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FORESTRY FOR LOCAL COMMUNITY DEVELOPMENT

SECRETARIAT NOTE

Summary

In most of the developing countries the gap in general development, standard of living and social conditions between urban and industrial zones is widening. The richer regions become more and more wealthy, the poor regions poorer. This tendency leads on the one hand to an exaggerated exodus to the urban centres which exceeds the possibilities of these centres to absorb the manpower as well as to supply the newcomers with housing, utilities and social services. On the other hand, the living conditions in many rural areas as well as the ecological basis for food production deteriorate because of excessive use of the natural resources, destruction of vegetative cover, lack of fertilizers, and erosion by wind and water. In many arid and subarid regions the lack of fuel has reached an alarming stage. In some extreme cases the procurement of fuel to cook the food is more difficult and more expensive than the procurement of the food itself. As the poor rural population depends exclusively on local energy sources, not only forests, trees and scrub are disappearing and the soil is deprived of their protective influence, but also other organic matter, such as vegetable waste and animal dung is burned. The consequence is a lack of organic matter for fertilization and improvement of the agricultural soils and a further reduction of their production potential. The reasons for the unequal development are manifold, but a large part stems from insufficient investments in the rural areas and in many cases even a continuous capital drain from these regions toward the urban and industrial parts of the country. Present forest policy and use of forests as they are currently applied in most developing countries aim primarily at the mobilisation of the capital in mature or over-mature natural forests and in some cases at the building up of large industrial plantations of fast growing species as raw material for wood-based industries. The paper shows that this policy may well contribute to the overall development of the national economy but is not adequate to fight against the trend of further impoverishment of remote rural areas. A new dimension of forestry is therefore needed which can contribute to stabilizing the natural foundations of food production and to stop or even to reverse the impoverishment of rural areas. The so-called "Forestry for Local Community Development" implies a special type of forestry applied for, by or on behalf of a local community such as a village, a group of villages or a number of individual settlements. The objectives of the management of such forests are primarily the production of goods and services to cover the needs of the local community and their population. The inputs in this forestry are to come primarily from the local community itself and especially in the form of productive labour. The principles of forestry for local community development apply in the case where tree cover has partly or completely disappeared and has to be re-established by plantation as well as in the case where settlements are still surrounded by forests, hedges and isolated trees but where the objectives of the management and treatment of this

vegetation have to be defined in such a way as to meet the needs of the community as adequately as possible. Finally, it is underlined that the establishment and management of forests for local community development is not so much a technical as a psychological, institutional and political problem. But in view of the importance of an improvement of the situation in many backward regions in developing countries, forestry for local community development constitutes a challenge for a modern forest policy and much attention should be given to this type of forestry in many developing countries.

1. In most of the developing countries, the gap between urban and industrial zones on the one hand, and rural zones on the other hand, is widening, as far as general development, standard of living and social conditions are concerned. The richer regions become more and more wealthy, the poor regions, poorer. In many countries, relative under-development of rural areas has reached a dramatic stage. Rural exodus to the urban centres and ecological degradation of vast rural areas are some of the consequences of this trend. Both affect not only the populations directly involved but also the countries as a whole.

2. The excessive inequality of development in rural and urban regions has an impelling effect on the exodus to the urban centres. There is no doubt that in most of the developing countries, a further decrease in numbers working in agriculture is unavoidable and also necessary, but in many countries the actual rate of exodus exceeds by far the possibilities of the economy in the urban and industrial areas to absorb this manpower, as well as the capacity of the urban centres to supply these newcomers with housing, utilities and social services. This is a typical phenomenon in most developing countries and if over accentuated, will lead to dangerous political tensions, social disturbance and inhuman living conditions. There is no question that the number of jobs has to be urgently increased by industrialisation; however, national development plans should aim at an equilibrium between the number of new jobs in the urban and the industrialised regions and the number of people migrating from rural areas to the urban centres. This equilibrium is presently upset in many countries due to the inequality of development in rural and urban regions.

3. Even more dramatic is in many cases the ecological degradation of the under-developed rural regions and its impact on the natural resources and the potential of the land to produce food and commodities in the future. To give just a few examples :

4. The fast-growing population in all developing countries combined with a slow increase or in some regions even a decrease in food production per unit of land, leads to an increasing alienation of forest lands to permanent and/or shifting agriculture. Alone in Continental, South-East and South Asia, about 8 million hectares are cleared annually by shifting cultivators, and the total area involved in shifting agriculture is deemed to be as high as 103 million hectares for the whole region.

5. In addition to the land for food production there are increasing requirements for fuelwood and small-size timber, for daily use by the rural population. Continental and insular South-East and South Asia have at present an annual consumption of 400 million m³ of wood. Fuelwood represents about 30 per cent of this figure. But the 320 million m³ of fuelwood only cover part of the requirements. In addition to fuelwood, a large amount of vegetable waste and cow dung is used. For South Asia alone (Pakistan, India, Bangladesh and Sri Lanka), the organic matter burnt in the form of vegetable waste and cow dung is equivalent to 475 million m³ of fuelwood. This organic matter is lacking for fertilization and improvement of the agricultural soils where the lack of humus and nutrient elements is the limiting factor for increased food production. The requirements for fuel are growing in the whole South-East and South Asia region by about 20 million m³ fuelwood equivalent per year. In terms of forest area to be cut, the aggregate requirements of fuelwood necessitate an annual clearing of nearly 4 million hectares of forest.

6. In some regions, especially in arid and subarid climates, fuelwood and charcoal are lacking to such an extent that the quantitative and qualitative standard of nutrition of the population is endangered. In some cases the availability of food is not so much a problem as the fuel with which to cook it. The costs of petrol, coal or gas are beyond the possibilities of the rural population and so they have to rely on fuelwood and charcoal. It is reported that in some countries up to 30 per cent of the family income has to be spent on this commodity. The treeless land around cities and villages is continuously expanding. Firewood has to be obtained, if at all, far away from inhabited areas. In other cases, the people have to use more and more grass and litter as fuel, thus further exposing the soil to destructive agents.

7. One of the direct effects of soil degradation and destruction of the vegetative cover is erosion by wind and water. India reports that 50 per cent of her total land area is seriously affected by water and wind erosion and that displacing of fertile top soil is estimated to be around 6 000 million tons a year. In Pakistan erosion affects 76 per cent of the total land area. Nepal is perhaps one of the most dramatic cases of its kind in Asia. In many parts of Nepal the forests have been cleared up to 2 000 m. Slopes of 100 per cent are under cultivation. Huge landslides occur during periods of continuous rain. Landslides that destroy lives, humus and crops occur more and more frequently throughout the Nepalese hills because ground-holding trees are disappearing fast. Currently the washing away of top soil is a threat to agricultural productivity in the remaining fields. Similar landscapes, perhaps to some extent less pronounced, can be found everywhere in the hilly areas in other parts of the world.

8. The erosion of agricultural soils has its counterpart in increasing siltation of rivers and water reservoirs. Thus the river bed of the Nepalese Terai is rising between 15 to 30 cms a year. This rising of river beds, which occurs because of accelerated soil erosion, is a major cause of the more frequent and dangerous floods in all regions. But sedimentation also causes loss of reservoir water storage capacity. The Mangla reservoir receives every year 100 million tons of sediment, of which the Jhelum river, due to indiscriminate felling and burning of the forest in the catchment area, contributes 81 per cent. The Mangla reservoir was built to last 100 years or more. Sediment measurement after a few years of operation indicates that most of the reservoir's capacity will have gone in 50 to 75 years. Some of the water reservoirs in India lose 2 per cent annually of their capacity. The Ambuklao reservoir in the Philippines will only be useful for 32 years, whereas at the time of construction, a lifespan of 62 years was calculated. The difference is due to increasing erosion of the upper Agno river. The Meiktila lake in Burma is a most successful irrigation work constructed over 900 years ago by the Burmese kings. It remained substantially unaltered up to the turn of this century. Now the lake is beginning to silt up. Its northern part was waterless by the 1950s and the area which can be irrigated with the water of the lake has decreased from 20 000 hectares in 1926-27 to 11 000 hectares in 1951-52. The ancient Burmese knew that densely afforested areas supplied ample sub-soil water to feed the rivers and prevent erosion. So they prohibited any cutting of jungle and clearing of land for any purposes within two miles of the bank of a stream in the catchment area. Now demographic pressure has the last word and the country's wisdom has yielded to land hunger.

9. Wind and water erosion increase the area of wasteland at the expense of the agricultural land. The ratio of waste versus arable land is about 20 per cent in India, 38 per cent in the Nepalese eastern hills and 65 per cent in the Indonesian district of Gunung Kidul. In addition to physical erosion, chemical erosion results in leaching and subsequent modification of soil structure occurs. With the disappearance of tree cover, the nutrient cycle is disrupted and the beneficial action of the tree root action lost. Moreover, the disappearance of trees which act as windbreaks or shelterbelts affects the yield of agricultural crops.

10. Similar examples can be found in many other regions of the world. To maintain and increase food production at a sufficient level, it is however essential that the natural foundation of agricultural and livestock production be well conserved. The disruption of the ecological environment which very often is the consequence of the impoverishment of the rural areas has to be seen as the most serious threat to agricultural production in many parts of the world. It is therefore essential to stop this process of deterioration, to restore the ecological equilibrium between man and land, and to avoid any further destructive action on those lands which are still not so much affected. Better land use systems aiming at diversified production of foods and non-food crops, have to be implemented through a multi-disciplinary approach on a nation-wide scale with the cooperation of the large mass of rural population.

11. The reasons for the relative and in many cases even absolute impoverishment of the remote rural areas are manifold. High birth rates can lead to a population growth which

exceeds the ecological bearing capacity of a given region. In this case only migration to other regions or the provision of food and fuel from outside can alleviate the situation, at least temporarily.

12. The main reason lies, however, in the inherent laws of economics and the problem of disparity of development in rural zones compared to urban and industrialised zones in one and the same country is not confined to developing countries. The same trend exists also in highly developed countries. As the internal rates of return are generally higher in industry, trade, crafts and building in urban zones than in rural zones and forestry, there is an understandable tendency to give preference to investments in the more developed parts of a country, because in the interests of fast overall growth of national economy and average per capita income, the capital allocations are made according to maximum efficiency.

13. The adoption of the principle of most efficient capital allocation without corrective measures in favour of under-developed remote areas leads not only to a lack of new investment in rural areas but even a continuous capital drain from rural to urban zones, and rural producers and their communities are often forced to live off their assets so that their rural production capital is gradually swallowed up (soil degradation by over-utilization, lack of fertilization, wind and water erosion; destruction of vegetation cover by over-grazing and collection of fuel; over-cutting and destruction of forest resources; utilisation of manure as fuel; depletion of existing infrastructure, etc.). This capital drain contributes to the increasing wealth of the more highly developed areas and the ever-increasing poverty of the rural areas.

14. The relative under-development and impoverishment of rural areas is detrimental to the country as a whole and should be stopped or even reversed, not only in view of social justice but also in the interests of a balanced, long-term development of a country. The tools are better education and training of the people in these regions, building up of an adequate institutional framework to encourage active participation of the population in the development process, technical assistance and advice through rural extension services and special measures of economic policy by the state.

15. Forest policy is one of the means by which the state can influence regional development. The actual forest policy of most of the developing countries is conceived mainly to support the general economic development of the country and not so much to contribute to a more balanced development of rural and industrial areas within the country. In fact, the main lines of forest policy in most countries aim to mobilize capital which is immobilised in mature and over-mature natural forests and to make this capital available for investment in other sections of the national economy with higher returns and a high impact on the general development. In many cases, especially as long as timber is exported in the form of unprocessed logs, the gain on this capital conversion for the national economy is however very small. With underpaid labour and insufficient yields from stumps, cheap timber is produced for the world market and the ensuing added values go to the benefit of foreign entrepreneurs, maritime companies and industries in the developed countries.

16. In other cases, where an export-oriented wood-based industry has been built up, the situation is no doubt more favourable for the national economy as a whole. But as these industries are often not located in forestry areas but close to the export outlets, or in the industrial zones, they do not contribute to the development of rural areas. In many cases these forestry activities contribute even to the disparity of development in rural areas. The revenue from the often too low stumpage rates is generally not invested in the region where it originates, but in urban zones. Vast potential resources of secondary species and much small dimension timber of valuable wood species are destroyed during harvesting or later by cultivators invading the logged areas. In this way much capital which could be used in the future is annihilated and the future production potential seriously compromised. The value of destroyed production capital may even exceed the value of the harvested timber. The permanent infrastructure built up by the entrepreneurs in the forest area is minimal since it is not conceived in view of a long-term general

development of the region concerned. The low local wages and low stumpage rates make for high rates of return in processing. But these rates of return accrue to the already more developed areas of the country or to foreign investors and not to the local population. All these tendencies thus contribute to the further capital drain from remote rural areas and disparity of development.

17. The establishment of new plantations of fast-growing species as a source of raw material for wood-based industries implies investment in rural areas and utilization and payment of local labour for planting, tending and exploitation of these plantations. But also here in many cases, the major effects are in favour of the more developed regions of the countries as the low wages in the backward regions make it possible to produce relatively cheap timber which strengthens the economy of the processing industry in the developed areas, and enables them to realise higher rates of return and at the same time, to pay their workers higher rates than those paid to the workers in the timber-producing area, which also contributes to the unequal regional development.

18. It cannot be questioned that the present forest and timber policy adopted by most of the developing countries leads to a certain mobilisation of capital which can be made available for the general development of the country. The capital conversion is, however, not very efficient as it is bound to result in heavy losses and prejudices for the potential of future production in the exploited areas. The contribution of forestry and forest industries to the development of the under-developed rural areas is therefore marginal. On the contrary, in most areas it contributes to the widening of the gap between the urban and rural areas and the increasing disparity in the growth of development within various regions of the country.

19. To improve the situation in the under-developed rural areas, a new dimension of forestry is therefore needed which can contribute to stabilising the natural foundations of food production and to stop or even reverse the impoverishment of rural areas. This forestry is fundamentally different from the forestry applied to the management and exploitation of large natural forests owned by the state or industry, as well as the establishment, management and exploitation of extensive industrial plantations of fast-growing species. Both of these two types of forestry have their role to play in a national economy by producing large quantities of timber as raw material for industry and crafts and by rendering services (environmental effects, protection, recreation), as well as to produce income for the state and the forest owner. Big efforts are needed in developing and also many developed countries to improve these types of forestry and to increase the contribution of forestry and forest industries to the well-being and further development of the countries as a whole.

20. But parallel to these well conceived and established types of forestry, a special type of forestry has to be developed and applied which aims at improving the general biological, social and economic situation of the rural regions and rural communities. Forestry for Local Community Development implies a special type of forestry applied for, by or on behalf of a local community such as a village, a group of villages, or a certain number of individual settlements. The objectives of management of such forests are primarily the production of goods and services to cover the needs of the local community and their population. The inputs in this forestry are to come primarily from the local community itself.

21. The kinds of goods and services to be produced by the forest and their relative priority have to be identified case by case on the basis of the ecological possibilities of the region and the specific requirements of the people in the community such as :

- firewood, poles and other timber needed by the local households and farms;
- fodder, or provision of communal grazing for the local livestock;
- minor forest products for direct consumption or further processing and marketing by the local population;

- timber and other raw material for local craftsmen and small-size cottage industries, the products of which are needed by the local population (sawn timber, treatment of poles, fences, tools, furniture, household goods, "tasar" silk, gum, etc.), or can be marketed outside the community;
- the protection of local land and pasture from erosion by wind and water;
- improvement of soils and food crop growing conditions in agri-silvicultural systems;
- shelter for livestock;
- protection of springs and water reservoirs;
- amenities and recreation for the local population.

22. This type of forestry is by no means a new invention. Many rural communities in the developed countries of to-day have practised it. Perhaps the most impressive examples existed in the Alps where the need for these goods and services was more accentuated and more felt, and where nature forced people more than in easier environments to cooperate within a strong community, and use over centuries trees and forests in a way which nowadays can serve as an example for many other regions of the world where to-day similar problems and conditions are becoming more and more pressing.

23. The principles of forestry for local community development apply in the case where tree cover has partly or completely disappeared and has to be re-established by plantation as well as in the case where settlements are still surrounded by forests, hedges and isolated trees but where the objectives of the management and treatment of this vegetation have to be defined in such a way as to meet the needs of the community as adequately as possible.

24. It is not the place here to describe all the different goods and services with which forestry can contribute to the prosperity of rural communities. But it is important to note that this contribution may lie well outside the range of products which normally are regarded as conventional major and minor forest products, and that all of them can be produced in addition to the beneficial biological and environmental effects of perennial plants and forests on agriculture and stock-raising. Only a few examples may be used to illustrate the many possibilities.

25. Forests and trees can contribute directly to the food supply of the population and even produce edible cash crops such as mushrooms, chestnuts, walnuts, pine kernels, which, for example, have increased the foreign exchange earnings of several Asian countries. In Japan bamboo is cultivated intensively for shoot production. Over a total area of about 170 000 hectares, an average production of about 500 kgs of shoots, in addition to about 2 tons of culms, is produced annually. The list of tubers, fruits and leaves which have been or could be produced as food for local people is extensive. Honey collecting and bush meat of all kinds provide supplementary food sources from the forests. Fish production in swamps or mangrove forests is an important protein source. Mangroves and swamp forests offer a most valuable protective habitat to fish.

26. Even more important are the potentials of agri-silviculture. This technique might be defined as a method of raising forest crops in combination with agricultural crops on the same surface. Agri-silviculture can be applied on small holdings. The best combination of perennial trees and short term crops or of trees and fodder for livestock depends on the ecological situation and the nutritional habits of the population. The combination of trees and annual crops, at least for some years before the tree canopy is closed, allows for the maximum protection of the soil, especially in the humid tropics, and improves the growing conditions for the trees as well as for food crops. The trees can be used in short rotations for fuel, for timber or for fodder. After their exploitation a new cycle of combined agriculture and tree production starts, favoured by the soil improvement due to the fallow period under the growing trees.

27. Another interesting example of non conventional utilisation of trees in combination with agriculture is the growing of budworms for wild silk (tasar silk) production. A lot of research has been done in this field in recent years which proves that there exists an important potential in different forest tree species for the production of silk which may form the basis for local cottage industries and offer supplementary labour opportunities and income for the members of the community.

28. The inputs in this forestry for local community development have to be provided as far as possible by the local community itself, mainly in the form of productive labour. One of the main problems of the backward rural areas is the fact that the local labour force is often partly unemployed and partly working at very low productivity rate, and therefore their contribution to the formation of capital is minimum or even under certain circumstances negative, in that consumption is higher than production. When this unexploited or unproductive manpower is successfully harnessed for the improvement of the infrastructure and local production, then a really positive contribution is made to the development of the region. As long as there is unemployed or only partially employed manpower which is generally the case in these regions, the principal aim must be to use this manpower for productive work, even if the productivity of the adopted working methods is relatively low. The benefit for the local community is nevertheless greater than if mechanised methods are employed to obtain higher productivity, since considerable portions of expenditure would go to the payment of outside specialists, for the costs of machinery, fuel, etc., which means that money is going again to the more highly developed parts of the economy or even abroad and does not contribute to the strengthening of the local economy.

29. This labour input implies, however, a long-term investment which does not give immediate returns and does not yield directly even the amounts needed to pay for the initial work input. These obstacles can be overcome through convincing the people that these activities are in their own long-term interests, and by exercising suitable political motivation or moral pressure through the local community itself. An example of political motivation is the enormous achievement in the field of infrastructure of the Chinese communes; an example of moral pressure are the compulsory tasks, which have been carried out gratuitously by members of European agricultural communities in the management of community forests, torrent control and improvement of pastures in the Alpine areas, etc. In the age of economy based exclusively on monetary values, and the poorly developed social structures existing in many rural areas of developing countries, (after the destruction of the previous rigid social structures), it is probably not feasible to eliminate money as an incentive for payment of work executed in the interests of the community. As the community itself often does not have any funds or cash income, outside assistance is needed for the procurement of this money, at least as an initial attraction. Once the initial phase has been passed, the higher returns and the lower losses to the local economy enable further improvements to be carried out through self-financing as long as it is ensured that these increased revenues do not fall victim again to the capital drain and flow out of the region.

30. The establishment and management of forests for local community development is not so much a technical as a psychological, institutional and political problem. The full cooperation and support of the local population and their authorities is a *sine qua non* condition. On the other hand, this type of forestry can contribute considerably to the development and maintenance of a feeling of responsibility on a local basis which is the most important pre-requisite for rural development. The implementation of forestry for local community development requires therefore a great deal of education but local forestry itself has considerable educative value for the rural population and their constitutional leaders. In view of the importance of an improvement of the situation in many backward regions in developing countries, forestry for local community development constitutes a challenge for a modern forest policy and much attention should be given to this type of forestry in many developing countries.

31. COFO may wish to discuss the different aspects set out in this paper and especially give its views on the possibilities and limitations of a forest policy aimed at strengthening the contribution of forestry to local community development.