

ISBN 0-905442-31-8

COUNTY LEITRIM RESOURCE SURVEY
Part IV
A PROGRAMME FOR DEVELOPMENT

Published by An ForasTaluntais
19 Sandymount Avenue, Dublin 4.

1978

Price £2.00

CONTENTS

Foreword

Preface

SECTION 1

1. The Case for Change	1
Consequences of Present Trends.....	2
Is Improvement Possible?	3
Economic Benefits of Development Programme	3
2. Physical, Economic and Social Background — A Summary	5
The Soils and Their Potential.....	5
The Farming Economy.....	6
Age Structure and Attitudes of Farmers.....	8

SECTION 2

3. How to Develop Agriculture - The Structures	11
Clear State Policy Required.....	11
Increasing the Number of Viable Farms.....	12
Dole Disincentive to Acquiring More Land.....	12
How Land will Become Available.....	16
How Land Could be Acquired and Redistributed	16
An Output Incentive Scheme.....	18
The Non-Viable Farms.....	19
4. How to Develop Forestry	21
Forestry and Agriculture.....	21
Employment Content.....	22
A Timber Processing Plant at Drumshanbo.....	23
Encouraging More Afforestation.....	23
5. Creating Off-Farm Employment	25
Small Industries.....	25
Leitrim Countryside Improvement Scheme.....	26
Tourism Potential.....	26
6. Strategy for Implementing the Proposals	29
The West Donegal Experience.....	29
An Outline Strategy.....	30

SECTION 3

7. Technical Development Proposals for Agriculture	33
Land Capability for Agriculture—Mineral Soils.....	33
Land Improvement.....	34
Recommendations for Farming the Wet Mineral Soils.....	35
Dairy Farming.....	35
Beef from Suckler Herds.....	39
Sheep.....	43
Pigs.....	43
Animal Health.....	44
Farming the Dry Mineral Soils.....	44
The Peatlands.....	44
Capital Required to Intensify Agricultural Production.....	45
Summary of Development Proposals	47
Agriculture—Structures.....	47
Agriculture—Technical.....	48
Forestry.....	48
General.....	49

This Report was compiled by the following staff of An Foras Taluntais:

Michael Gardiner, B. Agr. Sc, M.S., Ph.D. Head, National Soil Survey Department, Project Leader

Michael Bulfin, B. Agr. Sc, (Forestry), M.E.S., Soil Physics and Pedology Department

Dermot Collins, M. Agr. Sc, Ph.D., Animal Management Department

John Curry, M.A., Rural Sociology Department

Barth Hickey, B. Agr. Sc, B. Comm., Farm Management Department

FOREWORD

For many years it has been recognised that some of the worst features of western decline are represented in County Leitrim. Controversy has surrounded the county with regard to the possible means by which this continuing decline could be halted and reversed. Farming in the county is beset by many problems arising from natural, technical, economic and social forces.

The natural limitations of the county are those imposed mainly by a combination of heavy, poorly drained soils and a relatively wet climate. This dictates a predominantly grassland farming system which encounters serious problems such as poaching by grazing animals, short grazing season, the necessity for the conservation of large amounts of winter fodder, and poor trafficability for farm machinery. This latter problem is accentuated by the presence of many steep slopes associated with the predominantly drumlin topography.

It is not surprising, therefore, to find serious sociological problems associated with these conditions. Farm size is small, off-farm employment is scarce, and the resulting outmigration has brought about a population structure dominated by the old and very young. This represents a very serious obstacle to economic development.

Against this background the Council of An Foras Taluntais decided in 1971 that the overall agricultural situation in Leitrim should be examined. It was realised that much of the information already available was related to situations of the past and was irrelevant in terms of future demands created by E.E.C. requirements. It was also realised that the positive way to progress is through identifying the resources available and, using those, to develop systems based on modern technology and innovation. Having completed an inventory of Leitrim's resources, recommendations could then be made with regard to alternative land-use systems. The objective is to bring about an overall improvement in the welfare of the people of the county, and of the drumlin belt as a whole, to which the results should equally well apply.

The conduct of such a comprehensive resource survey presented a formidable task, demanding the collective efforts of people in a wide variety of disciplines and from a number of organisations. The experience gained on methodology and organisation in the course of two previous resource surveys, West Cork and West Donegal, was of great value. It is hoped that the report of the present survey will go further than the other two in making an economic assessment, from the basic output potential data, of the major alternative land uses, namely, grassland and forestry.

It is a pleasure to be associated with the highly merited acknowledgments given to those within An Foras Taluntais and those outside who co-operated in this survey. Finally, may I commend the efforts of the Working Party who embarked on and completed this task with such dedication and enthusiasm.

T. Walsh,
Director.

PREFACE

The findings of the Leitrim Resource Survey are published in five parts:

- Part I Soils, Grazing Capacity, and Forestry Potential
- Part II Some Aspects of Production — Drainage, Machinery Use, Grass Production and Utilisation, Farm Systems, Animal Health, Fisheries
- Part III Demography, Sociology and Economics
- Part III A Forestry; Economics, Employment and Development Proposals
- Part IV A Programme for Development.

For their assistance in the work reported in Part IV grateful acknowledgement is due to the Agricultural Advisory Officers of the county, especially Mr J. Hennelly, C.A.O., Mr H. McKearney, Deputy C.A.O., and Mr A. Kilbane; and also to the members of the Co. Committee of Agriculture; to the Land Project Officers of the county; to Mr J. Martin, County Development Officer and to the local officers of the Forest and Wildlife Service, Department of Lands, and especially Mr A. Hanahoe. Mr E. Burns and Mr P. McLoughlin of the Sligo Regional Acquisition Office

Our thanks are due to the local people, especially the farmers who co-operated so willingly, and to the members of the Manorhamilton Development Company who gave the survey their full support.

Grateful acknowledgement is also due to the officers of the Department of Agriculture and Fisheries, and to those of the Forest and Wildlife Service, especially Mr T. McEvoy, Mr N. Morris, Mr O. V. Mooney, Mr C. McCormack, Dr G. Gallagher, Mr J. Dillon and Mr T. Purcell, who helped to compile the forestry potential data.

Both the Economic Development Survey Report of County Leitrim compiled by the late Mr S. Duke, then County Development Officer, and the Western Development Report of Dr J. Scully, Department of Agriculture and Fisheries, were of considerable value to the resource survey team in providing useful background information.

Dr P. Ryan, Deputy Director, was most helpful in his capacity as advisor to the working party, and Dr T. Walsh, director, gave the study his enthusiastic support. The help of many of our colleagues in An Foras Taliintais who contributed to these reports, through discussion, comment and criticism, is also gratefully acknowledged.

Finally, we wish to thank the editor, Dr E. Culleton, for his valuable suggestions on the content and layout of this report.

Michael Gardiner
Project Leader
An Foras Taliintais, 1978

SECTION 1

CHAPTER 1

THE CASE FOR CHANGE

Over the years, a combination of wet land, adverse climate, small farm size and demographic problems, has created very strong barriers to change in Co. Leitrim. These barriers are largely related to a demoralised and fatalistic attitude, especially amongst older farmers, who make up such a large proportion of the total population. Farmers incomes are very low and the entrepreneurial spirit of many is dulled by having had to accept this situation for so long. They now have a low ceiling to their ambitions and these are dictated by what they consider can be reasonably achieved in the adverse environment in which they have to live.

Recent studies have clearly shown that demographic condition is an important factor in farm output, those regions with good demography having significantly greater output than those with poor demography.

Stage in the family cycle and the number of dependants are important factors. People over 45 years with no children have little hope of perpetuating a family and have therefore lost basic motivation for improving their standard of living. Conway (1) has classified household structure on this basis into four levels, namely i) expansion, ii) transition, iii) early contraction and iv) advance contraction. All comparisons which he made showed that net product per adjusted acre was significantly related to these stages of family structure. The transitional and contracting stages had lower output than the expansion stage.

With the demographic condition of Leitrim so poor, (e.g., 35% of the male population single over 50 years of age and 38% of households which are incomplete) the proportion of the population falling into the contraction stages is very high. Conway has estimated the percentage of households in the contraction stages on wet mineral soil areas in the country to be 35%. Leitrim represents the worst end of this soil category, so the percentage is probably even higher here. This confirms the general finding from the resource survey that many farmers have no positive motivation to improve their lot.

This proportion, therefore, may be reasonably considered to be unwilling or unable to make changes. The remainder may be willing to change but may be prevented from doing so through lack of land, or for other reasons such as unwillingness to use capital. The major problems in Leitrim, therefore, are concerned with demographic condition rather than with lack of technical knowledge to improve agricultural output. The problem is compounded by, and, in fact, has basically arisen because of small farm size on poor soil conditions, with a lack of off-farm employment. To improve living standards in Leitrim, therefore, the demographic, farm structure, capital and educational problems must be tackled first in order to create conditions where motivation for change can be encouraged and where technical innovations can take place.

Consequences of Present Trends

To emphasise the urgency of implementing development programmes in the county some of the implications of maintaining the present inadequate structures and systems are outlined.

The population of the county is declining as a result of outmigration and natural decrease. Between 1966 and 1971 the death rate exceeded the birth rate, hence the population would still decline even if outmigration ceased. The residual population is unable, because of age and marital status, to maintain its present level through natural growth. Moreover, the selective nature of outmigration means that the process is one of cumulative decline.

In the immediate future, further population decline would seem inevitable, with a projection for a total population of 25,400 by 1981 (2) as compared with 28,360 in 1971. If this trend were to continue then by the year 2000 the population of the county would be approximately 20,500. The agricultural population, in particular, is likely to decline further because of the present high proportion of elderly farmers and the relatively low numbers of new entrants into farming. By projecting the average annual rates of decline and of new entrants into farming during the 1960s it is estimated that by 1991 the total male labour force engaged in agriculture will be approximately 2,400 or 40% of the 1971 figure. It should be borne in mind, however, that predicting population trends is, of necessity, a hazardous exercise, since so many factors may affect the result.

Because of these depopulation trends, which will continue unless corrective action is taken, greater difficulties will be experienced in establishing new services or in maintaining existing ones. The per capita cost of essential public services will continue to rise, social amenities will be reduced and people will be obliged to accept even lower standards of living than at present.

Despite these depopulation projections, there will not be a corresponding increase in farm size. Land consolidation does not take place as a result of natural decline in population unless aided by a dynamic land restructuring programme. There is likely to be an increase in land letting and in dereliction of holdings. More land may be devoted to forestry, but, at present rates of acquisition, this will only amount to about 10% of the county by the end of the century, compared to some 6.4% at present.

The absence of any plan to inject a new ownership pattern of young, trained farmers capable of coping with adverse farming conditions ensures that the current low standard of farm management will not improve.

The demographic composition of the population is now one of disproportionate numbers of elderly and very young persons, a high dependancy burden, an unbalanced female/male ratio, poor marital status and a proportionately high ratio of incomplete households.

Under these conditions it is difficult even to maintain the standard of existing services in the county. Persistent adverse conditions have generated a "psychology of

decline" which makes technical development at farm level extremely difficult, if not impossible.

Is Improvement Possible?

Technically, there is no reason why production from agriculture in the county cannot be greatly increased.

Livestock numbers remained static between 1958 and 1968 but between 1968 and 1971 there was a 4% per annum increase. In 1971 there were 89,200 livestock units in the county and it has been estimated that with fertilizer use and good management the land is capable of carrying 144,200 livestock units - i.e. an expansion ratio of 1.6. At this rate of increase, it would take over 15 years for the county to reach its capacity for grazing livestock production.

Grassland experiments throughout the county have confirmed these findings. When adequate lime and fertilizers were applied, herbage yields were increased by the potential being in the region of 10,000 kg of dry matter per ha. (See Part II). Similarly from the experimental programme at our Research Station at Ballinamore it has been found, that with good management and feeding (12 cwts (610 kg) of meals costing £60), a rate of stocking of 1 livestock unit to 1.5 acres is possible, and that average annual milk yields of at least 800 gallons per cow can be obtained. This compares with current yields of about 400 gallons per cow.

In the Small Faim Incentive Bonus Scheme the average number of grazing livestock units per farm increased by 50% over a 3-4 year period, while stocking rates intensified from 2.8 to 1.8 acres per livestock unit. Incomes on completion of the scheme were almost double those of non-participating farms of similar size. This shows that, where conditions are right, considerable improvement is possible.

Economic Benefits of Development Programme

The main economic benefits to be derived from implementing the agricultural development proposals hinge on the establishment of farms of at least 80 acres (32 ha) in size on one-third of Leitrim, over a 10-year period. Production on these farms would be based on dairying. They would also be more intensively stocked and be more productive than dairying as presently practised.

The principal objective of the development programme is to establish 1,600 dairy farms of a minimum size of 80 acres, yielding 650 to 700 gallons per cow, and stocked at 2 acres per livestock unit. This programme, if realised, would raise the agricultural income derived from grazing livestock from its present level of about £6.5 million to about £15.7 million per annum at 1978 prices (Table 1).

The extra 45,000 dairy cows envisaged in the development programme would mean an extra 28 million gallons of milk, bringing yearly total supplies for the county up to about 33 million gallons. This level of milk supplies could support a viable dairy processing industry.

The main benefits of the forestry development proposals would be in their contribution to local employment and to the national timber processing industry.

A pulp processing plant at Drumshanbo could provide 300-500 jobs almost immediately. Regional employment could more than double from 690 to 1,570 by the turn of the century. At today's prices the value of raw material at the factory gate (based on an intake of 200,000 m³) would be £2.3 million per annum, which, with an added value ratio of 5 : 1, would give a processed output of £11.5 million.

TABLE 1: Effect of proposed development plan on income from grazing livestock in Leitrim at 1978 prices

	Income (£ million)
Present situation:	
14,200 dairy cows @ £200 income/head	2.840
71,500 livestock units of cattle @ £50	3.575
5,400 livestock units of mountain sheep @ £40	0.216
Total	6.631
Effect of development:	
+ 44,800 dairy cows	+9.980
-18.450 cattle livestock units	-0.922
	+9.058
Income from grazing livestock after development	15.68

The Drumlin Afforestation Proposal would contribute about 2,000 jobs within Leitrim and a further 1,200 outside the county. The value of raw material at the factory gate would be £11-12 million (today's prices), with processed value in the region £50-60 million. The total area involved would be 150,000 acres (60,000 ha).

If the Annuity Purchase Scheme is implemented then a landowner who dedicates his land to forestry under the scheme will have an immediate income (exclusive of grants) of £46 per acre. Employment under the Scheme would also be considerably higher than under State afforestation because each landowner would remain on the holding to provide the labour on his/her own farm/forest.

(1) Conway, A. G., "Farm performance and structure-alternative paths for adjustment" - Proc. of conference "Agricultural developments, prospects and possibilities", An Foras Taluntas; Nov. 1976.

(2) Regional Industrial Plans 1973-77, Industrial Development Authority Dublin, 1972.

Chapter 2

PHYSICAL, ECONOMIC, AND SOCIAL BACKGROUND — A SUMMARY

The Soils And Their Potential

Only 7% of the land is well drained, while 83% is inherently poorly drained. The soils consist mainly of heavy, impermeable, poorly drained gleys (47%) and peats

Excess rainfall over evapotranspiration, combined with poor drainage, makes farming difficult. Average annual rainfall varies from 1,000 mm in the south to 1,440 mm in the north. Evapotranspiration is about 450 mm. Mean monthly soil temperatures are 1.5° to 3°C lower at Ballinamore than in the south of the country.

Because of climate and soil character, only 4% of the land is suited to tillage. Some 8% is good for grassland, 2% is moderate and 83% has very serious restrictions due to poor drainage.

Drainage and reclamation

Small pore-size distribution slows water movement through the soil so that it fails to penetrate to conventional tile drains. Experiments show that a combination of mole drains into main collector drains is the best approach to drainage. Small plot experiments indicate that pasture responses to drainage are 10 to 15%, but may be up to 25% in wet years. Seasonal (early and late) growth patterns, as well as the utilisation of grass, are also improved through drainage.

The peat soils (36% of the county) are also difficult to drain sufficiently to give a satisfactory bearing capacity. Because of the close drain spacing required and the poor returns of the farm enterprises possible on peats, their reclamation may not be economically feasible.

In addition to land drainage, surplus and overgrown watercourses greatly interfere with ease of farm management; these account for about 10% of the land area.

Use of farm machinery in Leitrim is hindered by small farms, small fields, steep slopes and wet soil conditions. A study of a number of representative drumlin sites showed that, on average, 25% of the land was too steeply sloping for mechanised farming. Average field size in Leitrim is 1.63 acres (0.66 ha) whereas it is 8.23 acres (3.33 ha) in Co. Meath.

Grass production and utilisation

Some 99% of the land farmed is under permanent pasture. Grass production is poor because of low fertility, low fertiliser usage, bad drainage and poor pastures. Virtually all Leitrim soils are low in lime and deficient in phosphorus and potassium. A survey showed that most pastures were dominated by poor grass species, rushes and weeds. Clover was nearly always absent. The intensity of land utilisation, which has not changed significantly in recent years, stood at 3.5 acres (1.4 ha) of hay, silage and pasture per livestock unit in 1973.

Experiments showed that rushes can be reduced from 33% to 4% by frequent cutting accompanied by the application of lime and fertiliser.

When adequate lime, nitrogen, phosphorus and potassium were applied herbage yields were increased by 85%, the potential being in the region of 13,000 kg of dry matter per ha (103.6 cwt/acre).

Not the production of grass but rather its utilisation is the main problem on most Leitrim soils. Because of the wet soil conditions, poaching is a serious problem, especially in spring and autumn. With intensification, it is accentuated. The bearing capacity of the soils is reduced when lime and fertilisers are applied.

Forestry potential

Because of its poor quality, the land has few alternative uses. Cultivation is not feasible, except on a very small scale, consequently the only major alternative to grass-based agricultural production (apart from enterprises such as pig production) is forestry.

The yield potential of Sitka spruce on the better soils in Leitrim is high; some 71% of this land is capable of yields well above the national average. On the marginal and elevated soils yields are as high as on soils in other parts of the country now under forestry.

The question of how much of the land should be devoted to forestry can only be determined through assessments of both its employment content and its economic return compared to agriculture. These two questions are examined in Part **IIIA**. Results showed that the potential returns from forestry compared favourably with the present very low returns from agriculture. The future potential returns from forestry would, of course, depend primarily on discount rates and on future timber prices.

The Farming Economy

Number and size of farms

In 1971 there were 5,173 farmers in the county. Of these, more than 38% had 30 acres (12.14 ha) or less and over 80% had 50 acres (20.23 ha) or less. Although the number of farmers declined rapidly (16% in 5 years) in recent times, there was not a corresponding increase in the number of larger farms. This appears to be due to an increase in part-time farming and/or land letting, as well as to acquisition of land by the Department of Lands.

Over 40% of farms were in two or more parcels of land. This imposes limitations on farming systems. On an annual basis, less than 1% of farmers acquire land through the Land Commission.

Farming systems

Farming systems in the county are built around store cattle, single suckling, dairying calf rearing, mountain sheep and pigs. The most common system is some variant of single suckling.

Single suckling may have certain advantages because the lighter animals cause less poaching. In certain areas it may be the only system possible due to steep slopes or poor housing.

Only a small proportion (20%) of farms depend on cows alone. Dairy herds are small, two-thirds having less than five cows. Milk yields are low, because of poor quality cows, a short grazing season and poor quality winter feed.

Surveys showed that the quality of hay and silage is poor and is capable only of providing maintenance plus small liveweight gains in mature dry stock. The quantity conserved (1971) was estimated to be only 78% of that required.

Only a little over half the cow byres are classified as good or fair. A very small percentage had piped water supplies. Milk quality is poor because of inadequate water supplies and low hygiene standards.

Experiments on store cattle production showed that high stocking rates with a good performance can be maintained only from early May to early August. At reduced stocking rates, liveweight gains can be maintained until early October.

Despite the poor land, less than 20% of farmers keep pigs and the proportion decreases with decreasing farm size. Where pigs are reared, the scale of the enterprise is small; 50% of fattening farms have less than two sows.

Hill and mountain farms are located on peat or peaty gleys. Dry grassy hills carry most of the sheep in the county and have definite possibilities for increased production. Wet hills carry few sheep and have a very limited potential for improvement. The overall sheep flock is small. Present stocking rates are low, ranging from 1.5 ewes per 2.5 acres to as low as 0.5 ewes per 2.5 acres.

Farm incomes

Average family farm incomes are low. The figures for 1976 were £1,426 or £40 per acre for mixed dairy farms of 30-50 acres. Larger farms of 50-100 acres, based on suckling, had average incomes of £1,307 or £20 per acre.

Mixed dairy farms had a higher level of income than other farms. However, the level of income even from dairying is poor due to low yields (typically about 400 gallons) and low stocking rates.

Estimates of the level of production for dairying and single suckling in Co. Leitrim were derived from those Leitrim farms participating in the Farm Management Survey in 1973 and were published in Part III of this report in 1975. In the case of mountain sheep, due to the small numbers from the county participating in the survey, returns were based on the generality of hill and mountain flocks participating in the Farm Management Survey in 1973.

Revenue per livestock unit:

The highest level of net annual revenue per livestock unit was generated by the dairying and store cattle system at £62, as against £31.5 for the suckling system and £12 per livestock unit from mountain sheep.

The higher returns from dairying were not due to a high level of production from dairying. As was pointed out in Part III, milk yields were consistently low on farms surveyed, with an average of only about 370 gallons per cow in 1973. Rather were the higher returns from dairying due to the ability of the enterprise to generate consistently higher returns than cattle or sheep.

For any of the enterprises or systems of farming mentioned the returns generated

by individual farmers vary widely. Some farmers were earning returns far greater than the average, while others on similar soils were earning incomes well below average from the same system of farming. The technical potential of agriculture was considered to be much greater than indicated by the average level of production and returns.

Age Structure and Attitude of Farmers

Since the middle of the 19th century, Leitrim has experienced the highest proportionate decline in population of any county in the State. The absence of large town populations, which in recent times have shown stability or growth potential, is one of the principal factors contributing to the exceptionally high rate of population decline.

As in the State generally, the average annual rate of net emigration has decreased considerably and the numbers emigrating in the late 1960's were about half those of the 1950's. Emigration has been exceedingly high among the young adult age groups (15-34 years) and an estimated two-thirds of children aged 0-4 in 1951 were living outside the county by 1971. A reversal of the traditional decline among those in the young adult age group 20-24 occurred between 1966 and 1971 and there was also a drop in the rate of decline in the 25-29 age group. At 17.3%, the proportion of persons aged 65 and over is the highest in the State.

By comparison with other areas, the population of Leitrim contains relatively high proportions of unmarried males in each age group from 20-24 upwards, the lowest female-male ratio, and one of the lowest marriage rates per 1,000 population.

The working population shows a heavy dependency on agriculture. The percentage of the labour force engaged in agriculture in 1971 was exceedingly high (54.4%) in comparison with that of the State (24.4%) which in turn was exceptionally high by European standards. While the total working population declined by 43.1% between 1951 and 1971, the loss in the agricultural sector represented a decline of 54.6%, as contrasted with 9.2% in non-agricultural occupations.

The decline in the agricultural sector has varied considerably between the size categories of farms and the different sections of the farming population. Between 1951 and 1966 the decline in the male farming population ranged from 66.2% among farmers' sons and sons-in-law to 20.9% among farmers. The decline among farmers was especially high in the farm size categories under 15 acres (6.07 ha) and 15-30 acres (6.07-12.14 ha) where the main concentration of elderly farmers occurs. A high degree of underemployment in agriculture is indicated by the number of standard man-days required of each male, which ranged from 78 to 108.

Attitudes of farmers

Of the 200 landholders interviewed in a social survey 76.5% had farms of less than 50 acres (20.23 ha), and the mean acreage owned was 38.9 acres (15.74 ha). Since taking over as manager of the farm 29.5% of the sample (59 landholders) had increased the size of their holdings. About 75% of such additions were less than 30 acres (12.14 ha). The most important means by which extra land was acquired were purchase and the Land Commission.

Renting land under the 11-months system was an alternative to purchasing land and 29.0% of landholders rented land in 1973 while 7.5% of landholders let land. The main disadvantage to renting land as perceived by lessees was insecurity. As a consequence, the quality of rented land deteriorated, since little attempt was made to improve its productive capacity by applying fertiliser.

Forestry as an alternative land use to agriculture is an emotive topic in Leitrim.

Opposition to the acquisition of land for afforestation is strong and widespread. When asked whether they would consider selling all or part of their holdings for forestry, 96.0% of the 200 landholders replied that they would not.

Sources of farming information are not used extensively. Only 14.6% of the farmers in the sample had been in contact with their local agricultural adviser in the 2-year period prior to interview; about one-third (32.4%) watched a farming programme on television regularly, while 37.3% listened to farming programmes on radio or read a weekly farming paper.

Since the inception in 1968 of the Small Farm Incentive Bonus Scheme, applications had been received from 686 farmers up to June 1974. This represented about 16.0% of those eligible to participate on the basis of acreage alone. Only 205 farmers had completed the scheme up to that time. Some of the important reasons given for non-participation in the scheme were the inability to meet targets set under the farm plan and the reluctance to add a pig production enterprise as a means of increasing gross margins.

Only one in six farmers had availed of credit facilities since taking over as manager of the farm. The most important reason given for not using credit was the risk involved.

SECTION 2

CHAPTER 3

HOW TO DEVELOP AGRICULTURE - THE STRUCTURES

Clear State Policy Required

The question of whether full-time viable farms should be created or whether part-time farming* (where potential incomes are insufficient to maintain a family) is to be accepted has not been made clear at policy - making level. Part-time farming is the dominant position in Leitrim. Most farms are too small and family incomes have to be augmented by either off-farm employment, or, more often, by social welfare payments.

There must be a clear decision as to whether the majority of farms in the county are to be viable or non - viable according to size and potential. If they are to be viable and capable of providing an income comparable to non - agricultural earnings, then units of not less than 80 acres** must be created. If the objective is to have non-viable farms where incomes are supplemented from other sources, then obviously, farms of less size would suffice. **The implications of these different choices are of fundamental importance. The rate of establishment and the ultimate number of viable farms to be created must be approved by the Government so that there would be a definite policy towards which to work.**

For these reasons this section of the report concentrates on general development proposals. The technical developments necessary to increase farm output are easy to identify. By increased use of fertilisers, good grassland management, increased livestock numbers, land drainage and more intensive enterprises, the present low farm incomes can be substantially increased.

* Part-time farming in this context refers to non-viable small farms. ** This refers to wet drumlin land typified by the Garvagh Series. Where soils are different, the size of viable farm should be adjusted on the basis of the grazing capacity study - **Part I**.

Increasing The Number Of Viable Farms

More than half the farms in the county in 1971 were less than 30 acres (12 ha) and over 80% were less than 50 acres (20 ha). Since the stock-carrying potential of the land is about one * livestock unit to 2 acres (0.81 ha), then 50% of farms are capable of carrying only 15 cow equivalents or less, and a further 30% of carrying between 15 and 25 cow equivalents.

A major land restructuring programme is required to establish the maximum number of farms capable of carrying 33 cows plus replacements. In dairying this is the scale of enterprise needed (assuming cows yielding 500 gallons per annum), if the comparable ** income is to be achieved by farmers. To have an income from suckling comparable to that from dairying, 150 to 160 acres would be required (Part III). Therefore, dairying must be promoted if a sufficient number of viable farms are to be created in Leitrim. The present scale of land restructuring cannot create a significant number of viable farms in a reasonable time. Only 13% of the land of the county has been redistributed since 1923, and, on an annual basis, less than 1% of farmers acquire extra land from the Land Commission.

A realistic target would be to establish 80 acre (32 ha) farms on one-third of Leitrim land over a 10-year period or about 160 viable units per year. These would be located mainly on the lowland mineral soils. The remainder would continue, for the present, as non-viable farms with incomes supplemented from other sources. Some of these, particularly those owned by elderly unmarried farmers, could be added to a land pool within a short time and used to increase the size of other holdings.

At present only 8% of farms in the county contain 80 acres(32.4 ha) or more. Farm restructuring should concentrate on farms of over 30 acres (12.14 ha), first making viable those farms already closest to this standard.

Farms of under 30 acres (12 - 14 ha) tend to depend more on social welfare payments. Loss of (or reduction in) such payments by increasing farm size is a clear disincentive to increased farm size. By concentrating on the larger, less dependent holdings first, this obstacle to the establishment of viable farms can be kept to a minimum.

It would not be practicable to have a major decrease in the number of holdings in a short time. This would displace people off the land at a pace which would neither allow time to create alternative employment nor the required adjustment in the social fabric of the county.

Dole Disincentive To Acquiring More Land

Between 1966 and 1976 the notional income of £20 per £1 land valuation for assessing farm income for dole purposes remained unchanged and applied to all farmers in the western region, irrespective of land valuation. But under the changes in the Smallholders Assistance Scheme in 1976 and 1977 there are now two notional incomes and a factual assessment used in determining farm income. The following is a summary of the present position:

- i) A notional income of £20 per £1 land valuation for farmers on holdings less than £15 valuation.

* A stock carrying capacity of 1 L.U. per 1.5 acre has been achieved at Ballinamore Research Station (AFT) but a figure of 2 acres is taken as an initial target on farms.

** Viable farming refers to farms large enough to provide an acceptable family farm income with normal systems, while non-viable farms are not capable of so doing.

- ii) A notional income of £30 per £1 land valuation on holdings between £15 and £20 valuation,
- iii) A factual assessment of farm income for farmers on holdings of £20 valuation and over. It is very unlikely that many farmers in this category qualify for assistance at present.

Furthermore, only farmers with valuations of less than £10 have consistently received increases in weekly payments since April, 1976. Farmers with holdings between £15 and £20 valuation not only have higher assessed incomes since April 1976 but also lower maximum weekly rates of assistance, i.e. rates as of October, 1975. Similarly, farmers with holdings between £10 and £15 valuations also have lower weekly assistance rates.

Apart from the fact that about 5,000 farmers lost eligibility for assistance as a result of these changes, another important consequence is that there is now a strong disincentive for farmers with holdings under £15 valuation to acquire additional land. To do so would mean an increase in their total land valuation, the use of a higher notional income or factual assessment in computing farm income for dole purposes and a consequent reduction in, if not a complete loss of, dole payments. The loss of dole payments will vary according to the farmer's land valuation, the valuation of the acquired land and on whether he is single, married or married with a number of child dependants. If the additional land is acquired from the Land Commission, annuities will have to be paid. Loss in dole payments and payment of annuities are unlikely to be offset by the income generated from the additional land, at least in the short term.

Examples of the estimated combined income effect of acquiring additional land are contained in Tables 2-4. In each example the additional land is 20 acres (8 ha), because this constitutes the minimum necessary for any meaningful farm restructuring in County Leitrim. The examples include the impact on farms of varying valuation, marital status and family circumstances, and whether the farming enterprise is dairying or suckling. In each of the examples there is a net loss in income as a result of acquiring additional land. The loss is greater if the farm enterprise is suckling. Married farmers with a number of children and relatively low valuations would lose most by the acquisition of additional land. This applies in particular to farmers going from less than £15 valuation to more than £20 valuation. By comparison, single farmers are not as greatly affected. Farmers with valuations in excess of £15, whose present dole payments are relatively small, would therefore not lose as much, but for married farmers with children in this category the disincentive to acquire land still remains.

It should be stressed that income losses are likely to be short-term e.g. farmers with dependant children at present will have reduced dole payments as children grow older (the age limit for child dependants is 16 years). Furthermore, it could be argued that any short-term losses will be offset by the acquisition of land which will appreciate in value. In the final analysis it is the farmer who will decide whether short-term disadvantage is outweighed by long-term advantage or vice versa.

In Leitrim half of the male farmers are on holdings of less than 30 acres (12 ha) and, given the average valuations of land in western counties, all of these holdings would have valuations of under £15. For at least half of the farming population, therefore, the acquisition of an additional 20 acres (8 ha) of land would result in a net loss of total income, i.e., farm income and assistance payments.

This disincentive is a serious obstacle to structural reform in the county and could be phased out over a number of years if the development proposals are implemented.

TABLE 2: Effect on dairy farmers with holdings of £9 land valuation of acquiring 20 acres with £10 land valuation from the Land Commission.

Category	Dole entitlement (per annum) £	(a) Loss in dole payments (per annum) £	(b) Annuity (per annum) £	(c) Net revenue from dairying ³ (per annum) £	Net loss or gain (c-(a+ b)) £
Single man	353.6	353.6	845	1416	+217.4
Married man no children	748.8	618.8	845	1416	-47.8
Married man 2 children	1092.0	702.0	845	1416	-131.0
Married man 4 children	1352.0	764.4	845	1416	-193.4

1) Purchased by the Land Commission at £400 per acre.

2) Rates of assistance in October 1977.

3) 8 dairy cows with net revenue of £177 per cow in 1976.

TABLE 2A: Effect on drystock farmers with holdings of £9 land valuation of acquiring 20 acres* with £10 land valuation from the Land Commission.

Category	Dole entitlement) ² (£ per annum) £	(a) Loss in dole payments (per annum) £	(b) Annuity (per annum) £	(c) Net revenue from suckling ³ per-annum £	Net loss or gain (c-(a + b)) £
Single man	353.6	353.6	845	424	-774.6
Married man no children	748.8	618.8	845	424	-1039.8
Married man 2 children	1092.0	702.0	845	424	-1123.0
Married man 4 children	1352.0	764.4	845	424	-1185.4

a) Purchased by the Land Commission at £400 per acre.

b) Rates of assistance in October 1977.

c) 8 livestock units with net revenue of £53 per l.u. in 1976.

TABLE 3: Effect on dairy farmers with holdings of £14 land valuation of acquiring 20 acres., with £10 land valuation from the Land Commission.

Category	Dole entitlement ² (per annum) £	(a) Loss of dole payments (per annum) £	(b) Annuity (per annum) £	(c) Net revenue from dairying ³ (per annum; £)	Net loss or gain (c-(a + b)) £
Single man	163.80	163.80	845	1416	+407.2
Married man no children	494.00	494.00	845	1416	+ 77.0
Married man 2 children	780.00	780.00	845	1416	-209.0
Married man 4 children	998.40	998.40	845	1416	-427.4

1) Purchased by the Land Commission at £400 per acre.

2) Rates of assistance in October, 1977.

3) 8 dairy cows with net revenue of £177 per cow in 1976.

TABLE 3A: Effect on drystock farmers with holdings of £14 land valuation of acquiring 20 acres with £10 land valuation from the Land Commission.

Category	(a) Dole entitlement ² (per annum) £	(a) Loss of dole payments (per annum) £	(b) Annuity (per annum) £	(c) Net revenue from suckling ¹ (per annum) £	Net loss or gain (c-(a + b)) £
Single man	163.80	163.80	845	424	-584.8
Married man no children	494.00	494.00	845	424	-915.0
Married man 2 children	780.00	780.00	845	424	-1201.0
Married man 4 children	998.40	998.40	845	424	-1419.4

- 1) Purchased by the Land Commission at £400 per acre.
- 2) Rates of assistance in October 1977.
- 3) 8 livestock units with a net revenue of £53 per l.u. in 1976.

TABLE 4: Effect on dairy farmers with holdings of £19 land valuation of acquiring 20 acres, with £10 land valuation from the Land Commission.

Category	(a) Dole entitlement ² (per annum) £	(a) Loss of dole payments (per annum) £	(b) Net revenue Annuity (per annum) £	(c) Net revenue from suckling ¹ (per annum) £	Net loss or gain (c-(a+ b)) £
Single man	0.0	0.0	845	1416	+ 571.0
Married man no children	130.0	130.0	845	1416	+441.0
Married man 2 children	390.0	390.0	845	1416	+ 181.0
Married man 4 children	587.6	587.6	845	1416	-16.6

- 1) Purchased by the Land Commission at £400 per acre.
- 2) Rates of assistance in October 1977.
- 3) 8 dairy cows with a net revenue of £177 per cow in 1977.

TABLE 4A: Effect on drystock farmers with holdings of £19 land valuation of acquiring 20 acres., with £10 land valuation from the Land Commission.

Category	(a) Dole entitlement (per annum) £	(a) Loss of dole payments (per annum) £	(b) Annuity (per annum) £	Net revenue from suckling (per annum) £	Net loss or gain (c-(a+ b)) £
Single man	0.0	0.0	845	424	-421.0
Married man no children	130.00	130.00	845	424	-551.0
Married man 2 children	390.00	390.00	845	424	-811.0
Married man 4 children	587.60	587.60	845	424	-1008.6

- 1) Purchased by the Land Commission at £400 per acre.
- 2) Rates of assistance in October 1977.
- 3) 8 livestock units with net revenue of £53 per l.u. in 1976.

How Land Will Become Available

Natural decline in population

A substantial decline in the agricultural labour force in Leitrim in the future is inevitable. The decline will be greatest among elderly farmers on small acreages, many of whom are unmarried. In 1971 there were 817 single farmers aged 55 or over (Table 5). For the majority of these the prospects of marriage are remote. About 800 holdings therefore, should be available for restructuring within two to three decades. Unmarried farmers are currently estimated to own 25,000 acres (10,000-ha). These 800 farms could cease to exist as independent farm units on the death of the present occupiers.

When this factor is related to the drop in new entrants into farming in Leitrim the implication is that there will be no family continuity on many holdings.

Farm retirement scheme

Although almost half of the farmers in the county would be eligible to avail of the retirement pension under this scheme it has had very limited acceptance up to now. This is mainly due to a number of disincentives in the scheme, e.g. loss of social security by the retiring farmer and taxation of his annuities and premiums. Unless these are modified it will have little impact on land release within the county. However, EEC proposals for the improvement of this scheme indicate that these disincentives will be removed. Although a large amount of land will become available through death of the present owners this will not be sufficient for the restructuring programme needed.

For this reason, special efforts must be made to obtain the necessary modifications, and subsequently to initiate a promotional campaign for a wide participation in the scheme.

TABLE 5 Number of single farmers aged 55 and over by farm size and estimated area of land held by such farmers (1971).

Farm size Acres	Ha	No. of farmers	Average		Estimated total	
			Acres	Ha	Acres	Ha
0-15	0 -6.1	170	10.8	4.4	1,836	743
15-30	6.1-12.1	359	22.2	9.0	7,970	3,225
30-50	12.1-20.2	193	39.3	15.9	7,585	3,070
50-100	20 2-40.5	85	69.4	28.1	5,899	2,387
100-200	40.5-80.9	5	137.5	55.6	688	278
200 and over	80.9	5	303.8	122.9	1,519	615
TOTAL		817			25,497	10,318

How Land Could Be Acquired And Redistributed

Planned distribution of the land becoming available is vital. In the past, farm restructuring lagged behind depopulation. The decline in the farming population in Leitrim has not been reflected in a corresponding increase in farm size mainly because a pattern of absentee landowners has developed. Even where the farmer lacks a direct heir, (son or daughter) the land may still be retained within the kinship network and be inherited by relatives outside the county or country. Frequently, such land is let indefinitely for grazing on the 11-month system; from a lessee's point of view, this does not encourage the most productive use of the land. It is difficult to

know how much land is let in Leitrim either by absentee landowners or by resident landowners who have ceased active farming, but some 22% of farms are let in this way.

Role of Land Commission

The amount of land distributed by the Land Commission is small (13% since 1923) in relation to the size of the structural problems in the county (Part **III**). But it remains the only agency to effect a rational and speedy distribution of land. To enable the Land Commission or the proposed National Land Agency to make a significant impact on farm structure in Leitrim the following steps are recommended:

- 1. Greater use of the powers of the Land Commission. The Land Commission (or Land Authority) should acquire:**
 - a) Land continuously let in conacre or remaining derelict or underused (i.e. 60,000 acres (24,281 ha) or 22% of present holdings)**
 - b) Land held by absentee landlords.**
 - c) Land becoming available through the death of elderly unmarried farmers i.e. 80,000 acres (32,375 ha) (includes the 60,000 acres (28,340 ha) at a) above. This would make 1,000 viable 80 acre (32 ha) farms. Most of this land is likely to come on the market or to be let in conacre. Where the proposed purchase of such land does not contribute to the alleviation of the farm structure problem the land should be acquired by the Land Commission.**
- 2. Increase of Land Commission staff to deal with a backlog of land which can be acquired and redistributed.**

Constraints on land distribution: Even if a substantial amount of land could be made available through the Land Commission for farm restructuring, some important questions remain to be answered.

Firstly, would a significant proportion of landholders in Leitrim be interested in acquiring additional land?

Secondly, would the cost of acquiring extra land, even by annuities to the Land Commission, be too high for many farmers?

Thirdly, does the scheme of Smallholders Assistance (the farmers dole) as presently operated, constitute a disincentive to the acquisition of additional land?

The first question is difficult to answer. The majority of farmers may be interested in acquiring land, even though greater production from their own farms might be both possible and profitable. Many farmers are unlikely to refuse additional land if inherited but, for low income farmers, the cost of buying extra land may be too great.

On the second question, the Land Commission normally provides loans for a 32-year period at 12.75% of the cost of the land to the Commission. In Western counties there is 50% subsidy on the first £3,000 of the value of the land. If a farmer were to acquire 10 acres (4.05 ha) of land which had cost the Commission £200 per acre (£494.20 per ha) in Leitrim then his annuity would be £13.00 per acre (£32.12 per ha) per annum. Where land was purchased at £300 per acre (£741 per ha) the acquisition of 20 acres (£8.09 per ha) by a farmer would mean an annuity of £29.25 per acre (£72.28 per ha) per annum. For some farmers annuities of this order might prove prohibitive.

Thirdly, the dole undoubtedly acts as a disincentive to acquiring more land as has been shown earlier in this Chapter.

Leitrim Land Pool

As already pointed out, about 800 holdings, amounting to 25,000 acres (10,000 ha), should be available for redistribution (due to death of elderly unmarried farmers) within two to three decades. Some 22% of holdings (i.e. 60,000 acres (24,281 ha), assuming the same size distribution as with elderly farmers) are either let in conacre or derelict.

There is probably an overlap between this and land held by elderly unmarried farmers but close on 80,000 acres (32,375 ha) should be available. The availability of this land for redistribution will be aided by the Farm Retirement Scheme.

A Leitrim Land Pool should be established whereby available land would be pooled for redistribution to chosen farmers. The objectives should be to create as many viable - sized farms as possible and these should be in the hands of capable farmers.

This approach would differ from the present methods whereby land is held by the Land Commission before redistribution. More land would be involved because of set redistribution targets and also because of the proposed Land Leasing Scheme.

Two redistribution schemes are suggested: (a) a Land Bonus Scheme, and (b) a Land Leasing Scheme. In costing these schemes account should be taken of the cost of creating employment in industry.

(a) Land Bonus Scheme

The primary aim of this scheme would be farm restructuring on a scale which would make some impact on the problems of small farm size, and for which the present scale of activity in land re-allocation is very inadequate.

The essential features of the scheme, which would lay main emphasis on the ability of the individual rather than on current farm size or family circumstances, are:

- 1) The objective would be to establish 80-acre (32 ha) viable farms within 10 years on 30% of Leitrim lowland.
- 2) The land would be paid for through land annuities over a 60-year period with an option to purchase outright at favourable terms at any time at current market prices.
- 3) The Land Commission would administer the scheme and would retain rights in relation to subsequent sale or transfer.
- 4) Eligible farmers would receive enough land to bring their holding to 80 acres equivalent or more.
- 5) Farmers would be selected as a result of their performance within the Output Incentive Scheme. Younger people with agricultural training would also be considered.
- 6) The Scheme would give priority to those already closest to the viable size but no farmer who has already shown a willingness and ability to develop his existing holding (irrespective of farm size) would be excluded.

(b) Land Leasing Scheme

Within this scheme, farmers could lease land over a 12 to 15 year period. The land to be leased would be acquired by the Land Commission and would be held in a Land Pool as already outlined. The lease would be renewable and there would be an option to purchase at any time.

Output Incentive Scheme

The success of schemes such as the Pilot Areas Scheme, the Small Farm Incen-

tive Bonus Scheme and the Beef Incentive Scheme shows the value of the incentive - oriented approach to increased output in agriculture. In Leitrim, virtually no farmers qualify in the development category of the Farm Modernisation Scheme. The main reasons for this are small farm size, poor livestock productivity and lack of farmers own funds for investment.

The entire county has been included in the Disadvantaged Areas Scheme. The benefits from this scheme, however, will not compensate for the lower livestock productivity in Leitrim compared to other parts of the country. To some extent this Scheme can be regarded as an incentive scheme. However, it would be more effective if financial assistance were related to the achievement of certain output targets rather than directed towards subsidisation of inputs or welfare supports.

A study of farms which had participated in the Small Farm Incentive Scheme (Part III) showed that the average number of grazing livestock units on participating farms increased (over a 3 to 4 year period) by 50%, with a corresponding intensification in land-use from 2.8 to 1.8 acres per livestock unit. Incomes on completion of the scheme were almost double those of non-participating farms of similar size. In contrast to farms generally in the county, most of the farms participating in the scheme had a pig enterprise.

Unfortunately, although some 80% of Leitrim farmers were eligible, only 13% participated in the scheme, while a much smaller percentage actually completed it.

The Farm Modernisation Scheme should be modified to incorporate the type of incentives so successful in the Small Farm Incentive Bonus Scheme. Grants should be paid to participating farmers on reaching certain output targets, the grants to be paid on an annual phased basis so as to allow for a constant increase in livestock numbers or more intensive systems over a period. Each farmer should have to work to a plan in order to reach the specified target of livestock numbers and should be paid the grants on reaching these targets.

The Disadvantaged Areas Scheme will not compensate for non-qualification as development status under the Farm Modernisation Scheme, but it still gives incentive in that headage payments can result in increased livestock numbers. Possibly a more important element of this scheme for Leitrim is the joint fodder production measures it contains. Through these, grants are available to buy machinery for winter forage conservation. Definite efforts should be made to organise farmers on a co-operative basis so that this aspect of the Disadvantaged Areas Scheme can be made effective.

Role of Advisory Officers in Output Incentive Scheme

To implement the Output Incentive Scheme four extra agricultural advisory officers would be required to work full time on it. They would recruit 100 farmers into the scheme, for whom they would then be responsible. Farm records would be kept to monitor the achievements of each group in terms of increased livestock numbers and farm incomes. Thus, there would be an incentive both to the advisors as well as to the individual farmers. These advisors could either supplement the present advisory services in the county or they could be attached to co-operative societies.

The Non-Viable Farms

Except for the 8% of farms over 80 acres (32 ha) and a few others in intensive farming (mainly pig production), farms in Leitrim are non-viable. For maximising

TABLE 6: Estimated net annual revenue for agriculture and forestry at different discount rates on lowland drumlin soils

Discount rate %	Agriculture		Forestry		Advantage to forestry	
	f/acre/ha		£/acre/ha		f/acre/ha	
Labour not charged						
0	14.7	36.3	57.1	141.1	42.4	104.8
3	13.2	32.5	30.6	75.7	17.5	43.2
6	11.6	28.7	14.7	36.4	3.0	7.7
Labour charged ¹						
0	3.8	9.3	53.5	132.1	49.7	122.8
3	2.2	5.5	26.5	65.6	24.3	60.1
6	0.7	1.8	10.1	24.9	9.3	23.1

The labour charges are a charge against the labour of the farmer or the forest operative

Employment Content

Possibly the most important long-term aspect of forestry is its regional employment content. Estimated employment potential from forestry on a land area of 150,000 acres (60,000 ha) of drumlin soils in 1973 and 2003 is given in Table 7 and compared with similar figures for agriculture. Total potential employment in forestry is greater both under current conditions and in future projections. Because there is considerable under-employment in Leitrim agriculture, the employment figures for 1973 conditions overestimate the true employment capacity. The figures in brackets, based on Standard Man Days per Livestock Unit, show true employment potential at current output levels.

The key to the highest level of employment in forestry is the ratio of employment in the processing sector to employment on the land. Forestry (planting, maintaining, felling and extracting) will employ one person per 93 acres (37 ha) on the land. (By contrast, 80 acre (32 ha) farms are proposed as the smallest viable unit). However, for every man engaged in forestry on the land, two are employed in the primary

TABLE 7: Employment content of agriculture and estimated employment potential of forestry based on a land area of 148,200 acres (60,000 ha) of drumlins (Yield Class 25)

Period	Enterprise	On land	Processing	Total
1973	Agriculture	2,745(1,035) ¹	424* (160)	3,169(1,195)
	Forestry ³	1,592	3,317	4,909*
2003	Agriculture ⁵	1,852(1,035)	186 (160)	2,038 (1,195)
	Forestry*	1,124	2,136	3,260 ⁰

¹ Computed on basis of Standard Man Days/Livestock Unit.

² Based on the national average of one person in primary processing for every 6.4 farmers — over-estimate for Leitrim conditions.

³ Based on 45-year rotation.

⁴ This represents employment content of a 60,000-ha plantation in full production.

⁵ Based on 80-acre (32-ha) farms.

⁰ Based on 25-year rotation — a longer rotation would give greater employment.

The decrease from 1973 results from allowances for increased mechanisation/output per man in the processing sector.

processing sector. In agriculture, nationally, for every six farmers there is only one person engaged in primary processing. Because of the low output per farmer this number would be even less in Leitrim.

Because timber is bulky it is normally processed within 30 to 40 miles of the forest. Thus, timber processing is assumed to contribute to regional employment.

Timber Processing Plant at Drumshanbo

Expert opinion in the pulpwood processing industry indicates that an economically viable pulpwood enterprise would need a guaranteed supply of raw material of about 150,000 to 200,000 m³. What are the prospects of such output in the Leitrim region?

There are now about 25,000 acres (10,000 ha) of mostly immature plantations in Leitrim which will produce 7,500 m³ in 1977/78. Output from the county will rise to 38,500 m³ by 1990/91. Projected output from the north-west region (Counties Cavan, Donegal, Leitrim, Roscommon and Sligo) will rise in the same period from 50,000 m³ to 210,000 m³. Recent research indicates that these projections of production may be under-estimated by between 10 and 20%.

Thus, by 1991 there would be enough output from forestry plantations in the north-west region to supply a major processing plant. However, because this material is extracted each year as it becomes due for thinning, the supply necessary for such a large enterprise would not be available. Over a period of time other agencies would have established an interest in and a right to a continuing supply from the region. **For this reason, a policy of in-forest storage is advocated. This would mean that the bulk of the thinning from the northwest region over the next 5 years should be delayed and then harvested over the following 5 years.** This would augment the projected output for these years and make it possible to start processing by 1984. The principle of in-forest storage could provide a supply of 175,000 m³ by 1984 or over 200,000 m³ by 1985. **On this basis one of the main proposals of this report is that a large timber processing plant be established in the Drumshanbo region by 1984, to avail of this raw material.** Reasons for choosing Drumshanbo include its central location in relation to current supplies, the severe lack of off-farm employment in the surrounding rural area and, most important of all, the potential of future production from the surrounding drumlin soils.

Encouraging More Afforestation

Economic and employment considerations indicate that a considerable expansion of forestry on the lowland drumlin soils would be of advantage to Leitrim and the north-west region in general. **Two proposals, aimed at expanding forestry in the area, are put forward. One is the Drumlin Afforestation Project, which would be carried out by the State. The second, the Annuity Purchase Scheme, is aimed at bringing private forestry within reach of the typical small landowner in the area.**

Drumlin afforestation project: This project, in full production, would employ 3,250 people in managing and processing timber from 150,000 acres (60,000 ha) of drumlin soils. The project envisages planting 6,000 acres (2,400 ha) per year over a 25-year period. The planting would be on wet lowland mineral soils (mostly drumlin soils) within a 35-mile radius of Drumshanbo. One-third of these new plantations would be in Leitrim, which together with current plantations would bring the total area un-

der forestry in Leitrim to 20% of the land area in 25 years time. Because of the high production of these soils, this project would provide 1,000,000 m³ of timber and would make Drumshanbo a major timber processing centre.

Private forestry: Within the European Economic Community there is a definite emphasis on private forestry; 80% of forests within the EEC are privately or co-operatively owned. Most of the subventions from Commission funds are allocated to private forestry. Ireland has 95% of its new plantations in state hands and so cannot avail of these subventions. It may be necessary for the state to consider the promotion of private or co-operative forestry in order to avail of these financial supports. Financial support should aim to offset the major problem for any private individual entering forestry, i.e., the long delay before any income is generated from thinning and harvesting the crop.

Annuity purchase scheme: In this scheme, small landowners would plant their own land and receive an annual income from a purchasing agency. The purchasing agency, which contracts in advance to buy the entire crop, could be either an agricultural or a specially formed forest co-operative. The role of the purchasing agency would be to act as an intermediate financial agency between the landowners and a major financial institution such as a pension fund or insurance company. It would also be possible for the state to finance the purchasing agency.

Economic analysis of this proposal showed that for a 35-year rotation on high yielding (Yield Class 25) sites it would be possible for the landowner to receive an annual income of £46 per acre. The calculations contained a large margin of safety for the purchasing agency because of the long-term contract involved.

The advantages of the scheme to the small landowner are that he can retain ownership and management of his own land, while receiving a steady income linked to the value of timber. The agency would have the security of the crop, which, when felled, would reimburse it for the annual payments it has made. The advantage to the state is that land would be transferred to a more productive use with no disturbance of the local population.

CHAPTER 5

CREATING OFF-FARM EMPLOYMENT

Creating jobs in the non-farming sector is vitally important in Leitrim to arrest population decline. The land resources, even if exploited to their full potential, cannot provide full employment for the present population.

Off-farm employment is required in almost all rural areas, but particularly in those with marginal land and relatively high population densities. It is needed either on a full-time or part-time basis to supplement farm incomes and to facilitate structural reform. It is also necessary in places to ensure that local populations do not decline entirely or dwindle below the level where infrastructures and essential public services tend to break down.

Small Industries

If employment can be generated through increased agricultural production, all the better. Here, agriculturally-based industries such as the processing of milk, beef and bacon products would be of primary concern, but the present scope and distribution of such industries in the north-west region does not present a very encouraging prospect of their expansion within county Leitrim itself. Forest-based industries would also be important.

Certain centres of population in the county which have already shown some growth potential should be chosen for development. These are — Carrick-on-Shannon, Ballinamore, Carrigallen, Drumshanbo and Manorhamilton and Mohill. There is an argument for creating industries in the county now, which, even if not viable in the long-run, would provide employment and would help to offset the poor demographic pattern. This would also help to establish a suitable labour pool for future industrial expansion, for which plans are specifically outlined in this report, e.g. timber processing, commencing in 1985.

Developments at Manorhamilton and Carrick-on-Shannon cannot be viewed entirely within the confines of Leitrim since they are influenced by hinterlands in Sligo and Roscommon. Developments at both these centres should be based largely on tourism which already has a strong base, particularly at Carrick-on-Shannon. The proximity of Manorhamilton to the very scenic Glenade and Glencar valleys, as well as to Lough Gill and the scenic parts of Co. Sligo, has not received sufficient attention for tourism. While Sligo town is established as the main tourist centre in the area, attempts should be made to provide accommodation and attractions which could build up Manorhamilton as a local tourist centre.

There are serious obstacles to the development of agriculturally-based industries in the county. Ballinamore creamery has an annual intake of only about one million gallons of milk and is a branch of Killeshandra Co-op. in Co. Cavan. The proximity of Ballinamore and Carrigallen to Killeshandra, which has an annual intake of over 16 million gallons, does not justify recommending the separate development of major co-operative structures at Ballinamore or Carrigallen. Roosky also has a bacon/beef processing factory. However, the possibility of extending co-operative activities should be further explored. The greatly increased production of milk under the proposed developments in this report would provide a base for greater processing within the county.

Leitrim Countryside Improvement Scheme

The aims of this scheme would be twofold. It would help to relieve the high unemployment associated with the small farm structure in the county and would also be aimed at improving the countryside for practical, aesthetic and touristic purposes. Eligible works could include farm improvements such as land drainage, road making, farm building construction, hedge trimming, and could also be extended to tasks related to tidy towns or tidy countryside projects, provision of tourist amenities, etc. The forest labour force would also be expanded to provide forest walks, picnic sites, etc.

Some of the work mentioned under this scheme is already being done but the specific proposal envisages that these operations would be expanded and that they would be clearly identified as aiming at a general improvement of county Leitrim. Apart from the creation of more employment, this scheme would have the advantage of reducing the numbers in receipt of unemployment payments.

Tourist Potential

It is not the function of this report to examine in any detail the tourist industry in Leitrim. However, it could be a most important source of off-farm employment and income.

Because the county lacks any large centre of population, it must rely on its natural resources for potential development of tourist amenities. One-third of the county is mountainous, 5% is under water and most of the remainder is currently agricultural land. Large tracts of natural vegetation, areas of lakes and waterways, and expanses of forestry without any large centres of population, afford opportunities to develop outdoor recreations, such as fishing, shooting, hiking, pony trekking, sailing, cruising, water-skiing, canoeing and caravanning.

Providing farm-house holidays enables the farming community to participate directly in income from tourism. Unfortunately, the number of farm houses in the county suitable for this purpose is very limited.

CHAPTER 6

A STRATEGY FOR IMPLEMENTING THE DEVELOPMENT PROPOSALS

The primary purpose of this survey was to study the physical, economic and sociological resources within the county. But resource surveys must also concern themselves with the strategies necessary for the successful implementation of development proposals, so that the proposals may be more vigorously pursued.

The West Donegal Experience

Higgins (1) has shown that after the West Donegal Resource Survey (2) was completed, a serious breakdown occurred in relation to the innovation or implementation strategy. The lack of both a national, and more particularly, a local organisational focus to implement the proposals was emphasised. While locally the Co. Committee of Agriculture with the agricultural advisors, are the primary agents for agricultural development, a number of important development functions, particularly those of the Land Commission and the Land Project, have their lines of responsibility direct to national rather than local level. The Chief Agricultural Officer in a county has no executive authority in regard to both these and other important development functions. Research findings point to the need for greater cohesion and integration of function and the need to achieve a single organisational focus at county level for this kind of development. The lack of interest in the scheme by national political leaders was also strongly emphasised by the West Donegal farmers in the Higgins study.

Deficiencies showed up in regard to lack of adequate planning for implementation, for restructuring, and in regard to ownership problems. The interest of farmers themselves was not adequately stimulated, nor were they adequately involved in developing the proposals. Communication and dissemination of the findings to

farmers and other recipients were faulted, and it was felt that there was no effective follow-up action. Lack of an appropriate incentive scheme Coupled to implementation was also an important deficiency.

The willingness of non-viable farmers to move off the land would have been critical to the success of the West Donegal scheme. Irish farmers have a deep-rooted attachment to the land which cannot be measured in money terms. There is a reluctance to cut ties with land even if it makes no contribution to income. Land ownership confers a certain status in the rural community and the inducements so far offered have been insufficient to outweigh this. Aversion to debt and fear of losing the dole are other important factors. It was also felt that inadequate attention is given to farmer education and training.

It is not easy to determine the implementation strategy most likely to succeed. In any strategy involving land use decisions, many factors act as constraints. These include i) personal freedoms ii) the role of the State and of individuals iii) legal aspects iv) technical expertise and v) national economic considerations.

Any development strategy should act for particular purposes. These have been spelled out in detail throughout this report and include i) accelerating land restructuring ii) promoting the success of the Output Incentive Scheme iii) reclaiming-of land iv) promoting the dairy industry v) promoting co-operation vi) allocating extra land mainly on the basis of ability to farm vii) promoting alternative land-use enterprises viii) providing capital.

An Outline Strategy

The success of any strategy cannot be guaranteed. However, certain essential steps can be outlined without which progress could not be made. These are:—

1. Obtain State commitment
2. Establish a co-ordinating agency with real powers
3. At an early stage, involve the people for whom the programme is intended
4. Identify innovators
5. Train prospective farmers and expand co-operation

State commitment

State commitment to a regenerative development programme is essential. Without the backing of the various government departments it would be impossible to implement the proposals outlined in this report. Because of competing demands, State commitment is not easily gained. Only through dedicated lobbying by public representatives and local organisations can outside bodies be made to take an interest. However, the fact of having a fully worked-out and documented development programme should enable the promoters to gain the ear of government policy makers, provided a properly orchestrated publicity campaign is waged. When State commitment is forthcoming to a definite policy, this policy must then be implemented through a land-use plan. For this to succeed it may be necessary to establish a Development Corporation.

At present there are several agencies with responsibility for different aspects of land development in Leitrim, e.g. the County Committee of Agriculture with its advisory service, the Land Commission, the Forest and Wildlife Service and the Farm Development Service.

To implement the proposals, a single agency with full power and authority to car-

ry through a major regenerative development programme may be required. This agency, which would embrace forestry and agriculture, would consist of a board with representatives from every group involved in land development, not least the representatives of the various farm organisations and co-operative societies. Representatives of high standing with power to speak and act on behalf of the Government would also be essential.

Involving the recipients

Acceptance of the development proposals by the people for whom they were intended is essential. No innovation, no matter how "good" it appears to its sponsors, is effective if not acceptable to its recipients. It is the attributes of the innovation — not as seen by experts, but as perceived by the potential adopters, that really matters. The first act of the Development Corporation must be to discuss every aspect of the proposals with farmers' representatives and to seek their views on how they might be improved and implemented. Modified proposals can then be drawn up in the light of these attitudes. Full acceptance, of course, is never attainable, but the goodwill of the majority is a prerequisite for successful implementation of the proposals.

In this respect, recent discussion with some agriculturalists in the county have indicated that there are reservations about establishing an Agricultural Development Corporation. The survey team considered that they should place this fact on record within the report so that those responsible for policy decisions will be aware of these reservations.

If these objections are well-founded, as indeed they may well be, then consideration should be given to other means of co-ordinating and promoting the activities of the different agricultural development agencies in the county so that the*proposals in this report may be vigorously pursued.

Choosing the innovators

This is another difficult task and demands local knowledge of the farming families. Low income farmers can be expected to respond poorly to programmes which emphasise commercial and economic factors and they tend to be less innovative than those with high incomes. Agricultural development, especially of traditional agriculture, implies the introduction and adoption of new technology on a wide scale. The dilemma is obvious. Those that most need new technology are the least likely to use it.

Two extreme views exist on the role of farmers. These are relevant in the Leitrim context. One view is that farming is a way of life and that the farmer should be allowed to live with the minimum of interference, not concerned really with farming as a business but settling for minimum living standards. The other is that the farmer is a businessman realising the importance of the farm sector and doing his best to maximise output. Because of the adverse environmental conditions in Leitrim and the effects of outmigration over the years, most Leitrim farmers probably fall into the first category. For this reason, it is all the more important to develop a strategy for implementation of proposals because otherwise they will not be taken up by the vast majority of the present farming population.

Those farmers who are willing and able to develop their farms must therefore be identified and supported. The four specially appointed agricultural advisors (with sole responsibility for the Output Incentive Scheme) would each recruit 100 farmers into the scheme. Farm records would be kept so that the achievements of each group could be monitored in terms of increased

livestock numbers and farm income. The proposal would have the advantage of a particular group being identified with one advisor in a manner similar to the operation of the Pilot Areas Scheme. This would create incentives for the advisor as well as for individual farmers to achieve established targets. It would be envisaged that the Output Incentive Scheme could also be operated by the existing agricultural advisors in the county, but on a smaller scale, since their other responsibilities would not allow them to devote all their efforts in this direction.

Training and co-operation

Finally, the roles of training, co-operative activities and cross-border co-operation should not be overlooked in the implementation strategy.

Special training programmes are essential if the farmers chosen for development are to make the desired progress. Prospective recipients of land must be carefully chosen, e.g. those who have already shown their ability through the Output Incentive scheme or young farmers trained in an agricultural college. **Those selected, could be formed into groups so that each individual would have the opportunity of constantly comparing his progress with others in his group.** The 100 farmers for each advisor within the Output Incentive Scheme could be broken down into smaller groups of 10 for this purpose.

The improvements suggested must be seen to work. The age-old axiom "seeing is believing" is as true for agricultural innovation as for any other purpose. This can only be done by selecting innovators in strategic locations and ensuring that their successes are publicised both through the media and through visits by the other farmers in the group.

The benefits to be obtained from the co-operative approach are now widely accepted. However, low income farmers tend to make less use of co-operative enterprises than better-off farmers. For this reason, special efforts are required in Leitrim to expand co-operative activities. These efforts should be channelled through the groups in the Output Incentive Scheme and would concentrate initially on such things as increased fertilizer use, land reclamation, purchase of heifers of good milking quality and the provision and maintenance of suitable machinery. Cross-border co-operation, with special EEC aid from the Regional Fund, should also be fostered.

- 1) Higgins, T. 1977, Research Planning and Innovation, Stationery Office, Dublin.
- 2) West Donegal Resource Survey, An Foras Taluntais, Dublin, 1969.

SECTION 3

CHAPTER 7

TECHNICAL DEVELOPMENT PROPOSALS FOR AGRICULTURE

The technical developments necessary to increase farm output in Leitrim are easy to identify. But their implementation is difficult because of the poor demographic conditions and bad farm structures. For this reason the report up to now has concentrated on methods of improving these conditions. However, it is also necessary to spell out how agricultural production can be increased at farm level.

Apart from the farm structure and demographic problems, the major constraint to increased output in the county is poor soil drainage. Land reclamation and drainage are essential for the full potential of Leitrim land to be realised.

Land Capability for Agriculture — Mineral Soils

As most of the soils have severe limitations for tillage, their suitability for grassland is used as a basis for land capability classification. This capability was quantified (Part I) in terms of livestock carrying capacity per acre. The results are summarised in Table 8.

TABLE 8: Land capability classification for grassland of Leitrim soils

Land class	Area (ha)	48 kkgN/ha		230 kgN/ha		% of county
		Grazing capacity (L.U./100 ha)	Gross grazing capacity (000L.U.)	Grazing capacity (L.U./100ha)	Gross grazing capacity (000 L.U.)	
H	6,529	197	12,908	247	16,135	6.1
C	10,107	174	16,877	216	20,988	9.5
D	50,120	136	68,144			46.9
E	36,796	124	46,695			34.4
F	3,319	54	1,914			3.1
Gross total	106,871 (265,718 acres)	146,508			153,846	

Land Improvement

The measures proposed here refer mainly to land capability class D (46.9% of county). But they also apply to the wet soils in land capability class C, although these are easier to drain and have a higher potential stock carrying capacity.

Capital cost of reclaiming and draining this land must first be considered. If farmer capital were not a problem, intensive drainage and reclamation could be recommended. Since it is a major problem it is futile to carry out intensive drainage if farmers cannot increase their stock numbers.

Initially, relatively simple inexpensive reclamation and drainage should be carried out. This would include clearing up field perimeter drains and removing scrub. Later, when rushes had been sprayed, fertilisers applied and stock numbers built up, a more intensive system of mole drainage should be carried out. Fields used intensively for hay or silage would have to be drained at the beginning (moles or gravel tunnel drains into main drains) as this is the only way to produce sufficient winter feed.

A Land Drainage Programme: Only 5% of the total land area of Leitrim was drained between 1949-1973. To increase this rate the following programme should be implemented:

1. Phase the land improvement: For example, phase 1 could consist of scrub and fence removal and installation of main watercourses; phase 2, the installation of field collector drains where necessary and, phase 3, mole drainage and surface re-instatement of the land.
2. Make capital grants available towards the purchase of drainage machinery.
3. Make grants available for supplementary drainage where this is required.
4. Mole drain intensively. Moles should be:—
 - (a) Installed at 40-50 cm depth to render them safe from damage
 - (b) Spaced at 1 - 1.5 m intervals to be effective.
 - (c) installed when the ground is dry (May-September) and with prospects of dry weather afterwards.
 - (d) Located in a stable soil layer (especially in soils with "channel" layers), to avoid collapse of the mole.
 - (e) Filled with gravel where a plastic layer does not occur within 60 cm of the soil surface.
 - (f) Up to 100 m long where discharged into an open dyke.
 - (g) Should either have an outlet lined with a plastic pipe (50 cm bore) or with a 15 cm overhang
 - (h) Where instability of the mole drains may cause blockage, piped main collector drains have an advantage. Here, drains should be shorter (approx. 28 m average length). This more costly design can only be justified where moles receive water rapidly on steep gradients (see Part 11).

Field size: Surplus and overgrown fences and open watercourses interfere with farm management. These take up nearly 10% of the land area of Leitrim at present and must be removed, where possible. Average field size on this type of land in Leitrim (1.63 acres, 0.66 ha) is too small for efficient modern farming methods. Increase in field sizes must be a part of the reclamation programme. This should be done when the initial developments such as rush control, fertilisation and drainage have been carried out.

A central access road on farms, especially to trafficable land, would greatly reduce poaching and machinery damage to pastures. On many farms an old road exists and, in many instances, this could be cheaply resurfaced to serve the purpose.

Fertiliser use: Following reclamation and drainage, fertilisers must be applied. Fertiliser input on farms is very low. Over half the farms in the county use no fertiliser and only 10% spend over £1 per adjusted acre. For any significant increase in stock numbers, fertiliser use must be greatly increased (grazing - 15 lb P, 30 lb K; cutting - 25 lb P, 40 lb K).

Recommendations for Farming on Wet Mineral Soils

Dairy Farming

Dairying is concentrated on wet mineral soils in association with some dry soils. Dairy herds are small with over 65% less than 5 and 90% less than 10 cows. Average dairy herd size in 1973 was 8.7 cows, with average milk yields of 392 gallons (1,782 l) row. Some 66% of the milch cows are Shorthorn and 10% are Friesian or Friesian X breed. Increased output from dairy farming can only be achieved by:

- a) Improving milk yields of cows by at least 50%, i.e., lactation yields of 600 gallons (2,728 l) cow
- b) Increasing stock carrying capacity of farms.

To achieve these targets better feeding of the cows is required, and this can be achieved through increased fertiliser use, plus better grassland management.

More winter feed can be made as silage by using more fertiliser, especially nitrogen, and this in turn would allow better management of grassland. By housing cows early in November, poaching of grass swards can be avoided. When adequate winter feed is available, there is no necessity to graze pastures in spring until both the ground conditions are suitable and the grass supply is sufficient. Silage must be supplemented with concentrate feed especially if it is of poor quality. The following dairy farming schedule is recommended:

Dairy Farming Schedule

80 acres (32 ha) farm

<i>Early February</i>	Apply phosphate and potassic fertilisers to all fields
<i>Mid February</i>	Calving of cows starts — give detailed attention to calf rearing.
<i>Early March</i>	Apply 2 cwt acre (251 kg/ha)* of N to grazing fields and 1 cwt acre to areas devoted to silage.
<i>Early April</i>	Sell yearling cattle
<i>Mid April</i>	Let milking cows graze silage areas for 7- 10 days.
<i>Mid April</i>	Calving finishes. Cows on grazing areas. Dose adult stock for fluke. Apply 3 cwt N/acre to silage areas
<i>2nd week in May</i>	Put calves to pasture
<i>1st week in June</i>	Take 1st silage cut from 40% of farm.
<i>Mid June</i>	Spread slurry to silage areas, plus 2 cwt N/acre.
<i>Late June</i>	Spread 2 cwt N/acre on grazing areas.
<i>July</i>	Dose all calves for stomach and lung worms. Continue drainage work.
<i>1st week August</i>	Take 2nd silage cut.
<i>2nd week August</i>	Apply 1 cwt/N acre to all the farm.
<i>Mid-October— 1 st week November</i>	Remove all cows and in-calf heifers from land.
<i>2-4 week November</i>	Sell cull cows. Remove all weanlings off pasture and dose for worms.
<i>December - January</i>	Dose all stock for fluke. Cut hedges and clean open drains and ditches, repair fences.
<i>December - April</i>	Winter feed all stock. Supplement young stock with barley throughout the winter. Supplement cows with barley from late December.

* 1 cwt per acre = 125.5 kg per ha

Increasing the dairy herds

The objective for the 80-acre (32 ha) farm is to carry at least 30 cows plus 20% replacements and rear all the calves to 1 year old. The problem initially would be to acquire cows of good milking potential. This is not easy and would take a number of years to achieve. Some good quality cows probably can be bought but a more successful approach might be for groups of farmers to buy heifer calves from tuberculosis and brucellosis-free herds. **By organising themselves into groups, they could plan such a buying operation on business lines through the Dairy Co-operative Societies or farming organisations.** In this way, they could be advised on the milking records of herds and could select the heifer calves on their herd record for milking. With such a plan, it should be possible for dairy farmers in the county to increase the size and quality of their milking herds to the desired level in five years.

Winter feed production

Having acquired the cows or set in motion plans to reach the target number in 5 years, the farmer will face the problem of feeding and housing his animals. **Silage will have to be the main winter feed.**

Dependance on hay, which at present forms the major part of the winter fodder in the county, is too precarious in the Leitrim climate to allow intensified farming to succeed. Also, two crops of silage can be cut, but only one of hay. This extra fodder is the key to having adequate winter feed and good grazing management e.g. saving pastures from poaching.

Production of adequate silage will be the major yearly operation on the farm because intensification hinges on its success. The following quantities of silage would be required on an 80-acre farm in the county:

Type of animal	Winter silage requirements	Total (tons)
30 cows	7 tons/head	210
6 in-calf heifers	6 tons/head	36
28 calves reared to 1 yearold	4 tons/head	112
		358

A total of 358 tons of silage is required, which, at average yields of 7 tons (6.4 tonnes) of silage per acre, requires 25 to 26 acres (10 ha) cut twice or 50 to 52 acres (20 ha) cut once. This means that one-third of the farm would be cut twice for silage. Bearing in mind the topography of farm-land in the county, 30-35% is probably the maximum area of farms suitable for silage cutting. Depending on the farm, the area devoted to silage in June may well approach 40-45% of the farm, with the second silage cut coming from 25% of the area.

Animal housing

Provision of good housing and facilities demands high capital investment. Provision of such capital could tax the meagre resources available, thus curtailing development.

Because little good housing exists, any farm restructuring which takes place allows the opportunity to develop modern farmyards on new sites, if necessary. In suggesting the type of farm building which should be erected, the climatic and soil conditions must be kept in mind. With the high rainfall, roofed buildings would be necessary to reduce slurry volumes, and, because the soil type precludes winter applications, relatively large slurry storage capacity would be necessary.

Cow kennels: Conventional timber kennels with a concrete slab for silage plus a dungstead for slurry storage is possibly the cheapest system of housing. Such a layout costs about £60 per cow. However, slurry collection in a dungstead requires a tank to collect run-off from the yards and seepage from the dungstead. Emptying such a tank requires a pump which is erected permanently, or a vacuum tanker which few farms of the size envisaged would possess. Pumping the contents of such collection tanks out on grassland in winter when the soil is possibly already saturated, may defeat the very purpose for which they are erected, i.e. pollution control.

Slatted Floor Housing: In the long term, slatted floor houses may be the best way to accommodate the different types of stock. Cubicles for cows could be erected over the slats and all the slurry stored in the underground tank. This would eliminate application of any liquid to land in the winter months. It could also be used in the summer to collect silage effluent and washings from the milking parlour. The fertiliser value of the slurry collected under the slats would also be superior to that collected in a dungstead. Finally, the house could be modified at any time to accommodate either more cows or more dry stock, depending on the direction of development which the farm takes.

The nett cost, after grants, for a slatted floor house would be £200 per cow equivalent, or, say, £9,000 for the 80-acre (32 ha) farm. If the farmer organised the construction and used some of his own labour this cost could be reduced to £6,500.

Rearing calves to yearling stage

The dairy system is outlined as an objective for restructured farming which it is hoped would develop inside 10 years. It is not the ultimate or final potential of the farms, but rather it should be viewed as a reasonable achievement in farming modernisation. Yields of 600 gallons (2728 L) per cow could well become common and farmers may opt to specialise only in dairying. Instead of rearing the calves, they would sell them when born. Some farms would have the potential to carry 50 cows or more plus their replacements, and no doubt such farms will develop.

In the system suggested, calves would be reared to yearling stage before being sold (this also applies to calves from the beef-cow herds). The aim in this would be two-fold. Firstly, many farmers in Leitrim now sell their calves as weanlings in the autumn when prices are unstable or poor. Overwintering the calves bypasses this low price period and good prices are usually achieved with yearlings in March-April. Secondly, the rearing of calves to yearlings means that the farmer would not be completely dependant on prevailing milk prices. It could also play a transitional role for older farmers who may not wish to become completely dairy intensive.

Beef From Suckler Herds

The second farming system on the wet mineral soils is single suckling beef cows and store cattle production. This is the most widespread system of farming in the county at present and is predominant in North Leitrim. As a whole, the county has more beef than milch cows. The switch from milking to suckling cows has been dramatic since 1969 and probably reflects the trend by older farmers to leave aside the more demanding job of managing dairy cows. Average size of suckling herds is 10-11 cows, with output at less than half the value in comparable dairy farms. In general, switching from a poor standard of dairy farming to a poorer standard of single suckling has been responsible for this. The suckler calves are sold mainly in the autumn as weanlings, while some are carried over the winter, to be sold as poor quality yearlings.

If suckling is to be the predominant farming system in the county, it must be of a good standard, producing either finished beef or forward store animals. If well managed suckler or dairy systems are not followed on the restructured farms, the whole plan for modernising agriculture in Leitrim will fail.

Recommended suckler schedule on 80-acre (32 ha) units

Farms concentrating on beef suckler units would need to be 150 to 160 acres (61-65 ha) to achieve a similar level of income to dairying (see Part III). Cognisance must be taken, however, of the time it would take to have a reasonable number of farms of the size suggested above, i.e. 80 acres (32 ha) minimum. Even with an agreed plan for restructuring farms, this would require 10-15 years.

<i>Early February</i>	Apply phosphatic and potassic fertilisers to all fields.
<i>Early March</i>	Apply 1.5 cwt/acre of Calcium Ammonium Nitrate to grazing fields and 1 cwt/acre to areas devoted to silage.
<i>Mid-February to Mid-April</i>	Calving of cows and detailed attention to calf rearing and in particular to avoidance of calf scour.
<i>Mid-April</i>	Cows and calves lightly graze the silage areas which subsequently receive 3 cwt N/acre.
<i>Late April</i>	All cows and calves on grazing areas. Apply 28 lb calcined magnesite/acre before grazing where grass tetany is a problem.
<i>May-June</i>	Mating of cows with Hereford or Charolais bulls.
<i>1st week June</i>	First silage cut taken.

<i>Mid-June</i>	Slurry application to silage areas plus 2 cwt N/acre to area reserved for a second silage cut.
<i>Late June</i>	1.5 cwt. N/acre applied to all grazing areas
<i>July</i>	Treat calves for stomach worms and hoose. Drainage work e.g. mole draining.
<i>Early August</i>	Second silage cut taken where necessary.
<i>Mid-August</i>	Depending on the ultimate use made of calves, the weaker ones should be fed barley at 1 lb (0.45 kg*)/head/day.
<i>Mid-September</i>	Treat calves for stomach worms and hoose.
<i>Early October</i>	All calves to receive meals at 2 lb/head/day. This is increased to 3-4 lb/head/day where finishing at the end of winter is planned.
<i>Late October/ early November</i>	Calves weaned from cows by grazing in fields separate from cows for 5 to 6 days.
<i>Early November</i>	All stock removed off pasture and winter feeding started. All weanlings treated for stomach worms and hoose. If proposing to finish weanlings during winter gradually increase meal feeding to 6 lb/head/day.
<i>November-April</i>	Winter feeding of all stock. Cows fed silage at a restricted level until calving and to appetite from calving to grazing. Cows in poor body condition or first calvers are fed to appetite.
<i>December/January</i>	Cutting of hedges and cleaning of open drains and repair offences.
<i>iMte January</i>	All stock treated for liver fluke and lice.

•1 lb = 0.45 kg

The Suckler Herd Size

If the 80-acre (32 ha) farm is to become efficient, then the objective must be to increase the suckler herd to 40 cows eventually, depending, of course, on how long the calves are retained on the farm. From any suckler herd a number of systems can arise.

Suckler systems

System 1: Calves are sold as weanlings in the autumn: In this system, only cows have to be fed during the winter months. This means the silage requirement is 240 tons, i.e. 1 ton/cow/month for 40 cows for 6 months. This could be produced in a single cut from 35 acres (14 ha) approximately, say, in June when normally there is excess grass. Rather than taking a second silage cut when grass is getting scarce (in late July-early August) both the cows and the calves, in particular, would have plenty of grass. The target selling weights for the steers and heifers in October would be 5 cwt (254 kg) and 4.5 cwt (229 kg) respectively. The disadvantage of selling at this stage is the lower seasonal prices which prevail in October and November.

System 2: Sale of yearlings as stores: In this system, both cows and calves are wintered and this means a reduction in the cow numbers to 32-33 animals. The aim in the winter for the calves is for them to gain at least 1 lb liveweight/day. This can be achieved if the silage is good and well preserved. Total silage requirements would be 300 tons, i.e. 200 tons for 33 cows and 100 tons for 30 weanlings. This would have to be taken in two silage cuts, with the highest quality — probably from the first cut — being fed to the weanlings. If silage quality is unable to achieve target weights then 2 cwt (102 kg)/barley/head is fed to the weanlings. The selling target weights in spring would be 6.5 cwt (330 kg) for steers and 6.0 cwt (305 kg) for heifers. The advantage of this system is that the time of selling normally coincides with the peak in market prices.

System 3: Sale of a finished animal: In this system, the weanlings are fit to slaughter at 14 months, say, in late April or early May. The main difference between this system and system 2 is that the weanlings are fed 10 cwt (508 kg) meals/head, mainly during the winter but barley feeding would commence at pasture in late August-early September. Better quality silage would have to be made by cutting it in late May, specially for the weanling cattle. The total quantity of silage required would be similar to System 2, i.e. 300 tons. Bull calves would not be castrated because the bull effect would increase carcase weights by at least 10%. The target carcase weights would be 550 lb (250kg) for bulls and 470 lb (213 kg) for heifers, or 9.5 cwt (473 kg) and 8 cwt (406 kg) liveweight respectively.

System 4: Sale of a finished animal from pasture: This system would mean having the animals fit to slaughter at 18 to 20 months — i.e., in the autumn of the second year. The animals would be wintered as in System 2, with the weanlings gaining 1 lb/head/day to reach 6.0 (305 kg) and 6.5 cwt (330 kg) respectively for heifers and steers in spring. Because of having the yearlings over the second grazing season the total cow numbers would be reduced to 25. Target finishing weights would be 10.5 to 11 cwt (533 to 559 kg) for steers and 8.5 cwt (432 kg) for heifers or 700 lb (318 kg) and 500 lb (227 kg) carcasses respectively.

In Co. Leitrim, system 2 would probably be the most appropriate, initially at least, but as farmers gained knowledge and experience, they might be well able to achieve system 3, which would be the most intensive.

Improving Profits From Single Suckling

Breed of Cow: Ideally a small cow should be used, e.g. Angus X Shorthorn, i.e., the traditional Blue-Grey heifers, but these are no longer available in numbers. Hence Herefords or Hereford X Friesian, which is a better milker, are the most appropriate.

Breed of Bull: In selecting the most suitable bull, farmers look for high growth rate in the calves and a low incidence of calving problems. Great variations exist between breeds and even within any one breed. Aberdeen Angus bulls, in general, produce smaller calves with lower potential weight gains than other breeds, but they give few calving problems. Charolais-cross calves are heavier than other breeds but they can give slightly more calving problems. The Hereford breeds are probably the most suitable in herds being enlarged. They give few calving problems and good-performance progeny. When farms are more intensive, Charolais bulls should be considered.

Calf Management: The greatest problem with a spring calving suckler herd is scour. The most effective control measure is to isolate each cow in a well-cleaned and disinfected calving box or house shortly before, to a few days after calving. The same procedure is appropriate in controlling brucellosis, which is generally spread at calving time.

Scour is also controlled by making sure that the calf suckles the dam shortly after birth and gets colostrum. Calves of different ages should not be mixed or young calves put in sheds vacated by older ones without cleaning and disinfecting the shed. Any calves bought in to replace dead calves should be kept isolated from the others until they go to pasture. Keeping the calf outdoors for the first 5 weeks after calving helps because the incidence of scour is less at pasture.

Pasture Management: To achieve high animal performance during the grazing season, plenty of high quality grass is necessary. This means avoiding both under-grazing and over-grazing. Because grass growth varies throughout the year, stocking rates at pasture have to be continuously monitored and changed. In the period late April to late July, high stocking rates can be carried, but in Leitrim, wet seasons can interfere with stocking rates and because of this, an allowance must always be made so that stocking rates can be relaxed.

Fertiliser use is essential to maintain sward quality. Generally the cattle slurry or farmyard manure would be applied to the silage areas, and the most nitrogen, 5 cwt calcium ammonium nitrate/ac, (628 kg/ha) would be used for conservation areas. **Grazing land should receive 1.5 cwt/ac CAN in March for spring grazing and 1.5 cwt/ac again in late June-early July when grass would be getting scarce. Adequate phosphorous and potassium levels must always be maintained to achieve the grass productivity required for the targets set.**

Sheep

Only about 3% of farm income in Leitrim comes from sheep. Sheep are mainly confined to the land above 500 ft (152 m), the stocking rate is about one ewe per ha. In 1973, 10,000 ewes and 24,000 lambs were presented for subsidy.

There are six major limiting factors to improved sheep production in the county, 1) drainage, 2) soil fertility status, 3) accessibility, 4) fencing, 5) land ownership and 6) ability of the farming population. **There could be increased sheep production on the drier hills. In wetter areas drains to trap seepage water have to be installed. Where hills are accessible, lime and phosphorus would greatly increase grass production. Basic slag can be applied to areas with 18° slopes using "land drive" machinery. Fencing off of 1 acre in every 10 is an essential requirement of good sheep management.** It would also reduce handling problems. Commonage is a major problem since it militates against the improvement of the area by the more progressive farmers.

The better, drier hills and mountains are located on the lower western slopes of Slieve Aneirin and in the vicinity of the Glenade and Glencar valleys in north Leitrim. It is in these areas that the greatest potential for improving sheep production lies. Co-operative farming of hill land is essential in these areas to achieve their potential.

However, the demographic constraints which apply to all agricultural development in the county, probably apply even more so to sheep production. As for dairying, this industry requires young active farmers, who are now very much in the minority. Unless they are brought into the industry through a definite policy of development, there can be no great improvement in sheep farming.

Pigs

Intensification of farm enterprises is desirable, especially where small farms predominate. Pig production was traditionally an effective means to intensify, but in recent years, the trend has been towards large scale enterprises. One major reason for this has been the year-to-year fluctuation in profits which has not been encouraging for the small producer.

It is surprising that, in an area dominated by small farms, pig production plays such a minor role, contributing only 14% to farm income and being entirely absent from 82% of farms. At present, pig production in the county is on a scale comparable to the national average but much lower than in some counties such as Cork, Tipperary, Wexford and Cavan. There is no reason why the industry cannot be expanded in Leitrim to play a role comparable to that in some of these more intensive pig producing counties.

It was significant that a proportionately greater number of applicants for the Small Farm Incentive Bonus Scheme had a pig enterprise than for the total population of farmers in the county. In addition, pig production contributed significantly (19%) to total gross margins achieved in each of the four years (1969-1973) of the scheme.

Animal Health

Intensified farming in Leitrim would increase livestock diseases and metabolic disorders. The most serious problem is liver fluke. Improved drainage and less poaching will help to keep this disease in check by reducing the wet conditions suitable for snail habitats. In addition, pastures should be rested and animals dosed regularly with approved molluscicides.

Proper animal management and feeding and the provision of winter housing will alleviate the diseases and metabolic disorders which can be expected with intensification. Trace element problems, such as cobalt deficiency and molybdenum-induced copper deficiency, which are also likely to develop should be given the appropriate remedial treatment.

Farming the Dry Mineral Soils

The drier soils (see Part 1) are suitable for grassland farming. They are generally the base from which good farming has developed and progressed in the county. Farms which have dry land, or "rock land" as it is called locally, can have early spring grass for grazing and a longer grazing season. These reduce the indoor feeding period, which in turn reduces the winter requirements of silage or hay.

When properly fertilised with P, K and lime and with adequate nitrogen, these dry soils can produce almost as much grass as the best soils in the country (Part II, Table 19). They occupy almost 10% (39,000 acres approx.) of the county, but factors such as elevation, steepness of slopes and boulders, hinder the development of some of them. Approximately 4,700 acres are unsuitable for development, while about 15% of the remaining 35,000 acres is under hedges, fences, drains, roads and buildings. This leaves 30,000 acres of dry land which has a potential to carry a livestock unit (L.U.) per 1.0 to 1.3 acres. Judicious use of this dry land on individual farms is essential to increase production at farm level.

The Peatlands

Blanket Peat: This peat, (mostly in North Leitrim with the exception of the Slieve Aneirin region) is deep and wet, growing sedges, mosses and heather. The only type of fertiliser application possible, i.e. aerial dressing, would not be economical. Potential stocking rates are very low and there would also be a high risk of liver fluke infestation in sheep and cattle. For these reasons investment on this land for agricultural development at present is not justified.

Some dry hills in these areas (Fig. 32, Part II) are more suitable for development. Here, fertilising either in the form of lime and phosphorus or using basic slag can be done on dry grassy slopes and on adjoining lowland. Where slopes are greater than 18° aerial dressing with basic slag or mineral phosphate would have to be considered.

Basin Peat: Basin peats, where they are drained and cut-over, as in Bord na Mona operations in the Midlands, when limed and fertilised, have a high potential for agricultural development. In their present state in Leitrim, however, there are a number of factors militating against their development. These are (1) lack of outfalls

for drainage (2) variable peat depth (3) variable cut-over levels (4) high rainfall and (5) occurrence in relatively small enclaves. This latter factor is probably the most serious since it makes it uneconomical to carry out large-scale Bord na Mona-type operations such as drainage and peat harvesting. However, individual farmers should be encouraged to develop the small interdrumlin peat areas since they may be the best soils available to them. But lack of drainage outfall is a major limiting factor here also. Arterial drainage, which is not a major priority throughout most of the county, would be of only limited and local importance.

Capital Required to Intensify Agricultural Production

Raising income by 136% by successfully implementing the development programme (see Benefits of Development Proposals) would require considerable investment in land improvement and buildings. Estimates of the level of investment required for land reclamation, buildings, livestock retained and working capital amount to £31.5 million (Table 9). Apart from the items mentioned, water supplies and farm roadways would need to be developed. The extra agricultural income of £9 million per annum would, however, well justify this level of investment.

TABLE 9: Investment required for development

	Total (£ million)	Net of grant (£ million)
Drainage: 128,000 acres • £250/acre	32	16
Buildings: 51,000 dairy cows <i>m</i> £300/cow	15.3	10.7
Extra animals retained		1.6
Working capital		3.2
Total net investment		31.5

Possibly one of the most effective ways in which the necessary capital could be injected into the system is through increased grant aid. There is considerable evidence that the 50% grant available for land reclamation is not an adequate incentive to ensure the increased participation necessary. Discussion with the Advisory Services in the county indicate that the restoration of schemes along the lines of Section B of the Land Project and of the Fertilizer Subsidy Scheme would also be desirable.

Increased farm building grants, especially those relating to self-feed layouts should also be increased in order to ensure that better winter feeding facilities are built up as rapidly as possible. Finally, it is necessary to have costings for grants as up-to-date as possible and for this purpose more frequent updating is recommended.

Development of individual farms

Implementation of the proposals will only be accomplished through development of individual farms. That development is likely to be most successful on farms already exceeding 30 acres. A typical 40-acre mixed dairy farm in Leitrim at present would

have 8 cows with progeny reared to 1½ years. The income from this farm at 1978 prices would be about £2,000. The development of this type of farm into an 80-acre intensive dairy farm by the acquisition of more land and provision of modern facilities would be very difficult to implement and finance in a single development programme. A two-stage development programme would be more feasible. The first stage would involve building up cow numbers on the farm to about 16 with replacements reared bringing farm income up to about £4,000. The main investments required during this stage would consist in construction of a milking parlour, provision of site and wintering facilities for the cows, plus a water supply (Table 10). Extra cows would be provided by retaining replacements.

TABLE 10: Nett investment for Stage 1 development

4-unit milking parlour	£4,200
Cow wintering unit	£1,600
Provision of water supply	£ 700
Total	£6,500

The annual repayment on a development loan of £6,500 at 11% over 10 years is £1,105. Care would have to be taken in this first stage development to allow for future expansion.

The second stage of development would consist in acquiring more land, doubling cow numbers, providing extra animal accommodation and reclaiming land. The investment required, apart from the cost of cows, which again could be mainly provided by retaining replacements, would be similar to that set out in Table 11.

TABLE 11: Nett investment for Stage 2 development

40 acres of land @ £500/acre	£20,000
Wintering facilities for 16 extra cows	£ 1,600
Young cattle housing	£ 2,000
Land reclamation 80 acres @ £125/acre	£10,000
Total	£33,600

The level of farm income at the end of the second stage of development should reach about £8,000 at 1978 prices.

The annual repayment on the land at a cost of £500 per acre on a 32-year loan from the Land Commission at 12%, with a 50% subsidy on the first £3,000, would be £2,400. If the rest (£13,600) were again borrowed on a development loan of 11% over a 10-year period, the annual repayment comes to £2,312. In addition to the existing payment of £1,105 and the repayments for land of £2,400, the total repayments in certain years could amount to £5,817 against an income of £8,000. This level of repayment appears very formidable. However, it would be partly alleviated through inflation of farm prices. It is important that land reclamation work be postponed as long as possible in the development programme since this would reduce repayments by £1,700.

SUMMARY OF DEVELOPMENT PROPOSALS

Agriculture — Structures

1. Accelerate farm restructuring with a target of having one-third of Leitrim land in 80-acre (32 ha) units within 10 years. For this purpose, a Leitrim Land Pool could be established to facilitate the acquisition of land (mainly through farm retirement and death of elderly occupiers) for redistribution to eligible farmers. Eligible farmers should be chosen on the basis of their age, ability to farm and, if possible, on their performance within the Output Incentive Scheme (see 5 below) p. 12.
2. Concentrate restructuring on farms of over 30 acres (12 ha), first making viable those farms already closest to the 80-acre standard, p. 12.
3. Increase the Land Commission staff substantially, at least temporarily, to deal with a backlog of land which can be acquired and distributed. The National Land Agency, proposed by the Interdepartmental Committee on Land Structure Reform, should be in a position to play a more dynamic role in land restructuring, p. 17.
4. Initiate a special promotion drive to ensure much greater acceptance of the forthcoming improved EEC Farm Retirement Scheme p. 16.
5. Initiate a major Agricultural Output Incentive Scheme so that farmers who achieve certain output targets receive special financial rewards, p. 18.
6. Eliminate dole disincentive to acquiring more land. This could be achieved by co-ordinating the Output Incentive Scheme and the Land Restructuring Scheme so as to compensate farmers for the reduction in dole payments. By concentrating on larger farms (over 30 acres (12 ha)) in land restructuring the problem created by the dole disincentive can be kept to a minimum, p. 13.
7. Appoint four agricultural advisors with special responsibility for the Output Incentive Scheme. Each advisor would recruit up to 100 farmers into the scheme and would have no other responsibilities except to ensure the success of the scheme. An alternative would be to allocate responsibility for the scheme to each advisor in the county so that each would be responsible for 30 farmers, p. 19

Agriculture — technical

8. Start a more dynamic land improvement programme. Initially, relatively simple, inexpensive reclamation and drainage should be carried out. This would include clearing up field perimeter drains and removing scrub. Later, when rushes have been sprayed, fertilisers applied and stock numbers built up, a more intensive system of mole drainage should be carried out. p.36.
9. Selected farmers should be organised into groups, p.34.
10. Dairy farming is recommended as the most remunerative farm enterprise on the wet mineral soils, p.37.
11. Increase cowherd size by organising farmers into groups which could buy in-calf heifers on business lines through the Dairy Co-Operative Societies or farming organisations, p.39.
12. Silage should be the main winter feed. p.39.
13. Dairy farmers should rear calves to yearling stage before selling, p.40.
14. Where carried out, suckled beef production must be of a good standard, producing either finished beef or forward store animals. If well-managed suckler or dairy systems are not followed on the restructured farms the whole plan for modernising agriculture in Leitrim will fail. p.41.
15. Adequate nitrogen phosphorus and potassium levels must always be maintained to achieve the grass productivity required for the targets set. p.41.
16. Increase sheep production on the drier hills and install drains to trap seepage water in wetter areas. Where hills are accessible, lime and phosphorus would greatly increase grass production. Basic slag can be applied to areas with 18° slopes using "land drive" machinery. Fencing off of 1 acre in every 10 is an essential requirement of good sheep management, p.45
17. Pig production (although absent on 82% of farms) was found to contribute an average of 19% to gross margins on some of the better farms in the county. There is no reason why the industry cannot be expanded to play a role comparable to that in some other counties, e.g., Cavan. Because of the year to year fluctuation in profits, however, pig breeding and fattening in the county should be promoted on a co-operative basis. Breeding and rearing could be carried out on the farms, but with most fattening taking place at the co-op. An agricultural development officer should be given special responsibility for pig production so that the industry could be vigorously promoted, p.45.

Forestry

18. Establish a major forest-processing industry in Drumshanbo which would ultimately employ over 3,000 people. This proposal aims to create off-farm employment through an alternative land-use enterprise. A plant could be in production by 1984 using current plantations, p. 23.
19. Initiate a Drumlin Afforestation Project aimed at expanding the forest-processing industry. This project would apply to a 35-mile radius of Drumshanbo and would ultimately include planting 19% of the land within this radius. This proposal aims at concentrating the forest industry on soils which have a very high potential output. Haulage costs would be minimised by concentrating on the chosen radius, p. 23.
20. Encourage private afforestation. The scheme, which could be administered by a special agency, would be based on annual cash payments to the farmer, who would also retain ownership of the land. p. 24.

General

21. Initiate a Letrim Countryside Improvement Scheme. Eligible works within this scheme would include road making, hedge trimming and the provision of local and tourist amenities. The forest labour force could be expanded to participate in this scheme in activities such as forest walks, p. 26.
22. Expand co-operative activities geared towards increased fertiliser use, land reclamation, purchase of heifers of good milking quality, and the provision of suitable machinery, p. 26.
23. Initiate a special training programme aimed at equipping the relevant people with the skills to cope better with their local conditions and to assist in the successful operation of the Development Corporation and the other development proposals in this report, p. 32.
24. Establish cross-border co-operation on all proposals with special EEC aid from the Regional Fund. p. 32.
25. Set up a Development Corporation with co-ordinating functions and the power and authority to implement the development proposals in this report. This would require the services of a full-time Development Manager and staff. If this is not feasible, some other mechanism should be sought for co-ordinating and promoting the activities of agricultural development agencies in the county, p. 30.