Dryland Networks Programme

ISSUES PAPER

The Relationship Between Research Institutes and NGOs in the Field of Soil and Water Conservation in Burkina Faso

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SUMMARY

In Burkina Faso, water and wind erosion are major factors in environmental degradation. The action of water and wind on the soil is intensified by overgrazing, bush fires and the abandonment of fallowing.

In an attempt to protect the soil and increase water infiltration, NGOs have developed low cost, simple techniques of erosion control, which small farmers can readily apply and which have given quite satisfactory results. The main techniques used are stone and earthen bunds, semi permeable dams, half moon catchments, sub-soiling, "Zay", grass lines, etc.

Tests have shown the effectiveness of these techniques, but the latter have not yet been the subject of in-depth studies, nor led to a coordinated strategy of erosion control by NGOs and research institutes. Despite the serious lack of formal contacts between these two types of agency, there are some cases of co-operation in Burkina Faso. However, such co-operation must be extended within an overall land management and development plan.

It is also essential to promote links more generally between all parties involved in development.

TABLE OF CONTENTS

LIST OF ACRONYMS

ADRK	Association de Développement de la Région de Kaya (Kaya Region Development Society)
AFVP	Association Française des Volontaires du Progrès (French Society for Development Volunteers)
AVV	Aménagement des Vallées des Volta (Volta Valleys Development Authority)
BLONGA	Bureau de liaison des ONG et Associations au Burkina Faso (Liaison Office for NGOs and Burkinabé Associations)
CDRY	Comité pour le développement de la Région de Yako (Committee for the development of Yako region) (Soil and water conservation / Agro-forestry)
CESAO	Centre d'Etudes Economiques et Sociales de l'Afrique de l'Ouest (West African Centre for Social and Economic Studies)
CIEH	Comité Interafricain d'Etudes Hydrauliques (Inter-african Committee for Hydraulic Studies)
CIRAD	Centre International de Recherche en Agronomie pour le développement International Agronomic Research Centre for Development)
CRPA	Centre Régional de Promotion Agricole (Regional Centre for Agricultural Development)
CTFT	Centre Technique Forestier Tropical Tropical Forestry Technical Centre
DRET	Direction Régionale de l'Environnement et du Tourisme Regional Tourism and Environment Board
FDR	Fonds de développement Rural (Rural Development Fund)
FEER	Fonds de l'Eau et de l'Equipement Rural (Water and Rural Equipment Fund)
GERES	Groupement Européen de Restauration des Eaux et des Sols (European Group for Soil and Water Rehabilitation)
GRAAP	Groupe de recherche et d'appui pour l'auto-promotion paysanne (Farmers' Self-development Research and Support Group)
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
IIED	International Institute for Environment and Development
INADES	Institut Africain pour le Développement Economique et Social (African Institute for Economic and Social Development)
INERA	Institut d'Etudes et de Recherches Agronomiques (Institute for Agronomic Studies and Research)
IPD/AOS	Institut Panafricain de Développement/Afrique Occidentale et Sahélienne (Panafrican Institute for Development/West Africa and Sahel
IRAT	Institut de Recherches Agronomiques Tropicales (Tropical Agronomic Research Institute)
IRBET	Institut de Recherche en Biologie et Ecologie Tropicale (Tropical Biology and Ecology Research Institute)
IRHO	Institut de Recherche en Huiles et Oléagineux (Research Institute for Oils and Oil Producing Plants)
Naam	In the moorish language this means "power"
NGO	Non-governmental Organisation

OXFAM	Oxford Famine Relief
ORSTOM	Office de Recherche Scientifique et Technique d'Outre-Mer (Overseas Scientific and Technical Research Agency)
PAF	Programme Agro-Forestier (Agro-forestry Programme)
PNGT	Programme National de Gestion de Terroirs (National Land Management Programme)
PPIK	Plan de Parrainage International de Kaya (Kaya International Sponsoring Plan)
SAFGRAD	Semi-Arid Food Grain Research and Development (Recherche et Développement des cultures vivrières dans les zones semi-arides)
SIX S	Se Servir de la Saison Sèche en Savanne et au Sahel ("To make use of the dry season in the savanna and in the Sahel")
SPONG	Secrétariat Permanent des ONG (NGO Permanent Secretary)
SWC	Soil and Water Conservation

1. INTRODUCTION

The fragile Sahelian zone is sensitive to the combined effects of climatic and human factors. Human pressure on the environment as a result of practices such as bush fires, short fallow periods, inappropriate cultivation techniques, increased use of fire wood and over-grazing is a major factor in soil degradation, particularly in times of drought.

The most recent example is the drought in the 1970s. Having accentuated the negative impact of the above factors, this drought produced a catastrophic situation in the Sahel which will long be remembered by people in the region. Everyone knew that something must be done, but what? Some researchers and development workers thought that soil and water conservation (SWC) should be the priority.

Many non governmental organisations (NGOs), both national and international, now work on SWC in Burkina Faso, concentrating on the north of the country where the climate is drier. Researchers also showed interest in this field, leading to some institutes becoming involved in SWC research.

L R Brown (Ilboudo, 1990) declared that: "the establishment of institutional channels to link research agencies with farmers is of crucial importance in the struggle against soil degradation. Technology developed on experimental research plots frequently requires adaptation to the needs and capacity of small farmers".

It is therefore clear that researchers need NGOs, which may be considered as the channels of which Brown speaks, able to adapt the findings of their studies to real conditions on the ground. Better still, researchers should make consultation with NGOs an essential part of preparing research programmes, in order to ensure that the work undertaken is relevant to the priorities of rural areas.

Conversely, NGOs need researchers' assistance in developing new technologies and helping lift the constraints on using such technology.

2. SOIL AND WATER CONSERVATION IN BURKINA FASO

Background

Small farmers on the central plateau of Burkina Faso have long been developing initiatives to combat the degradation of soil and vegetation on their land including stone lines, plantations of andropogon grass, fallowing and the construction of small dams. However, these techniques were not applied according to a precise plan nor with the necessary scientific rigour. None of these, albeit very clever, practices within the farmers' strategy to combat erosion was able to resist demographic pressure, new intensive agricultural techniques, and the break-up of traditional collectivist societies, (Marchal, 1979) (Roose and Rodriguez, 1990).

This is why the State and foreign agencies in particular took the initiative in supporting small farmers in the struggle to combat erosion, beginning in the very first post independence years (as of 1963). Their strategy was to provide the regions concerned with erosion control structures (such as bunds), but without consulting the beneficiaries, nor asking for their support. Foreign agencies were the first to intervene through a programme conducted by the GERES between 1963 and 1965 which, in three years, protected 200,000 hectares against erosion. This is an impressive figure, but still insignificant in relation to the area requiring attention. It was subsequently realised that the GERES initiative, despite or because of the means it used, had failed, and the bunds subsequently collapsed.

In the 1970s, following in the footsteps of GERES and still thinking in terms of structures, the State included erosion control in vast programmes conducted by the FDR which became the FEER in 1984, and the AVV. The FEER was responsible for erosion control on the lands of the central plateau, while the AVV dealt with the "newly settled lands", especially those in regions from which onchocerciasis (river blindness) has been eradicated. This policy did not bring the State the result it expected and even, in some cases, ended in failure.

However, around the 1980s, a certain number of non-governmental agencies began to work in the field (PAF, Six-S etc.) and, to their credit, some of them put forward a new strategy to combat erosion which took into account the needs and capacity of the farmers, although their activity remained modest in relation to government programmes. Instead of offering farmers ready-made equipment, this strategy consisted of encouraging them to do it themselves, by transferring know-how. It involved motivating farmers to take part in SWC activities. This means that they had to genuinely understand the benefits to be gained from

these and be responsible for their implementation. Constantly subject to improvement, this strategy has now been adopted by government programmes and projects more widely within the country.

The main erosion control techniques used

(a) Stone bunds or lines

Stone bunds consist of lines of stones about 20 cm high, placed at intervals according to the slope and ruggedness of the terrain, i.e. along the contour lines in the field. The bunds stem the flow of run-off water, enabling it to spread slowly over the areas between the bunds. This system helps to increase water infiltration and reduce the loss of top soil and humus. They are used on cultivated fields as well as areas to be regenerated and help to increase yields. This technique is the most common in Burkina Faso because of its effectiveness and ease of maintenance.

(b) Earthen bunds

Through the FEER, the government of Burkina Faso has encouraged the construction of earthen bunds which are intended to eliminate run-off. As this technique does not provide for collecting water and controlling the flow, farmers are less and less keen on it. Maintenance is difficult (the bunds are unstable) and there is a risk of flooding in the event of heavy rainfall. Nevertheless, this can be an appropriate solution for flat areas where there are no stones.

(c) Permeable rock dams

These were introduced following the lack of success of dams with spill-ways in combating gully erosion. The dam is constructed with free standing rocks placed at the same height, with no spill-way. It may be constructed with a lateral slope. Rather than concentrating all the water at a spill-way, the whole dam acts as a spill-way. Water filters through the semi permeable dam and spreads right across it, so that the force of the flow is greatly reduced. Practice shows that permeable rock dams quickly become blocked (Reij, 1988). The areas upstream where the spate is distributed can then be used for growing sorghum and rice.

(d) Half moon catchments

Half moons are semi circular bunds of 20 to 25 cm in height on a base of about 50 cm. The recommended distance between the two ends of the half moon is 4 metres. This technique is used for tree planting in Burkina Faso.

(e) Other techniques

"Zay" is a technique consisting of digging holes to collect run-off water and encourage infiltration. Manure or straw is placed in the hole to encourage biological activity by termites.

"Zay" could be classified as a cultivation technique for degraded soils but Vlaar and Wesserlink (1991) stress its capacity for soil regeneration. Furthermore, when practised with manure, "Zay" is remarkably successful in reafforestation. The manure contains forest and fodder species consumed by the animals. Having passed through the animals' gut, the seeds germinate easily when they are sown. After the first rains, young trees grow in the "Zay" and must then be protected (Roose, 1991).

Live hedging and grass lines are used in Burkina Faso in villages where stones are scarce.

The main objectives of SWC activities

The main objective of SWC in Burkina Faso is to ensure more sustainable crop, animal and woodland production by saving water and protecting soil against erosion. SWC also aims to increase the area suitable for cultivation by regenerating degraded soils (generally those affected by capping). Raising the water table, restoring eco-systems and improving the quality of reservoir water are amongst the secondary objectives of SWC.

Almost all efforts are concentrated on combatting water erosion and its effects. Activities to combat wind erosion are isolated and not well developed, despite real danger for the population in the north of the country. The Mare d'Oursi Project has a component dealing with wind erosion to stabilise the dunes which are encroaching on the lake.

Future prospects for SWC

The need to take steps against the effects of water and wind erosion is becoming ever more pressing for the Burkinabé. Considerable intensification in erosion control activities should be expected in the future. Some agencies

envisage a slow and gradual evolution towards the adoption of a new erosion control strategy which Roose (1987) calls "Protective Management of Water & Soil Fertility".

Roose describes three basic principles of this strategy:

- Taking into account the farmers' perception of their problems and choosing with them simple protection methods, which are appropriate to the physical environment and the socio-economic and even cultural context. Specialists may modify the chosen methods, but ensure that the farmers retain the power to choose.

- Choosing effective systems to spread water over the surface of the soil, slow down run-off and disperse its energy, reducing its capacity to transport solids, rather than channelling it into outlets.

- Establishing an overall development plan associating trees, crops and animal husbandry designed the watershed and village lands. Development should be gradual as the farmers' position and available resources evolve.

We have observed that most agencies have already adopted the first two principles of this strategy. Some NGOs which have greater financial resources and/or technical skills have already reached the phase of study or identification with a view to applying the third principle.

3. NON GOVERNMENTAL ORGANISATIONS IN BURKINA FASO

Types of NGOs

National NGOs

"Most of them have arisen from the desire of people from a department or region to contribute in some way to the development of their areas" (PNGT, 1990). A PNGT study distinguishes three types of NGO:

- NGOs established in the provinces with no operating budget and without adequate technical personnel or equipment, but with leaders able to mobilise the local people.

- National NGOs which have grown out of foreign NGOs and benefit from the knowledge, experience and funding of the parent NGO.

- NGOs seeking to operate in all areas of economic activity, which have technical skills and human resources but do not have enough funding for their activities.

There are 22 NGOs working in the field of SWC.

Foreign NGOs

All foreign NGOs have signed a framework agreement with the Burkinabé Government which authorises them to work in the sector(s) defined in their objectives. A PNGT survey of NGOs shows that they have more resources and are better organised than national NGOs. Twenty-three of them are working in SWC.

Alternative classification

Apart from their nationality, NGOs may also be classified according to their vocation:

- Operational NGOs
- Training NGOs
- Funding NGOs

It is difficult to classify some NGOs as they have a double or even triple vocation.

The main erosion control strategies adopted by NGOs

NGOs have developed a strategy of erosion control within their general rural development policy, taking into account the successes and failures of the traditional erosion control strategies and guided by the experience of the government's rural development policy.

The strategy adopted by NGOs is based on taking into account farmers' needs and the diversity of the natural processes occurring. The aim is to achieve farmer self-reliance by transferring know-how or improving existing know-how. Farmer participation at all levels of the process is the foundation of this strategy: from the choice of activities through to their implementation. In order to ensure effective participation, NGOs usually intervene only at the request of

a group or village. They begin with an awareness raising phase and then organise discussion meetings to choose activities, where the matter of participation is considered. Once the choice is made, the NGOs help in planning and implementing the activities. The NGOs do not pay for the work, but do provide food in some instances.

With this strategy, the criteria for selection of techniques are as follows: simplicity of the technique itself, ease of replication, low cost and thus potential for use even by the poorest, immediate and obvious benefit.

NGO work in SWC

A study of NGOS conducted by SPONG, at the request of the PNGT, collected data on the extent of SWC activity using stone lines by 45 NGOs in 1988 and 1989. It came up with the following conclusions:

- National NGOs have a much greater involvement, whether one considers the number of national NGOs involved, which shows that they have become aware of environmental problems, or whether one considers the areas covered between 1988 and 1990.

- The part played by individual NGOs in erosion control is relatively modest in relation to government programmes, if one considers only the criterion of area affected by SWC activity (which, it must be said, is no longer an adequate criterion for evaluating SWC in terms of the current approach to development). Most government programmes cover thousands of hectares (the special SWC and agroforestry programme is targeting 6,000 hectares for 1992) thanks to the scale of human and especially material resources they can bring to bear.

NGO technical support

Most NGOs (national or international) receive training from other NGOs specialising in this field such as INADES - Formation, CESAO, GRAAP, IPD/OAS. Some of these training agencies, such as INADES, assist other NGOs at their request in formulating their programmes and evaluations.

NGOs which have adequate resources apply directly to these training agencies, whereas the others may go through the intermediary of SPONG. It should be noted that small NGOs (eg the CDRY in Yako) make do with training organised

by State development agencies or programmes (CRPA, DRET, etc) and request their support in the field where necessary.

Some NGOs are assisted by others who have more skilled staff. Others rely on local consulting agencies for surveys of local conditions, designing development programmes, training their staff and even to carry out certain tasks (PPIK). This practice requires considerable funds and only a few are able to adopt it.

The technical assistance provided by funders who send consultants or permanent technical advisers constitutes a source of training and technical supervision for certain NGOs (ADRK, PAF, etc.). Trainees sent by universities and colleges constitute another important source. According to their level of education, these trainees take part in operations, contribute through research on given topics, or through analyses and surveys for project formulation (AFVP, Naam, etc.).

Provincial consultation workshops (for development workers) and seminars are amongst the opportunities for training and technical support available to NGOs in Burkina Faso.

4. RESEARCH INSTITUTES WORKING ON SWC IN BURKINA FASO

Various agencies have researched or are researching into SWC in Burkina Faso, including:

CIEH	Interafrican Committee for Hydraulic Studies
IRHO	Research Institute for oils and oil producing plants
CTFT	Tropical Forestry Technical Centre
INERA*	Agronomic Research and Survey Institute
IRBET*	Tropical Biology and Ecology Research Institute
ORSTOM*	Overseas Scientific and Technical Research Agency
SAFGRAD	Semi-arid Food Grain Research and Development (African Inter-state Agency under the auspices of the OAU)
CIRAD*	International Agronomic Research Centre for Development, with its IRAT (Tropical Agronomic Research Institute) Department
ICRISAT	International Crops Research Institute for the Semi-arid Tropics

Apart from these research agencies, some projects are conducting experiments, such as the Research and Development Unit of the Northern CRPA (Regional Agricultural Promotion Centre). Only agencies marked with an asterisk are still conducting research on SWC in Burkina Faso.

Main Research Topics

In view of the heavy demand for technical solutions to the problems of soil and water conservation, national and foreign research institutes have undertaken or are planning to undertake work on the following priority aspects:

- Reliable techniques to associate agriculture and forestry (wood lots, live hedging, wind-breaks etc).
- Protecting soil against capping (living or dead plant cover) and improvement of soil structure.
- Maintaining the ruggedness of the soil through appropriate cultivation techniques.
- Rehabilitation and development techniques for degraded soil with a view to agricultural or pastoral use ("Zay" etc).
- The influence of organic matter (manure and compost) in maintaining the stability of soil structure.
- Spacing of bunds in accordance with local conditions (climate, slope, state of the land) and the type of bunds (stones, earth, grass).
- The long term socio-economic impact of erosion control work.
- The integration of all erosion control techniques within an overall land and resource management plan.

Research Findings

Research has yielded some important findings, especially with regard to the susceptibility of soil to erosion, the influence of cultivation techniques and the type of erosion control structures used, as well as the role of various types of plant cover on run-off and soil erosion. However, the following facts emerge from an examination of these results and future prospects:-

- Techniques which are widely used in rural areas (stone lines, "Zay", etc.) have been little studied by researchers.

- Much of the theoretical data necessary for erosion control was collected in the various climatic zones, but the use of such data in designing erosion control technology has been slight. Only ridging and some other tillage techniques have been suggested by researchers in Burkina Faso, so far as we know, and very few farmers have taken up these techniques.

A great deal therefore remains to be done to make research more useful to development workers in the field.

5. LINKS BETWEEN NGOs AND RESEARCH INSTITUTES WITH REGARD TO SWC IN BURKINA FASO

General aspects of co-operation between NGOs and research institutes.

Factors working against co-operation

As far as NGOs are concerned, the factors working against co-operation are as follows:

- It is difficult for NGOs to meet the generally high costs of research work.

- Some NGO officials have little knowledge of research and this prevents them from clearly identifying technical problems upon which work is needed.

- Finally, there are various psychological aspects, in particular the fear that NGO work might be undervalued by researchers, or that scientific study might call their approach into question.

As far as research institutes are concerned, the factors working against co-operation are as follows:

- Research programmes are not always appropriate to NGO needs.

- Research agencies often lack human and financial resources.

- Research findings are rarely available to deal with the urgent problems faced by farmers.

- Scientific criteria for assessing the results of research work give little weight to applied or interdisciplinary research.

- Researchers are sometimes suspicious of NGOs.

Amongst the factors which are not directly attributable to one or other of the parties are the following:

- Some researchers and development workers feel that they are self-sufficient and feel no need to collaborate with others.

- Governments and funders do not give sufficient support to erosion control work in relation to the urgency of the need. At the present rate, it would take 250 years to protect all the threatened lands, while it is clear that they are becoming degraded at a much faster rate.

- Research is still at the stage of looking into the causes and effects of erosion and quantifying these effects. By contrast, the research of primary interest to NGOs, i.e. the development of new erosion control technology, has not got very far.

Factors operating in favour of co-operation

An important factor favouring closer co-operation between NGOs and research institutes is the growing and shared awareness of the potential benefits on both sides of closer collaboration.

Government policy with regard to research since around 1984 is a very important factor in bringing researchers and field-workers together. The government has expressed its wish to see researchers dealing with development problems. This political will has sometimes led researchers to modify their programmes in order to comply with national development priorities and to maintain closer links with state extension services.

Case Studies

Co-operation between AFVP and CIEH

The CIEH regularly sends reports and publications of interest to the AFVP. Moreover, the two agencies are involved in joint research programmes. The AFVP is also a partner of the CIEH and the Ministry for Environment and Tourism in a research programme dealing with soil and plant regeneration in Bourzanga, Burkina Faso.

Permeable Rock Dams

Between 1986 and 1990, the CIEH and AFVP co-operated with the Agricultural University of Wageningen on a study funded by the European community on the hydraulical and socio-economic impact of permeable rock dams in the region of Rissiam (Bam province).

AFVP's role was to help small farmers to construct the dams, especially by supplying the necessary logistic support. CIEH's involvement consisted of placing researchers at the disposal of the project to define the methodology for the study and for data collection and analysis.

The study demonstrated the effectiveness of permeable rock dams in both technical and economic terms. Their role is particularly important under conditions of inadequate rainfall. Technical and sociological factors to be taken into account when determining the dimensions of the dams were identified. The study also led to analysis and discussion by researchers, development workers and farmers in Rissam.

The impact of co-operation on the AFVP

The socio-economic survey gave an insight into the organisation of farmers in the region and an understanding of their behaviour when confronted with new technology. This was of considerable assistance in facilitating the organisation and orientation of discussions with village groups with regard to the introduction of permeable rock dams.

Some modifications of the project approach also resulted from the study: account is now being taken of interaction between the various social groups in the village and training is felt to be an increasingly essential element. According to the AFVP, the study provided useful guidelines for putting into practice the village land management approach. Finally, the study showed

technical possibility of reducing the dimensions of dams in order to reduce the work required.

The purely technical (hydrological and hydraulic) study has so far had little effect on dam construction for several reasons:

- Dam size should be determined within parameters such as slope, surface of the catchment area, run-off co-efficient, rainfall and flow over 10 years. The AVFP does not yet have access to these parameters.

- The late publication of the technical report, four years after the start of the study, made the survey results largely obsolete. Meanwhile, the dams have been considerably modified in the light of practical experience gained in the field and consultation with farmers in Bam province.

- Technical recommendations in the report cannot be directly applied by non specialists or field workers.

Nevertheless the technical study did show the need to make the slope of the dams less steep.

Conclusion

The AFVP has gained some benefit from its co-operation with the CIEH and now takes more account of the human dimension in implementing its programme. The image of the NGO has also been enhanced, since the survey validates technology initiated by the AFVP.

The fruits of this co-operation are of great significance for development workers in general, providing them with scientific evidence to convince both decision makers and funders of the usefulness and effectiveness of permeable rock dams.

Analysis of the co-operation between the AFVP and CIEH also indicates the existence of an original phenomenon. In fact, the NGO played the role of supplying innovative technology, which is usually the role of researchers. The latter, on the other hand, merely played the part of evaluators (checking effectiveness), and were responsible for studying the phenomena and processes at work in the proposed activity.

In conclusion, the study of permeable rock dams indicated the need to bring researchers and development workers closer together.

Co-operation between Oxfam/PAF and ICRISAT

In 1985, ICRISAT decided to study the impact of water harvesting techniques using stone bunds. The main objective was to experiment with ways of enhancing the value of these systems by using more intensive cultivation techniques (fertilisation, seed selection, tillage etc.) in various climatic zones (ICRISAT, 1985).

In order to train its technicians and farmers in constructing the stone lines, ICRISAT requested the co-operation of PAF in Yatenga which had previously distinguished itself in improving and extending this technique.

Apart from training farmers and technicians in the construction of water harvesting systems using stones, this co-operation helped to assess the costs and benefits of these techniques and also to determine the complementarity of the system with classic agricultural intensification techniques.

The study had hardly any impact on the activities of PAF, apart from confirming the effectiveness of a technique which it had been promoting.

6. CONCLUSIONS

It should be stressed that the present study has covered only a sample of NGOs working in the field of soil and water conservation in Burkina Faso. Generally speaking, both national and international NGOs are working in co-operation with small farmers to combat erosion with only modest human and material resources. Their success is evident to everyone interested in the issue, in terms of concrete achievement in the field, the development of technology and their approach to the realities of the rural environment which they are gradually discovering.

Research institutes have also obtained appreciable results, especially with regard to studying the processes, factors and causes of erosion. The majority of these results are theoretical, but have enabled methods of erosion control to be defined and classified. However, there is a shortage of studies on the costs and benefits of the various methods currently being used in the field. Yet it is only through such studies that the most suitable methods for each field situation may be identified.
There is a great difference between NGO and research approaches to erosion control. NGOs in the field are in fact struggling to combat run-off and erosion

by mechanical means which they have designed or introduced while seldom taking research into account. Without condemning this approach, researchers declare that it is not justified, according to their findings, unless prior attention has been given to combatting capping (by protecting the soil with dead or living plant cover) and run-off (by maintaining the stability of the soil and plant cover).

We have not found a single case of an NGO adopting techniques to combat capping and run-off, either in the field or in reports. This is indicative of the fact that the findings of research institutes have practically no effect on NGO activity as a result of the lack of co-operation between the two types of agency. Bearing in mind the knowledge gained by researchers concerning the causes and effects of erosion and the well-developed creative spirit of NGOs, bringing the two together would be beneficial to both sides. It is therefore essential to promote links between NGOs and research institutes.

We also think it necessary to promote and develop links between development workers in general, whether or not they be employed by the government. For instance, they could establish national or regional consultation mechanisms, enabling them to exchange experiences, skills and material resources. This will be of particular use to NGOs, as the state services already receive research findings. It will also facilitate the adoption of the new strategy, which implies integrating efforts to combat erosion within an overall land management and development plan. In most cases, NGOs have few resources or skills to implement an overall development plan for a village or watershed on their own. The consultation mechanisms would enable them to divide up tasks.

To sum up, such co-operation between all development workers would provide technical, economic and strategic advantages. It would be a preamble to co-operation with researchers. To try and promote co-operation between research institutes and NGOs without grouping the latter together in some way would be a very difficult, if not impossible, task. The number of researchers is actually very limited and it would be impossible for them to carry out their work properly if they had to respond to the individual requests of all NGOs. Moreover, it is difficult for small NGOs to find funding to meet the costs of any possible co-operation with research institutes.

NGO groupings would enable all these difficulties to be by-passed through joint identification of the research and training needs to be addressed by researchers. They would also enable the latter to take more account of village reality and thus to identify research topics which the farmers see as a priority. Furthermore, this approach could increase the motivation of local people.

It is of course difficult to organise dynamic associations of NGOs and administrative services, but this is not impossible and more especially as there is some precedent for this in Burkina Faso (e.g. consultation mechanisms in some provinces, NGO federations such as SPONG and BLONGA.

7. RECOMMENDATIONS

We suggest the following measures to promote links between non-governmental organisations and research agencies in Burkina Faso in the field of soil and water conservation:

1. The better organisation of development agencies within each province of Burkina Faso.

2. Identification of the most effective techniques (from a technical and an economic standpoint) for land in various stages of degradation.

3. Preparation of technical data sheets on different techniques which can be used for training of NGO and extension personnel.

4. The regular publication of new research findings in simplified form.

5. The preparation of a simple bibliography on soil and water conservation.

6. The organisation of technical seminars to present research findings, train development workers on various topics and visit demonstration sites and fields where farmers have introduced innovations so that researchers can also learn from field-level experience.

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