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Environmental impact of the CAP**

C.T. de WIT*

1. Environmental problems

Some thirty years ago there was considerable doubt as to whether sufficient food could be grown in the EC to meet the increasing demand, so that food security and farmer's income were much higher on the priority list of the god-fathers of the Common Agricultural Policy (CAP) than prices and market equilibrium. However, since then, technological development has continued at such a rate that this policy has become a victim of its own success, resulting in the much-discussed economic problems of market saturation, overproduction and the overloaded EC budget, social problems resulting from decreasing employment and the increasing marginalisation of less-endowed agricultural regions.

Changes in farm management and techniques also had a major impact on the EC environment, if only for the reason that two-thirds of the land is used for agricultural purposes. Some major problems under discussion are (Tracy, 1985):

- problems stemming from the use of chemicals in agriculture. These relate to the pollution of the environment in general and the ground and surface waters in particular, by minerals, nitrogen and biocides. The results are damage to flora and fauna and health hazards;
- problems stemming from intensive live-stock farming, i.e. the conditions in which animals are housed and treated, the stench created in the vicinity and the emission of ammonia into the atmosphere which may contribute significantly to air pollution. A major problem in certain regions is also the over-production of animal wastes and its subsequent dumping in too large quantities on too small areas;
- problems arising from large-scale farming and structural changes such as drainage, the re-alignment of ditches, the building and metalling of rural roads, and land improvement. The result is change in cherished historical landscape, a loss of diversity and, again, damage to flora and fauna;

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** This paper is an amended version of a paper presented at the 4th European Ecology Symposium in September 1986 in Wageningen (De Wit, 1987).

- problems arising from marginalisation, such as loss of infrastructure, abandonment of land, over-exploitation and chemical and physical soil erosion. Some problems occur especially in the agriculturally well-endowed regions in Europe and arise, as it were, from affluence, but the last-mentioned problem complex manifests itself especially in agriculturally less-endowed regions in Europe and is much more closely associated with poverty.

It is considered that a downward adjustment of support prices is necessary to alleviate part of the economic problems. Without further policy measures, such a downward adjustment of prices will undoubtedly lead to a downward adjustment of the production volume of price-supported crops by further marginalisation of agriculture in many less-endowed regions and by reducing their fraction in the crop rotation in regions where agriculture continues to be practiced. On the other hand, prices are likely to be maintained on such a level that the EC will be at least self-sufficient for the main agricultural products that can be grown within its borders. Therefore agriculture in the EC will remain a major user of land. The environmental consequences of any change in agricultural policy depends, then, to a large extent, on the development of the yields per unit surface under the combined influence of price reduction and the continuing increase of technical know how. In the case of decreasing yields, agriculture in lesser-endowed regions is strengthened because its products are needed, but in the case of increasing yields there will be a further marginalisation of many agricultural regions in Europe.

2. Why yields continue to increase

Meester and Strijker (1985) and Strijker (1982) analysed the dynamics of soil productivity since 1950 in over a hundred agricultural districts of the nine states of the EC. The productivity of labour and soils, and with that the production costs, differ widely throughout these districts. However, in spite of this, they found that the rate of yield increase per hectare did not vary systematically with this yield level, although the latter varied by a factor of about four over place and time. It appeared also that, even in countries like the Netherlands and Denmark with a very high yield level, this increase was maintained over time. An explanation for this remarkable autonomous phenomenon is that yield increases due to technical advance may often require more of some inputs per unit area, but, at the same time, require less of most inputs per unit product. Innovations that lead to yield increases are therefore advantageous under most economic regimes and price structures, provided that the crop can be grown economically.

By definition, less inputs per unit product are needed in case of fixed inputs like soil preparation. Surprisingly perhaps, there appear to be a number of so-called fixed inputs that are not fixed at all, but decrease with increasing yield potential. A more than fifty year old example is that the optimum acidity of the

soil decreases with increasing yield level, so that at low yields a higher pH and therefore more lime is necessary than at higher yields. (e.g. Van der Paauw, 1939). This phenomenon was at that time referred to as a shift of the optimum of the production function to the left to contrast with the conventional wisdom that the optimum shifts to the right, because higher yields need relatively more inputs. Other examples of the same phenomenon are the lesser number of plants that are needed under high yielding conditions and the better ecological control of weeds when the crops grow well.

The law of diminishing returns is in general used to argue the more than proportional need for nitrogen with increasing yield. This is fair enough when nitrogen is applied in increasing amounts and the other growing conditions are maintained at the same level, as in mono-factorial experiments. However, the question is the other way round: what are the increased nitrogen needs in situations where the yield is higher due to other improvements, such as better control of water or the use of improved varieties.

The problem was considered by Hoogerkamp and Woldring (1965) on the basis of the results of a large experiment with grass and arable crops on the control of ground water on river basin soil. It appeared that the efficiency of nitrogen use increased, both in the situation where the optimum is approached from the wet side and from the dry side. Nielsen (1963) studied the growth of rye grass at two irrigation levels and found that under optimal water supply not only are yields higher, but also more dry matter was produced for each kg of nitrogen that was taken up by the crop. In the case of wheat, it was shown by Sieben (1974) that under optimal water conditions, both the base uptake was increased by a factor of two and the fraction of nitrogen that is recovered from the fertiliser from 0.43 to 0.75 compared with less controlled conditions. This increased efficiency under better controlled conditions appears to be due to lower nitrogen losses by evaporation, denitrification and leaching, alone or in combination.

Modern varieties may give only slightly higher yields than traditional varieties under poor fertility conditions, but they have a much higher response to fertilisers, especially nitrogen (CGIAR, 1985). Apart from the better control of lodging this is because modern varieties require considerably less nitrogen per unit grain yield than traditional varieties, but take up nitrogen at least as efficiently (e.g. Sanchez *et al.*, 1973). This increased efficiency is a general phenomenon because it is directly related to the much better grain to straw ratio's of modern varieties compared with traditional ones.

Although energy accounting has many pitfalls, it is popular to compare widely different agricultural production systems on the basis of their input and output of energy. The labour is then accounted for as the energy that is needed for its maintenance. This concerns mainly food and firewood in low input agriculture under subsistence farming, but in case of high input agriculture in affluent societies, it concerns the energy that is needed to maintain the high standard of living. On this basis, it was found by Pimentel (1984) that the energy efficiency

(output/input) was only 0.75 for Mexican farms with only human labour or with human labour supported by oxen; about 1 for the American corn farm with human labour supported by horses and with 150 kg. N/ha as fertiliser; and 2.14 for the modern mechanised American farm with 150 kg. N/ha as fertiliser. Hence, only the modern, mechanised farm appeared to have a positive energy balance. This seems contrary to former calculations, but in those the large energy consumption in the form of firewood was too often neglected. As for the Netherlands, the yield of wheat increased from about 3,500 kg./ha in 1950 to 5,000 kg./ha in 1970, whereas the efficiency of the direct plus indirect use of fossile energy stayed the same at 145 kg. seed/GJ, in spite of the about three-fold increase in labour productivity during the same period, because of increased mechanisation (De Wit, 1979).

Although it will be always possible to find exceptions, there appears to be sufficient evidence to support the following working rule: the agricultural production process is not very well understood and is therefore difficult to manage under low-yielding situations where many and partly unknown factors interfere, whereas under high-yielding conditions, growth is better controlled and understood, so that inputs may be much better timed and adjusted to demand. Accordingly, although more inputs may be needed per unit surface, less are needed per unit product. Hence, where a crop can be grown economically, the yields per hectare continue to increase, independent of major differences in productivity of labour and land, prices and production costs, up to potential levels governed by climate, soil and level of reclamation. Whether further structural improvements are worthwhile, often depends not so much on their effect on the potential yield level, but on the productivity of labour and machinery.

A detailed, comparative analysis of the possibilities for production increase in the various agricultural regions of the European countries is not available. However, an analysis in a more world-wide context (Buringh *et al.*, 1975) has shown that in all parts of Europe, even without large-scale reclamations, there is still considerable leeway for further increases of the soil productivity and that the knowledge base to do so is already available.

In the case of animals, each additional kg of produce may require a proportional addition of food, but the maintenance costs per unit output of the animal itself and the costs of breeding replacement stock decrease with increasing milk production per animal (Spedding, 1979). Hence it holds as well that yields per animal continue to increase, wherever animal production is economically feasible. A recent example is the contemplated use of natural hormones, which promises yield increases per animal of about 20% and therefore considerably less maintenance costs per unit product.

3. Consequences of continuing yield increases

The consequences of continuing yield increases per hectare are large, as may be illustrated by a simple calculation. The yields in Europe appear to increase with

an average rate of roughly 70 kg grain equivalents per hectare per year. This increase in all regions that remain in production has to be balanced by forcing in some way or another land out of production or into other uses. If these are soils with the average yield of about 4,000 kg grain equivalents per hectare, this amounts to 1.75% per year or 25% before the year 2000. Without taking into account the existing overproduction, this equals about 20 million hectares in the Europe of the twelve countries.

However, the 30% of the agricultural land that is found in the less-well-endowed regions yields only about 10% of the total production. If this low-yielding land is mainly taken out of production, the affected area is almost doubled. On the other hand, 10% of the land in well-endowed regions produce 30% of the production, and this may be an argument to shift the burden of production control in that direction.

Even a bird's eye view of Europe reveals that the better- and less-endowed regions are unevenly distributed between the countries of the EC. Any adjustment of agricultural demand and supply by drastic downward price adaptation will therefore get entangled in the political discussion of where and how to take land out of regular production while maintaining sufficient economic equity between countries and regions, and environmental integrity in less-endowed regions.

Another possibility for adjusting production to demand is the use of production quotas for price-supported commodities. This does not present a fundamental break with existing policies. Therefore fundamental conflicts between member states with weak and strong agricultural sectors can be avoided for some time. However, the existence of quotas would not affect the continuing rise in yield per hectare and corresponding fall in cost price, so that the quota will be cultivated on a decreasing area. The surplus area would then become available for the cultivation of crops not subject to quantitative restrictions. Once again, this would be done most economically in the central regions. Unless quotas would be imposed also on these crops, their production would cease in marginal areas, taking the protected crops in their train. But even an extension of the quota system to all agricultural produce would not prevent production increases per hectare, so that also in this way, the Community becomes in due course entangled in the political discussion of where and how to take land out of regular production.

The environmental consequences of these continuing yield increases per hectare are not straightforward. On the one hand, fewer inputs are needed per unit product, so that with a given total production, fewer inputs are wasted, less land is needed for agriculture and more land can be returned to nature. On the other hand, the total amount of inputs per unit surface of land that remains in production continue to increase and this may very well overburden the environment. Also, it is often difficult and expensive to guide the ecological development on abandoned agricultural land in an acceptable direction.

4. Towards more market conformity and solidarity

Thus, there are no simple policies to alleviate the agricultural problems, because several aims have to be served in order to be workable and acceptable for all member states. Apart from traditional goals of production and income, these are:

- restoration and maintainance of an equilibrium between supply and demand under conditions of rising agricultural productivity and saturation of demand;
- substantial contribution to a reduction in geographical disparities in prosperity and growth prospects;
- maintenance of agriculture in less-endowed regions in order to preserve the landscape and to contribute to nature conservation;
- releasing of the EC budget and the recognition of the demand for lower prices by the consumer.

If the price instrument is directed towards a better adjustment of supply and demand, a large drain on the Community budget is eliminated and consumer demands are met. However, the price to be paid in the less densely populated and economically backward rural areas of the EC would be too large. There it would be impossible to maintain the level of agricultural activity necessary for the continued viability of centres of population and for the preservation of the landscape and the natural environment. The abandonment of the policy of income supporting prices as an instrument for the maintainance of agriculture in less-endowed regions has therefore to be compensated for by other measures. These may be much more effective and cheaper than non-discriminating price supports because they permit a greater differentiation in income and regional development potential. The present policy of price support works to the advantage of the large farmer with high yields, to qualify as an equitable instrument of income redistribution.

An inevitable consequence of a more market-oriented agricultural price policy coupled with structural support for marginal agricultural regions is that the burden for the restoration of the CAP comes to bear mainly on the economically strong regions. This is fair enough, since these regions are going to profit most directly from the future potential of the common European market.

5. Well-endowed regions

The well-endowed regions in Europe, both agricultural and otherwise, are for a large part located around the axis London-Milan in East Anglia, Denmark, the Netherlands, the Paris Basin, the central and North Western regions of the German Federal Republic and the Po Valley of Italy.

Price reduction for farmers in these well-endowed regions of Europe can be justified because the level of support is geared to a considerable extent towards the needs of small farmers in less-endowed regions. On the other hand, the

farmers in well-endowed regions base their operations and investments on the present intervention prices, so that sudden decreases would confront them with problems. A gradual decrease means, however, that the existing quota arrangements, such as those for milk and sugar, would need to be continued for quite some time. This will impose a major burden on the decision-making capacity of the Community. For milk, a gradual reduction in the quota, together with a lowering of the intervention prices, would clear the way for the quota system to be replaced by a temporary system of socially-oriented income support for small farmers.

For cereals, the transition to lower prices could perhaps be cushioned by co-responsibility levies. These have the advantage that they keep intact the transfer of money from the consumer to the agricultural sector. In practice, these levies might take the form of a regionally differentiated levy per hectare cultivated with cereals. Another option is to confine such a levy to the grain brought on the market to stimulate forms of mixed farming in the cereal-producing areas of the Community. This would then be at the expense of intensive livestock farming in the Netherlands, Belgium and parts of the German Federal Republic. Here restraints are needed anyhow, because the overproduction and dumping of animal wastes has unacceptable environmental consequences.

The proceeds of co-responsibility levies on surplus products should not be used to promote their export against rock-bottom prices, but to prevent their production. With additional money from other EC sources (see later), such proceeds could be channelled to a diversification fund to promote the growth of crops that do not contribute to overproduction. A main drawback of the present support system is that it discourages the farmer to grow a wider variety of crops and the research establishment to work on the improvement of alternative crops.

The advantage of using land for other crops is that it may relieve the crop rotation problems that occur in many regions. These can hardly be overestimated. The present narrow crop rotations invite management practices that damage the soil structure and lead to the build up of pests, diseases and weeds. These are often chemically controlled, which in turn create serious risks for the environment and public health. For instance, the control of nematodes in potatoes accounts for more than half of all pesticides used in the Netherlands and the growing problem of rhizomania in sugarbeets at present can only be avoided by not growing the crop at all on infested soils.

Other crops might include green manures, fodder crops, fibre and oil crops, beans and peas, vegetable crops, fruits, nuts, and industrial and pharmaceutical crops. The cultivation of energy crops on a commercial scale has proved to be unattractive in the foreseeable future, but with a view of avoiding the high taxes and excises on energy, farmers could perhaps do more about generating their own energy requirements.

It is doubtful whether any of the crops that are available at present will play such a dominant role, that the surplus problem of 20 million hectares will be

resolved by the year 2000. It remains necessary, therefore, to find ways and means to take land out of permanent production in well-endowed regions. Economic wisdom has it that lower commodity prices lead sooner or later to lower land rents and prices. This should be of some help. However, it is difficult to generalise, since in some countries and regions, these lower prices have been materialised already, whereas in other regions, the demand for land may remain high for some time to come because production rights are attached to it.

Nevertheless, some of the good quality land may become cheap enough to promote commercial forestry. This could be more attractive than the present attempts to reafforest marginal soils where trees are unproductive. Moreover, commercial forestry in the central and densely populated areas of the Community could be readily combined with recreation. The establishment of semi-natural reserves on soils that have been in use for agricultural production, or are suitable for that purpose, appears possible. Taking into account the pressure of human activities on the natural environment, in the central regions, there is a pressing need for ecological refuges and corridors. Finally, cheaper land would make it easier to set aside more of it for the enhancement of landscape features and environmental diversity. None of the changes in land use will be cheap, but on the other hand, there are no reasons for shifting the whole burden onto the agricultural sector, which will already have to adjust to the consequences of lower prices.

This adjustment has to lead either to larger, more mechanised and automated farms or to family farms with outside sources of income. This may work out differently in different countries. It may be that the female member of the household is burdened with much of the tedious work on the farm and around the house, but it may also very well be envisaged that the male member of the two-income farm family works only on the farm, and alone, whereas the female member continues to work in her former professional capacity.

Whatever the outcome, the farmer will remain a busy person. But even then, it is possible to contribute to the integrity of the environment by integrating conservation management with farming, without many extra costs. It is a happy development that at present, all over Europe, agriculturalists, conservationists and environmentalists band together with farmers to develop practical ways and means to do so.

For instance, there appears to be no extra costs or time involved in maintaining the farm-yard and its buildings as a valuable conservation area for lichens, mosses, bees, swallows, and so on, whereas the natural value of tracks, lanes and ditches can be enhanced by changes in management that are directed towards less frequent uses of chemicals and less frequent mowing (Tittensor, 1986). A well propagated program for inventive management of roads, canals and ditches has contributed considerably to species diversity in the Netherlands. Many arable fields and leys have margins which can also contribute to the survival of now rare weeds and wild flowers by keeping them carefully free of fertilisers and biocides. This may require some extra work, but some costs may be recouped by savings on fertiliser and biocides. Many farms also contain small and seemingly

unimportant habitats that are of considerable conservation value. It may need only slight changes in agricultural practices to maintain them at no extra financial or labour costs. This holds as well for the maintenance of hedgerows, although it should be recognised that they may hamper mechanised operations.

Nitrogen fertilisers form a serious environmental hazard, but much can be done to reduce their need. For instance it was found by van der Meer and van Ulm tot Lohuyzen (1986), that the recovery of nitrogen fertiliser by grass under zero grazing increased in the Netherlands from around 50% in the sixties to around 80% in the eighties, but this is hardly accounted for in the advice to the farmer. Moreover, it becomes clear that under grazing, a high nitrogen status of the grass is not so much needed to maintain optimal growth of close grass swards, but for a rapid restoration of the sward after sharp grazing. Also for this reason, there is at present a renewed interest in permanent or continuous grazing systems in England and the Netherlands (Lantinga, 1985). With these, the sward is always kept closed and green, so that considerably less nitrogen is needed to obtain the same animal production throughout the year than is needed with rotational grazing. For the same reason, it appears possible to save on sprinkler irrigation.

Super levies and lower prices for milk, together with the increased need for better control of environmental pollution and continuing technical innovation may lead to dairy enterprises that will differ considerably from the traditional dairy farm. A part of the higher yielding cows will be employed in continuous grazing systems, but another part will be kept indoors on a diet of freshly mown grass, grass and maize silage, fodderbeets and pelleted, artificial dried grass. The latter products will reduce the need for purchased concentrates. Excretion of faeces and urine under controlled conditions, should make it attractive as a fertiliser, and even as a source of energy.

Over-fertilisation of arable crops contributes to the leaching of nitrogen in late summer and autumn. It has been shown that much of this can be prevented by catch crops. Another possibility to save nitrogen is a good adjustment of the nitrogen fertilisation to the needs of the crop. Also, much nitrogen is wasted by dumping manure out of intensive livestock systems in too large quantities on small areas of land. This wastage of nitrogen fertiliser has undoubtedly to do with its price, which is, at present, at an all-time low.

To study the effect of an environmental tax on nitrogen fertiliser a distinction should be made between the negative price elasticity of the use of nitrogen fertiliser and of the yield per hectare. The first elasticity is likely to be large, because of the present wastage. However, the second elasticity is likely to be small because lower yields, due to lack of nitrogen, lead to an inefficient use of other inputs. Hence there seems to be a possibility for an environmental tax on nitrogen use, which is, on the one hand, high enough to reduce wastage of N in inorganic and organic form to a considerable extent, and, on the other hand, low enough to ensure the continued efficient use of other inputs. The proceeds of such a tax could very well be used for further damage control. Such a price increase to control the excessive use of nitrogen was proposed in the German

Federal Republic by the Environmental Council (Rat Umweltfragen, 1985). However, their suggestion to reimburse the farmers on a per hectare basis for this taxation leads to unnecessary complications, as long as prices in the EC are maintained at a level that demands on the home market are satisfied.

The use of biocides for control of insects, diseases and weeds is another environmental hazard. It has been shown that application schemes in which their use is guided by expected damage leads to the considerably lower use of biocides. Such schemes have been developed and used for wheat in the Netherlands since the mid-seventies and this is an important reason why the number of sprayings is only 2.5 on average, compared with 8.5 in England and 7 in the North West of the German Federal Republic (Rabbinge, 1987). These methods may very well be more economic than traditional methods, so that it suffices to support development research and extension to popularise their use.

6. Less-endowed regions

Less-endowed regions, both agricultural and industrial, are located in the West and North West of Ireland, throughout Scotland, the North of Wales, in the South East of the German Federal Republic, in the Voges, the Jura, the massif Central, the Pyrenees and the Alps of France and along the axis of the Apennines and on the islands of Italy. Many regions in the three new EC countries, Greece, Spain and Portugal, will be classified as agriculturally less favoured.

The central problem in many of these regions is summarised by the fact that, in spite of a poor natural resource base, up to 30% of the population may be engaged in agriculture, whereas there is less than 10% in well-endowed regions. Any policy that is directed towards maintaining this situation, would be economically futile and socially discouraging. It would be also politically hazardous, because of its dependence on the lasting willingness of the more prosperous regions in the EC to pay the bill.

Therefore it is necessary to place the problem of less-endowed regions within a broader context, by aiming at social and economic structures that complement and partially replace traditional agricultural structures. Combined community and country programs for the improvement of the infra-structure to bring industries and services, for the regional creation of non-farm jobs, for education and for the promotion of mobility, are more likely avenues to alleviate the problems than continuing agricultural price supports. Experience in the South East of the German Federal Republic shows that the diffuse development of industrial activities and services creates possibilities for agriculture as a complementary source of employment or even a leisure pursuit. In the so-called integrated programs that are being prepared by the Community for the Mediterranean regions, in particular, the industrial and services sector will also need considerable attention.

Within such a wide developmental framework, there are good reasons for

directing public support to agriculture in such a way that environmental goals are served as well. It is true that damage to the natural environment is intrinsic to productive farming, but this being said, it is generally agreed that continuation of farming in traditional farming country, is a necessary condition to maintain its environmental value (Van der Weijden *et al.*, 1984). Some conservationists believe that a prosperous rural life is even a sufficient condition, but too many examples show that this is overly optimistic. Hence, there are good reasons for directing public support to less-endowed regions in such a way that environmental goals are served as well.

In practice, this is done mostly by paying the farmer for the execution of measures that are supposed to maintain the landscape and the ecological refuge functions of the farm. However, such measures often push the farmer towards traditional farming methods, since these are presumed to preserve these functions. This may have been the case in the past, but so many irreversible changes have occurred, even in marginal areas, that this is not necessarily so at present. Some regions have been affected by drainage, some by enrichment with minerals and all of them are affected by the consequences of air pollution. Even if traditional methods are sympathetic to the environment, they may be hard on the farmer who has to execute this often heavy and tedious work.

Another approach which is much more in line with the ideas of integrating agriculture and its environment is to define and quantify the ultimate aims that are envisaged and to pay the farmer according to his success in reaching them in his own way and means. Ecologists are stimulated, then, to think in dynamic rather than in static terms, and the farmers and their advisers are challenged to develop innovative methods to serve lasting values. If hedgerows, hill pastures or heather soils are precious elements in the landscape and worthy ecological refuges, it is reasonable to pay the farmer in less-endowed regions according to the quantity and quality of these elements. If diversity is a worthy ecological goal, why should regionally associated farmers not be paid for the number of species or for the habitats they are able to create.

It would go too far to pay the farmer for not contaminating the aquifer he is living on with nitrate, or his surroundings with biocides. As a prohibition on agricultural chemicals is difficult to enforce, it would be far more challenging to develop technical packages that can be very precisely applied and to subsidise their use in these less-endowed regions. These innovative techniques could then spread to central agricultural regions, but without subsidy.

It is suggested that farmers in these marginal regions would be better off by growing crops that do not contribute to the surplus production. Too little it is then taken into account that soils that are marginal for surplus crops are, in general, also marginal for other crops, so that it remains impossible to compete with well-endowed regions. For this reason, differential payments out of the earlier mentioned diversification fund in favour of the less-endowed regions may be justified. There may be a growing market in an affluent, urban Europe for special products that distinguish themselves for all practical purposes only from

similar products by either their origin or the way they are grown, and are thus shielded from competition from well-endowed regions. Examples are certain wines and cheeses, fish, game and other special meats and natural foods and craft products. A comprehensive system of protected Community marks of origin and trade names would strengthen the market position of such specialities in the interests of both the consumer and the producer.

Any policy of adapting supply to demand will be frustrated by further reclamation and land improvement schemes that are prompted by national interests and mainly financed from public funds. As for other sectors of the economy, such competition distortions should be reported to the EC commission which could then control the plans in accordance with its own policy. Because of equity reasons, some public-supported improvement schemes may be needed in Ireland and the new member countries which joined the EC too late to develop some of their own potentials. However, reclamation of new polders in the Netherlands and the further drainage and reclamation of ecologically valuable wetlands in France and some other countries should come to an end.

Especially in less-endowed outlying regions without much infrastructure, any form of intensive agriculture will vanish. The land may then be made available to semi-public organisations for the creation of ecological refuges, semi-natural reserves, afforestation, leisure parks and extensive grazing by domestic animals or game. These forms of land-use may change the landscape beyond recognition. Also, they have in common that little work is generated, so that social programs are needed to enable the older section of the population to survive with dignity and the younger section to progress. Afforestation requires considerable initial investment with a guaranteed low return on marginal and poor soils, and game exploitation requires a good market organisation for hunting rights and meat. The profitability of extensive uses may often be overestimated and the costs of reconstruction underestimated, so that much of the marginal land that will be deserted anyhow will be left to run wild or to go to waste.

7. Some aspects of allocation and financing

Compensatory geographical redistribution in favour of less-endowed regions would create substantial allocation problems, because even the most favoured regions have enclaves of poor agricultural land. However, these regions have to solve their own problems and should not siphon resources away from the outlying regions where the quantitative and qualitative problems are the greatest. Another allocation problem concerns the great diversity of regions that would qualify for compensatory support, which makes a single Community policy for all regions impossible. It will therefore be necessary to develop an arsenal of potential intervention instruments at Community level, whereupon the EC

Commission and agencies of the Member States could draw upon some packages of measures appropriate to each region. Their selective application, the degree of EC financing and the envisaged price constraints would constitute a gradual transition of support from well- to less-endowed regions.

It is, however, most disturbing that there is not much of an ecological lobby in Brussels with the capacity to strengthen the ecological and environmental components of such packages, and support their use.

The main purpose of reducing support prices is to lessen the waste of scarce resources, to mitigate the burden of the CAP on the EC budget and to foster more discriminating economic, social and environmental policies, because, without further measures, the consumer is the only direct beneficiary of decreasing prices but there are good arguments to split the windfall between the consumer and the EC. Since agricultural policy objectives are at issue, the EC Treaty would not prevent a levy or a special surcharge on the value-added tax on agricultural products for the purpose (WRR, 1986). The proceeds of such a tax could very well approach the present EC expenditures on agricultural policy and come a long way towards funding the structural changes as discussed in this paper, without crowding out the other activities of the EC.

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