type: none"> • Supervision of cutting through an account managed by the local Department of the Environment (Gaya).
Organisation of Local Structures	<ul style="list-style-type: none"> • 26 local structures for the management of the Ron Palm groves (with PGTs). • 5 District Committees. • 1 Pilot Committee. • 2 Youth Associations for local development. 	<ul style="list-style-type: none"> • Structure of 'project' type, with external technical support and management assured by the State.

The same office regulated the market for Ron Palm wood, sold as board foot and in slats for construction. The revenues were supposed to be reinvested, to ensure sustained management of the palm grove as a resource. This basic objective was never achieved because the State used the income in other ways. However, one should recognise that making decisions for achieving this objective of the project was beyond the control of the Forest

Service. As a matter of fact, according to the contemporary rules for public finance, State earnings cannot be directly reinvested into the sector that generates such revenues. Even if the Forest Service was fully committed to the project objectives and willing to reinvest part of the revenues, it could not do so under the prevailing government financial procedures (established by legislation). Before any further action on that matter is possible a critical review of existing legislation is necessary to allow for any kind of exemption.

After more than a decade of involvement, very good technical results had been obtained by the late 1980s. These results did not, however, lessen the resentment of local populations, who continued to believe that the State monopolised all initiatives and the resulting resources. The Ron Palm remained outside their control and their responsibility.

It became clear that the sustainability of the technical interventions in favour of the Ron Palm were at best precarious. Little reference was being made to the needs and priorities of the local communities. Fewer and

fewer young palms were being planted or protected in the fields, in a countryside formerly dominated by the presence of the plant as an integral part of the agricultural system. Indeed, far the majority of the palms were in farmers' fields and on village lands. The popular perception of PARDM focused on external management, control of funds and suppression of local land tenure rights by the Forestry Service.

In conclusion, this type of State management could not continue to maintain the palm in the agro-ecosystems of the Dallol Maouri and the Niger River regions. In fact, this type of management and protection was only effective as long as the State power was strong enough to discourage some kinds of abuse. One should indeed recognise that government efforts in Niger in favour of the Ron Palm groves have successfully protected a resource that has been seriously depleted immediately across the border in Benin and Nigeria. However, as soon as the State started to lose some of its power in the late 1980s and early 1990s, dense and multi-stratified vegetation declined from year to year, the problem compounded by the weak rate of natural regeneration, causing concern for the future.

This also proved what has become a commonly accepted truth in Niger today: That the State can only manage natural resources in an efficient and sustainable manner if an approach is used involving the farmers, the village community, and other local actors. Decision-making is open to far larger partnerships and innovative methods of financing, associating the central State, local government, rural communities, non-governmental organisations (NGOs), socio-professional organisations, economic interest groups (traders and woodcutters), and institutes of applied research and external partners.

The Government of Niger, IUCN and the Swiss Agency for Development and Corporation (SDC) manifested their concern to act on behalf of all and to commit themselves in a totally new direction to guarantee sustainable use of the Ron Palm resource. The Programme of Support to Local Management Initiatives of the Ron Palm Groves (*Programme d'Appui aux Initiatives de Gestion Locale des Rôneraies* – PAIGLR) started in 1994, as a result of one year of consultations and dialogue between the relevant governmental institutions, the local communities, the Swiss Agency for Development and Co-operation and IUCN. The programme has aimed to fill in the gaps in previous external support by adopting a 'land management' approach, giving responsibility and decision-making powers with a degree of localised autonomy, to the rural communities.

This new approach has taken into account not only the ecological dimensions of management issues but also the social, economic, legal, and institutional ones. Many lessons were learned from 1973 to 2000. One major lesson identified during the joint assessments concluded in 1997 was that the PAIGLR could not respond to the *multiple* concerns of the local communities. Some other type of support was needed to strengthen the general enabling environment and provide a wider framework to address local development issues. It is given this background that the SDC has sponsored the start of a new overall programme for the region. The Programme of Support to Local Development (*Programme d'Appui du Développement Local* – PADEL) offers global support to improvements in local economy and society. These include transport infrastructure, rural communication (including radio),

credit and savings associations, and adult literacy. The PAIGLR remains a key component of the overall programme given the role of natural resources and the environment in the economy and livelihoods. The regional government and its agencies in Gaya are basic partners in project design, activities, and evaluation.

4. Projects and External Support

The present programme came into being because of a wish to change from directive leadership to a 'participatory' approach. The approach builds on the results of promising local initiatives and priorities, and on the

capitalisation of knowledge and organisation appropriate to each community.

It is worth noting that, from its onset and afterwards, implementation has benefited from major changes that favour freedom of speech and action at national and local levels. These trends brought about far more opportunities for dialogue with local communities, both internally and with other actors.

Notable in this regard, has been the process of applying the *Principes d'Orientation du Code Rural* (Fundamental Principles of the Rural Code). This has opened up opportunities for a new legislative framework that officially recognises traditional rules and principles including specific aspects of land tenure and access rights. The new Rural Code also aims at reconciling traditional rules with modern legislation through innovations such as the 'redefinition' of roles and responsibilities of government institutions and community-based organisations. Hence the programme was able to initiate a wide range of actions.

Within the framework of strengthening organisational capacities, recognition of the agriculturalists' rights and duties favours the development of an institutional and legal framework that facilitates sustainable management of the Ron Palm groves by those most involved. The PAIGLR bases its strategy for natural resources on localised 'land management' associations, with an effective transfer of responsibilities from the State to the village communities.

The principal goal of the PAIGLR has been to create the framework and conditions necessary for conservation of the environment through principles of local management. ***The valuation of the natural environment – in particular of the Ron Palm – is the basic starting point for the economic and social development of the region.***

The five areas of intervention are:

1. Strengthening local organisational capacities and progressive, formal recognition of the rights and responsibilities of the communities (manifested in drawing up and adopting Land Management Plans or PGT).
2. Improving techniques for use and transformation of natural resources.
3. Contributing to the development and adaptation of the legal mechanisms needed to put the principles of decentralised local management into practice (through reforms of land law through local decree and revisions in the national 'Rural Code - *Code Rural*').
4. Supporting the activities of specific interest groups including women's, artisans', and youth groups.
5. Supporting applied research on techniques of production that add value to natural resources, in particular the Ron Palm and its ecosystem.

The programme is based on support to local populations, so that they may put their own initiatives - identified in areas such as resource conservation, farming, and regeneration - into effect.

5. Major Constraints

Although the changes implicit to the Rural Code proved helpful for the implementation of the project, historical factors often were disadvantageous to project objectives, approach, and activities. These factors include:

- Institutional conflicts between government institutions.
- Conflicts between government institutions and local communities, especially Forest Service policy and attitudes toward decision-making processes and respective roles and responsibilities.

- Lack of villager involvement in the preparation of the Management Plan. The Forest Service prepared the plan during the PARDM and the new project was faced with the big challenges of: How to come up with a planning process to correct the negative effects of previous experience? And: How to build trust with local communities?
- Internal conflict between various interest groups within the local communities.
- Weak or non-existent local associations or NGOs.

In order to address all of these factors, the new approach was ambitious in order to:

- Involve all stakeholders in planning and implementing the project.
- Seek consensus on issues and concerns from all partners.
- Build commitment from all stakeholders, including government institutions and local communities, from the very beginning.

6. Localised Management of the Ron Palm

From the beginning, local community members noted the importance of the Ron Palm resources. However, it took one year to build initial trust with the villages and two years to start effective consultations and dialogue with women's groups. Afterwards, local community members demonstrated their interest and expressed commitment to the process of managing the Ron Palm ecosystem to protect, regenerate, and capitalise on the associated resources. Use and marketing of the dead wood was only one dimension of their interest in the palm. The range of local actors directly involved in management and gaining benefits from the Ron Palm groves are viewed as best placed to define their respective complementary or interlocking roles themselves. Differing interests of individuals, groups, and institutions are expressed at different levels through a cycle of annual negotiations and public debates.

Local communities and government have **three major sources of interest** in improved management of natural resources:

- The major role in the local economy, including generating taxable income.
- The opportunity to re-establish and re-legitimise customary, common rights.
- The establishment of an effective framework of analysis and the emergence of new ideas for conservation and sustainable use of wild resources.

The management plan is the framework and the reference point for intervention in the area of finances and activities. The plan is defined in a *Plan de Gestion de Terroir - PGT* (community 'land management plan') developed and adopted by each village or group of villages. The term *terroir* refers to lands of a defined community exercising common rights and recognised as having governance over resources within a specific land area. The PGTs are the equivalent of a formal concession of primary responsibility for management of the land to the beneficiary. For Ron Palm management in the Gaya region, each village or group of villages adopts a PGT. Significant results have been recorded in the areas of regeneration, protection and community organisation. A

synopsis of the results obtained in these areas between the PAIGLR and PARDM programmes is presented in Table 1.

Much effort has been devoted to regeneration of the palm groves. The PARDM sponsored state-organised planting of a total of 1710 hectares in protected areas from 1982 to 1991. During an initial 'test' period, the PAIGLR sponsored sowing on 'collective sites' (on village land and fields) over a total area of 1694 hectares between 1993 and 1995. Since 1996, the members of each community group have joined to organise their own system of collecting seeds and then germinating, planting, and protecting them. Participation is voluntary and the

operation does not require any technical or logistic intervention from outside agencies. Sowing takes place in farmers' fields or on common lands, following a system of distribution determined by each group. All of the areas with Ron Palm groves are covered, and bordering villages have also organised themselves to carry out

spontaneous planting. In 1996 alone, the groups planted over 676 hectares and there is considerable individual planting in farmers' fields. One study estimated individual planting to be 3280 hectares in 1997 (with a density of 100 plants per hectare) (Mohamadou 1997: 8).

7. Ron Palm in the Local Economy

What part does the Ron Palm play in the local economy and society? The answer is complex given the distribution of values, and the balance of short- and long-term benefits. If the Ron Palm groves are considered from a short-term, purely financial standpoint for one good such as wood, only a small part of overall value of the resource to the community is represented. However, the contribution of the Ron Palm to the local economy can be better estimated by the market value of wood and for trade in *miritchi*² (see Table 2), which forms a large percentage of the income of women, an important social group.

7.1. Wood

Inventories of the groves in the Dallol Maouri and along the Niger River assess the Ron Palm population at approximately 2,500,000 adult individuals. According to the regulations fixed by Government of Niger Ordinance 92/037, one Ron Palm has a value of 17,000 FCFA (=170 French Francs) at the low end of the market scale. Even at the lower market figure, the total value of the contemporary adult palm population can be estimated at 420,000,000 French Francs (approximately US\$70,000,000).

With the advent of the PAIGLR, rural communities have been able to obtain revision of the State laws, adapting them to local reality. The State has decentralised marketing of palm wood to the local communities, who fix the price of wood on an annual basis. Of particular note was community rejection during public debates of the original plans drawn up by professional foresters to harvest 4,000 board feet of palm per year from living and dead palms. The decision was taken in favour of using 'fallen wood' only, to avoid any possibility of killing productive palms. Prices take into account the destination (outside or inside the Ron Palm grove region) and the client's profile (whether wood is for personal or commercial use). The price per board foot is about 12,500 FCFA (tax included) for tradesmen from outside the Ron Palm area in contrast to about 4,000 FCFA for the population bordering the Ron Palm groves (no tax included). Given contemporary market value and taxable income, State agencies are reluctant to transfer and decentralise management of the Ron Palm in particular and of natural resources in general.

7.2. *Miritchi* and Fruit

Miritchi – which is grown from the palm fruit - is considered a delicacy. It has acquired increasing market value given general appreciation of the roasted or boiled product as a snack and of reputed qualities as an aphrodisiac.

Improvements in transport and West African regional trade have increased demand. Women have specialised in *miritchi* production but men have been increasingly attracted to both production and trade of the product.

The production of *miritchi* and harvest of ripe fruit bring significant income into local communities. According to a study of this sector, Mohamadou (1997) reports that the Ron Palm groves could potentially provide a sustainable annual income to residents of approximately 7,000,000 French Francs, of which 11% would come from marketing of ripe fruit.

² *Miritchi* is the hypocotyle, germinated from Ron Palm fruits and sold as a foodstuff.

According to Doka and Oumarou (1993), those at the top of the production line are making the most profit. In fact, *miritchi* and ripe fruit bought from the Ron Palm groves are sold at three or four times the price at market in the regional administrative centre of Dosso and in the capital of Niger, Niamey.

Women harvest, germinate, and sell the sprouted fruit as a source of their own cash income. With little investment in terms of time and equipment, returns are considerable. The main part of the work is gathering the fruit, which means finding, selecting, and transporting fruit from the groves. The activity is seasonal; bringing in

revenues during a period that does not compromise women's other agricultural activities. Table 2 breaks down women's general incomes and the relative importance of *miritchi*. There are significant differences between communities, which reflect the localised availability of the fruit and in some cases stress on other activities. For example, women in Fogha produce mineral salts from saline soil through a process of leaching, boiling and drying. The process represents a poor return on labour and investment. The women must dig earth and draw water, and then use a considerable amount of firewood to produce the salt. Working conditions are unhealthy and uncomfortable, with women suffering from the heat, steam, and smoke.

7.3. Implications for Women's Incomes

Most rural households in Niger have meagre cash incomes, though there is considerable circulation of money and resources within family groups. An individual's activities are typically very diverse and vary over the course of the year. A wide range of groups profit from revenues and resources from the Ron Palm including male heads of farmer households, women, herders, artisans, and local youth. Women, like men, market natural resources with the commercial objective of improving their revenues.

Women's activities are fundamental to the household, generating small but regular revenues. Women engage in agriculture (85%), in raising livestock (62%), in a range of small-scale commercial activities (41%), the production of *miritchi* (90%), and other pursuits for income and goods (Doka and Oumarou 1993).

Laouali (1995) reports that more than 90% of women in the Gaya region produce *miritchi* and that this contributes to 17% of their average income. In contrast, 47% of their incomes are related to small-scale commerce. They sell different goods, of which *miritchi* is one example. However, commerce is most often of locally made products that the women themselves create. For example, groundnut oil, salt, smoked or cooked fish, dried condiments for sauce, shea butter, and cooked dishes are all prepared and sold at market, in the street or from house to house. Women also sell a variety of unprocessed agricultural goods including fresh fruit and vegetables. According to the area and to the availability of resources, the role of the Ron Palm can represent more than 20% of a rural woman's average annual income. When also taking into account the other natural products - medicinal substances, and fruits, flowers, leaves, and wood from other tree species - the Ron Palm ecosystem in the Gaya region may be regarded as the most productive area in the country.

Table 2: Women's incomes and *miritchi*³.

Villages	Percent of women with an income from <i>miritchi</i>	Average income from <i>miritchi</i> (FCFA)	Other Income (FCFA)	Average Income of Women (FCFA)	Percentage of Income from <i>miritchi</i> (FCFA)
Bingou	56%	5,642	14,298	20,570	27.42%
Birni Tegui	92%	7,100	46,783	53,883	13.17%
Bagoudjo	16%	1,750	35,750	37,500	4.66%
Bana	40%	2,950	5,300	8,250	35.75%
Nadewa	100%	5,057	16,542	21,599	23.41%
Niakoye I	60%	5,570	77,333	82,903	6.71%
Sabon Birni	32%	3,928	19,571	23,499	16.71%
Koma	56%	2,800	10,515	13,315	21.00%
Tounga	31%	2,500	13,600	16,100	15.52%
Goundarou	48%	1,960	17,383	19,343	10.13%
Dolé	40%	1,866	48,288	50,154	3.72%
Sormo	64%	8,000	35,772	43,772	18.27%
KoutoumbouGuéza	76%	2,772	27,500	30,272	9.15%
GarinGari	72%	9,080	26,350	35,430	25.62%
Yélou	32%	2,785	71,248	74,033	3.76%
M'Botché	44%	18,285	44,285	62,170	29.22%
Rougo Guéza	52%	4,500	25,464	29,964	15.00%
Tomo	50%	2,250	56,250	58,500	3.84%
Albarkaï zé	60%	2,021	15,564	17,585	11.49%
Rouga Guiodi	48%	1,531	61,754	62,285	2.41%
Rouga Loga	0	0	24,800	24,800	0%
Malgorou	0	0	12,162	12,162	0%
	0	0	105,233	105,233	0%

8. Dynamics of Sustainability

The programme is based on an approach that supports social and institutional change at the local level. There is an explicit relationship between these changes and revisions in national policies. The inclination of the programme is to create direct dynamics of exchange that can bring about consensus on the major decisions and actions to be taken. There is, therefore, dialogue at the local and national level, where one informs and influences the other, in order to arrive at national policies that better reflect contemporary reality in both the rural and the urban environment. Government is gradually replacing traditional, unilateral, and authoritarian relations ('top down') with local districts (*collectivités*) and communities. Innovation in the application of this approach is evident at several levels and the results of this experience are reflected with direct impact on Gaya and elsewhere. The results have major implications for local authority, processes of decentralisation of governance and technical services, and law.

8.1. Decentralisation of Authority and Governance

The term 'decentralisation' is the current term used to describe a whole group of changes in the administration and management of political, administrative, and economic affairs in Niger (and elsewhere in West Africa). The image communicated encourages belief in a decentralised authority at the local level, taking place within the communities living in the areas affected. The concept is, however, more often manifest by power being re-

³ From Doka and Oumarou 1993.

distributed through the localisation of State agencies and administration. The application of reforms does not, therefore, take into consideration either the real forms of organisation at the local level or the emergence of

independent associations based on local priorities. Agencies of central government plan in a directive manner, focusing on the creation of new structures and regional units without referring to the emergence of community groups or confederations of such groups throughout the country.

The PAIGLR programme aims to deal with this situation using the example of a process that builds local structures through debate, training of groups (*Land Management Committees* and other local structures), and - possibly - the establishment of sub-regional federations (real District or Regional Committees).

8.2. Creation and Development of Associative Structures

Discussions and decisions taken by the communities of the Ron Palm groves inspire this process. PAIGLR leadership and teams began this process without any firm conviction that the regional units representing the 'districts' were going to be the future units for co-ordinating economic activities and the management of natural resources. During a socio-economic study and a series of local meetings taking place over more than a year - which produced proposals on conservation and use of the Ron Palm space - it became clear that the prime unit of

management would be either a village administrative body (representing surrounding hamlets⁴) or a small group of villages united by common interests. Negotiation to create these units (the 'clusters' for village management) had to take place in consultation with the traditional authorities, the village, and district chiefs.

One innovative aspect of the programme is the emergence of criteria to select the beneficiaries for support and evaluation amongst communities, basing these criteria on collective choice at the local level. At community-wide, public consultations, participants drew up a range of criteria to identify and select the most appropriate communities for the receipt of support, in terms of advice, and external resources. An evaluation can then be made of the state of development of the different groups regarding management of resources and level of organisation achieved.

The criteria were designed and proposed during village meetings and general assemblies. The different groups validated and applied the proposed regulations. The following criteria are included: Social cohesion demonstrated by examples of collective actions (for example, repair of rural tracks); civic responsibility shown by the collection of annual taxes, *etc.* These criteria are then studied during the groups' periodic meetings. These meetings allocate funds and decide on joint activities, according to the same criteria and following a collective analysis of each community's progress.

The creation and development of associative structures was possible because of six main driving forces:

- Availability of funding that goes directly to the villages and is under their own management.
- Continued, strong support from the Swiss Agency for Development and Co-operation not only on funding matters but also as a full partner in planning and decision-making processes, monitoring and evaluation, and regularly re-adjusting the approach and activities.
- A strong and dedicated project team for the day-to-day activities.
- Continued support from external partners playing a role as catalysts and neutral brokers, including the IUCN Office in Niger and the IUCN Sustainable Use Initiative⁵ (devoted to promoting sustainable use of natural

⁴ A 'village administrative unit' is composed of residents of the rural community coming from the same 'village' headed by a 'chief'. Each village typically includes a central core with adjacent housing, compounds, and public facilities such as wells, the market place, the mosque and schools, and small hamlets or individual homes more or less distant from the central concentration. This administrative unit is officially recognised by the State on a historical, demographical, and political basis. The village serves as the basis for tax collection and census or other statistical information on the Nigerien rural population.

⁵ The IUCN Sustainable Use Initiative was established in 1995 to improve understanding about the factors that affect sustainability. Since that

resources).

- The willingness of all partners to learn by doing.
- Changes in government policy and the legislative framework.

One remarkable feature has been in the increasing prominence of women in public affairs and decision-making bodies in the Ron Palm region. From the first steps of the redesign and re-negotiation of programme objectives and activities in 1993 and 1994, the economic importance of the palm for women figured in all discussions. However, at first their participation in public meetings was modest and in at least one major community – the village of Bengou - completely lacking. A combination of factors has affected some dramatic change in their presence and overt role in resource management. First, political processes have favoured a higher profile nationwide and in rural communities for women, with their speaking up publicly and taking office more readily. In the case of the Ron Palm, their economic interests in *miritchi*, planting, and other activities soon mobilised participation in village meetings and new forms of governance. The local authorities often supported their

attendance in meetings and saw the advantage to improving their productivity and the potential benefits to families and the community. Women now play a prominent role in many of the management committees and often serve as treasurers or as other key players for finances and accounting.

The number of villages and area participating in the programme since 1994 is constantly increasing. From 1994 to 1998, the number of villages increased from 17 to 52, and the number of areas from 9 to 32. Coverage of the Ron Palm region by PGTs is presently at 68% with 77 villages involved. Surveillance (by local ‘brigadiers’) and regeneration activities involve all the villages. Most external funds are managed directly by the local governing bodies, with the annual activities identified from proposals based on the PGTs and defended at public assemblies. In 1998, funds available were approximately 1,200,000 FF (or US\$200,000). These funds constitute the start of revolving funds for each village group. The resources are used for resource management and local development priorities.

In the case of one village group – in Albarkai zé along the Niger River – the approach and its implications have been internalised and progressively applied to other resources. The village has customary authority over fishing and water resources in the river and the floodplains. The fishers seized on the implications of renewed authority over the Ron Palm to apply similar measures to regulate seasonal bodies of water for fishing and degree of access to aquatic vegetation. Productivity has increased greatly within a few years given effective application of these measures and local surveillance. Other resources have notably included hunting of migratory birds, grazing rights in the floodplains, and the use of other plant species (such as tamarind, baobab, and wild fig).

8.3. Local Authority and the Role of the ‘Traditional Chiefdoms’

Niger is a country where the ‘traditional chiefdom’ continues to exist as an administrative and institutional anchor. In fact, colonial authority appropriated and transformed previous political structures, extending the period during which these were broken down through a re-invention of tradition. The chiefs lost their real power - and usually the initial seat of their legitimate authority - to become tax collectors, mobilising manpower for public works and other purposes, *etc.* However, some of the traditional chiefs are still powerful in terms of the historical and cultural legitimacy of their authority, and in stimulating the interest and commitment of local communities.

Chiefs continue, nevertheless, to play roles as moderators and arbitrators of conflicts, as guardians of certain

time, sustainable use has evolved from being a somewhat controversial notion to being successfully incorporated into mainstream thinking about conservation. In keeping with this conceptual shift, IUCN has re-organized its work, moving away from a special, stand-alone Initiative towards an integrated approach. SUI was disbanded in 2001, but a Sustainable Use Team (SUT) was formed to carry on this work, synthesizing information and findings across IUCN’s diverse programmes. SUT’s goal is to disseminate information and knowledge about sustainable use, facilitate analytic and policy contributions from IUCN programmes and members, and develop tools and build capacity for understanding sustainability. A key actor in this effort is the IUCN SSC Sustainable Use Specialist Group (SUSG, <http://iucn.org/themes/ssc/susg/>), an international network of experts operating in 17 different regions. SUT acts as the secretariat for the SUSG.

practices described as 'African' or 'traditional'. For example, customary chiefs have become the interpreters for the different versions of land tenure rights and for uses and customs relating to natural resources, together with other dignitaries who have specific powers ('chiefs of the land', 'chiefs of water', *etc.*).

The State has revised these powers and rescinded a number of local management mechanisms and uses based on empirical knowledge. The application of the notion of 'common' (common property which public authorities are supposed to protect and conserve) is, in reality, the result of changes in local rights.

The support programme includes village and district chiefs, through the recognition of the importance of their power in catalysing local interest and commitment, oversight over management of common resources and honorary role in meetings, ceremonies, and other public events. This development reflects the changes taking place with decentralisation of administration and the possibility of elections taking place with local assemblies. These changes are moving towards the possible disappearance of the position of 'chief for life'.

8.4. Supervision and Effective Control of Use of the Environment

It is important to note that, from the beginning of joint actions, the residents of the Ron Palm grove emphasised the need for follow-up and control of the natural environment. Products of the Ron Palm are sought after by people both from the area and from outside. Abusive practices in cutting palms or harvesting products are evident

and frequently discussed as a public concern. During public gatherings, local residents often express the view that the public powers are not sufficiently severe with offenders! They believe that offenders should be made aware of the seriousness of their crimes through public humiliation, heavy fines, and loss of liberty.

Following the discussions on the spirit for application of the new Rural Code in Niger, community surveillance officers ('brigadiers') have been established with volunteers from each village community. The 'brigadiers' are not a substitute for public authority and the police, but are essential at the local level to control techniques and the level of resource use. People caught committing infractions are summoned to pay fines or turned over to Forest Service officials.

This method of control of the unsustainable use of natural resources is a new development in Niger, where the government agency responsible for the environment has maintained extensive powers since the colonial period. It should be noted, however, that the natural resources under its authority have often not been better managed or preserved than under local authority. The exercise of government authority has often been authoritarian, inequitable, and abusive. The participation of local communities in protection of these resources constitutes recognition of their rights and serves to encourage transparency in management.

8.5. Land Tenure and Access to Common Resources

Local community representatives and their partners consider that efforts to create a legal and administrative framework for local management are fundamental for success. The texts and their application have contributed to the re-emergence of locally initiated forms of use, regulation, and recognition of rights of ownership and access. Emerging conditions in the Ron Palm grove serve as an example and a laboratory for thinking and reforms at the national level.

Units for the management of natural resources that represent villages and hamlets, therefore constitute an innovation to the extent that the State concedes power over the resources considered to be public property (trees, wildlife, water *etc.*). At an official level, the State has not even acknowledged the right of such association to make decisions in common, to determine the availability and limits of such resources. Since the village was considered to be an administrative structure, it did not have the formal right to manage and distribute funds, to mandate its members to act on its behalf, to have ownership of property.

To adapt the Law to suit contemporary rural economy and society in Niger, the government initiated a process of revising texts and their application, referred to as the Rural Code. This new land tenure code is in principle inspired by pre-existing rural traditions and practices, together with those emerging trends in urban areas where customary rights based on Islamic Law exist side by side with 'modern' legislation based on European (basically French) examples.

9. Conclusions

The initiatives in the Ron Palm region are multiple, with important local, regional, and national implications for local association and authority, financial mechanisms, land law, surveillance and monitoring, and policy towards natural resources. There are opportunities and risks that are associated in each case.

9.1. Rural Associations and Local Authority

The programme has catalysed the creation of **operational forms of association** at the local level to ensure better use and management of resources. The status of the different groups for the management of natural resources is innovative, in that these groups have independent decision-making powers and financial autonomy. At present, these new village groups have to rely in part on resources which come from outside support, but they also have

revenue generated by products from the Ron Palm and other remunerative activities. There is a timetable for each group to graduate to total financial independence, with the final groups achieving autonomy in 2004.

Each group has developed a distinctive charter for the new association, with statutes and internal regulations, which best reflects its specific conditions. For example, each charter has rules on the composition and profiles for election of the Executive Bureau and on the criteria employed in granting loans to members. The association determines rules of access and priority to common resources. However, in order to ensure the success of this model in the long-term, the national government will need to formally recognise the powers of the localised, diversified types of management and use of natural resources of each association. This approach to new forms of association contrasts strongly with other examples of rural groups, which have been obliged to apply a single organisational and operating model imposed by central government.

At the national level, the region has become a focus of attention for meetings, seminars, and visits by representatives of government, research institutions, and community groups. Visitors and participants are applying the lessons learnt elsewhere. For example, Gaya has influenced initiatives of rural communities in forestry, wood use and marketing, animal husbandry, and management of wild resources. The dominant trend is to attribute more authority to local organisations. Government agencies formulating new policy for the gradual redistribution of power to the local level have noted with particular interest the implications of changes in these communities, notably at the High Commission Responsible for Decentralisation.

Laws and legislation have not yet, however, formally confirmed the status of these groups. The recognition of their authority and existence *de jure* is necessary to secure local rights. Negotiations are therefore taking place on the status of these rural groups in order to formalise their rights. The debate examines the very nature of the public interest in viable rural institutions for natural resources management. The importance of the issue is clear given that questions of use of the environment and its value are of undeniable national importance.

There is potential for failure and opportunity for the future given the prevailing legal and administrative complexity in Niger. The State has a series of laws and decrees adopted over time since the colonial period that can legitimise local rights to property and common resources, but can also disenfranchise rural communities in favour of technical and administrative services. Multitudes of various texts are sometimes contradictory and often subject to wide differences in application. There are no clear principles to establish priority. Diverse customary

and Islamic laws at the local level further complicate matters for access to common resources, inheritance and family property.

Fortunately, there are mechanisms for local resolution of conflicts and arbitration. There are therefore precedents for local settlement of disputes, local management and establishment of agreements, as a basis for *de facto* application of revised versions of customary law. Of course, such traditions have been manipulated and abused to the advantage of some groups, which confirms the need for agreed mechanisms for public exchange of information, decision-making and recourse.

9.2. Monitoring and Surveillance

The mobilisation of approximately 350 villagers as 'brigadiers' into a community-directed form of 'Rural Police', working across the whole breadth of the Ron Palm area, has been a first in Niger. These volunteers do not replace the forces of public order, but they play an essential role in controlling and protecting their own resources. Articles 112, 113, 114 and 115 of the Rural Code relate to the creation of a 'rural police force', but a number of government officials have interpreted these articles as a mandate for the creation of a local branch of the security forces, made up of government employees: Policemen, *gendarmerie*, customs, and forestry officers. The PAIGLR and associated bodies have studied the texts and facilitated the setting up of a supervisory structure, which emanates from the local communities and has the approval of the decentralised public authorities.

At present, the State and its departments recognise and work in collaboration with the brigadiers. This means that there is a real guarantee against abuse in the Ron Palm groves. The heads of the Department of the Environment (with the relevant ministry) have approved this initiative and arranged a workshop in 1997, to revise the role of 'forestry officer'. This occasion was used to ensure that general policy took account of the 'rural police' as a means to protect nature. This gives members of the areas concerned the opportunity to demonstrate their motivation and capacity to participate in the management of natural resources. Once the principle of organising groups of 'brigadiers' was accepted, the communities bordering on areas of forest being exploited for wood began to set up their own 'police' all over the country (for example, in the Baban Rafi, Fayra, and Takiéta forests elsewhere in the country⁶).

9.3. Land Tenure and the Law

This experience has stimulated a fresh examination of concepts related to individual, community, and public law. Appropriation of the Ron Palm is of a 'private' nature (since it is usually found in a field). However, it is also a 'common' issue as the communities have expressed with one voice the need to regulate the harvest, monitor the availability, and pool the revenues from sales of wood. In fact, ownership is not *stricto sensu* private, because farmers' fields and their contents (trees, water, and soil) are considered, in the overwhelming majority of cases, to be family property. The man who uses and manages land is the representative of a family group, rather than someone acting an 'owner' who can work the land and dispose of it as he deems fit.

It should be noted that the example of the Ron Palm brings certain contradictions - or perhaps deficiencies - to light regarding land tenure reform. The tendency of national and foreign legal advisors to privilege individual ownership of property runs contrary to the notions and practices still followed in rural Niger. The fields and land, and their natural resources, are considered the property of the entire family group (the patriline), which is represented by one of its male members at tribunals and other external organisms. The community nature of decision-making and disposal of a resource, situated on the land of its members, is also likely to change the present tendencies of the Rural Code.

⁶ There are areas classified as 'natural forests' (*forêts naturelles classées*) in each region of the Niger, on lands expropriated by the State and managed by the Forest Service. Woodcutting is by permit and farming banned. However, government authority has often been sporadic or ineffective in regulating use. Localised management of the timber and non-timber resources has been progressively introduced with varying degrees of participation of the surrounding settled and seasonal users. The government agency, its decentralised offices and individual forest officers have been reticent and often resisted efforts to give effective responsibility and financial autonomy to local groups.

The present forms of managing the stands of Ron Palm and of disposing its products are a concrete example of the application of the Rural Code principles. Each stage in the creation of local management structures, of drawing up measures and their application is achieved in collaboration with the lawyers of the National Permanent Secretariat of the Rural Code. The Ron Palm groves constitute a specific case of *de facto* application of the Code. A series of workshops have taken place to present and adopt the texts for these new forms of rural association, intended for the use and conservation of natural resources, inspired by the example of Gaya (together with other similar examples).

9.4. Financial Mechanisms

One stumbling block for each group or association, which wants real independence, is its power to mobilise and dispose of financial resources. State agencies have in the past reduced local capacity to manage resources. For example, the co-operatives that emerged in the 1970s and 1980s with harvesting rights in national forest areas eventually had their funds controlled directly by environmental service and the public treasury. Since external funding has stopped, these financial management programmes have collapsed.

Groups in the Ron Palm area have set up committees, with elected treasurers, empowered by members to receive and distribute funds. The *de facto* recognition of the group's right to dispose of common funds and revenue from the sale of resources, to open bank accounts, to provide loans to members and to participate in credit and savings banks is a major attainment of the programme.

With regard to the sale of wood for construction (already split as slats, or board foot), there is a decree that states that revenues must be shared between the national treasury and local government authority. Two kinds of funds have been created and legitimised in new laws. There is a fund dedicated to sustainable management of the Ron Palm groves, and another one for local development activities directly managed and supervised by each rural group (Government of Niger 1996, Article 13). The groups benefit from formal rights of access to the resource and rights to dispose of the revenues. The decree has become a model to inspire texts for other village groups to harvest firewood and other forest products, and for other forms of natural resource use and management.

9.5. Sustainability of Use

The contemporary efforts at planting and then protection of young palms are promising for the overall population in farmers' fields and in the areas favourable for the plant (see rates of plantation and coverage in Table 3). However, causes for concern for some village-level land management groups remain due to two historical factors. These factors include damage of many palms due to heavy harvest of fronds near some villages, and local concerns about the impact of the intensive use of male flowers on female flower fertilisation and the consequences for fruit production. Previous official policy treating the Ron Palm as State property had unintended consequences for planting and protection. There was little spontaneous planting or conservation in fields. In some cases, foraging livestock and heavy harvest of palm parts stunted or killed young palms. Plantings organised by the Forestry Service virtually expropriated some farmers' land, with so much density that the areas in effect constituted 'palm forest estates.'

In some village territories, there are gaps in some age sets in the Ron Palm stands with a large, mature population, a fresh group of young palms and very few 'juveniles' between 10 to 30 years. There will therefore likely be a decline in palm products and low wood production in these cases for a number of years. Contemporary success in planting will not totally compensate for years of neglect in progressively reconstituting the palm groves, with a predictable decline in some products and revenues in future.

Community decisions have been quite conservative regarding palm conservation and use. PGT assemblies rejected Forestry Service advice on wood production and decided on a moratorium on harvest of live trees in order

to preserve the level of non-timber products. In the village of Tounaga in the Niger River floodplain near Nigeria, there is even a conflict between generations about the best approach to palm management. In public debates, younger villagers called for a halt to all harvest of wood and fruit to guarantee conservation of the population. Older farmers wished to continue some harvesting as a source of cash income.

There have been frequent calls from residents of the region for better ‘technical’ or ‘scientific’ information on the palm. They have expressed a desire, for example, to understand the reproductive system to arrive at optimal harvesting of male flowers without endangering fertilisation. The programme of applied research aims at providing practical answers to such questions, and eventually improving yields and varieties (the work of Atta 1997).

Table 3: Ron Palm regeneration: Annual plantation with subsequent protection ensured by local guards ('brigadiers') from the village groups.

Year	Number of hectares	Participation (Person days)
1993	225	1285
1994	694	2186
1995	745	2790
1996	910	n.a. ⁷
1997	1710	n.a.
1998	1038	n.a.
1999	1024	n.a.
	6346	

9.6. Policy and Promoting Sustainable Use

A general characteristic of the decision-makers at a national level - that is regionally in West Africa - is the apparent contradiction between the recognition of the fundamental importance of natural resources to the nation and the lack of appreciation (or the patent under-valuing) of their economic value. Being able to attribute and calculate a monetary value makes a real contribution to debate and decision-making. The study of the Ron Palm grove has provided important information to these deliberations through the presentation of the potential value of construction wood per foot, the revenues from the different products for local populations and regional trade, and the scale of possible projected taxation on the resource. For example, one direct impact of information being available in the Gaya region has been the taking into account of the value of the resource in decision-making about the construction of irrigated perimeters, which may have led to the destruction of the Ron Palms. Planners have therefore increasingly taken into account the commercial value of the Ron Palms and their environmental impact to develop and increase productivity on cultivated land.

Political decision-makers and planners have had the latitude to examine natural resource management, in relation to the local economy and to systems of production and sustainable use of resources, taking into consideration the

⁷ n.a. = 'not available', though figures can be projected as an average of 3.8 person days per hectare planted, regenerated, and protected from the first three years. Current figures should be lower given higher motivation and increased efficiency in transport and planting techniques. The first year (1993) was clearly the least efficient, but also followed on previous practice of payment for planting palms.

importance to the national economy. The Ron Palm constitutes an irreplaceable resource in the eyes of all the members of the communities residing in the regions, because of the diversity of its products and the distribution of its economic repercussions to a large number of beneficiaries. The importance of the programme is to bring this information about local, regional, and national value of the Ron Palm groves - a sample natural resource - to the level of national decision-makers, so that this information may be included when economic and environmental strategies are drawn up.

The relatively high value and wide distribution of the benefits of the Ron Palm over a long period of time made the species an excellent entry point for influencing sustainability in local, regional, and national forms of resource use. Other agro-ecosystems may not have a single species as a strong entry point, with the same breadth of interested stakeholders. However, there are opportunities for catalysing change that often take unintended or

novel directions. For example, efforts at natural forest management in Niger have historically concentrated on the 'high value' of firewood for urban markets. This sector has often been dominated by specialised merchants with their own capital already invested in trucks, teams of woodcutters, and networks of urban outlets. Work with the rural communities in forest areas in the region around Niamey - the capital and largest city in Niger - has demonstrated that **other** products of these areas are also the centres of their interests and a potential focus for collective action. For example, the harvest of grasses for thatch and fodder in local and urban markets is a ready source of additional income with wider potential benefit for villagers adjacent to the dryland forest plateaux.

Other avenues for sustainable management could include the mobilisation of a smaller group in the rural population that has a clear interest in a resource such as women gathering, processing, and marketing specific non-timber forest products. Yet another avenue for reinvigorated forms of sustainable use is renewed legitimacy for indigenous knowledge and local authority. For example, reinstating the regulatory authority within fishers' communities has implications for fish population and production but also for the harvest of aquatic plants and the state of the waterside ecology. There are thus a variety of opportunities dependent on the economic and socio-cultural value of specific species, of the interests of specific groups and of the degree of mobilisation of local forms of authority and association.

The factors discussed above present the basis for the future use and regeneration, and thus the long-term conservation, of renewable natural resources in the region and most notably the Ron Palm itself. Indeed, spontaneous planting and protection in plantations and on farmers' fields has led to a net increase in the area covered with palms. There remain both local and external pressures to overexploit the resource, which will require continued effort by the new community associations in collaboration with government and other institutions.

Persisting weaknesses in the mandate and capacity of national institutions to support local authority and furnish technical solutions to problems of production and conservation will remain the greatest obstacle to sustainability. Contemporary initiatives are promising, and their greatest chance for the future lies in the very strengths and resilience of the rural communities that have long protected a resource vital to their livelihoods and environment.

9.7. Key Lessons

The key lessons from the experiences here are that:

1. **To conserve biological diversity, a key entry point must be found that can catalyse change and mobilise interest from a broad range of local groups.** Innovations applied to the Ron Palm have opened the door to reforms in managing other tree species, fisheries, migratory birds, and wetland areas.
2. **Successful conservation can be a basis for better governance, localised management and shared economic gains.** In this case, negotiations over management of the Ron Palm and its benefits have

contributed to a process of making the distribution of a range of resources and decision-making more transparent and equitable. The central state, regional government, the private sector, local associations, rural communities, authorities at the village and district (*canton*) levels, the family, and the individual have all contributed to the process.

3. **Government must formally recognise new forms of association and collective action, with direct effect on national policy.** Local concepts and forms of access and ownership of the Ron Palm have become more secure with immediate impact on the rural communities. These changes have had a direct influence on national reforms of land law but this should be maintained and encouraged in order to achieve long-term success.
4. **Local empowerment is achieved if collective action promotes trust, transparency and equity.** New forms of decision-making have moved from a focus on production of natural and cultivated goods to the necessary general conditions for social change including literacy, facilities for credit and savings, and public accountability and finances.
5. **Local mobilisation and effective action depend on involvement of all interest groups and an equitable redefinition of roles and responsibilities.** The rural population has remained the focus of management and benefits, with particular attention to women. However, the interests of other key groups such as the local chiefs and district government officials are directly accommodated in a process of public debate and negotiation. This process redefines the respective roles of each party, and also establishes shared criteria for reporting, evaluation, distribution of benefits, and selection of the communities and individual beneficiaries for support and new initiatives.
6. **To promote sustainable use, programmes must establish a process of experiment, adaptation and action that build on local reality and result in national influence.** To succeed, such initiatives need to have national support, obtain formal legitimacy and application, and influence policy and legislation. The local and national have to work in concert with external actors in order to build on initial momentum, adapt these novel forms of use and organization to other areas, and achieve long-term success.

10. Bibliography

Anada Tiéga and Thomas L. Price (1994) - Land Tenure and Access to Resources: Requirements for Sustainable Use, 19th Session of the IUCN General Assembly, Buenos Aires, Argentina 17-26-94.

Atta Sanoussi (1997) - The Ron Palm (*Borassus aethiopicum*) : Flowering, Biomass Content and Fertilising Elements.

Bawa Gaoh Ousmane and Gai cha I. Zodi (1996) - Regulations governing Land Use and Methods of appropriating Natural Resources: the Case of Dogondaji and Madaya, two Communities living in Ron Palm Groves.

Doka Diarra Marthe and Oumarou Tinao (1993) - Socio-Economic Study for Design and Application of a Support Programme for Local Management of the Ron Palm Grove.

Edwards, Stephen and Mahaman Sani Arzika (1998) - PAIGLR Review Mission Number 5.

Edwards, Stephen, Thomas L. Price, and Anada Tiéga (1995, 1996, 1997) - PAIGLR Review Missions.

Government of Niger (1992, 1993 and 1996) - Legislative, Regulatory and Fiscal Texts relating to the

Organisation, Marketing and Transport of Wood in Large Centres, Ordinance No 92-077; Decree No 92-279; Decree No 09/MHE/DE (1993); and Decree No 96-390/PRN/MH/E.

Johnson, Dennis ed. (1991) - Palms for Human Needs in Asia: Palm utilization and conservation in India, Indonesia, Malaysia and the Philippines. Rotterdam: A.A. Balkema (WWF Project 3325).

Laouali Abdoukarim (1995) - Contribution made by Products and Sub-Products of the Ron Palm to the Revenue of Gaya. Niamey Faculty of Agronomy.

Mohamadou Issaka Magha (1997) - Community Management of Ecosystems and Conservation of Biodiversity: the case of the Ron Palm Groves of Gaya (Niger).