

iiied

International
Institute for
Environment and
Development

Drylands Programme

Issue Paper no. 75

**Limits to
environmental
planning in a
world of structural
adjustment:
the case of
Burkina Faso**

**Mike Speirs &
Henrik Secher Marcussen**

April 1998

**Limits to environmental planning
in a world of
structural adjustment:
the case of Burkina Faso**

**Mike Speirs
Henrik Secher Marcussen**

Henrik Secher Marcussen is an Associate Professor at the Department of Geography and International Development Studies of Roskilde University, Denmark. His research includes investigations of institutional issues in natural resource management. Mike Speirs has worked as a Researcher Lecturer in the same department of the Roskilde University. Both have been involved in a programme of capacity building in multidisciplinary environmental research at the University of Ouagadougou in Burkina Faso.

International Development Studies, Building 051, Roskilde University, PO Box 260, DK-4000 Roskilde, Denmark. Fax: +45 46 74 30 33.

CONTENTS

INTRODUCTION	1
ADJUSTING AGRICULTURE IN BURKINA FASO	4
Economic performance	4
Grain, cash crops and animal production in the PASA	5
Land reform and natural resource management	8
Agricultural support services	10
WHERE DOES ENVIRONMENTAL PLANNING FIT IN?	11
The PASA and the PANE	11
Re-thinking policy reforms	12
An example: the soil fertility issue	15
CONCLUDING REMARKS	17
REFERENCES	20

"Government investments and services can promote profitable land improvements and tree-planting by farmers, especially in providing communications, a stable legal and political environment, tenure security and information. A greater appreciation of the skill with which most farmers, male or female, juggle resources, weigh opportunities and manage and negotiate family inputs, might lead to greater acceptance of the view that they are the senior partners in rural development. Aid givers and academics should fight the inclination to nanny. There will always be the unskilful or the unfortunate, who need special help, but they should not be conceived as the majority." (Mary Tiffen, 1996: 185).

INTRODUCTION

A national environmental action plan; known in French as "le Plan d'Action National pour l'Environnement" (PANE); was published in a final version by the Ministry of the Environment (and tourism) in Burkina Faso in 1994. This 200 page document was the culmination of a five year consultation process which aimed to identify the main environmental problems facing the ten million people of this "least developed country" in the West African Sahel and to come up with solutions in the form of "implementation strategies."¹ Similar documents have been drafted in numerous other African countries as part of an effort:

"to provide a framework for integrating environmental concerns into a country's economic and social development, and to embed that framework in the fabric of the government and peoples so that it is their process" (Falloux & Talbot, 1993: 19).

¹ The first edition of the PANE in Burkina Faso was circulated in 1991. It was revised in 1993 to take account of the recommendations on environment and development issues adopted as "Agenda 21" in Rio de Janeiro (United Nations, 1992). For reasons explored in this paper, there is mounting criticism of the proposals for environmental action which are outlined in the second edition of the plan (Burkina Faso, 1994).

Not surprisingly, as the history of many post-independence development planning exercises in Africa and elsewhere amply illustrates, the plan does not appear to live up to these expectations.

One purpose of this short paper is to show how the PANE is at best marginal to environmental policy making in Burkina Faso, and at worst an obstacle to tackling environmental issues in the sense that many of the proposals put forward in the plan are based on assumptions about environmental degradation and change which are of doubtful validity. These assumptions, which are generally framed in terms of advancing deserts, destructive cattle and disappearing forests, are increasingly being challenged by new evidence and hypotheses about the causes, consequences and impact of environmental change. In designing environmental policy measures, it is important to explore some of the misguided narratives which appear to underpin increasingly outdated approaches to rural development (Leach & Mearns, 1996).

Many voices have expressed concern about the extent of environmental degradation in Burkina Faso and other Sahelian countries in West Africa since the major drought and famine in the region in the early 1970s. Subsequently numerous initiatives to combat desertification have been launched, with financial support from a range of different donor agencies, international organisations and NGOs. At the same time, particularly following the recurrence of severe drought in the Sahel in the early 1980s, attention also focused on the need to improve food security, through measures to increase agricultural output and productivity. In general terms it has been argued that the combined problems of land degradation (through soil erosion and loss of vegetation cover), low levels of crop yields and output (constrained by various climatic, ecological, technological, social and economic factors) and rapid population growth constitute a "nexus" of inter-related problems leading to agricultural and environmental decline (Cleaver & Schreiber, 1994).

The national environmental action plan in Burkina Faso is one in an increasingly long line of statements pertaining to this "population, agriculture and environment nexus". But there is no shortage of development policies and plans in Burkina Faso. Thus for example, while the World Bank mobilised a team of consultants to assist the secretariat of the national committee for the struggle against desertification (CNLCD) in preparing the PANE, other policy measures were being introduced in the form of a structural adjustment programme (known as "PAS"). One aim of this paper is to locate the PANE within the context of economic reform in the 1990s and explore the links between economic and environmental issues.

The exploration of this planning and policy complex (or nexus) in this paper is organised as follows. The first section focuses on adjustment reforms, notably in the agricultural sector, in order to illustrate the ways in which changing policies have affected the livelihoods of farmers and their families in the rural communities. Some of the measures designed to tackle natural resource management problems are also outlined in this section, including the "Organisation agraire et foncière" (RAF), which has entailed the introduction of controversial land tenure legislation. In the second section of the paper, the proposals for "environmental action" are then subjected to a critical assessment in the light of the overall macro-economic and agricultural sector policy stance adopted by the government in the 1990s. Various contradictions are explored between the goals of structural adjustment and environmental policy. The paper concludes with some comments on environmental policy and planning in Burkina Faso.

The main argument put forward is that environmental planning as laid out in the PANE is neither sufficient nor necessary for achieving better resource management. Instead, a range of useful policy measures should be considered which might include political and administrative decentralisation (enabling better community level resource management); support for investment in agricultural improvements (establishing rural savings and credit schemes, etc.); selected subsidies (for fertiliser for example); and specific taxes and levies (in relation to energy, etc.). As the government of Burkina Faso prepares to implement the post-Rio, United Nations Desertification Convention by outlining yet another action plan, it is important to assess the scope and limits of these planning operations as means of confronting environmental degradation.²

² A new action plan for the struggle against desertification was examined at a recent national forum in Ouagadougou (Burkina Faso, 1997b).

ADJUSTING AGRICULTURE IN BURKINA FASO

Economic performance

In a survey of economic performance since independence in 1960, Zagré (1994) has argued that repeated efforts to "adjust" the economy have constituted the core of different government development strategies in Burkina Faso, regardless of the revolutionary or liberal rhetoric in different periods. "Structural adjustment" since 1991 entails similar macro-economic constraints, particularly in terms of restricting public sector budgets and expenditure, as those which emerged from earlier periods of "austerity."³ However the main difference between the self-imposed adjustment introduced by the revolutionary government (CNR) in the mid-1980s and the rigours of the "PAS" in the mid-1990s is in terms of the kind of external support from a range of donors.

An economic adjustment programme has been underway since 1991 on the basis of several loan agreements with the World Bank and the International Monetary Fund (IMF). The main thrust of these reforms involves cutting government budget deficits through expenditure control and increased taxation, reducing the balance of payments deficit, encouraging the private sector and liberalising trade. In the agricultural sector, a strategy document was adopted by the government in 1992 to initiate a series of reforms through the "PAS".⁴ Improving natural resource management and working towards sustainable growth in agricultural output are also amongst the objectives specified in this policy statement (Burkina Faso, 1992a).

Burkina Faso is often regarded as one of the "good pupils" of the International Monetary Fund and the World Bank in Africa, and accordingly significant resources have flowed into the country in the form of increased aid (as well as loans which must be repaid). Zagré (1994: 186) also refers to the

³ Other recent historical reviews of social and economic development in Burkina Faso include the studies by Asche (1994) and Englebert (1996); the former focusing on the effects of aid in various sectors including agriculture while the latter stresses the political and cultural dimensions of statehood.

⁴ "Le programme d'ajustement du secteur agricole" follows from the reforms outlined in the "lettre de politique de développement agricole" (Burkina Faso, 1992a & 1992b). Several major donors support the PASA with loans, including the World Bank and the "Caisse Française du Développement" (CFD), and a second agreement (PASA II) was negotiated in 1996 (Burkina Faso, 1996c).

dangers arising from the availability of large quantities of "new money" in the system; the practices of corruption and misuse of funds which were heavily frowned upon during the revolutionary period of the mid-80s appear to have flourished in the subsequent structural adjustment (PAS) era. At the same time, and particularly since the devaluation of the CFA Franc in 1994 - which ushered in a phase known as "external adjustment" - although recent growth rates and overall economic performance have been satisfactory, per capita incomes for many have stagnated, with no evidence of any significant decline in poverty, and per capita GDP around 200 USD in 1995 (EIU, 1996).

Economic indicators demonstrate the extent to which growth rates are linked to fluctuations in agricultural output, and particularly changes in the production of cotton, the key agricultural export commodity. Poor grain harvests in the early 1990s also affected the GDP growth rate figures, while improved recent performance is closely associated with a pick up in cotton production and a rise in exports of livestock after the devaluation of the CFA Franc in 1994, and with the mineral and mining prospection boom. However, the trade deficit has widened in recent years, despite hopes that the devaluation would encourage greater exports and reduce import dependency.⁵

Grain, cash crops and animal production in the PASA

Turning to the agricultural sector, although the urban areas of the country are rapidly expanding, around 80-85 percent of the population live in the rural areas where arable farming and livestock raising are the main income earning activities. Around three quarters of the farming families cultivate less than 5 hectares of land using simple technologies and few inputs. The average household size in the rural areas is eight persons.⁶

Agriculture, including forestry, livestock production and fisheries, accounts for around 30-35 percent of GDP. Approximately 50 percent of export

⁵ Asche (1994: 254) raised this issue in his review of structural adjustment by asking: "Le Burkina Faso de l'an 2000 alors, sera-t-il toujours un simple fournisseur de coton, de zinc, de quelques tonnes d'or et de cheptel sur pied et un exportateur maladroit de haricots et de mangues alors que toutes les importations seront libéralisées?" Data on economic performance is published regularly by the EIU, and macro-economic policies are outlined in a framework paper by the World Bank (1996).

⁶ Useful basic data about agriculture is published by the "Direction des Statistiques Agro-Pastorales" (Burkina Faso, 1996b). See also the study by Gbikpi (1996).

earnings are derived from cotton, live animals and a few other agricultural products such as shea nuts, sesame, fruits and vegetables. Cereals, including millet, sorghum and maize, are grown largely for household consumption although a grain market has developed over the years to supply the urban areas. Imports of rice and wheat have increased steadily since the 1970s. But since the devaluation in 1994 various initiatives to increase domestic production of rice have been launched including major investment programmes to develop irrigation schemes.

As far as measures to improve foodgrain production and productivity are concerned, the PASA must be seen as part of a process begun at the end of the 1980s which abolished fixed grain prices and led to the gradual dismantling of the cereals market intervention system which operated through a national marketing board. This "Office National des Céréales" was one of a series of parastatal enterprises which were liquidated in the mid-1990s, although a public security stock management institution has been set up to handle food aid. Otherwise, the grain market is now in the hands of private merchants and traders, except for rice imports where efforts to transfer trading to the private sector appear to have run into difficulties (Burkina Faso, 1996c and EIU, 1997). As noted earlier, the implementation of reform measures through the PASA since 1992 has coincided with a series of good grain harvests. Total cereals output in Burkina Faso has reached around 2.5 million tonnes. Nevertheless, an annual population growth rate of over 3 percent implies that major efforts are required to increase productivity and food output.⁷

There are significant differences in crop yields and output between the more fertile regions and higher productivity farming systems of the south and west (cotton production zone) where modern production using animal traction and inputs associated with cash cropping is common, and the poorer and less fertile regions of the central plateau, the east and the Sahelian north. In the latter zones, subsistence, low technology farming systems predominate. With the difficulties of gaining access to agricultural credit outside the cotton growing regions, many farmers in the central and northern areas survive on

⁷ According to the study which formed the basis of the PASA in 1992, "le seul moyen de faire face à cet accroissement de la demande est d'accroître les rendements" (Burkina Faso, 1992b: 27). Much of the increase in crop output over recent years has been due to expansion of the cultivated area, rather than growth in yield per hectare. Without improved techniques of water control and input use, average crop yields in the Sahel would have stagnated (Pieri, 1991 and Témé et al, 1996).

subsistence levels, beyond the reach of the PASA which explicitly focuses on intensified and diversified cash crop production. Thus, the emphasis of agricultural sector policy is to encourage growth through bringing producers into the market, both upstream (purchasing inputs) and downstream (selling crops, fruits, vegetables, etc.) as private entrepreneurs. This strategy has been partially successful in the cotton growing regions.⁸

But the contradictions of agricultural liberalisation are curious. Despite the rhetoric of privatisation and reduced state intervention, cotton remains a "filère organisée" (managed market) par excellence. As world market prices fell at the end of the 1980s and in the early 1990s, cotton producers in Burkina Faso ran into serious difficulties, although they were cushioned from this external shock for a couple of years by the parastatal cotton board, SOFITEX (Société de Fibres Textiles). This organisation, together with the CPRA extension service⁹ and the national agricultural credit bank, controls the purchase of cotton at fixed prices for ginning and export as well as the supply of inputs (fertiliser and pesticides) to farmers. Prior to the cotton crisis years from 1991 to 1994, farmers in the cotton zones were organised in village cooperative groups for the purposes of cotton growing. But as prices fell, debts accumulated and the whole system of producer groups supplying SOFITEX collapsed.

Since the devaluation of the CFA Franc the government has emphasised the need to produce and export more cotton and prices were increased in 1994-95 and 1995-96 in an attempt to encourage production. The organisation of credit and input supply to producers as well as cotton purchasing arrangements are now under revision as part of the PASA (which also involves writing off debts owed by SOFITEX). Thus, while agricultural adjustment implies the withdrawal of support through guaranteed prices and organised marketing channels in the cereals sub-sector, in the cotton sub-sector the opposite is found.

⁸ Thus, Tallet (1996: 129) notes: "La zone cotonnière, plus que d'autres régions du Burkina, présente un paysage agricole profondément transformé par les dix dernières années où l'afflux de migrants et le succès du coton ont multiplié les espaces mis en culture. Cette extension a été accompagnée de mutations sociales profondes: les facteurs traditionnels de régulation sociale s'effritent, des dynamismes nouveaux sont à l'oeuvre." Similar observations are found in the study by Toé (1996).

⁹ The "Centres Régionaux de Promotion Agro-pastorale", which are undergoing reorganisation as described below.

Another important sub-sector in Burkina Faso is livestock raising. A major new strategy for the development of animal production systems was launched at the beginning of the 1990s, focusing on encouraging intensified livestock production in pastoral zones as well as on stall feeding of cattle to supply meat to urban markets. While the intensification of livestock raising is appropriate in heavily settled crop production zones, in the semi-arid northern regions of Burkina Faso recent studies suggest that rangeland management systems based on seasonal herd mobility are the most efficient means of using the scarce and fluctuating supplies of fodder and water resources.¹⁰ Sedentarisation would court disaster.

Following the devaluation of the CFA Franc in January 1994, a short lived - but significant - export boom in meat and live animal sales to the coastal countries of West Africa was recorded (Gbikpi, 1996: 34). At the same time milk imports declined, providing an incentive for further investment schemes designed to increase domestic milk production. However, the intensification of animal production to meet the demand for meat on both export markets and in the urban areas as well as dairy products is a lengthy process, entailing considerable changes in techniques not least in terms of fodder crop production. Meanwhile under the PASA, the veterinary services are being privatised which has led to some concern about the availability of animal medicines and the risk of cattle and small ruminant epidemics when herders are unable to afford the rising cost of veterinary treatment.

Land reform and natural resource management

A discussion of changes in animal production systems raises the issues of land ownership and access to water and pasture resources. In terms of land tenure legislation, Burkina Faso has been in the forefront of new approaches to resolving the problems of distribution and access with the "Réorganisation Agraire et Foncière" (agrarian reform) in 1984. This involved the nationalisation of all land and the establishment of local committees (in the revolutionary period, 1984-1987) responsible for determining rights of ownership and access. "La RAF" as it is called in French, was also intended

¹⁰ Some of the dynamics of changing livestock production systems in the Sahel are explored in papers by Jossierand (1994) and by Speirs & Olsen (1992), as well as in a survey by Thébaud (1995). Factors determining the success of rangeland livestock management and pastoral adaptation in Africa are examined in the collection edited by Behnke et al (1993).

to underpin a major effort to improve natural resource management and environmental protection; notably through "les trois luttes" (the three struggles) which entailed fines for unguarded cattle, bush fires and non-licensed cutting of fuelwood.

During the negotiations for a structural adjustment loan from the World Bank in 1991, the RAF legislation was revised to permit private land ownership. In the early 1990s, the standard theory - or "orthodox" argument - on land tenure reform put forward by the World Bank was that private ownership was the only form of tenure which would encourage investment in productivity increases by households in the agricultural sector; hence the conditionalities associated with the Structural Adjustment Programme agreement in Burkina Faso.¹¹ Subsequently, there has been an extensive debate about appropriate land tenure reform in Burkina Faso (and elsewhere in West Africa), attempting to reconcile different options based on "modern" legal practices and customary rights of use and access (Faure, 1995 & 1996; Lund, 1996). The crux of this debate concerns the ways in which land is allocated in the rural areas, in terms of both titles and the institutions which arbitrate in conflicts between for example settled farmers and pastoralists; where traditional practices may run counter to laws imposed by the state.

As a means of testing different approaches to "community natural resource management" (known as "gestion des terroirs" in the Sahel), the World Bank and other donors have also provided backing for a large national land and natural resource management programme in Burkina Faso. According to the published strategy document (Burkina Faso, 1993) this "Programme National de Gestion des Terroirs" (PNGT) is based on decentralised decision making, the coherence of agricultural and environmental policies, negotiations between user groups in each "terroir" (land area) to determine appropriate investment (in soil and water conservation measures, tree planting activities, infrastructure improvements, etc.) and security of tenure. The PNGT has become one of the main schemes within the Ministry of Agriculture and animal resources for supporting community land and natural resource management efforts. However it is not without difficulties, given that the application of land tenure legislation in rural areas remains a controversial issue, and given the very slow transfer of decision making powers to villages and rural "communes" through a process of decentralisation. Only tentative

¹¹ At the same time, however, research within the World Bank and elsewhere was beginning to tell a different story, as outlined in studies of land tenure and farm productivity in Africa by Migot-Adholla et al (1991) and by Place & Hazell (1993).

steps have, as yet, been taken to organise local elections and establish local revenue collection systems.¹²

Agricultural support services

The idea of "responsabilisation" (roughly translated as empowerment) of farmers and producer groups is a frequently repeated slogan in Burkina Faso, and is manifest in various forms. Farmers associations and different forms of community groups and non-governmental organisations (NGOs) have blossomed in the rural areas. At the same time, the activities of the public sector agricultural support services (organised through the CRPA system as mentioned above) have been subject to extensive criticism, such as inappropriate technical messages disseminated to farmers. This has led to plans, within the framework of the PASA, to reduce drastically the size of the public extension system (FAO, 1996) and rely on farmers' organisations and NGOs to carry out agricultural extension activities.

The extent to which such groups are capable of supporting farmers in the introduction of new cultivation techniques or providing advice on land improvement schemes for example, remains to be seen as shown by a recent survey by Piveteau (1996) of the weaknesses of NGOs as agricultural development agencies in Burkina Faso.¹³ Experience from the cotton growing regions suggests that an active extension service, together with a well organised network to provide farm credit (for both inputs and equipment) are essential components of a development strategy in the agricultural sector. But the reorganisation of support services during the 1990s has resulted in considerable confusion about the roles of the different actors.

¹² On the question of local decision making about natural resource use and land allocation, see studies by Engberg-Pedersen (1995) and by Koté (1997).

¹³ Criticising the results achieved in a sample of NGO projects, Piveteau (1996: 207) concludes: "Tout, semble-t-il, participe au maintien de l'aide. Les populations opèrent une distinction entre l'activité qui découle du projet et l'investissement initial qui la permet. Les résultats net semblent trop faibles pour engendrer une plus grande autonomie du système paysan et des changements significatifs sur les fonctions économiques des paysans." The relations between the government extension service and NGOs are also explored in the study of soil and water conservation in Yatenga (northern Burkina Faso) by Atampugre (1993).

Perhaps this is inevitable, as Pretty (1995: 286) implies in a survey of policies required to support sustainable farming systems:

"For sustainable agriculture to succeed [policies] must arise in a new way. They must be enabling, creating the conditions for sustainable development based more on locally available resources, and local skills and knowledge. Achieving this will be difficult. In practice, policy is the net result of the actions of different interest groups pulling in complementary and opposing directions. It is not just the normative expression of governments."

WHERE DOES ENVIRONMENTAL PLANNING FIT IN?

The PASA and the PANE

In a recent survey of the economy of Burkina Faso, Englebert (1996: 85) states provocatively that: "humans are the second largest obstacle to the development of Burkina's agriculture." The main obstacle is assumed to be the shortage and irregularity of rainfall. It is indeed hard to deny that land and the climate impose limits on the development of agriculture, and there is a close correlation between economic performance and crop output, with high annual growth rates associated with good harvests and adequate rainfall. But the story of environmental degradation in the Sahel is more complex and cannot simply be reduced to a question of population pressure leading to increasing erosion and desertification. In this context it is important to stress the potential significance of agricultural and environmental policies as well as the shortcomings of the PASA and the PANE in their present forms.

The PANE followed from several other initiatives designed to tackle desertification, deforestation and degradation of the natural resources in the country. But in outlining a broad strategy for improving natural resource management in the introduction to the document (Burkina Faso, 1994), the authors of this action plan were explicitly ambitious:

"L'objectif principal est de favoriser la gestion rationnelle des ressources naturelles renouvelables et l'amélioration du cadre de vie au Burkina Faso pour un développement durable" (ibid, 1994: 3).

In other words, nothing less than a plan to promote the rational management of renewable resources and to improve living standards with a view to ensuring sustainable development!¹⁴ In effect this amounts to something more akin to a national development plan.

On the other hand, the PASA is a "normative expression" of government policies to improve food security, diversify production systems and encourage better natural resource management in Burkina Faso. At the level of rhetoric, the agricultural sector adjustment programme acknowledges the importance of environmental constraints, but the main focus is elsewhere; the concern has been to disengage the state from agriculture and to promote private sector involvement in production, marketing and export. However, the limits of this agenda are rapidly becoming apparent in Burkina Faso and to some extent it is ecological issues which may be forcing a re-think.

Re-thinking policy reforms

In the conventional view, land degradation and declining productivity are due to an increase in the number of people making a living from a given area of land.¹⁵ Thus desertification, in the arid and semi-arid fringe zones of the Sahara for example, is accelerated by human activity including fuelwood gathering, clearance of land for cultivation purposes and grazing of livestock. The inhabitants of these areas are held responsible for the destructive removal of vegetation (notably through bush fires), mining of soils by continuous cultivation without fallow periods or the use of fertilisers and manure, and overgrazing by failing to destock cattle and small ruminant populations to carrying capacity levels. Migration is also presented as an essentially destructive process leading to population pressure in areas where migrants settle and to the overburdening of services in the rapidly expanding urban

¹⁴ Curiously, on the next page of the introduction this overall aim is re-stated with a different emphasis where it is suggested that: "l'objectif principal du PANE est la recherche d'un équilibre socio-économique et socio-écologique susceptible de contribuer à l'auto-suffisance et à la sécurité alimentaire et d'offrir des meilleures conditions de vie aux populations" (Burkina Faso, 1994: 5).

¹⁵ For example, Gorse & Steeds (1987) studied the carrying capacity of different agro-climatic zones in the Sahel and concluded that desertification was the inevitable result of human population increases. This interpretation is repeated throughout the section of the PANE describing the causes of natural resource degradation and emphasising on demographic growth. See also the study by Mariko (1996).

zones (Burkina Faso, 1994: 46-50). This is more or less the scenario presented in the PANE.

An alternative view, based on theories of agricultural innovation under the influence of population growth and scarcity of land, has recently been given new impetus in the light of long term studies of agrarian change in areas of high population density such as the Machakos district of Kenya (studied by Tiffen et al, 1994) and around the city of Kano in northern Nigeria (Mortimore, 1993 & 1995). Drawing on the work of Boserup (1965), technological change in agriculture is assumed to arise from changes in the relationship between labour inputs and land; where modernisation with the introduction of new techniques to increase yields (such as ploughing with animal traction or tractors) is stimulated by demand arising through population growth. Tiffen et al (1994) show how heavily degraded land in the Machakos hills has been rehabilitated as marketing opportunities in the expanding urban areas of Kenya which together with improved infrastructure encouraged farmers to invest in techniques (including tree planting and terracing) to reduce soil erosion and increase productivity. In this case, rising population pressure has been associated with positive environmental improvements.

An environmental action plan to improve the management of natural resources and raise living standards in the rural areas needs to go far beyond the "catalogue of projects" outlined in the PANE. Supporting technological innovations in farming systems may be an important part of such an action plan, and the myriad of techniques to enhance soil and water conservation in Burkina Faso is particularly noteworthy.¹⁶ But tackling environmental degradation and promoting agricultural growth also require broader measures. As Delgado (1995: 15) argues in an assessment of the sustainable development paradigm for African agriculture:

"greater emphasis is being put once again on agricultural research, human capital formation and investment policies. However, the objective also includes increased agricultural output and resource conservation. The former would come not only from adding inputs, but particularly from higher-quality labour input. Such a proactive or policy-led approach would target opportunities for sustainable intensification, including rainfed areas."

¹⁶ See studies by Kaboré (1996) and Ouédraogo & Kaboré (1996). As noted above, the PNGT involves testing improved natural resource management techniques, and was incorporated as one of the three "programmes cadre" of the PANE.

As far as the hypotheses related to population pressure, soil erosion and desertification are concerned, recent research suggests that the pessimistic scenarios of ecological destruction across large areas of African drylands may be exaggerated. Fluctuations in rainfall and variations in biomass, as well as various forms of adaptation to stress characterise these dryland areas, but as Swift (1996) points out, the received wisdom about an advancing desert is outdated and not based on verified evidence. However, this critique of the desertification model:

“does not imply a belief that there is no problem of land degradation in the drylands. On the contrary, it is arguable that the received narrative about desertification has for many years stood in the way of more effective approaches to soil erosion and land degradation generally, by focusing attention on poorly defined problems and misguided solutions.” (ibid, 1996: 85-86).

The PANE suffers from some of these weaknesses, with some of the key issues in environmental degradation poorly defined. There is no reference for example to the potential dangers of intensive monocropping of cotton on poor soils with heavy use of pesticides. Indeed cotton as the main cash crop in Burkina Faso is not mentioned at all. Data on the extent of soil erosion and the seriousness of the problem are extremely inadequate; confined to an unreadable map in which the measured units are not clear (Burkina Faso, 1994: 27).¹⁷

The PANE document also includes tables to show that there are too many cattle responsible for increased overgrazing. But recent research on rangeland ecology suggests that maintaining livestock mobility is more important than overall numbers of animals. In discussing new directions in livestock development policies to improve the “efficiency of opportunism” in the rangelands, Sandford (1995: 180-181) stresses the importance of providing location specific investment in primary production (animal feed), as well as “previously much criticised veterinary and water development programmes” which “in retrospect now seem less ill advised.” He adds:

“Recent thinking in range ecology suggests that in non-equilibrium systems, the danger to the environment from overstocking is relatively small and that starvation comes more often from exogenous adverse

¹⁷ A more useful assessment of soil erosion may be found in de Graaf (1996).

fluctuations in the weather than from endogenous herd growth. Veterinary and water development programmes then become aids to more efficient opportunism, through more spatially and temporarily complete use of the feed resources available" (ibid, 1995: 180).

The PANE document also claims that forests and woodlands are disappearing but without any supporting evidence in the form of time series data. The section dealing with fuelwood consumption (which accounts for over 80 percent of the total energy consumed), includes projections of future requirements (Burkina Faso, 1994: 35-26) as well as an indication of possible fuelwood pricing policies to ensure sustainable supplies as demand increases.¹⁸ This is a key issue in strategic planning for the sustainable use of natural resources, by comparing the costs and benefits of different patterns of exploitation of natural forests and woodlands.

It is in this way that an environmental planning document can contribute to a better understanding of policy options on specific issues. Similarly, legislation to control, regulate and sanction the use of toxic products (such as pesticides and industrial chemicals) is also important within the policy sphere. It is worth noting that one of the indirect results of the PANE in Burkina Faso has been the adoption and revision of environmental legislation by the parliament (Burkina Faso, 1997a). But in general, the policy dimensions of natural resource management concerns, particularly in relation to measures designed to encourage farmers to invest in improved production techniques, have been ignored.

An example: the soil fertility issue

A brief description of one significant agricultural policy issue illustrates how the PANE is largely irrelevant, while the liberalisation rhetoric which underpins the PASA is short-sighted. Concern has been expressed about declining soil fertility in the Sahelian drylands, due to the combined effects of soil erosion, loss of organic matter and the extraction of plant nutrients without sufficient replenishment in the form of organic and inorganic inputs (Pieri, 1991 and Témé et al, 1996). As noted above, few farmers outside the

¹⁸ On the dynamics of fuelwood, population growth and deforestation (with examples from various locations in Africa) see the paper by Cline-Cole et al (1990).

cotton growing regions of Burkina Faso use anything but minimal quantities of inorganic fertiliser.¹⁹

Input subsidies, administered through a government supply service, were withdrawn during the 1980s as part of a World Bank supported fertiliser programme (Sanon et al, 1993). The upshot of this policy was to reduce fertiliser consumption by non-cotton growing farmers, even though it is recognised that increased use of certain nutrients, notably phosphate, is essential to maintain and improve soil fertility. However, during the 1990s, and particularly after the devaluation of the CFA Franc, attention has focused on the potential for using domestic rock phosphate supplies to improve soil quality (World Bank, 1995).

A team working with the Ministry of agriculture and animal resources has drawn up an investment programme entailing the expansion of rock phosphate production and a marketing scheme based on subsidised sale of locally produced phosphate fertiliser (Burkina Faso, 1996d). The phosphates can be effectively combined with animal manure which is already gathered and used by many farmers to produce a beneficial fertiliser. But government support is essential in the first years of this programme given the time needed to develop private sector capacity to distribute and market phosphate fertiliser. Targeted state intervention could help tackle the deteriorating of soil fertility - an environmental issue of major importance - but the measures required may involve going against the grain of liberalisation and privatisation in the agricultural sector as outlined in the PASA. Structural adjustment may need to be re-designed, as suggested in the conclusions to a study of farm productivity in Burkina Faso by Savadogo et al (1994: 612):

"Policies that increase access to fertiliser and manure assist farmers in intensifying cash crop production. It seems probable that as land constraints grow in the Guinean zone of West Africa, the incentive to complement land-extensive subsistence grain cropping with land-intensive cash cropping will increase. Policies that aid this transition will improve smallholder land productivity."

¹⁹ According to the survey by Bumb & Baanante (1996: 5), on average less than 10kg of fertiliser is used per hectare in sub-Saharan Africa, in contrast to over 200 kg per hectare in Europe and East Asia.

CONCLUDING REMARKS

According to Leach & Mearns (1996: 29), recent more promising approaches to understanding environmental change and improvement appear to share "certain common elements":

"One is that they emphasise working with and building on the ecological knowledge and skills of Africa's farmers and herders; the very skills often rendered invisible by neo-Malthusian degradation narratives. In particular they suggest that local inhabitants may have long been practising opportunistic resource management attuned to non-equilibrium ecological conditions. A second, related emphasis is on creating the enabling conditions under which local resource management strategies can be pursued effectively."²⁰

Encouraging investment in enriching land and intensifying its use by farmers can be supported by appropriate institutional and economic policies. However, in Burkina Faso, as elsewhere in Africa, the environment has been marginalised to the sidelines of the main thrust of economic development policies as defined in the adjustment programme (PAS) and its agricultural appendix (PASA). The PANÉ has failed to counterbalance this marginalisation of environmental issues, and by concentrating on repeating orthodox dogma about environmental destruction in the Sahel some of the main policy choices to promote more sustainable farming systems in the region have simply been ignored.

Some observers agree with the need to re-think policies to provide enabling conditions for sustainable farming systems. Reed (1996) concludes a series of country studies to investigate the effects of structural adjustment policies on environmental variables, by questioning whether the benefits of new economic policies will reach small farmers:

"Will small farmers be able to respond to market opportunities unless credit arrangements, extension programs, and marketing systems are restored? Will targeted economic reforms and external support be available

²⁰ Examples of what can be termed opportunistic modification of farming systems and practices are described in the collection dealing with range management edited by Behnke et al (1993), in a study of Fulani herders in Senegal by Juul (1996), in the classic analysis of indigenous innovation in rice cultivation in West Africa by Richards (1985) and in the major review of sustainable policies and practices in agriculture (with numerous examples) by Pretty (1995).

to help small farmers intensify production rather than relying on extensified production to survive? To what degree will the increased economic difficulties facing the rural poor oblige them to increase reliance on natural resources to survive, thus generating irreversible damage to soils, watersheds and forests during the transitional period and in the long run?" (ibid, 1996: 340).

The country studies, which included Mali, Cameroon and Tanzania in Africa, indicate that "current trends are not encouraging."

Many more examples can be found illustrating the need to determine appropriate policy frameworks which integrate environmental concerns within agricultural development strategies based on better natural resource management; and two further case studies described by Hoben (1995) in Ethiopia and by Larson (1994) in Madagascar are worth mentioning. The former study outlines the wasted efforts to introduce environmental management packages without research into their impact or their economic costs and benefits, while the latter assesses the limits of an environmental action plan (the NEAP). Larson concludes that:

"key environmental problems are driven by land use decisions of large numbers of geographically dispersed rural and urban inhabitants. Their decisions are driven by a lack of agricultural development, stagnant urban economies, population growth and political uncertainties. These basic development problems are not easy or even feasible targets for specific environmental policy changes. If this is the case, as it seems to be in Madagascar, then it is perhaps unrealistic to hope that NEAPs as constituted can provide a framework for understanding and alleviating a country's key environmental problems" (ibid, 1994: 684).

In Burkina Faso too it seems that the problems of human and natural resource impoverishment and the destructive effects of widespread rural poverty are often lost in the rhetoric of environmental action and agricultural adjustment. In some senses the PANE represents another lost opportunity to raise choices about development strategies and policy choices. By producing little more than a shopping list of projects for further donor funding and by failing to set priorities, the PANE inevitably has met with a sceptical response. However there are some glimpses of another pathway; the establishment of an environmental management council in Burkina Faso may help to raise awareness about the problems of pollution in the urban areas for example, as well as developing the capacity to assess environmental management issues and options (Dorn-Adzobu, 1995).

Meanwhile strengthening both the formal organisations and informal institutions which contribute to policy making remains an important task (Marcussen, 1996). The state needs to provide a legislative framework for environmental management and channel investment into agricultural development while encouraging the organisations of civil society (farmers' associations and so on) to participate in determining appropriate policies. The design of economic policies post-structural adjustment will need to focus on supporting profitable land improvements, building on the "rationality, mother wit and energy" of the farmers concerned.²¹ Continuous challenge to orthodox views of environmental degradation and its causes and consequences is an important part of this process. Equally important is the recognition that state intervention has a valid role to play in raising incomes and improving farming systems in rural Burkina Faso.

The narrow focus of economic adjustment in Burkina Faso, concentrating on reducing budgetary and balance of payments imbalances has not been conducive to improved environmental management. Adjustment also appears to have increased inequalities in access to resources. The next steps, beyond the limits of "le PAS et le PANE", will entail a broader approach to sustainable development combining appropriate economic policy instruments, investment programmes and environmental legislation.

²¹ In this context, the observations by Berry (1993: 64) may provide some clues: "the contradictions of state interests in African agriculture, their strategies of governance, and the diversity of farmers responses have meant that the overall effect of state intervention on rural economic life has been intrusive and disruptive, rather than hegemonic. Farmers have not been able to escape the presence of the state, nor have they necessarily wanted to: gaining access to resources and opportunities often means working through as well as around the system. But 'the system' is far from monolithic. Individuals and agencies struggle for influence and resources within the state as well as outside it, and outcomes are not fully determined by any single set of interests."

REFERENCES

Asche, H. (1994): *Le Burkina Faso contemporain - l'expérience d'un autodéveloppement*. L'Harmattan, Paris.

Atampugre, N. (1993): *Behind the lines of stone - the social impact of a soil and water conservation project in the Sahel*. Oxfam, Oxford.

Behnke, R., I. Scoones & C. Kerven (eds), (1993): *Range ecology at disequilibrium - new models of natural variability and pastoral adaptation in African savannas*. Overseas Development Institute, Londres.

Berry, S. (1993): *No condition is permanent - the social dynamics of agrarian change in sub-Saharan Africa*. University of Wisconsin Press, Madison.

Bumb, B. & C. Baanante (1996): The role of fertilizer in sustaining food security and protecting the environment to 2020. *Discussion Paper 17*, International Food Policy Research Institute, Washington.

Burkina Faso (1992a): Lettre de politique de développement agricole - Programme d'ajustement structurel du secteur agricole. Ministère de l'Agriculture et des Ressources Animales, Ouagadougou.

Burkina Faso (1992b): Programme d'ajustement structurel du secteur agricole (PASA) - Rapport général de synthèse (avec annexes). Ministère de l'Agriculture et des Ressources Animales, Ouagadougou.

Burkina Faso (1994): *Plan d'Action National pour l'Environnement (PANE)*, 2ème édition. Secrétariat Permanent du PANE, Ministère de l'Environnement et du Tourisme, Ouagadougou.

Burkina Faso (1995): Lettre d'intention de politique de développement humaine durable, 1995-2005. Document pour la conférence de table ronde (Genève), Ministère des Finances et du Plan, Ouagadougou.

Burkina Faso (1996a): Rapport d'évaluation du deuxième programme d'ajustement du secteur agricole (PASA-II). Document de la Banque Mondiale, l'Union Européenne et l'Aide Française, Ouagadougou.

Burkina Faso (1996b): Stratégie d'utilisation à grande échelle du Burkina Phosphate. Unité de Gestion de la Fertilité des Sols, Ministère de l'Agriculture et des Ressources Animales, Ouagadougou.

Burkina Faso (1997a): *Loi /97/ADP portant code de l'environnement*. Assemblée des Députés du Peuple, Ouagadougou.

Burkina Faso (1997b): Documents du Forum National sur la mise en oeuvre de la Convention des Nations Unies sur la Lutte contre la Désertification. CONAGESE, Ministère de l'Environnement et de l'Eau, Ouagadougou.

Cleaver, K. & G. Schreiber (1994): *Reversing the spiral - the population, agriculture and environment nexus in sub-Saharan Africa*. Directions in Development series, Banque Mondiale, Washington.

Cline-Cole, R., H. Main & J. Nichol (1990): On fuelwood consumption, population dynamics and deforestation in Africa. *World Development*, 18-4.

Delgado, C. (1995): *Africa's changing agricultural development strategies - past and present paradigms as a guide to the future*. Food, Agriculture and the Environment Discussion Paper 3. International Food Policy Research Institute, Washington.

Darti-Adzobu, C. (1995): *New roots - institutionalizing environmental management in Africa*. World Resources Institute, Washington.

EIU (1996): *Burkina Faso* (Quarterly country reports). Economist Intelligence Unit, Londres.

Engberg-Pedersen, L. (1995): Creating local democratic politics from above - the "gestion des terroirs" approach in Burkina Faso. *Drylands Network Issues Paper*, 54. International Institute for Environment and Development, Londres.

Engelbert, P. (1996): *Burkina Faso - unsteady statehood in West Africa*. Westview Press, Boulder.

Falloux, F. & L. Talbot (1993): *Crisis and opportunity - environment and development in Africa*. Earthscan, Londres.

Faure, A. (1995): Private land ownership in rural Burkina Faso. *Drylands Network Issues Paper*, 59. International Institute for Environment and Development, Londres.

Faure, A. (1996): Pratiques et politiques foncières en milieu rural. In: R. Otiyek, F. Sawadogo & J-P. Guingané (eds): *Le Burkina entre révolution et démocratie (1983-1993)*. Kathala, Paris.

Gbikpi, P. (1996): L'agriculture burkinabé. Document de la Coopération de France, appui au Ministère de l'Agriculture et des Ressources Animales (MARA), Ouagadougou.

Gorse, J. & D. Steeds (1987): Desertification in the Sahelian and Sudanian zones of West Africa. *Technical Paper 61*, Banque Mondiale, Washington.

Graaff, J. de (1996): The price of soil erosion - an economic evaluation of soil conservation and watershed development. *Tropical Resource Management Papers*, 14, Wageningen Agricultural University, Wageningen.

Hoben, A. (1995): Paradigms and politics - the cultural construction of environmental policy in Ethiopia. *World Development*, 23-6.

Josserand, H. (1994): Systèmes pastoraux en Afrique de l'Ouest et économie des ressources naturelles. In: C. Blanc-Pamard & J. Boutrais (eds): *À la croisée des parcours - pasteurs, éleveurs, cultivateurs*. ORSTOM, Paris.

Juul, K. (1996): Post drought migration and technological innovations among Fulani herders in Senegal - the triumph of the tube! *Drylands Network Issues Paper*, 64. International Institute for Environment and Development, Londres.

Kaboré, D. (1996): Technologies de conservation des eaux et du sol au Burkina Faso: performances et perspectives. Communication au Forum de la Recherche Scientifique (avril), CNRST, Ouagadougou.

Koté, G. (1997): Structures de gestion des terres rurales et perspectives pour la reconnaissance juridique et la fonctionnalité de la commission villageoise de gestion du terroir. Communication aux journées de concertation sur la gestion des terroirs (avril), Direction de l'Aménagement du Territoire, Ministère de l'Économie et des Finances, Ouagadougou.

Larson, B. (1994): Changing the economics of environmental degradation in Madagascar - lessons from the national environmental action plan process. *World Development*, 22-5.

Leach, M. & R. Mearns (1996): Environmental change and policy - challenging received wisdom in Africa. In: M. Leach & R. Mearns (eds): *The lie of the land - challenging received wisdom on the African environment*. International African Institute, James Curry & Heinemann, Londres.

Lund, C. (1996): Land tenure disputes, state, community and local law in Burkina Faso. In: A. Kabré & M. Speirs (eds): *Gestion de l'environnement au Sahel* -

approches et méthodes de recherche. *SEREIN Occasional Paper*, 4. Sahel-Sudan Environmental Research Initiative, Copenhagen.

Marcussen, H. S. (ed), (1996): Improved natural resource management: the role of formal organisations and informal networks and institutions. *Occasional Paper*, 17. International Development Studies, Roskilde University, Roskilde.

Mariko, K. (1996): *La mort de brousse - la dégradation de l'environnement au Sahel*. Kathala, Paris.

Migot-Adholla, S., P. Hazell, B. Blarel & F. Place (1991): Indigenous land rights systems in sub-Saharan Africa - a constraint on policy? *World Bank Economic Review*, 5-1.

Mortimore, M. (1993): The intensification of peri-urban agriculture: the Kano close-settled zone. In: B. Turner, R. Kates & G. Hyden (eds): *Population growth and agricultural change in Africa*. University Press of Florida, Gainesville.

Mortimore, M. (1995): Caring for the soil - agricultural expansion, population growth and natural resource degradation in the Sahel. In A. Reenberg & H. S. Marcussen (eds): *The Sahel. SEREIN Occasional Paper*, 1. Sahel-Sudan Environmental Research Initiative, Copenhagen.

Ouédraogo, M. & V. Kaboré (1996): The zai: a traditional technique for the rehabilitation of degraded land in Yatenga, Burkina Faso. In: C. Reij, I. Scoones & C. Toulmin (eds): *Sustaining the soil - indigenous soil and water conservation in Africa*. Earthscan, Londres.

Pieri, C. (1991): Les bases agronomiques de l'amélioration et du maintien de la fertilité des terres de savanes au sud du Sahara. In: C. Pieri (ed): *Savanes d'Afriques - terres fertiles?* Centre International de la Recherche Agricole pour le Développement (CIRAD) & Ministère de la Coopération au Développement, Paris.

Piveteau, A. (1996): Les ONG favorisent-elles le développement agricole? In: R. Otayek, F. Sawadogo & J-P. Guingané (eds): *Le Burkina entre révolution et démocratie (1983-1993)*. Karthala, Paris.

Place, F. & P. Hazell (1993): Productivity effects of indigenous land tenure systems in sub-Saharan Africa. *American Journal of Agricultural Economics*, 75-.

Pretty, J. (1995): *Regenerating agriculture - policies and practices for sustainability and self-reliance*. Earthscan, Londres.

Reed, D. (ed), (1996): *Structural adjustment, the environment and sustainable development*. Earthscan, Londres.

Richards, P. (1985): *Indigenous agricultural revolution - ecology and food production in West Africa*. Hutchinson, London.

Sandford, S. (1995): Improving the efficiency of opportunism - new directions for pastoral development. In: I. Scoones (ed): *Living with uncertainty - new directions in pastoral development in Africa*. Intermediate Technology Publications, Londres.

Sanon, S., S. Millogo & S. Da (1993): Impact de la suppression de la subvention des engrais au Burkina Faso. Étude pour le Ministère de l'Agriculture et des Ressources Animales, Ouagadougou.

Savadogo, K., T. Reardon & K. Pietola (1994): Farm productivity in Burkina Faso - effects of animal traction and non-farm income. *American Journal of Agricultural Economics*, 76-3.

Speirs, M. (1996): Quelques réflexions sur la politique macro-économique et le développement du secteur agro-pastoral au Burkina Faso pendant les années 1990. In: A. Kabré & M. Speirs (eds): *Gestion de l'environnement au Sahel - approches et méthodes de recherche*. SEREIN Occasional Paper, 4. Sahel-Sudan Environmental Research Initiative, Copenhagen.

Speirs, M. & O. Olsen (1992): Indigenous integrated farming systems in the Sahel. *Technical Paper 179*, Banque Mondiale, Washington.

Swift, J. (1996): Desertification - narratives, winners and losers. In: M. Leach & R. Mearns (eds): *The lie of the land - challenging received wisdom on the African environment*. International African Institute, James Curry & Heinemann, Londres.

Tallet, B. (1996): 1983-1993, dix ans de politique agricole. In: R. Otayek, F. Sawadogo & J-P. Guingané (eds): *Le Burkina entre révolution et démocratie (1983-1993)*. Karthala, Paris.

Témé, B., H. Breman & K. Sissoko (1996): Intensification agricole au Sahel - mythe ou réalité? (Rapport de synthèse du colloque international), IER & AB-DLO, Bamako & Wageningen.

Thébaud, B. (1995): Pastoralisme et dégradation du milieu naturel au Sahel - mythe ou réalité? In: A. Reenberg & H. S. Marcussen (eds): *The Sahel*, SEREIN Occasional Paper, 1. Sahel-Sudan Environmental Research Initiative, Copenhagen.

Tiffen, M. (1996): Land and capital - blind spots in the study of the resource poor farmer. In: M. Leach & R. Mcarns (eds): *The lie of the land - challenging received wisdom on the African environment*. International African Institute, James Curry & Heinemann, Londres.

Tiffen, M., M. Mortimore & F. Gichuki (1994): *More people, less erosion - environmental recovery in Kenya*. Wiley, Chichester.

Toé, P. (1996): Culture de rente et cultures vivrières - problèmes de transfert de technologie dans l'agriculture en zone tropicale. In: A. Kabré & M. Speirs (eds): *Gestion de l'environnement au Sahel - approches et méthodes de recherche. SEREIN Occasional Paper*, 4. Sahel-Sudan Environmental Research Initiative, Copenhagen.

United Nations (1992): *Agenda 21 - the United Nations plan of action from Rio*. UN, New York.

World Bank (1995): *Natural resource degradation in sub-Saharan Africa (SSA) - restoration of soil fertility*. Concept paper, World Bank, Washington.

World Bank (1996): *Burkina Faso - Policy Framework Paper for 1996-98*. World Bank, Washington.

Zagré, P. (1994): *Les politiques économiques du Burkina Faso - une tradition d'ajustement structurel*. Karthala, Paris.

ied

International
Institute for
Environment and
Development

Drylands Programme

The Drylands Programme aims to contribute towards more effective and equitable management of natural resources in semi-arid Africa. It has built up a diverse pattern of collaboration with many organisations. It has a particular focus on soil conservation and nutrient management, pastoral development, land tenure and resource access. Key objectives of the programme are to: strengthen communication between English and French speaking parts of Africa; support the development of an effective research and NGO sector; and promote locally-based management of resources, build on local skills, encourage participation and provide firmer rights to local users.

It does this through four main activities: collaborative research, training in participatory methods, information networking and policy advice to donor organisations.

International Institute for
Environment and Development
3, Endsleigh Street
London WC1H 0DD
UK

Tel: (+44 171) 388 2117
Fax: (+44 171) 388 2826
E-mail: drylands@ied.org

ISSN 1357 9312