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CONSERVATION OF NATURAL RESOURCES-COUNTERING DESERTIFICATION IN AFRICA

Com. 16

FOREWORD

COMMUNITY ACTION IN RESPONSE TO AFRICA'S CRISIS

The Community is trying to develop a comprehensive approach to its relations with Africa which will cover all aspects of the problems facing the continent.

In response to drought and starvation it launched first the Dublin Plan and then the recovery and rehabilitation plan designed to give the worst hit countries the ability to respond promptly to any future occurrence of drought.

To cope with the structural economic problems it is endeavouring, along with other donors, to provide appropriate backing for domestic policy reforms in the countries concerned. Lomé III, to be implemented in close coordination with Member States' bilateral aid agencies, will be the main vehicle for such aid; under the Convention, high priority will go to rural development, and in particular to food strategies in countries which decide to adopt these on the strength of the pilot schemes run in four African countries.

The problems of structural reform themselves, however, must be set against the background of the progressive deterioration of Africa's natural heritage, seen at its most dramatic in the process of desertification taking place in arid and semi-arid zones. This is the wider context of Africa's drought and food problems. In addition to disaster relief and essential structural reforms - without which no longer-term programme can hope to succeed - a systematic policy of environmental conservation and restoration is urgently needed in Africa.

In accordance with the wishes of the European Council (Milan, June 1985), the Commission is therefore proposing a European plan to combat desertification, to which "all European aid, Community and bilateral", will give "priority ... /and/ long-term commitments, and ... organize their contribution coherently by setting up an appropriate coordination structure".

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INTRODUCTION

The deterioration of Africa's natural resources is now widespread being seen most dramatically in the arid and semi-arid zones but also in densely-populated and/or mountainous areas such as Rwanda, Burundi, the Guinea highlands, Kenya, Ethiopia, the common lands of Zimbabwe, the Kabylie mountains, etc. Its symptoms are loss of natural soil fertility, erosion and laterization of topsoil, and thinning and loss of plant cover, etc. The process may not be so obvious in wetter areas, but it poses just as much of a threat to the long-term survival of the population. While no statistical proof is available, it is likely that this is already one of the main causes of falling agricultural production in many countries. It must be halted, particularly as the tendency is for it to gather speed and spread through a knock-on effect, with deforestation modifying micro-climates and hence altering the whole ecological balance, and so on.

Observation has shown that even on the fringes of existing deserts, the desertification process largely starts in the inhabited areas. To this extent it is true to say that the desert is not spreading, but being spread. In these areas the strategy should not in the first instance be to "fence in" the desert by means of green belts, for instance, but to tackle emerging pockets of natural resources deterioration which would cause irreversible desertification if allowed to spread.

The struggle against desertification must therefore be waged over a vast area, from northern to southern Africa, wherever the natural heritage is under threat. Here, however, we concentrate on examples and recommendations relating to sub-Saharan Africa, where European financial and technical cooperation is most important.

It is nevertheless worth noting that there are also already signs of desertification north of the Mediterranean, in certain areas of southern Europe, and that its consequences for Europe could be important in the future.

The strategy is a people-centred one; man may be the major agent of desertification, but by the same token he can learn to change his ways and halt the process. Even in the sudano-sahelian zone, where climatic changes have such a large part to play in the desertification process, there are ways of limiting the damage. There is nothing inevitable about it.

It is necessary, however, for all concerned - donors, governments and the mass of the population - to become aware of the seriousness of the problem and the need for urgent action, while understanding that results will be slow to make themselves felt. Awareness is growing - at least to judge by the number of conferences and resolutions on the issue - and it is to be hoped that this will soon generate the political will needed to take the hard decisions balancing short- and longer-term interests, and to put in hand necessary but sensitive organizational reforms.

Having established the causes of the deterioration of Africa's natural resources, we will be indicating the general guidelines and priorities of an orchestrated attack on the process, and the possible European contribution to their implementation.

Giving effect to the various guidelines and priorities will be no easy task:

- communities will have to accept radical changes in their habits and ways of doing things;
- governments will have to undertake structural reforms with political, economic and administrative implications;
- donors must increase the volume of aid and accept more flexibility and longer-term commitments.

But the very scale of the challenge makes it more urgent; the long term begins today.

SUMMARY AND CONCLUSION

1. The deterioration of Africa's natural resources is now widespread, being seen in the declining fertility and erosion of soil and loss of plant cover. The culmination of this process is desertification stricto sensu.

The plan of action proposed in the Communication is designed to tackle the process as a whole.

2. The root cause of it is the radical imbalance created by development; with the transition from subsistence farming to a money economy, growing pressure is exerted on agricultural land, accentuated by rapid population growth and aggravated by the general fragility of natural resources in tropical zones, together with climatic fluctuations - i.e. drought. These factors operate in various ways in the different countries and regions of Africa.

There has been a failure to adjust farming techniques and patterns to these changes, leading everywhere to soil deterioration and loss of plant cover which, if they continue, will probably become irreversible.

3. The response includes both direct and indirect measures.

- Indirect measures will include improved farming techniques to preserve the ecological balance of the productive system; guidelines are set out for crop farming, animal production and forestry (§1.2.1).

- Also needed are policies aimed at a more even pattern of settlement and slower population growth (§1.2.4).

  By these indirect means it should gradually become possible to relieve the pressure on natural resources.

- Direct action to protect the natural heritage (e.g. afforestation and erosion control) is also urgently necessary, not only in conjunction with productive projects but in the form of special projects conceived for that purpose (§1.2.2).

All measures must be backed up by the development of applied research along suitable new lines (§1.2.3).

4. A comprehensive approach is necessary. Desertification cannot be halted by isolated measures. The various aspects of the problem must be tackled by carefully coordinated packages of measures - the "cluster approach". The content of each "cluster" will of course be tailored to the specific conditions obtaining in each zone or country (§1.2.5).

5. Implementation of these measures will necessitate domestic policy reforms in the countries concerned, particularly in the direction of decentralization (§2.1). The aim primarily is to give greater responsibility to those directly involved in development - grassroots organizations, local NGOs - as regards the preparation of measures which concern them. This should go hand in hand with a decentralization of administrative and financial powers away from central government to allow such development from the grassroots.

The whole relationship between the population and administration at local level needs to be reorganized and backed up by new forms of financing, with particular reference to securing the income of peasant farmers and the more efficient operation of technical and administrative services.

6. A regional approach is necessary. The desertification process takes no account of national frontiers. Counter-measures must be conceived, strategically defined, motivated and organized at the wider regional level (§2.3).

7. Critical mass and the coordinated orchestration of aid contributions (§2.4). To date the measures taken against desertification have by and large failed to halt the process because they have been scattered, inadequate and sporadic. An effective approach capable of reversing the

trend must be on a sufficiently large scale to reach a certain minimum threshold in terms of three factors:

- comprehensiveness of approach (welding the different measures outlined at para. 3 into an overall plan to be carried out according to a sequence properly coordinated in time and space);
- concentration and coordination of commitments: aid donors should agree to devote a significant proportion of their contribution to this work and get together with recipient countries and other donors to ensure the consistency of their action;
- continuity of commitments over a long period, given the special nature of the struggle against desertification.

8. Sequences of measures will have to be organized on a realistic basis, however, reconciling the need for "critical mass" with the inadequate funds available and the number of bodies involved. It will not be possible to tackle everything at once, but it is important to ensure that the limited sub-groups of measures are coordinated in time and space. We envisage, in this connection, giving priority to the "tree" theme (§2.4.2).

9. Donors too will have to change their development policies to accommodate this new dimension by means of:
- greater flexibility in financing operations;
- a gradual increase in funding as countries become more able to carry through systematic desertification control policies; increased aid and policy reforms are interlinked;
- long-term continuity of action.

In any event, priorities will have to be re-ordered to accommodate this new dimension of development work and release the necessary resources (§2.5).

10. Because of the importance of its cooperation with Africa, Europe has a special responsibility for implementation of the strategy and the European Council has decided to give it priority; it wants the Community contribution proper to be combined with those of the Member States in a European Plan which will in turn be coordinated with aid from other donors. On a more general level, if it is to provide practical support for guidelines and priority measures to halt deterioration of natural resources it must:

- increase the proportion of its aid devoted to rural development, with particular emphasis on more intensive farming, while maintaining the long-term ecological balance of peasant agricultural systems;
- give priority consideration to specific, direct action on natural resources;
- give priority where necessary to support for population policies drawn up by recipient countries;
- make appropriate administrative arrangements to ensure that it has the human and technical resources necessary for effective implementation of environmental operations.

The Commission's task will be to coordinate all the resources available at Community level: Lomé III, food aid, NGO cofinancing operations, financial protocols for the southern Mediterranean countries and the special budget headings (§3.1).

The Lomé programming operation currently under way takes full account of the new objective. The need now is to translate agreement in principle into concrete measures. For the purpose of implementing the indicative and regional programmes, the Commission should reach agreement with the various countries concerned on a set quantitative target for specific desertficiation control measures (§3.1.1).

Priority should likewise be given under the new southern Mediterranean protocols to the campaign against desertification (§3.1.2).

Food aid must also be deployed, in the form of food-for-work programmes or by the use of counterpart funds to cover certain local costs of environmental conservation measures. Sums could be allocated specifically to this end (§3.1.3).

NGOs, by reason of their position and the nature of their operations, will have a major role to play in this field (§3.1.4).

Special lines of credit will continue to be used for this purpose, giving the Community a wider margin of manoeuvre and initiative in promoting a goal which impoverished countries tend to postpone (§3.1.5).

11. The deployment of resources specifically allocated to protection of the natural heritage must be accompanied by procedural changes to build in a permanent "environmental reflex", and the acquisition by development agencies and administrations of greater expertise in the field of conservation (§3.1.6).

12. To reach the critical mass where a significant impact can be made on desertification control, Community aid must be backed up by the coordinated deployment of bilateral aid from the Member States. Such a pooling of effort calls for:

- the establishment of common operating principles based on the guidelines and priorities set out in this Communication;
- close coordination in the field in accordance with the highly flexible arrangements illustrated in the flow-chart at Annex 3 (§3.2).

13. In this way the Community and its Member States together can provide significant support for the environmental protection policy Africa needs to ensure its long-term survival.

14. At the end of the Communication we give several examples of significant measures for the control of desertification.

CHAPTER I - GENERAL GUIDELINES AND PRIORITIES FOR A POLICY OF DESERTIFICATION CONTROL

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1.1 The root of the problem

Why should Africa as a whole be more at threat than any other continent from the deterioration of its natural resources? Part of its vulnerability comes from the fragility of such resources in tropical areas, and the climatic fluctuations which result in drought. But the scale of the phenomenon and its seriousness are due above all to a radical imbalance inherent in the continent's development. The shift from subsistence farming to a money economy, coupled with the population explosion, have resulted in a considerable extension of cultivated areas and pressure on the land. The speed at which these developments have occured has upset the balance between man and the natural resources he exploits; with few exceptions, peasant farmers and herders have failed to adapt their methods sufficiently to the requirements of change. Broadly speaking the response has been to bring more land into use, with all that implies in the way of deforestation and the use of marginal land, and to crop more intensively (i.e. simply by reducing fallow periods), without, however, taking measures to reconstitute natural soil fertility. This has led to today's widespread exhaustion of the land, overgrazing and deforestation which may lead, if nothing is done, to irreversible desertification.

This is the root cause of the deterioration of Africa's natural heritage: man, having failed to change farming and management methods to keep pace with the rapid growth of demand, is over-exploiting the land; populations have grown beyond what the resources can support, breaking down the traditional balance and ultimately creating desert.

Naturally, all things being equal the deterioration is swifter and more marked in areas where the ecological balance is intrinsically fragile (the Sahelian zones and mountain regions), particularly under the impact of successive droughts. But ecological vulnerability and climatic fluctuations are facts which must be accepted, at least in the short and medium term, and simply make it all the more essential and urgent to put in hand a strategy of desertification control centred on man and his capacity to manage the environment. It is pointless to argue about the possible effect on the climate of deteriorating natural resources (particularly deforestation in coastal areas); this is just one more reason for pressing ahead urgently with the recommended measures.

1.2 General guidelines and priorities for desertification control

Given the root cause of the problem, a threefold attack is required:

- development of intensified farming techniques which allow long-term regeneration of natural resources;
- specific environmental conservation measures (erosion control, reafforestation);
- matching of population density to available resources (policies on population movements and slowing-down of demographic growth).

1.2.1 Intensification of farming methods and protection of the environment

In areas where the land's carrying capacity is now inadequate, the priority must be to find more intensive methods of farming which increase the productivity of scarce factors (land, water, trees) while maintaining their capacity for regeneration.

The following changes will be needed:

- a rethink of rural development policies, which still tend to envisage extension of cultivation (e.g. mechanized ploughing to extend area under cultivation without accompanying measures to preserve soil fertility);
- systematic consideration of the conservation factor in the planning and implementation of operations designed to increase output;
- specific conservation projects, e.g. reafforestation of the West African "reservoir", erosion control programmes, etc.

For the purposes of discussion we will make the usual distinction between crop-farming, animal production and forestry, but in practice operations should be planned and implemented within a systematic framework addressing all aspects of the problem: at the bottom of the scale, the farming plots of individual communities, then a grouping into homogenous zones, covered in turn by general land use/development plans indicating the geographic pattern of operations by region or country.

1.2.1.1 Intensification of crop-farming

(a) The emphasis in the first instance should be on rain-fed crops; these supply the bulk of Africa's agricultural output and are most relevant to peasant farmers.

The introduction of technical advances to date has by and large been lopsided, with undue weight on export crops and only passing attention to other crops. Furthermore, the measures used to boost the yields of cash crops have often proved too drastic for Africa's frail ecological systems (use of animal traction solely with a view to extending areas under cultivation, manuring inadequate for selected strains of seed etc.).

Intensification of rain-fed agriculture will involve a broad-based approach to peasant farming systems as a whole, covering both subsistence and cash crops and integrating livestock and crop farming, utilizing the multi-purpose tree (e.g. Acacia albidae) in this context.

Such a holistic approach will use modern techniques chiefly to increase soil yields while conserving long-term productive potential; packages of innovations (some of which are ready to be used by farmers) will therefore include anti-erosion methods (contour ploughing, intercropping, hedge-planting etc.) and measures to conserve natural soil fertility (ploughing in herbage, basic manuring, planting of certain varieties of tree etc.).

While some of these methods are already usable, however, it will not be easy to disseminate them; unlike the conventional measures centred on cash crops, their value will become apparent only in the longer term and thus is not always clearly understood. Also, they may be costly, and the increasingly impoverished peasant farmers in over-populated areas may not be able to afford them. There may also be problems with the land tenure system; it will be difficult to persuade peasant farmers to undertake costly, laborious measures to improve land which does not belong to them individually, particularly where individual holdings are liable to constant shifts.

It will therefore take a certain amount of effort to lay the foundations for the success of these policies: efficient extension services and socio-culturally and economically appropriate systems of medium- and long-term credit must be set up, while some land tenure systems may need reform. This involves the whole socio-cultural, financial, technical and administrative framework of rural development. In general, the problem is not a lack of natural resource potential - except in some arid areas - but the practical difficulty of introducing more efficient farming methods in short order.

(b) Irrigation should be encouraged wherever feasible and necessary, in order to regulate and develop crop production, particularly in arid and semi-arid areas where the population is already too dense for the resources available, and where there is little scope for improving rain-fed crops. But which type of irrigation should we support?

Past results have been very uneven. Despite considerable investment the new large or medium-sized irrigation schemes set up each year barely make up for those fallen into disuse or in need of rehabilitation. The basic problem which recurs every time is of course management capacity, which is inadequate to ensure the efficient operation of these schemes. Small-scale irrigation generally proves much more successful.

In the first instance, therefore, we should concentrate on small-scale, inexpensive schemes in which peasant farmers can genuinely be involved and which they can manage themselves.

However, this approach will not be possible everywhere, or may not prove enough to meet the needs; sometimes a more ambitious scheme may be called for, along the lines of the Senegal Valley Development. These must be approached with caution, however, given their cost and the management problems, and they should be broken down for technical purposes into units manageable by local communities. Priority should be given to rehabilitation of existing schemes (e.g. by the Office du Niger in Mali).

On the environmental side, care should be taken to minimize the possible damage (e.g. salinization) which can be caused by badly-planned or managed irrigation schemes. Irrigation projects, like operations concerning rain-fed crops, must always include a soil conservation component.

1.2.1.2 Encouraging stock-farmers to support desertification control

Nomadic herding, as an extensive form of stock-rearing, has become a major cause of desertification. Traditional approaches to wealth accumulation and government livestock policies designed to help stock farmers by such direct and simple means as veterinary support and watering-points have led to a huge increase in numbers of cattle, sheep and goats; overgrazing in turns damages the soil and strips it of plant cover.

To prevent this we need to encourage more efficient grazing methods which can increase the carrying capacity of pasturage, for instance rotation of grazing and the planting of fodder crops or shrubs. Wherever possible, greater use of agricultural by-products should be encouraged.

But if livestock policies are to succeed there has to be a shift towards more active participation by stock-farmers themselves. They should be encouraged to form graziers' associations with exclusive grazing rights in designated areas. Members would collectively apply water and pasture management "codes" and stabilize individual herd numbers in the wider group interest.

The associations would also take on responsibility for certain operations in areas such as animal health, marketing and credit, taking some of the existing burden from government services.

The government departments, particularly those responsible for animal health and marketing, should gradually be reorganized so that their activities complement those of the herders' associations. They should introduce suitable price and marketing policies both to get products to market and to stabilize herds, giving farmers incentives to sell less productive animals and tying them more closely into the exchange economy.

These measures should help reduce the pressure of livestock on the environment while at the same time increasing production, but the results will not make themselves felt for a long time, since they call for radical changes of habit as well as policy and institutional changes.

1.2.2 Specific conservation measures

Measures to increase production indirectly benefit the environment in that they reduce the demands made on natural resources. They will be still more beneficial if they systematically incorporate measures specifically aimed at nature conservation (especially tree-planting and anti-erosion schemes). In some cases, however, such direct environmental measures will become independent projects with the specific purpose of protecting or restoring natural assets.

1.2.2.1 Tree conservation and reafforestation

Trees and forests play a crucial part in any environmental protection programme. The tree is not only a source of timber, cheap fuel and food for man and livestock, it is a vital element in the battle against erosion and forms part of the micro-climatic balance.

Trees must therefore be protected where they exist and replanted where essential tree cover has vanished.

(a) Protection of existing woodland

All too often existing woodlands are poorly managed, and thus at risk of destruction by fire, excessive commercial felling or over-exploitation for fuelwood. Here again both direct and indirect measures are needed - direct, in the firm of management policies including increased surveillance and controlled exploitation, and indirect, by reducing the pressures on trees through more intensive farming (reducing the need for clearance: see § 1.2.1.1), more economical use of fuelwood, and the development of alternative energy sources.

(b) More efficient use of fuelwood; alternative sources of energy

A major cause of loss of tree cover is the need for fuel, particularly around growing urban areas.

In the cities, wood is supplied commercially and here the first requirement is to see that wherever possible merchants charge prices reflecting the real value of the wood and covering the cost of its replacement (i.e. replanting). This is a prerequisite for the comprehensive strategies which need to be devised for each individual town, from incentives and assistance to charcoal burners to adopt more efficient production methods to the dissemination of more economical stoves; these, however, will only be successful if they can be made cheaper (while still allowing manufacturers adequate profit margins) and more convenient.

But all these measures will be inadequate unless accompanied by:

- afforestation schemes around towns and cities, to cater for the swift rise in demand caused by urbanization;

- investment in the development of new sources of energy to replace wood (cf. coal in Zimbabwe, gas in Abidjan), if necessary by offering (temporary) tax breaks.

At a more general level the supply of fuel to Africa's towns and cities needs to be considered within the framework of a plan covering all related aspects: impact on natural resources, reafforestation, more efficient fuel-burning, and the development of alternative sources of energy.

In the countryside trees have become so scarce that the first task is to replant, preferably with native, multi-purpose species suited to the local ecology and familiar to local inhabitants.

(c) Reafforestation programmes

Priority will be given to schemes likely to have the greatest impact on conservation or production, e.g. protection of the Fouta Djalon and Mount Nimba uplands where the major West Africa rivers have their sources; hedgerows to protect fields in areas subject to serious wind erosion; hilltops; plantations around built-up areas; stabilization of dunes, etc.

Opportunities will often be limited, however, by competing pressure from agricultural land, so it will only be possible in many cases to use marginal land to establish village plantations of multi-purpose trees (e.g. fruit trees whose leaves provide browsing for flocks). The emphasis should be on large numbers of widely-scattered schemes rather than enormous plantations. An example is the "pôles verts" approach adopted in Senegal and Mauritania, where trees have been planted for a wide variety of purposes in the irrigable parts of the Senegal River Valley (as windbreaks around developments, along canals, in less-easily irrigable areas and on hills, in order to protect the river basin).

As with other schemes, success will obviously depend on a country's ability to organize efficient forestry services, mobilize the grassroots population and make adequate funds available.

In April 1985 the Commission arranged a meeting on reafforestation with experts from the Member States, with a view to establishing operational priorities. The areas most urgently in need of attention were identified, as were the types of measure needed in each (see Annex 1).

The priority areas are:

1. important rain-fed agricultural areas with a fairly high population density (e.g. Mali's maize-cotton belt and the Kenya Highlands, which still have agricultural potential; Senegal's groundnut belt and the Mossi Plateau in

Burkina Faso, where potential is limited); the stress will be on intensified crop production incorporating a reafforestation component, and where damage has already been done the emphasis will be on anti-erosion measures;

2. underpopulated areas predominantly of dry tropical forest with adequate rainfall (e.g. central northern areas of West African littoral countries): this area is currently coming under severe pressure from people fleeing from drought; here the stress will be on major replanting and management of existing forest as part of a comprehensive rural development plan;

3. densely-populated urban areas (e.g. Lagos, Bamako, Kinshasa, Kampala, Mogadishu, Dakar, Nairobi etc.): not only will the country areas round the towns be reafforested, there will be planting within the cities themselves;

4. hilly areas with a large rural population (e.g. Fouta Djalon in Guinea, Lesotho, the Zaire Nile Ridge, the Ethiopian Central Plateau, mountainous islands such as Cape Verde or the Comoros, and the Bamileke country in Cameroon): emphasis on trees as means of controlling river erosion and flow, thus enabling these natural catchment areas to continue their function;

5. areas with some degree of water management (e.g. Logone Valley, Djuba Valley in Somalia, around Lake Chad, Senegal Valley, Niger Valley, Awash Valley in Ethiopia): reafforestation to protect irrigated areas;

6. woodland or scrub grazing areas with low rainfall (e.g. Karamoja in Uganda, Matabeleland in Zimbabwe, Turkana in Kenya and the northern Kordofan-Darfour fringe in Sudan): emphasis on improving agro-pastoral land by better management of tree cover and conservation of natural regenerative capacity;

7. tropical rain forest with low population density but subject to severe pressure from neighbouring populations (e.g. forests on lower Ivory Coast): establishment of reserves.

1.2.2.2. Erosion control programmes

The prevention of erosion must become a key component of all productive projects in rural areas. Where the threat is most severe, e.g. in mountainous regions, especially densely populated ones, special local or regional programmes may be needed in addition. These could take the form e.g. of:

- action to protect potential natural reserves (fire prevention, control of access by people or livestock), preferably by making local groups responsible for this (see e.g. § 1.2.1.2);

- restoration or establishment of hedgerows and ditches round fields;

- reafforestation of hillsides, improvements to watercourses, tapping of mountain springs;

- planting of hedges as fodder crops and barriers to erosion;

- planting of perennial crops such as tea, coffee or palms, in keeping with the character of the land and in accordance with sub-regional priorities;

- systematic planting of trees along tracks, roads and canals.

Past mistakes have shown that measures of this sort cannot be imposed irrespective of local circumstances; they must fit in with farming and social patterns and be understood and supported by local communities, otherwise they will not only fail to bring benefits but may actually damage the environment (e.g. failure to maintain banks and ditches can increase erosion by run-off).

1.2.3 Appropriate research policies

The main problem in Africa is how to achieve substantial increases in the productivity of natural resources without jeopardizing their capacity for medium- and long-term regeneration. The first requirement is rapid introduction of more modern techniques, hence the importance in the fight against desertification of research into forestry, crop and livestock farming.

However, there will need to be some shifts in the emphasis of research.

- More attention should be paid to research programmes to food crops for local consumption, and to the ecological balance of farming.

- The ecological balance needs in fact to be a research topic in its own right: how can the long-term viability of the land be ensured in the face of changes resulting from population growth and the desire for cash incomes?

- Research must become less production-oriented and more concerned with the ecologically more vulnerable - and generally poorer - areas; in this connection preference should be given to low-risk agriculture (i.e. low risk both to peasant farmers and the environment) with hardy, drought-resistant varieties requiring little in the way of commercial inputs.

- In the context of reafforestation, work is needed on the development of rapid-growing, drought resistant tree varieties.

- Research into renewable forms of energy to replace fuelwood should be stepped up, not only on the technology but also on the socio-economic and cultural aspects of production, distribution and use.

- Research should be directed at establishing a detailed understanding of the whole phenomenon of desertification, of its mechanisms and its causes, both ecological and human, through among other things the study of global climatic trends and their effects. Appropriate techniques, including such advanced techniques as remote sensing, should be utilised in order to improve the capacity to operate 'early warning systems' for droughts.[1]

- More research should be undertaken into the equilibria of major ecosystems and the conservation and use of genetic resources threatened with extinction in drought-afflicted areas.

All these changes will mean research centres devoting more interest to the functioning, characteristics and rationale of the different agricultural systems.

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1 See the study initiated by the Community in 1983 on the use of remote sensing to examine the desertification process around the Sahara.

A multi-disciplinary approach will be called for, since in order to modify a system every aspect of it must be understood: social, economic, crop and stock farming methods, relationship to use of pasture or woodland, etc. Accordingly, implementation of changes identified as necessary will involve crop scientists, forestry experts, livestock and fuelwood experts, socio-economic experts etc., all disciplines must help in designing "packages" of appropriate innovations.

This obviously means that multi-disciplinary research centres need to be established or strengthened; at the very least, there needs to be a considerable improvement in the coordination of sectoral research. Regional "centres of excellence" should be established or strengthened to avoid duplication of national efforts.

There will also have to be much fuller exchange of information not only between the research institutes of different countries but also between institutes, extension services and "end users". The Technical Centre for Agricultural and Rural Cooperation set up under the Lomé Convention could play an important part in this.

1.2.4 Population policies

One of the peculiarities of Africa as a whole is that it is both underpopulated as a continent and at the same time suffering problems due to very swift overall demographic growth and an unbalanced population distribution.

The intensification of agriculture advocated above will be both difficult to bring about and slow to produce results. Given the soaring birth rate, particularly in already over-populated areas, it may not be sufficient to relieve the pressure on national resources. It must be accompanied by policies aimed at securing a more even pattern of settlement and a slowing down of the birth rate.

1.2.4.1 Birth control

The population of Africa is growing at the extremely rapid annual average rate of 3%, with peaks of almost 4% in some countries; these rates are continuing to increase. At this rate Africa's population will have doubled in 25 years.

In most African countries population growth means increased pressure on natural resources, exacerbating the other causes of desertification. However sensitive, therefore, the population issue can no longer be swept under the carpet, especially when considering a phenomenon such as desertification, which is the result of an imbalance between man and his environment. Some African countries have in fact already realized the need for active birth control policies. At the 1974 UN Population Conference in Bucharest only two sub-Saharan African countries had policies designed to curb population growth - today the number has risen to 13. The 36-country Conference on Population held at Arusha in 1984 under the auspices of the Economic Commission for Africa found that high rates of population growth threatened countries' ability to maintain present living standards, and adopted the Kilimanjaro Programme of Action on Population calling on ECA member countries to ensure that free or subsidized family planning services were available and accessible to all who wanted them. It has become clear, therefore, that the population explosion constitutes a threat to development in itself, so that there is no prospect of a "natural" decline being brought about by development in the form of better education or incomes, etc.

The new awareness is reflected in some of the Indicative Programmes which have now been concluded, which note the need for policies aimed at lower population growth and birth control, or simply allude to the problem of increasing population pressure.

The Community's approach, therefore, is to raise demographic problems in the course of discussions with the ACP authorities and to assure ACP governments which so request of its willingness to support appropriate policies or programmes within the limit of its resources.

1.2.4.2 Support and incentives for population migration

Some countries or regions still have unused or underexploited cultivable land to which people from overpopulated areas tend, spontaneously or otherwise, to migrate.

- In many cases migration is a spontaneous reaction to an imbalance between population and resources, either by occupying new land inside the country or over the border, or by leaving the countryside for the towns. In other words, people abandon land which can no longer feed them properly. Thus there are major population movements from north to south (e.g. from Burkina Faso's Mossi Plateau to the Volta valleys or the Ivory Coast, or the spontaneous drift in Cameroon towards the Bénoué plains). Sahel herdsmen tend to move towards settled farming areas, or even to become sedentary themselves still further south, in the zone of dry tropical forests; in Mali, for instance, some young nomads are settling in the Gao region. Sedentary populations which migrated towards the Sahel in the relatively wet years from 1950 to 1970 are returning, while communities from the Sudanese region are colonising the better-watered Sudano-Guinean tropical forests.

  Where migration is spontaneous it is highly desirable that governments should provide back-up to ensure that new land is not exploited in such a way as to destroy its natural fertility, and that migrations do not cause international legal problems.

- Where natural or socio-cultural obstacles prevent spontaneous migrations, people may be persuaded to move by the offer of land concessions, financial aid or property rights, the latter in return for undertakings on proper resource management.

  Past experience has shown officially-supported migration schemes to be so difficult and costly that it will generally be preferable, where this is still possible, to take measures to increase yields in the area of origin; migration should be organized only in extreme cases, as a "safety valve". In any case, migrations must be organized on a voluntary basis (people should be encouraged to leave, not forced out), and suitable arrangements and facilities must be provided on arrival. In these circumstances the Community could support policies to encourage migratory movements.

- Here we rule out migration to towns and cities as a solution to the imbalance between population and resources in certain areas. In the first place, cities are a cause of damage to the environment in the surrounding countryside, particularly as demand for fuelwood leads to deforestation. More important, however, the cities cannot offer decent conditions - above all, jobs - to those fleeing from overpopulated rural areas.

  Nevertheless, in the long run, the drift of population from the countryside is not a bad thing in itself, provided it can be scaled down and incorporated in land-use plans giving particular emphasis to the development of smaller towns, which would provide a special dynamic link between urban and rural activities.[1]

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[1] See study financed by the Community and carried out in 1984 by "Coopération et Aménagement" (a French consultancy firm) on "The secondary towns in Africa, their role and functions in national and regional development".

1.2.5 Need to adopt an overall approach and take into account the conditions specific to each zone

The above analysis shows that the campaign against desertification cannot rely on isolated measures; for example, trees alone are not sufficient to overcome the desert. It will therefore be necessary to implement comprehensive policies and carefully coordinated packages of measures attacking the problem from various angles. It is obvious, however, that these packages, while based on the general priorities defined above, must be adapted to the special conditions and constraints of the countries and regions concerned; the problem does not take the same form in the Sahel as in the mountainous regions of Central Africa. Even in geographically similar areas, the political and administrative or other constraints may vary, so that what is possible in one is as yet impossible in another. Caution is therefore called for in the transition from the general to the particular.

CHAPTER II – IMPLEMENTATION OF GENERAL GUIDELINES AND PRIORITIES

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2.1 Groundwork for reforms in national policies

The preceding chapter shows that there are close links between efforts to prevent the deterioration of natural resources and general development problems. Success depends greatly on countries' capacity to implement reforms in their national policies, necessary to secure a general rehabilitation of economic systems. In this context, desertification control is seen as an additional dimension of the long-term view, reinforcing the recovery process taking place. Obviously, this may create conflicts of priority: how can governments, justifiably preoccupied with immediate problems of survival, harried by everyday concerns, devote sufficient attention to the problems of the future? In this context the main role of development organizations, more able to distance themselves from immediate concerns, is to help countries to overcome the dilemma by mobilizing extra resources.

This aid, even if it were generous, would have no impact unless based on a set of auxiliary measures to be taken by the countries themselves, which should, where possible, be set in the context of natural conservation strategies (as foreseen by the World Strategy for Conservation).

Any large-scale environmental protection operation must be preceded by steps to translate awareness of the problem - already apparent in many countries - into the political will to undertake far-reaching reforms of rural development operations. As regards the protection of the natural heritage, special importance will have to be attached to increasing the efficiency of administrations (institution building), and strengthening rural credit systems and technical facilities such as extension services. On a more general level, all measures aimed at intensifying crop and livestock production will depend on improved organization of the economic environment of peasant farming, including reforms of input and product pricing and marketing, already tackled in the context of the food strategies.

In short, the whole rural context must be examined and adapted, including the question of land tenure. This is obviously one of the main responsibilities facing governments, which can be supported but not taken over by foreign donors.

Desertification control must therefore be regarded not as a separate programme, but as part of a general development process. It is nevertheless advisable to draw attention to certain aspects of particular importance.

2.2 Involvement of population and administration

Giving effect to guidelines and priorities on the ground will involve millions of peasant farmers who will have to change their methods and carry out numerous small-scale operations, even if in certain cases these operations are conditional upon larger projects (e.g. river dams).

The number of people involved and the scale of the efforts will therefore require a high level of political and administrative organization, in order:

(i) to mobilize the rural community, to convince it of the urgency of the task, and encourage it to contribute its own effort;

(ii) to provide technical and financial back-up; this will have to be done not only by decentralized administrative departments, but also by independent NGO-type bodies.

The participation of the rural community in an organized campaign to protect the natural heritage will therefore require simultaneous operations linking administrative departments and the population. The general conditions governing such an approach, the appropriate types of financing and implementation procedures will be worked out at a later date.

2.2.1 General conditions governing the participation of the population and administration

The extent of the task is considerable, since it involves:

(i) a substantial increase in understanding of the socio-economic and ecological systems in which communities live, their ways of life, working traditions (e.g. the very important role of women in the collecting of fuelwood), level of technology, etc.;

(ii) the definition of appropriate technical operations compatible with these systems, account being taken of the specific problems and the capacity for assimilation of each society concerned. For example, any reafforestation programme must take account of the role of the tree in a given social, economic and ecological context, since in many instances it performs a whole range of functions: conservation of the soil fertility, fodder for livestock, supply of fuelwood, timber, etc.; how can production be increased when within the existing production systems there is very keen competition for land etc.; how can the population be motivated to undertake reafforestation if it is not to enjoy ownership of the trees?

(iii) the organization of basic groups, e.g. cooperatives or village associations, in order to reduce the burden for the advisory and extension services and to mobilize the intellectual, technical and financial resources of the rural population; such groupings should be encouraged as the will and ability to assume responsibility for developing the land emerges at grassroots level;

(iv) above all, qualitative and quantitative improvement of the basic administration so that it can provide the necessary technical backing for grassroots initiatives or even promote such initiatives. In this respect, experience with microprojects under the Lomé Convention has shown that the main reason that these were not developed further was the shortage of officials in the field to provide appropriate technical advice to ensure the success of local initiatives. Little hope can be placed in grassroots mobilization and participation (cf. past experience with "Community Development" or rural motivation operations) until administrative and technical staff with effective power of decision and corresponding financial resources are sent into the field, to work in consultation with the peasant farming population. A pragmatic solution would be to link microprojects with larger scale development projects, so that the latter's organizational infrastructure can be used.

(v) the organization of this "administration of grassroots development" must follow certain essential principles:

* its main role must not be to do, but to get things done; it encourages, it supports, it supervises, but it must decentralize its operations in order to ensure that the local population and/or non-governmental organizations assume maximum responsibility;

* it must carry sufficient authority to be effective, which means greater autonomy for the technical departments in relation to the general administration; the "service companies" set up in some countries, with verifiable criteria for discipline and effectiveness, would seem to offer an appropriate model;

* it must be coordinated in the field to prevent responsibilities from becoming too diffuse, and particularly to prevent competition among departments which deal with the same peasant farmer, and which in some cases may give him contradictory instructions; this will be particularly important where conservation measures have to be adopted which may not be compatible with production operations recommended by specialist intervention boards or departments; the ideal would be to have "multidisciplinary" extension officers who can advise the village on its activities as a whole;

* the technical message to be got across must be of proven effectiveness, otherwise extension work could eventually be undermined as peasant farmers become sceptical;

* last, and most important, experience has shown that in the implementation of operations, peasant farmers need to be helped to take over a maximum of services and ease the burden accordingly on the technical departments. For example, rather than taking the inputs to the peasant farmers, the latter should be helped to acquire carts and take care of transport themselves; some go-ahead groups might even recruit and pay for technical support staff themselves; properly adapted training can play a role in making young people aware of the problems of desertification, while certain desertification control measures can be undertaken as part of school activities.

(vi) The mobilization of the population for specific purposes, and the strengthening of the basic administrative departments, require appropriate methods of financing.

2.2.2 Appropriate types of financing

2.2.2.1 Grassroots financial incentives

The need to provide local communities with financial aid for desertification control measures is justified for at least two reasons:

* in areas where the land can no longer be used to grow crops or feed animals, the population is impoverished and lacks the technical and financial resources to carry out projects successfully;

* in the case of long-range projects, the benefit to the individual may not be evident when operations apply to collectively held land or grazing grounds, i.e. if there is a conflict between the long-term collective interest and the immediate individual interest.

The financial incentives may be of various kinds:

* food for work operations in the poorest areas where general food requirements are not met. In order for this system to work in the event of a food shortage, ready prepared programmes must be available, to be implemented when famine occurs. This means that the charity aspect of food aid can be played down, and programmes of work of use to the population itself can be carried out;

* payment by the job in cash and/or in kind (e.g. carts, tools, etc.) are justified in the case of specific, highly labour-intensive action to protect the environment;

* most important, aid for investment in environmental protection operations of the microproject type, as a way of encouraging and backing up the grassroots communities' own investment efforts, in the form of contributions in kind and work;

* lastly, in order to promote the use of certain types of inputs, for example for basic phosphate manuring, it is necessary to set up systems of cheap credit, taking into account the poverty of the rural community concerned and the generalized and deferred return on use of the inputs.

2.2.2.2 Cover of extension service costs

The reorganization and strengthening of basic services will involve external financial aid to provide the resources and equipment they need to operate. This applies for example to the forestry departments, which must be strengthened if all forestry operations, no matter how well designed, are not to be doomed to failure.

2.2.2.3 Cofinancing with NGOs

In the context of the relationship between the population and administration at local level, where European and local NGOs are well integrated in local structures they can play a very useful role thanks to their own technical and financial contributions, backed up by the existing cofinancing system.

2.2.3 Decentralized methods of financing

The widespread deployment of these financial resources will require progressive decentralization of some financial decisions to administration at local level. For example, an extended programme of microprojects can hardly be administered from the capital. It should be possible for grassroots administrations and organizations which have proved their administrative capabilities to be given an appropriate "development budget" enabling them, without delay and in full knowledge of the facts, to take the financing decisions relating to the individual micro projects they support or in which they take part.

Outside providers of funds can play an important role in this movement thanks to increased flexibility and decentralization of their financing. In this respect the Community system of microprojects is particularly appropriate and should be used more widely. It allows overall commitments to be made for campaigns against desertification without prior appraisal of the micro projects to be executed. Decisions on specific projects are taken on the spot by the national authorities and the Commission Delegate. Local NGOs can be involved in these projects.

Payment of certain costs of equipment and operation of grassroots technical services should be facilitated, thus encouraging the administrative authorities of African countries to proceed with the recommended reforms by providing the resources to enable them to do so.

2.3 Need for a regional approach

By its very nature the desertification process takes no account of national frontiers (influence of the climate, regional transhumance, interaction between catchment areas and river valleys, etc.). Without strategies to protect natural assets simultaneously in various places, there is a danger that any isolated successes would have no effect on the overall phenomenon of deterioration or even that their viability would be jeopardized.

Thus the viability of all the programmes to develop the river valleys of West Africa may be undermined in the long term if the deterioration of the catchment areas of Upper Guinea gets worse. In these cases it must be possible to allocate additional resources and encourage the country concerned to take measures which may be of benefit mainly to neighbouring states.

The regional approach will also be justified when significant savings can be reckoned on for joint operations, for research, remote sensing of the desertification process, particularly for the construction of earth stations, etc.

To conclude, there should be a regional approach in the wider sense of the term when conceiving, strategically defining, motivating and organizing the campaign against desertification. The areas in which action is to be taken should be defined in terms of their socio-economically and economically homogeneous regional character.

2.4 Critical threshold and coordination of aid

2.4.1 Importance of the idea of critical threshold

Desertification tends to "snowball", requiring decisive action in order to halt the process, and the measures taken must be massive enough to resist the onslaught.

To date the measures taken against desertification have by and large failed to halt the process because they have been scattered, inadequate and sporadic. From now on a minimum threshold for intervention must be reached, to be assessed in terms of three factors:

- comprehensive approach: an analysis of the phenomenon of desertification has shown that in order to halt the process a "cluster approach" involving interdependent measures must be adopted: intensification of production methods, reafforestation, measures to combat erosion, etc.
- geographical concentration of measures: the nature of the desertification problem implies operations "marking out landscapes", capable by their massive extent of having permanent effects on the environment. This does not mean that gigantic projects should be undertaken, but rather that the operations, many of which will be microprojects, are extensive enough and so grouped as to have a significant impact (see the "natural reservoir" in West Africa for example);

- continuity of operations: the special nature of the desertification problem requires operations over a long period (e.g. reforestation, technological changes in peasant farming methods, etc.). Perseverance and continuity will therefore be necessary features of commitments in the struggle against desertification.

The problem will be how to reach this "critical threshold" when financial and technical resources are limited.

2.4.2 Identification of sequences of measures, organized on a realistic basis and coordinated in time and space

The first priority in applying the overall approach is to draw up general programmes for each country attacking desertification and bringing out clearly the interdependence of the solutions to be applied, the structural reforms to be made at administrative level, the total costs of the operations, etc. However, it will not be possible to do everything at once or get everybody working together. There are too many constraints, particularly financial ones. It will also be necessary to divide the overall plan into sections which can be carried out in isolation while at the same time respecting as much as possible the implications of the "critical threshold". The plan will therefore have to be divided into sub-groups which can function independently to some extent and are capable of producing results, even partial ones, by themselves. In these circumstances the only way to achieve the global approach will be by coordinating a sequence of measures in time and space. It is in this spirit that in the initial stages we would envisage concentrating regional funds for the campaign against desertification on the "tree" theme, in the knowledge that this is a limited operation which will have to be followed up by other measures. However, it is worth giving this theme priority because of its power to motivate and its symbolic value as a victory over the desert.

2.4.3 Concentration and coordination of commitments

Generally speaking, once the priority sub-groups have been determined, aid resources should be concentrated on them. In most cases, even when the resources of an individual donor are concentrated they are not enough to reach the "critical threshold" and they have to be combined with contributions from other sources. Finally, if overall coherence is ultimately to be

ensured, i.e. if all the sub-groups are to be covered, it is obviously indispensable for the donors concerned to commit themselves over a long period on a permanent basis. In practical terms, once the overall plan for the protection of natural resources has been worked out for each country, each aid organization must:

- agree to devote a significant part of its technical and financial efforts (concentration);
- consult the country concerned and the other donors to see that the "minimum threshold" for each programme or sub-programme can be reached; this will call for active coordination aimed at uniting a group of aid donors in the common pursuit of specific objectives (e.g. reforestation).

In other words, it will be necessary for all concerned to follow a programme of specific operations involving a considerable commitment, so that the sum total of interventions often over a long period, reaches a "critical threshold". It will also be necessary to ensure coordination of operations in space (i.e. in geographical terms) and time. This involves much more than the mere exchange of information; we are talking about financial coordination, and sound organization will be required to reach the joint objectives.

2.5 Scale of financial commitments over the long term

It is difficult if not impossible at this stage to give detailed estimates of the amount of money that will be required,[1] as little pre-feasibility work has yet been done. In any case, the speed with which operations can be implemented will depend on the growing ability of administrative authorities and local people to organize and motivate their selected tasks.

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[1] Nevertheless, some estimates have been attempted. For example, in the study made in December 1984 "Lutte contre la désertification en Afrique - Bilan et propositions" GERSAR (F) calculated the global budget for the various desertification control measures at over 26 thousand million ECU over a five-year period for the 21 African countries attending the Dakar Conference (COMIDES) in 1984.

But local efforts still have to be initiated and encouraged by increased amounts of aid, especially as, given the nature of this work, one can hardly expect governments and populations already struggling for survival and living from hand to mouth to mobilize financial resources which will rarely show early returns, unless they can be sure of outside support on a long-term basis.

If priority is to be given more systematically to the control of desertification, specific financial resources will have to be mobilized. This could obviously be done by stages, as and when detailed, realistic plans of action are drawn up by African countries. In this field there are no spectacular operations which can be got off the ground simply by an injection of funds, no matter on how massive a scale. Initially, therefore, the hope would be that a re-ordering of priorities will at least allow the systematic tackling of desertification control. The first priority, therefore, is to reallocate existing resources for this new objective.

However, scope for reallocating funds is usually limited by the competing priorities on which African economies depend for their survival; there is still not nearly enough money for recovery and rehabilitation or structural adjustment programmes, and these cannot wait. It should also be stressed that the distinction between short, medium and long term refers purely to expected results, not to the urgency of the operations themselves. If donors intend to act consistently and support the mobilization of African efforts which they themselves recommend, in the medium term they will have to increase considerably the overall sums available.

To conclude, the immediate requirement for getting the campaign under way is that all concerned should (a) unequivocally endorse the priority given to desertification control and (b) set aside a specific percentage of existing allocations to enable the critical threshold to be reached and the operations to get under way.

In this mobilization of efforts the Community and its Member States obviously have a special responsibility by virtue of their importance as partners in cooperation with Africa; together, they account for more than half the aid it receives.

CHAPTER III - MOBILIZING EUROPEAN RESOURCES

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As conservation of the natural heritage in Africa has become one of the prime concerns of European cooperation policy, it is essential to work out the necessary sequence of operations. Here we consider:

- in the first place, funds administered by the Commission (Lomé III and budget resources);
- pooling of this money with funds from the Member States, as called for by the European Council;
- coordination with international bodies such as the World Bank, the FAO, IFAD, etc., and other donors.

3.1 Deploying the Community's resources

To tackle the problem of desertification in Africa the Community will be pooling all the available resources: Lomé III (under national indicative programmes and regional programmes), food aid, operations cofinanced with NGOs, financial protocols with Mediterranean countries, and special appropriations from the Community budget. The way in which the money is used will, of course, depend on the type of instrument concerned.

3.1.1 Resources from Lomé III

3.1.1.1 Stipulations of the Convention and initial results of programming

- One of the broad priorities of Lomé III is to halt all forms of damage to natural resources (see especially Articles 42 and 113 of the Convention), with particular reference to desertification.

- This has been incorporated more or less universally in the national indicative programmes drawn up to date, as a new dimension of the rural development programmes on which Community resources will be focusing. All of the 16 African countries having concluded a programme by December 1985 refer to desertification under one heading or another: objectives, focal sector, auxiliary measures by government or operation outside the focal sector; 12 also list it among priorities for regional cooperation (see Annex 2).

There is of course no indication as yet of precisely how this new dimension is to be given effect.

- A total of 1 000 million ECU is available for programming regionally; desertification control is explicitly mentioned as a priority and initial discussions have confirmed this, though actual programming has not yet taken place.

3.1.1.2 Implementation of national indicative programmes

- The first stage will be for each country or region to identify damage to natural resources and draw up comprehensive but operational plans of action based on the guidelines and priorities mentioned in Chapter I, adapted to take account of the specific local circumstances.

- The Community will work out with the countries concerned which of the guidelines and priorities its own operations should cover. As noted below, the new dimension will be reflected in two ways:

. Systematic incorporation in rural development projects and programmes of positive measures to protect the natural heritage. Agricultural projects will include soil conservation measures (hedge-planting, erosion control, introduction of methods of cultivation which preserve fertility, such as ploughing in of herbage and basic manuring, etc.). The same approach can be applied in the light of evaluations to modify current or past operations.
All this will add to the cost and complexity of operations, but that is the price we must pay to achieve the objective. It must be borne in mind when undertaking the economic analysis of projects: additional costs should be set against the ecological objective rather than the immediate growth target (i.e. the ratio of the extra cost to the additional effectiveness in terms of resource conservation).

. In addition, the priority given to specific measures to protect or reconstitute natural assets, such as reafforestation, erosion control or research programmes etc.

- If the new approach is to succeed minimum quantitative targets should be set, e.g. by deciding with each country that by the end of the Convention a certain percentage of the money should have been spent on measures directly related to conservation, including both the conservation "overheads" of productive projects and specific projects on afforestation, erosion control or applied research etc.

3.1.1.3 Regional programmes

- In deploying the regional funds the Community will identify and implement jointly with the countries concerned a set of genuinely regional conservation measures (a prime example is the protection of the natural "reservoir" in Guinea where the major West African rivers rise, and other examples are given in Chapter IV).

- It is also planned to use the regional money to multiply the effects of national operations. In the Sahel region and in western Africa generally the regional provisions of Lomé III offer a means of backing up and intensifying national efforts, not simply in financial terms but in terms of the arrangements to be made or decisions to be taken by individual countries in order to halt desertification on their own territory. It is clear that the more seriously a country undertakes the battle against desertification, the more it merits encouragement and support, since its contribution to a struggle of concern to the whole Sahelian and sub-Sahelian region will be that much greater - the same applies, of course, to other parts of Africa.

- Specifically, the Commission is proposing to invite planning ministers from the Sahel countries, where the threat of desertification is most severe, plus a number of coastal states also affected, to a meeting on the subject of environmental conservation involving appropriate operations at both national and regional level. The programme will be worked out in close cooperation with Member States and other interested donors.

- More generally, once discussions with national and regional authorities from other areas are far enough advanced sub-regional meetings will be held, first with Delegations and then with the national and/or regional authorities concerned, to lay the foundations for regional programming under Lomé III.

There will be a suitable emphasis on desertification control, in accordance with the priorities indicated by national authorities.

- As with the indicative programmes, it will be helpful in giving effect to priorities if we can agree with the countries concerned on minimum quantative targets, in the form of a percentage of regional resources, to be allocated to desertification control and environmental conservation and improvements in general (Article 113 of Lomé III).

3.1.2 Mediterranean financial protocols

The cooperation agreements with the southern Mediterranean countries acknowledge the importance of safeguarding agricultural and grazing resources, and a number of operations have been undertaken (e.g. studies and training schemes in Algeria, soil improvement programmes in Egypt).

The Council's negotiating directives for renewal of the financial protocols explicitly mention desertification control as a priority area for cooperation. It is of particular relevance in connection with the Community's desire to support cooperation measures involving several neighbouring Mediterranean or African countries, thus reflecting the regional scale of the problem.

It is too soon to pronounce on the exact scope of environmental programmes, which will depend on talks with the southern Mediterranean countries regarding implementation of the protocols. But a considerable proportion of the funds available under the protocols consist and will continue to consist of EIB loans, which are not suitable for specifically environmental operations; the grant component of the protocols is more appropriate for this purpose.

3.1.3 Food aid

Food aid can be used in environmental protection programmes in two ways:

- directly, in the form of allocations for "food for work" programmes (see §2.2.2.1.);

- indirectly, by use of the counterpart funds generated by structural food aid operations to finance certain local costs of conservation measures.

In countries where structural food aid is justifiable on general grounds the Community could undertake multiannual programmes, the scale of which would reflect the specific environmental protection objective. A proportion of the overall annual food allocations would be set aside for this, as is already the case for countries applying a food strategy.

3.1.4 Cofinancing with NGOs

NGO development projects in countries within Africa's semi-arid zones have traditionally accounted for an important share of Community-NGO cofinancings. The great majority of these projects relate to rural development in the broad sense, small-scale irrigation schemes, introduction of new methods of cultivation, reafforestation, environmental improvements and so on, including the provision of training to enable rural communities to assimilate and continue with the work. The NGOs' presence in the field has enabled them to appreciate the crucial importance of desertification control, and they have repeatedly indicated their willingness to contribute to coordinated measures on a wider scale in this connection.

The NGOs' approach, characterized by projects initiated in response to requests from their local partners who then undertake implementation and follow-up themselves, or with volunteer assistance, is particularly well-suited to operations whose lasting success will depend on long-term mobilization and involvement of local communities.

But if the full effectiveness of the NGOs' approach is to be safeguarded, care must be taken, in meshing their projects into a wider programme chiefly implemented by governments and international donors, to respect their independence and working methods and those of their partners. The Commission will be considering how NGOs and their local partners could best make a larger and more coordinated contribution to the implementation of specifically environmental measures.

3.1.5 Special budget headings

The Community continues to have access to budget appropriations specifically designated for measures consistent with the guidelines and priorities discussed in Chapter I, notably the following:

Art. 946: ecology in the developing countries

Over four years some 500 000 ECU has been spent on studies and information or training on ecological issues for national officials and NGOs. This is directly relevant to the campaign against desertification.

Arts. 933/947: cooperation with developing countries on energy

Some of the money has gone towards studies or other measures designed to reduce demand for fuelwood.

Art. 958: special programme to combat hunger in the world

40 million ECU have been spent under this heading on measures to control desertification, with particular emphasis on forestry work, erosion control, and comprehensive studies on the phenomenom of desertification. The operations under way are pilot schemes and should provide useful lessons for work in this field under Lomé III.

Once the regulation is finally approved a sizeable proportion of the 29 million ECU entered under this article for 1985 can be spent in the same way.

Art. 7330: Science and Technology for Development (programme administered by DG XII in liaison with DG VIII

The Community has allocated 30 million ECU to promotion of development-oriented agricultural research, mainly with a high technological content, in Europe, the aim being to establish close cooperation with research institutes in developing countries. The money has seeded additional contributions of around 100 million ECU from European research establishments.

Already 3.25 million ECU has been committed for research which will help in the fight against desertification: development of drought-tolerant food plants, selection of rapid-growing drought-resistant tree species, research into water resources and their management, development of semi-arid or arid land and more efficient use of natural pastures. The programme is currently being revised and extended with a view to Council approval in 1986. The new programme should:

1. include a section designed to strengthen developing countries' own research capabilities;
2. place more emphasis on applied research to be carried out in the field;
3. give priority to research topics related to desertification control.

Art. 967: operations to promote the implementation of an overall Mediterranean Policy and cooperation at the regional or sub-regional level

This entry in the draft 1986 Commission budget will be usable for desertification control measures; such operations are explicitly covered.

Art. 7328.8: Research Programme "Climate and Natural Disasters"

This Programme should have available ECU 17 M for the period 1986-1990. Although it is largely focussed on Europe, as far as the study of the impact of climatic factors is concerned, the Programme involves the study of the past and possible future trends of global climate. There will also be a chapter on the problems of desertification.

While it is not desirable that resources should be too widely scattered, these special budget headings will continue to be useful:

- as supplementary resources, they can be deployed on various long-term or innovatory policy directions which might not be picked up by impoverished countries with more pressing concerns in mind;
- they can provide a more organized, regular basis for involvement by European bodies in activities within their own field (e.g. research centres working on renewable forms of energy);
- the Commission sometimes needs greater flexibility than is offered by resources tied up in contractual agreements, to give it more scope for manoeuvre and initiative; in this connection it will be calling for an extension of Article 946 ("Ecology in the developing countries") to provide a simplified procedure under which it can call on top consultants, organize meetings and commission studies on specialist topics, perhaps involving countries outside the ACP group (e.g. further study of desertification by means of remote sensing).

3.1.6 Procedural and administrative factors

As well as providing funds, we need to adopt various procedural and administrative measures to translate concern for the environment into practical terms.[1]

3.1.6.1 The environmental "reflex"

In addition to setting financial targets, and in order to ensure that they are meaningful, the Community will need to make various administrative and procedural arrangements to see that the conservation factor is automatically incorporated in its development operations. One practical step has been to include "effect on the environment" in the check list for projects and programmes set out in the new Manual for preparation and appraisal of operations, providing guidance for recipient countries, consultancy firms and Commission officials preparing such projects or programmes.

This will serve as a reminder to those concerned:

(a) to consider any damage to the environment which might be caused by various types of project, particularly productive projects;

(b) to study positive measures to accompany implementation of the main project for the purpose of conservation.

3.1.6.2 Educating those involved in the project/programme "cycle"

To ensure that the environment "reflex" becomes built in, repeated information campaigns will be necessary to develop awareness of the importance of a goal which is liable to be quickly forgotten under pressure of day-to-day concerns. These campaigns need to reach everyone involved in programmes in Africa as well as Europe.

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[1] See also the communication of the Commission to the Council of 31 October 1984 "The Environmental dimension of the Community's development policy" (COM(84)605).

- Development organizations should be encouraged in the first instance to exchange notes on problems encountered and ways of overcoming them; the experience can then be applied in the field. This ongoing process of feedback and follow-up should be one of the prime responsibilities of international development bodies, which can use their geographically extensive experience to advise those working in the field.

  Consultancies, which are frequently called on to undertake feasibility studies, can play a particularly valuable part by translating guidelines and priorities into concrete measures; it is therefore especially important that they should be made aware through appropriate channels of the conservation factor.

- The real targets, however, are the people in the field, from the highest to the lowest government officials, grassroots groups and local NGOs. It will be essential to have appropriate educational materials (films, pamphlets etc.) for use with the lower echelons of the administration and the communities concerned. The informative and analytical material should be practical and specific to each individual area, so that villagers can identify with it.

3.1.6.3 Administrative improvements

To give effect to all these measures specialist units of experienced staff must be set up within the administrations concerned and given the means to continue studying desertification control, prepare and coordinate action, collect and disseminate information from around the world, and provide a flow of ideas and experience to those responsible for preparing and implementing projects and programmes; in short, to ensure cross-fertilization of ideas between organizations in this field. Most administrations, including the Commission, are still poorly-endowed in this respect; the staff available for this job needs to be strengthened to take account of the new tasks to be undertaken in this field.

Naturally, the central set-up needs its equivalent in the field, and we will be considering the desirability of specialist regional environmental advisers whose job would be to inform and advise Delegations on the issues concerned.

3.2 Member States resources and coordination of Community aid

The Community alone cannot hope to influence environmental protection policies. But by bringing in the Member States Europe can and must hope to exert a significant influence.

The Council of Europe has accordingly called for a joint approach to be developed along the following lines:

- Greater convergence between Member States' aid policies to ensure that an increased proportion is allocated to rural development, with particular reference in this context to protection of the environment; this is a prerequisite for reaching the necessary "critical mass".

- Jointly defined guidelines for sectoral operations relating to desertification control. This Communication is a step in that direction, but it needs to be followed up by consideration of proposed measures at a more practical level. In accordance with the approach adopted in other sectors, we should provide generously for meetings and exchanges of views between Member States' and Community experts so that experience can be shared and common approaches worked out. The meeting with Member States' forestry experts in April 1985 is an example of this process, and will be followed by similar meetings.

  There should also be regular meetings between those members of the special units in Member States' administrations and the Commission dealing with desertification; this would constitute a sort of steering committee (chaired by the Commission) which, on the Commission's initiative, could suggest and organize various appropriate activities.

- In the field there will be coordination on an ad hoc basis between those with significant responsibilities in a given country for environmental protection programmes. Commission Delegations, possibly assisted by regional advisers (see § 3.1.6.3) on the desertification problem, can help organize this open-ended "à la carte" coordination.

- The main thing, then, is not to establish rigid coordination procedures or a specialist task-force, but to find the political will for working together on a fluid, decentralized basis, in the implementation of a jointly-defined desertification control policy. This is the approach called for by the Milan European Council meeting in its conclusions on desertification. The Commission will therefore be taking whatever measures are suitable to carry out its role of organizer and motivator.

The flow-chart at Annex 3 indicates the general pattern of coordination.

- In view of the scale of the problem, it is clear that coordination should extend to embrace all multilateral or bilateral financing agencies involved in desertification control.

- Coordination among donors is all the more important in that the funds available to tackle desertification are hardly commensurate with the scale of the problem, and are often allocated mainly to short-term measures, this in a situation where overall ODA is becoming tighter. If the urgency and importance of desertification control is accepted, then in the longer run donors will undoubtedly have to increase the overall sums significantly.

- The Commission is ready to take an active and leading role in the struggle against desertification in the African countries which wish it to do so, initially in coordinating, under the guidance of the Governments concerned, the various sources of European aid, and subsequently by involving other interested donors and lenders.

CHAPTER IV - EXAMPLES OF SIGNIFICANT DESERTIFICATION CONTROL OPERATIONS

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To halt desertification will be a long, hard, complicated struggle, but the task is urgent if the damage is not to become irreversible. It is vital that the interest and efforts of all concerned - donors, governments and the population as a whole - be harnessed to the task.

In response to the psychological and political need to "raise consciousness" the Commission proposes, in addition to the patient, systematic work to be undertaken in each country, to highlight some examples of operations which convincingly demonstrate the comprehensive approach at sub-group level, and the concepts of geographical concentration, critical mass, grassroots participation and the regional approach.

Some of the operations have already been mentioned in the course of the Commission's coordination with the various ACP States concerned in preparation for the programming of Community aid under Lomé III; others came up in the course of major conferences on desertification, e.g. COMIDES in Dakar (1984 and 1985). They should be discussed further with the ACP States, in liaison with the Member States and other interested donors.

The examples in question are:

1. Development of the middle Senegal River Basin, including the woodland grazing areas of the immediate hinterland: this involves tree-planting schemes, management of surface and underground water resources and some intensification of livestock production over an area of 35 000 km^2 in all.

2. Protection of the north and east faces of the Fouta Djalon and Simandou ranges, natural "reservoirs" in which the main rivers of sudano-sahelian West Africa rise, including the Senegal, Faleme, Gambia, Rio Djeba, Niger and Sankarani. The approach here is to counter erosion due to rainfall by means of reafforestation, controlled grazing, and terraced crops etc., which should help regulate the flow of these increasingly torrential watercourses. The area of operations covers some 70 000 km^2.

3. Sudan's El Obeid region, in the heart of the Sahelian zone, which is coming under very severe pressure from communities driven from their traditional lands by drought. In order to improve conditions for them, a multiplicity of fairly small-scale schemes needs to be undertaken involving reafforestation, grazing land, and the economic management of what little surface or ground water is available. Operations will probably cover an area of 40 000 - 50 000 km^2.

4. Intensification of agriculture coupled with active erosion control measures in Ethiopia's Wollo and Godjam districts, involving reafforestation, small-scale water engineering schemes and improvement of catchment areas, all with extensive grassroots participation. Area: 35 000 km^2.

5. Development of Kagera with a view to settlement of rural overspill population (listed in Burundi's Lomé III indicative programme as a regional cooperation priority): 35 000 km^2.

6. Development of areas on the Zambia, Mozambique and Zimbabwe borders along the Zambesi valley aimed at reconciling conservation of their unique natural potential and the need to establish new settlements in some districts in order to receive migrants from overpopulated areas.

Simultaneously with these desertification control measures proper, it is important to continue with studies covering much wider geographic areas like the southern fringe of the Sahara, the Horn of Africa, Southern Africa or the Zaire-Nile Ridge, with the aim of analysing the different phenomena involved in desertification and their likely effect on agriculture, and attempting in particular to forecast availability of water from the major rivers.

Studies of this type, making extensive use of remote sensing, are already under way in West Africa; similar work needs to be done for the Horn and Central and Southern Africa.

An issue to be considered independently is the supply of energy to domestic and small industrial users in cities such as Lagos, Dakar and Kinshasa. At the moment this largely takes the form of fuelwood or charcoal. However rapidly forests near these cities can be developed or planted - and it is essential to press ahead with this work - consumption will continue at least for the next few decades to run well ahead of annual tree production, and this would be bound to lead eventually to the destruction of all tree cover in a radius of up to 200 km around the cities. The implications for urban and rural populations alike are most serious.

We should encourage the use of fossil fuels - oil, gas, and coal - even if they have to be imported, in order to relieve pressure on the local ecology caused by the massive demand for fuelwood (see § 1.2.2.1 (b)). The seriousness of this situation and the urgency of measures to counter it require action on a large scale to "insulate" energy supply/demand in cities and their hinterland.

ANNEXES

FORESTRY-RELATED OPERATIONS BY GEOGRAPHICAL AREA DEFINED IN TERMS OF MAIN ECOLOGICAL FACTORS

I. Major rain-fed agricultural areas of fairly high population density

(a) damaged areas:
- protection of catchment areas, control of erosion

(b) areas with potential:
- restoration of tree cover in cultivated areas
- establishment of protective hedgerows around fields (phase one) and plantations for fuelwood (phase two)
- windbreak alleys
- village plantations (multi-purpose woods)

All work to be integrated with farming activities and tackled by primary catchment area and locality.

II. Sparsely populated areas, predominantly of dry tropical forest, with adequate rainfall

(a) damaged areas: protection - national parks, reserves, prevention and control of bush fires

(b) areas with potential: intensification of agricultural output, integrated with forestry measures.

III. Densely populated urban areas

- restoration of wooded areas around cities
- management of forests to supply wood and charcoal
- more efficient production of charcoal from wood
- planting of trees in gardens, avenues, private lots in cities

Note: similar measures to be taken in secondary towns.

IV. Hilly, densely populated rural areas

(a) dense rural population, adequate rainfall
- measures to control river erosion
- rectification of thalwegs, protection of springs, primary catchment areas and banks, contouring
- restoration of tree and scrub cover
- prevention and control of bush fires

(b) inadequate or erratic rainfall
- control of river erosion, rectification or thalwegs, protection of springs, primary catchment areas and banks, contouring.

V. Areas with managed water resources (irrigation schemes, floodplains, boreholes, etc.)

(a) outlying protection of irrigated areas
- restoration of dry woodland

(b) immediate protection
- planting of windbreaks
- regeneration of natural floodplain forest
- village multi-purpose plantations
- industrial timber plantations
- dune fixing.

VI. Woodland grazing areas of low rainfall

- improvement of agropastoral land through more efficient tree management
- protection of natural regenerative processes
- protection of trees around semi-permanent watering-places
- dune fixing
- prevention and control of bush fires.

VII. Sparsely populated tropical rain forest

- establishment of reserves.

CONSERVATION AND DESERTIFICATION CONTROL IN LOME III

ANNEX 2

INDICATIVE PROGRAMMES - 16 AFRICAN COUNTRIES

SAHEL COUNTRIES

COUNTRY	STATUS OF OPERATIONS (component of focal sector, objective of cooperation etc.)	CHARACTERISTICS (principal measures contemplated, regional component)
MALI	Component of "focal sector" for Community aid: desertification control	. Reform of land tenure (to enable water resources to be developed) . Active grassroots participation . Regional cooperation priority
SENEGAL	Component of focal sector: desertification control	. Mobilization and efficient use of water resources (development plan, "pôles verts", village water supplies etc.) . Active grassroots participation . Regional cooperation priority
BURKINA FASO	Component of focal sector: integrated desertification control	. Regulatory measures; national desertification control plan; creation of national coordinating unit; establishment of nurseries . Efficient use of water resources . Regional cooperation priority
NIGER	Component of focal sector: desertification control; conservation and restoration of natural environment	. Desertification control and fuelwood substitution programme . "Pôles verts", village water supplies . Grassroots participation . EIB: study on use of lignite as substitute fuel . Regional cooperation priority
CAPE VERDE	Auxiliary measures by government: desertification control	. Soil conservation, reafforestation . Regional cooperation priority

SAHEL COUNTRIES (contd)

COUNTRY	STATUS OF OPERATIONS (component of focal sector, objective of cooperation etc.)	CHARACTERISTICS (principal measures contemplated, regional component)
CHAD	Component of focal sector: conservation of natural heritage Objective: protection of natural resources, desertification control	• Grassroots motivation • Back-up measures (legislation, regulatory measures, preventive action); financial and technical assistance • Regional cooperation priority

CENTRAL AFRICA
EAST AFRICA

COUNTRY	STATUS OF OPERATIONS (component of focal sector, objective of cooperation etc.)	CHARACTERISTICS (principal measures contemplated, regional component)
CENT. AF. REPUBLIC	Objective: conservation of natural heritage; soil conservation; desertification control	. Plan of action for worst-affected area . Grassroots training . Efficient use of plant and animal resources . Regional cooperation priority (protection of sources of the Chari)
BURUNDI	Objective: protection and conservation of land and forest resources	. Erosion control . Reafforestation . Regional cooperation priority (reafforestation of Kagera basin) OBK
TANZANIA	Auxiliary measure: control of erosion; protection of the environment	
RWANDA	Objective: protection and conservation of land and forest resources; protection of the environment	. arable farming/woodland grazing policy, protection of ecosystem and efficient use of natural resources (esp. wood)

SOUTHERN AFRICA

COUNTRY	STATUS OF OPERATIONS (component of focal sector, objective of cooperation etc.)	CHARACTERISTICS (principal measures contemplated, regional component)
ZIMBABWE	Objective: preservation of natural resources (water, soil, forests, livestock)	. Establishment of a nature conservation policy . Incorporation of ecology criterion in decisions on development projects . Regional cooperation priority
SWAZILAND	Auxiliary measures: protection and efficient use of natural resources (water, soil)	. Incorporation of conservation criterion in deciding on development operations
LESOTHO	Focal sector: development of natural resources (water, energy) Objective: control of soil erosion	. Grassroots consciousness-raising . Improved methods (management of water resources and grazing, control of livestock) . Reafforestation, soil conservation
MALAWI	Objective: preservation of natural resources (esp. forest)	. Incorporation of conservation croterion in deciding on development operations . Inventory of forestry resources . Soil conservation . Regional cooperation priority

SOUTHERN AFRICA (contd)

COUNTRY	STATUS OF OPERATIONS (component of focal sector, objective of cooperation etc.)	CHARACTERISTICS (principal measures contemplated, regional component)
BOTSWANA	Focal sector: development and conservation of natural resources (90% of Indicative Programme)	. Measures on water, soil and forestry resources, wildlife and livestock (research, natural parks, veterinary control of livestock etc.) . Incorporation of conservation criterion in deciding on development operations . Grassroots consciousness-raising, esp. on problem of overgrazing . Regional cooperation priority
ZAMBIA	Objective: conservation of the environment and natural resources	. Establishment of a national natural conservation strategy . Incorporation of conservation criterion in deciding on operations . Regional cooperation priority (soil, water, control of epidemic diseases)

ANNEX 3

Coordination of Community and bilateral European aid for desertification control (DC)