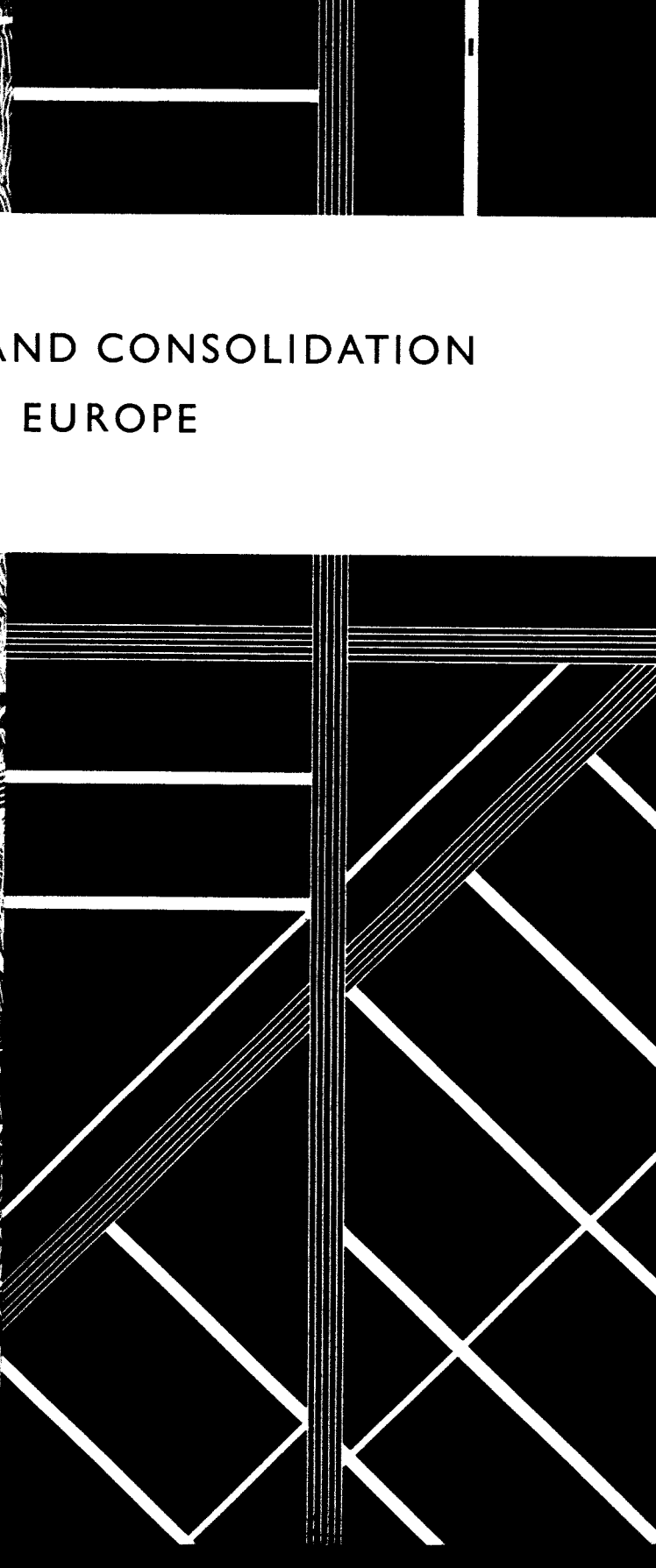


LAND CONSOLIDATION
IN EUROPE



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LAND CONSOLIDATION IN EUROPE

A study based upon the work of the:

WORKING PARTY ON CONSOLIDATION OF HOLDINGS
organized under the

SUB-COMMISSION ON LAND AND WATER USE OF THE
EUROPEAN COMMISSION ON AGRICULTURE-F.A.O.

prepared by

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To this publication are added two separate coloured maps:

1. Integralmelioration Affoltern a. Albis - Switzerland
2. Remembrement Recologne (Doubs) - France

International Institute for Land Reclamation and Improvement

Institut International pour l'Amélioration et la Mise en valeur des Terres

Internationales Institut für Landgewinnung und Kulturtechnik

Instituto Internacional de Rescate y Mejoramiento técnico de Tierras

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With respect to literature on land consolidation and related problems reference is made to the **Bibliography on Land Tenure**, compiled by FAO, in cooperation with UN, ILO and UNESCO, Rome 1955 and the **Supplement to this Bibliography**, Rome, 1959.

PREFACE

The European Working Party on Consolidation of Holdings organized under the Sub-Commission on Land and Water Use of the European Commission on Agriculture has carried out a survey on planning and work in the field of land consolidation in Europe¹⁾. The terms of reference both for the Working Party and for the survey²⁾ were:

Economic and Social Aspects, including an examination of all relevant economic and social aspects of land consolidation, such as reorganization of the farm units, ways of re-adjustment of farm management and land use practices.

Legislation, Financing and Administration Aspects, in particular the legal and administrative possibilities to prevent future fragmentation.

Technical Aspects, including problems of the road system, surfacing of roads, questions of the internal and external perimeter of land consolidation measures and the large-scale planning for integral amelioration.

To its Second Session (Vienna, October 1957) 12 Member Governments had submitted extensive surveys on these three aspects.

On the basis of this material four rapporteurs, Mr. E. Tanner – Chairman of the Working Party – (Switzerland), Mr. J. N. Gatheron (France), Prof. Dr. H. Priebe (Germany) and Mr. H. Wetterhall (Sweden), have submitted their reports to the Vienna Session of the Working Party.

The Working Party accepted the rapporteur reports and proposed to the Sub-Commission on Land and Water Use to recommend to the European Commission on Agriculture 'to consider ways and means for the publication of the survey'. This was done and the Commission approved the present study and the arrangements for its publication.

In order to facilitate the preparation of a comprehensive analytical report on land consolidation in Europe, a drafting committee consisting of the four rapporteurs, the

¹⁾ Previous to the European Working Party on Consolidation of Fragmented Holdings FAO has convened in Rome in December 1953 the Working Party of Specialists on the Consolidation of Fragmented Agricultural Holdings (Report: FAO 54/6/3204).

²⁾ Report of the 1st Session of the Working Party (Meeting Report No. 1956/2).

Deputy Chairman Mr. Herweijer (Netherlands) and the Technical Secretary of the Working Party Mr. E. H. Jacoby (FAO), were appointed. This Committee was joined by Mr. J. M. van Staveren, Director of the International Institute for Land Reclamation and Improvement (Wageningen, Netherlands). The Institute, in close cooperation with the Food and Agriculture Organization of the United Nations, assumed the responsibility for the publication of this study. The editorial elaboration of this publication was performed by Dr. Ch. A. P. Takes of the forementioned Institute.

The report on the work of the land consolidation in Europe is based on the information provided by Member Governments to the Working Party on Consolidation of Holdings, the reports of the rapporteurs and official information received by FAO.

The present publication is not a summary of all the comprehensive and detailed information which has been assembled by the Working Party. It is a comparative analysis of the basic principles, according to which land consolidation in Europe is carried out under varying historical, economic, agricultural and social conditions. This study is based primarily upon the wealth of material gathered and analysed by the Working Party and covers the following countries: Austria, Denmark, Finland, France, Germany, (Federal Republic), Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland, Cyprus (U.K.) and Yugoslavia.

The United Kingdom is not covered in this report, because the agricultural pattern of the United Kingdom differs fundamentally from Continental Europe and land consolidation is not an important structural problem of British agriculture. Eastern European countries did not belong to the Working Party at the time of the survey and consequently this report does not cover Eastern Europe.

This publication deals with land consolidation measures carried out in Government supervised schemes and consequently is not concerned with voluntary re-allocation operations which proceed outside such schemes.

The illustrations in this publication were made available by the countries concerned; this explains their heterogeneous get-up. The relevant services of France and Switzerland kindly provided the maps in colour attached to this report.

The Food and Agriculture Organization of the United Nations and the International Institute for Land Reclamation and Improvement are deeply indebted to those who have contributed to this report by thorough research and by useful advice. They appreciate particularly the work done by the four rapporteurs of the Working Party, who generously have dedicated their attention and time to the work of the Working Party. Without their inspiring cooperation this report would not have been possible. Specific tribute is due to the Governments who in the interest of the European region have strongly supported the efforts of the Working Party and more specifically this survey.

PART I

ECONOMIC AND SOCIAL ASPECTS OF LAND CONSOLIDATION AND OF THE IMPROVEMENT OF THE AGRARIAN STRUCTURE

INTRODUCTION

Land consolidation¹⁾ is an essential part of the agrarian policy of European countries, which aims at the improvement of the agrarian structure, particularly in areas, where holdings are excessively sub-divided and fragmented. Problems of agrarian reconstruction can only be approached successfully by coordinating the agricultural, economic and social aspects. The re-organization of farm units including the enlargement of small farms, the ways of re-adjustment of farm management and land use practices belong to land consolidation work just as the examination of the legal and administrative possibilities. The importance of certain technical aspects, such as road construction, amelioration work and the delineation of internal and external perimeters of land consolidation operations, is obvious.

It is the aim of agrarian policy to adjust the agrarian structure to changing technological needs and to the needs of the man on the land; immobility and even greatly retarded adjustment to changes in the economic, social and technical environment is too expensive in terms of economic and human values to be accepted any longer under present conditions.

European countries have recognized the need for action in this field and many of them are now involved in the planning or implementation of large scale programs. All programs aim at increased productivity of agricultural labour in order to strengthen the competitive position of agriculture, to establish a better balance between agricultural and industrial labour, and to reach a higher standard of living for the farming population. These programs, however, differ in emphasis, in scale and in their approach to implementation, all depending on the weight of historical, regional, economic and social factors in individual countries; but they agree in the sincere effort to reconcile technical, agricultural and human aspects in the interest of agricultural development.

In many European countries, (**Ireland, Netherlands, Spain and Sweden**) policies in the field of agrarian reconstruction are considered an integrated element of general economic planning with a view to contributing to the equalisation of the technical, economic and

¹⁾ Land consolidation in the sense of this publication comprises not only re-allocation but also other measures as road construction, land improvement, enlargement of holdings etc., see for further explanations Part II pp. 45.

social conditions for agricultural and industrial labour. In this way, improvement of the agrarian structure is identical with a policy aiming at better living conditions for the farming population and the maintenance of social vitality in rural villages.

From Scandinavia to the Mediterranean countries the European agricultural structure offers diverse patterns with varied forms often even within a small area. This complexity is due, not only to varying physical and economic conditions, but also to the result of special economic and social patterns which have been formed, in the course of centuries, under the influence of manifold social, cultural and political forces.

In almost all western European countries, particularly in those which are densely populated and which are not equipped with an industry ready to absorb excess agricultural labour, agricultural land has been seriously sub-divided; in some districts this has resulted in minute sub-division and excessive fragmentation. In countries with advanced industrialization where the excess agricultural population had the possibility to migrate to industrial centres, the real division of the properties has been stopped and in some cases even a trend to the formation of more viable agricultural units has become evident. But the rigidity of the agrarian structure prevents a quick adjustment process. The state of parcellation in European countries is given in Table I, where the number and size of the parcels can be found; these figures, however, represent the countries' averages and district averages vary considerably within the indicated limits. Land consolidation implemented on a more or less large scale also has had a certain influence on these figures.

In the Scandinavian countries (with exception of Norway) fragmentation is not so important, mainly due to the larger size of the holdings and the early consolidation activities. Generations ago, parcels were re-grouped in regions marked by extensive fragmentation; in **Denmark** for instance, consolidation was completed in the middle of the nineteenth century. The extent of consolidation operations completed, in execution or not yet started, is recorded in Table I.

During the last generation great changes have occurred both in the number and size of agricultural holdings and plots in many European countries. Table II gives a picture of the distribution of agricultural holdings according to size, which is the result of a development which has reduced within a few years, the number of holdings in certain size categories. The trend of the development is going in the direction of the family farm, which provides a decent standard of living for the farming family. The number of large holdings in **Switzerland** and the **Netherlands** is reduced and the land of undersized farms is getting absorbed by medium holdings. It is safe to state that in Western Europe the size categories from 10 to 100 hectares have generally increased while the number of holdings over 100 hectares has not changed in some countries and in others has even decreased. Table III shows the number of holdings in the Netherlands between 1950 and 1955, in Sweden between 1944 and 1951 and in Norway between 1939 and 1949. The following graphic charts demonstrate the change in the size categories in Switzerland in the period 1905 to 1939 and in Luxembourg in the period 1907 to 1957.

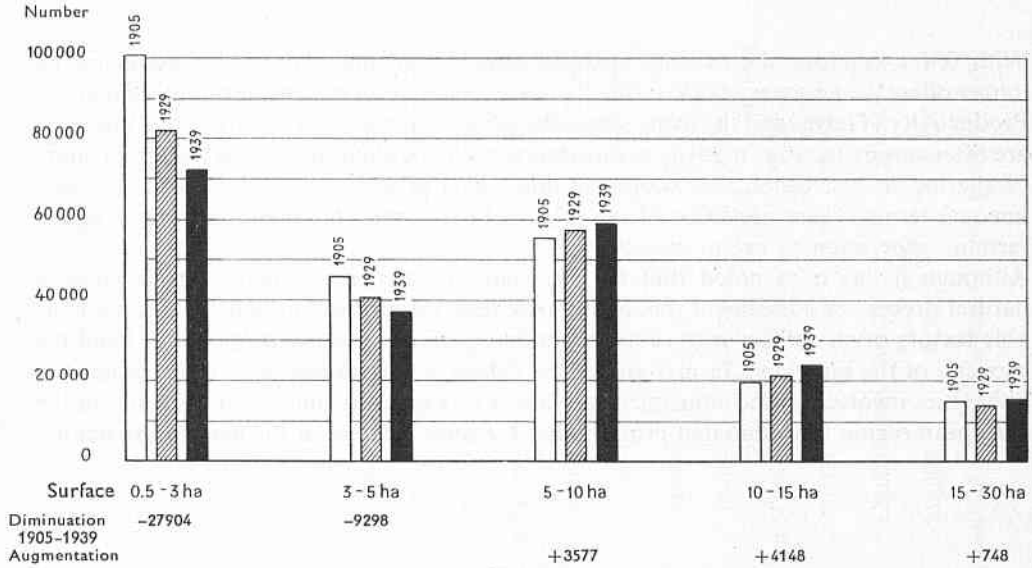


Fig. 1. Number of the farm holdings in Switzerland according to size in 1905, 1929, 1939.

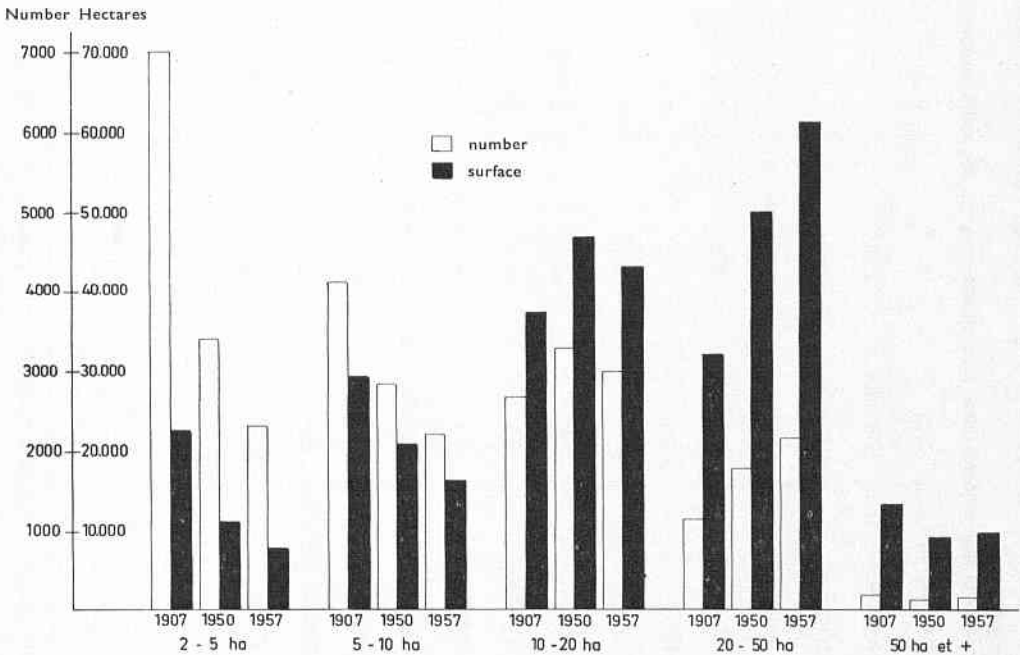


Fig. 2. The number of farm holdings and the area of cultivated land in Luxembourg according to size of the holdings in 1907, 1950, 1957.

With few exceptions the existing agrarian structure in many European countries no longer offers the necessary prerequisite for the application of modern farming techniques. Productivity of farms and the living standards of both farmers and farm workers therefore are often unsatisfactory; in many regions the farming population has not the opportunity of sharing in the benefits of economic and social progress, and, if so, only on very unequal terms. These conditions have often led to a large scale migration of the young farming generation to urban areas.

Although it has been noted that the agrarian structure everywhere is undergoing a natural process of adjustment, process is very slow since tradition and other imponderable factors often conflict with economic progress and its needs. On the other hand the capacity of the individual farmer and of his village is seldom adequate to overcome the difficulties involved in the adjustment process. Consequently, almost all countries in the European region have initiated programmes for improvement of the agrarian structure.

TABLE I. State of Fragmentation and Land Consolidation

| State: | Fragmentation (Average per farm unit of parcels) | | | Land consolidation ¹⁾ | | |
|----------------------------|--|----------------------------------|------------------|--|--------------------------|---|
| | Size | Number of parcels | Size of parcels | Carried out | In course of execution | To be executed (applied for) |
| | ha. | number | ha. | ha. | ha. | ha. |
| 1. Austria | 17.8 | 25 | 0.726 | 313,654 | 46,428 | 1,180,000 |
| 2. Cyprus: (Un.K.) | 6.6 | 10 | | | | |
| 3. Denmark: | 15 | 1-3 | | Land consolidation carried out in the main | | |
| 4. Finland: | cultivated 8.9 total 55 | (Nd-Schleswig: 5) 2-5 till 40 | | 2,319,452 | 300,000 | Province of Vasa |
| 5. France: | 14.2 | 60 (20-260) | 0.42 (0.19-1.23) | 2,020,260 | 862,234 | 14,000,000 (1,311,587) |
| 6. Germany | 6.8 | 10.1 | 0.67 | 4,320,400 | 800,000 | 5,737,800 |
| 7. Greece: | 3-4 | 25 | 0.1-0.2 | 28 enterprises | 6 enterprises | $\frac{1}{3}$ - $\frac{1}{2}$ of property |
| 8. Ireland: | 4 | 2-40 | | 172,000 | 6,000 | 90,000 |
| 9. Italy: | 2.25 | 5.7 | 0.5 | 15,000 | | 10,000,000 |
| 10. Netherlands: | 9.65 | 3.9 | 2.46 | 92,485 | 170,659 | 1,466,400 (1,141,756) |
| 11. Norway: | Field: 4.6 | with forest: 31.1 | | 3,557,600 | 55,478 | very difficult to be estimated |
| 12. Spain: | 8.75 | 15 | 1 | 70,000 | 180,000 | (630,000) |
| 13. Sweden ²⁾ : | Field: 9 | 2-3 | | 120,000 Forest | 300,000 75,000 Forest | 5,000,000 |
| 14. Switzerland: | 5.23 | 10 | 0.51 | 231,000 | 30,000 | 485,000 |

¹⁾ Figures in this table are based on estimates and are not easily comparable, because of differences in the extent and intensity of land consolidation.

²⁾ Almost all agricultural land and a large part of the forest area has already been consolidated before.

TABLE II. Categories of holdings according to size.

| State | Size/ha | Farms | | Total surface: | |
|---|--------------|---------|-----------|----------------|-------|
| | | Number | % | ha | % |
| Austria, 1951: ¹⁾ | 0.1- 0.5 | 105,213 | 24.3 | 120,543 | 1.6 |
| | 0.5- 1.0 | | | | |
| | 1 - 2 | | | | |
| | 2 - 5 | 102,687 | 23.7 | 340,672 | 4.4 |
| | 5 - 10 | 81,547 | 18.8 | 583,000 | 7.5 |
| | 10 - 20 | 76,874 | 17.8 | 1,102,854 | 14.3 |
| | 20 - 50 | 52,166 | 12.1 | 1,514,760 | 19.6 |
| | 50 - 100 | 8,083 | 1.9 | 541,895 | 7.0 |
| | 100 - 200 | 3,322 | 0.8 | 461,533 | 6.0 |
| | 200 - 500 | 1,842 | 0.4 | 556,556 | 7.2 |
| | 500 -1,000 | 558 | 0.1 | 389,827 | 5.0 |
| 1,000 and over | 556 | 0.1 | 2,114,588 | 27.4 | |
| Total: | | 432,848 | 100.0 | 7,726,228 | 100.0 |
| Belgium, 1950: | 0- 1 | 722,582 | 72.8 | 104,461 | 5.7 |
| | 1- 3 | 95,824 | 9.7 | 176,604 | 9.7 |
| | 3- 5 | 51,775 | 5.2 | 202,336 | 11.1 |
| | 5- 10 | 58,307 | 5.9 | 412,160 | 22.6 |
| | 10- 20 | 32,489 | 3.3 | 445,452 | 24.4 |
| | 20- 30 | 7,822 | 0.8 | 187,785 | 10.3 |
| | 30- 50 | 3,632 | 0.4 | 135,598 | 7.4 |
| | 50-100 | 1,785 | 0.2 | 120,949 | 6.6 |
| | 100 and more | 311 | ... | 40,203 | 2.2 |
| Total: | | 990,913 | 100.0 | 1,825,552 | 100.0 |
| Cyprus (Un.K.): ²⁾ Report of Cyprus 1956 | 0 - 0.13 | 145 | 11.5 | | |
| | 0.13- 0.66 | 391 | 31.4 | | |
| | 0.66- 1.33 | 204 | 16.4 | | |
| | 1.33- 2.66 | 217 | 17.4 | | |
| | 2.66- 5.33 | 167 | 13.4 | | |
| | 5.33- 8 | 64 | 5.1 | | |
| | 8 - 10.6 | 23 | 1.8 | | |
| | 10.6 - 13.3 | 13 | 1.0 | | |
| | 13.3 - 26.6 | 17 | 1.3 | | |
| | 26.6 - 66.6 | 1 | | | |
| | 66.6 -133.3 | - | | | |
| > 133.3 | 1 | | | | |
| Total: | | 1,243 | 100.0 | 2,880 | 100.0 |

¹⁾ Total agricultural and forestry area.

²⁾ Figures taken from a study made in 1955, of a typical village (Dhali). These figures refer to aggregates of land areas owned by individuals.

TABLE II. (Continued)

| State | Size/ha | Farms | | Total surface | |
|--|------------|-----------|-------|---------------|-------|
| | | Number | % | ha. | % |
| Denmark: Statistisk Arbog, 1956 | 0.55- 3 | 21,317 | 10.4 | 37,363 | 1.2 |
| | 3 - 5 | 21,605 | 10.5 | 80,411 | 2.6 |
| | 5 - 10 | 55,165 | 26.8 | 384,457 | 12.2 |
| | 10 - 15 | 32,554 | 15.8 | 380,934 | 12.1 |
| | 15 - 30 | 49,465 | 24.0 | 1,006,784 | 32.1 |
| | 30 - 60 | 21,401 | 10.4 | 803,385 | 25.6 |
| | 60 -120 | 3,390 | 1.7 | 254,301 | 8.1 |
| | 120 -240 | 679 | 0.3 | 106,680 | 3.4 |
| | > 240 | 259 | 0.1 | 85,016 | 2.7 |
| Total: | | 205,835 | 100.0 | 3,139,331 | 100.0 |
| France: Rapport de la France, 1957 | 0- 1 | 250,000 | 10 | 122,000 | 0.3 |
| | 1- 5 | 670,000 | 27 | 1,800,000 | 5.1 |
| | 5- 10 | 520,000 | 21 | 3,820,000 | 10.9 |
| | 10- 20 | 545,000 | 22 | 7,600,000 | 21.7 |
| | 20- 50 | 382,000 | 16 | 11,200,000 | 31.9 |
| | 50-100 | 78,000 | 3 | 5,170,000 | 14.8 |
| | > 100 | 26,000 | 1 | 5,350,000 | 15.3 |
| Total: | | 2,471,000 | 100.0 | 35,062,000 | 100.0 |
| Ireland: Report of Ireland, 1956 | 0 - 0.4 | 64,965 | 17.1 | | |
| | 0.4- 2 | 26,166 | 6.9 | | |
| | 2 - 4 | 30,374 | 8.0 | | |
| | 4 - 6 | 29,388 | 7.7 | | |
| | 6 -12 | 84,492 | 22.3 | | |
| | 12 -20 | 62,891 | 16.6 | | |
| | 20 -40 | 52,179 | 13.7 | | |
| | 40 -80 | 21,977 | 5.8 | | |
| > 80 | 7,205 | 1.9 | | | |
| Total: | | 379,637 | 100.0 | | |
| Italy: Rapport d'Italie, 1957 | 0 - 0.5 | 5,130,851 | 53.9 | 874,989 | 4.1 |
| | 0.5- 2 | 2,795,122 | 29.4 | 2,882,992 | 13.3 |
| | 2 - 5 | 952,070 | 10.0 | 2,943,375 | 13.6 |
| | 5 - 10 | 330,733 | 3.5 | 2,989,669 | 10.6 |
| | 10 - 25 | 192,815 | 2.0 | 2,945,482 | 13.6 |
| | 25 - 50 | 60,874 | 0.7 | 2,104,427 | 9.7 |
| | 50 - 100 | 28,381 | 0.3 | 1,956,450 | 9.1 |
| | 100 - 200 | 12,918 | 0.1 | 1,782,112 | 8.3 |
| | 200 - 500 | 6,536 | | 1,946,595 | 9.0 |
| | 500 -1,000 | 1,440 | 0.1 | 971,159 | 4.5 |
| | > 1,000 | 502 | - | 875,701 | 4.2 |
| Total: | | 9,512,242 | 100.0 | 21,572,951 | 100.0 |

TABLE II. (Continued)

| State | Size/ha | Farms | | Total surface: | |
|--|---------------|---------|--------|----------------|-------|
| | | Number | % | ha | % |
| Luxembourg, 1957: | 0- 1 | n.a. | - | n.a. | - |
| | 1- 2 | n.a. | - | n.a. | - |
| | 2- 3 | 992 | 10.2 | 2,431 | 1.8 |
| | 3- 5 | 1,311 | 13.4 | 5,150 | 3.7 |
| | 5- 10 | 2,201 | 22.5 | 16,149 | 11.7 |
| | 10- 20 | 2,976 | 30.4 | 43,076 | 31.2 |
| | 20- 30 | 1,426 | 14.6 | 34,775 | 25.2 |
| | 30- 50 | 722 | 7.4 | 26,531 | 19.3 |
| | 50-100 | - | - | - | - |
| | 100 and more: | 149 | 1.5 | 9,816 | 7.1 |
| Total (a): | n.a. | | n.a. | | |
| Total: | | 9,777 | 100.0 | 137,928 | 100.0 |
| Netherlands: Rapport des Pays- Bas, 1957 | 1- 5 | 94,241 | 39.8 | 243,400 | 10.7 |
| | 5-10 | 65,820 | 27.8 | 482,200 | 21.1 |
| | 10-20 | 50,050 | 21.3 | 701,300 | 30.7 |
| | 20-50 | 24,279 | 10.3 | 696,700 | 30.6 |
| | > 50 | 2,028 | 0.8 | 157,800 | 6.9 |
| Total: | | 236,418 | 100.0 | 2,281,400 | 100.0 |
| Norway: Norwegian Census of Agriculture, 1949. | ¹⁾ | 4,403 | 1.3 | 4,262 | 0.1 |
| | < 0.2 | 103,451 | 29.6 | 86,192 | 1.2 |
| | 0.2- 0.5 | 28,233 | 8.1 | 59,733 | 0.9 |
| | 0.5- 1 | 23,556 | 6.7 | 106,646 | 1.5 |
| | 1 - 2 | 46,452 | 13.3 | 420,967 | 6.0 |
| | 2 - 3.5 | 48,988 | 14.0 | 1,016,683 | 14.4 |
| | 3.5- 5 | 31,134 | 8.9 | 1,025,069 | 14.5 |
| | 5 - 7.5 | 29,088 | 8.3 | 1,330,475 | 18.9 |
| | 7.5- 10 | 13,438 | 3.8 | 834,439 | 11.8 |
| | 10 - 20 | 15,597 | 4.5 | 1,355,414 | 19.2 |
| | 20 - 50 | 4,809 | 1.4 | 655,244 | 9.3 |
| | 50 -100 | 342 | 0.1 | 129,726 | 1.8 |
| 100 and more: | 37 | - | 28,046 | 0.4 | |
| Total: | | 349,528 | 100.0 | 7,052,896 | 100.0 |

¹⁾ holdings without agricultural land

TABLE II. (Continued)

| State | Size/ha | Farms | | Total surface: | |
|--|--|---|--|--|---|
| | | Number | % | | ha |
| Spain: "El parcelamiento de la propiedad rustica en España", (Anexos 2 y 3) del Instituto de estudios agro-sociales, 1952 | 0-1 1-5 5-10 10-50 50-100 100-250 250-500 500-1,000 1,000-2,500 2,500-5,000 > 5,000 | 590,142 527,583 142,632 134,691 21,997 14,230 6,892 3,871 1,752 817 350 | 40.9 36.5 9.9 9.3 1.5 1.0 0.5 0.3 0.1 - | 2,343,539 3,227,993 1,185,327 2,564,673 1,451,858 2,007,542 2,319,890 1,908,302 1,676,652 588,366 428,788 | 100.0 16.4 6.0 13.0 7.4 10.2 11.8 9.7 8.5 2.9 2.2 |
| Sweden: Jordbruksräkningen, 1956 | 2-5 5-10 10-20 20-30 30-50 50-100 > 100 | 87,554 83,246 59,561 18,479 11,667 5,373 2,221 | 32.7 31.0 22.2 6.9 4.4 2.0 0.8 | 320,280 635,050 860,250 457,974 451,271 369,607 393,566 | 100.0 18.2 24.7 13.1 12.9 10.6 11.3 |
| Switzerland, Eidg. Betriebszählung 1939, Band 6, Seite 30 | 0 - 0.25 0.25 - 0.5 0.5 - 1 1 - 2 2 - 3 3 - 5 5 - 10 10 - 15 15 - 20 20 - 30 30 - 50 50 - 70 70 - 100 > 200 | 12,934 15,220 19,739 29,566 23,136 36,764 59,044 23,911 9,440 6,052 2,065 364 141 72 33 | 5.4 6.4 8.3 12.4 9.7 15.4 24.7 10.0 4.0 2.5 0.9 0.2 0.1 - | 1,438 5,150 12,641 36,255 47,417 121,006 353,206 235,087 126,827 107,083 50,779 13,377 6,290 5,276 5,523 | 100.0 0.1 0.5 1.1 3.2 4.2 10.7 31.3 20.8 11.3 9.5 4.5 1.2 0.6 0.5 |
| Total: | | 238,481 | 100.0 | 1,127,364 | 100.0 |

TABLE III. Number of holdings according to size.

Netherlands.

| Sizes ha | Number of Holdings | | | |
|--------------|--------------------|---------|-------|-------|
| | 1950 | 1955 | + | - |
| 1- 5 | 101,737 | 94,241 | | 7,496 |
| 5-10 | 64,275 | 65,820 | 1,545 | |
| 10-20 | 48,693 | 50,050 | 1,357 | |
| 20-50 | 24,521 | 24,279 | | 242 |
| more than 50 | 2,133 | 2,028 | | 103 |
| Total: | 241,359 | 236,418 | | 4,941 |

Sweden.

| Sizes ha | Number of Holdings | | | |
|---------------|--------------------|---------|-------|--------|
| | 1951 | 1956 | + | - |
| 2- 5 | 95,945 | 87,554 | | 8,391 |
| 5-10 | 89,755 | 83,246 | | 6,509 |
| 10-15 | 39,599 | 38,931 | | 668 |
| 15-20 | 20,191 | 20,630 | 439 | |
| 20-30 | 17,719 | 18,479 | 760 | |
| 30-50 | 11,234 | 11,667 | 433 | |
| 50-100 | 5,419 | 5,373 | | 46 |
| more than 100 | 2,325 | 2,221 | | 104 |
| Total: | 282,187 | 268,101 | 1,632 | 15,718 |

TABLE III. (Continued)

Norway.

| Sizes ha | Number of Holdings | | | |
|------------------|--------------------|---------|--------|-------|
| | 1939 | 1949 | + | - |
| 1) ¹⁾ | 3,521 | 4,403 | 882 | |
| -0.2 | 87,605 | 103,451 | 15,846 | |
| 0.2-0.5 | 26,198 | 28,233 | 2,035 | |
| 0.5-1 | 22,538 | 23,556 | 1,018 | |
| 1 -2 | 43,984 | 46,452 | 2,468 | |
| 2 -3.5 | 47,334 | 48,988 | 1,654 | |
| 3.5-5 | 30,903 | 31,134 | 231 | |
| 5 -7.5 | 28,773 | 29,088 | 315 | |
| 7.5-10 | 16,240 | 13,438 | | 2,802 |
| 10 -20 | 18,782 | 15,597 | | 3,185 |
| 20 -50 | 5,432 | 4,809 | | 623 |
| 50 -100 | 351 | 342 | | 9 |
| more than 100 | 41 | 37 | | 4 |
| Total: | 331,702 | 349,528 | 24,449 | 6,623 |

1) Without agricultural land.

1. NATURE AND SCOPE OF THE TASK

In general, the purpose of land consolidation is to strengthen the factors of production and to improve the living standards of the people on the farm. This requires several basic tasks whose relative importance varies from country to country:

1. Elimination of land fragmentation.
2. Land reclamation and soil improvement (improvement of soil structure, changes in landuse, improvement of water management).
3. Improvement of the farm size pattern.
4. Improvement of the pattern of settlement.





1.1. FRAGMENTATION OF LAND

Whenever possible, government programs have linked land consolidation with other measures of improvement, e.g. with the construction of a new network of roads, with changes in land utilization, soil ameliorations, regulations of the water supply, etc.

The level reached in the implementation of land consolidation varies greatly among the individual countries. In **Denmark**, for instance, land consolidation was carried out early in the Nineteenth Century and also in other countries of Western Europe similar measures have been introduced and part of them are far advanced. But in countries of Central and South-Western Europe where land consolidation schemes have been introduced only recently, the major task has still to be accomplished. Even in countries like Denmark the situation is under continuous review and suitable adjustments have to be made to defend the favourable position which was reached generations ago. The continuous attention which Denmark gives, proves that the adjustment of the agrarian structure to changing conditions is a continuous process, necessary to maintain optimal conditions for agricultural production. Although the reports of the individual countries give but very scant information on the number of fragmented holdings still in need of land consolidation, it can safely be said that about 50 million hectares in Europe still

Explanation:

— Administrative boundaries

- a  Landconsolidation completed
- b  Common areas (Consolidation precluded)
- c  Area above the altitude of 600 m \div b (as far as above this altitude)
- d  Area below the altitude of 600 m \div (a + b)

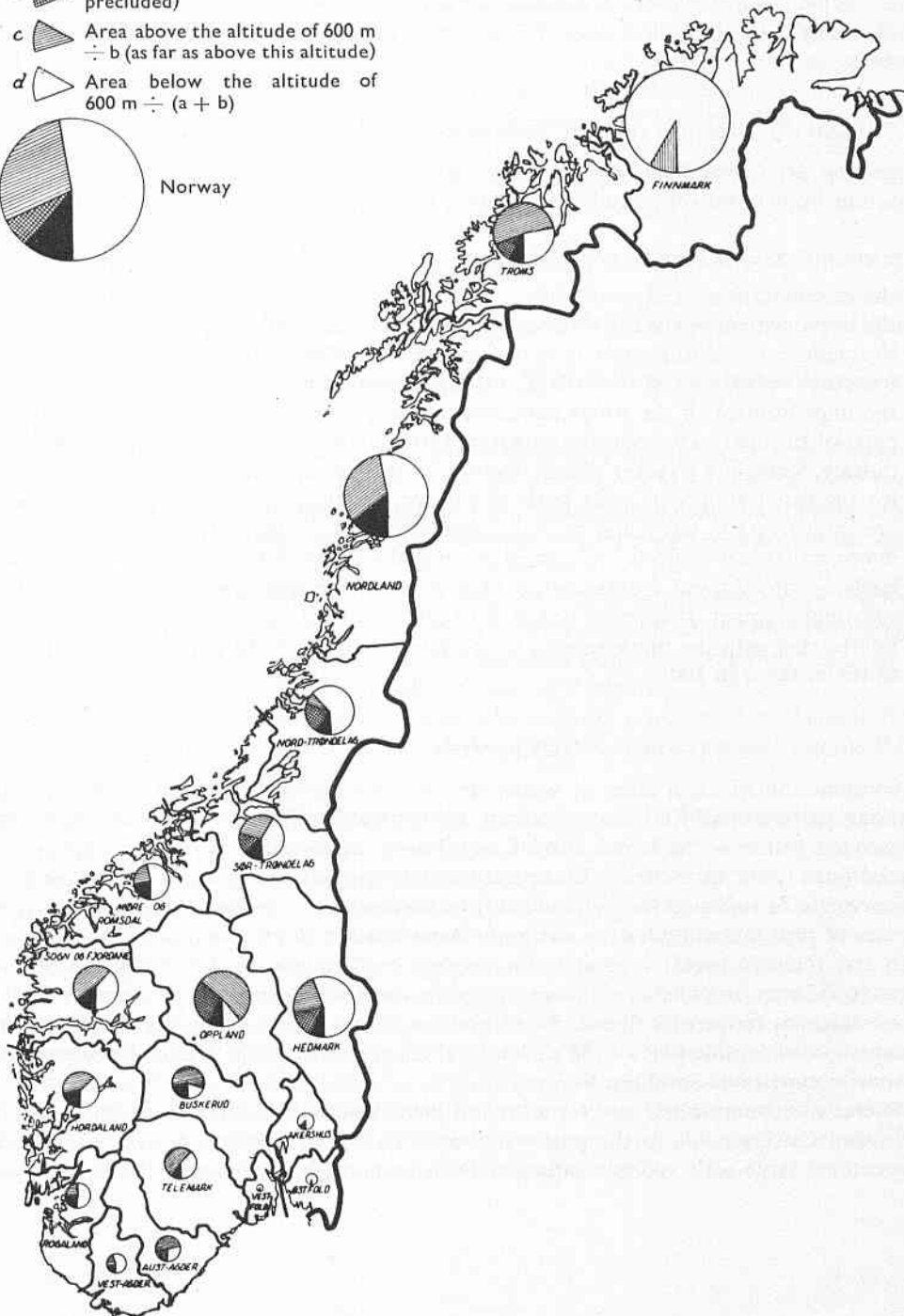
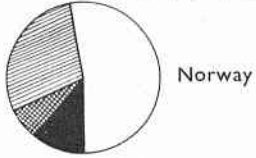


Fig. 3. State of the Land Consolidation in Norway 1859–1956

wait for land consolidation, 5.7 million of which are located in the Federal Republic of **Germany**, 14 million in **France**, 10 million in **Italy**, and a very considerable area in **Norway**.

1.2. LAND RECLAMATION AND SOIL IMPROVEMENT

In general, land consolidation operations have been coordinated with land reclamation, soil improvement measures and the provision of better agricultural equipment.

Measures of this kind can be concerned with:

- a. the reclamation of land;
- b. the improvement of the soil structure and the cultivation of waste land;
- c. the changes in the utilization of land, for instance, of agriculturally inferior land into forests (**Sweden**) and of forest land into agricultural land;
- d. the improvement of the water management by drainage (especially in the northern parts of Europe) by introducing irrigation systems, i.e. in southern Europe (especially in **Italy**, **Spain** and **Cyprus**). The cultivation of shelter belts may also be of importance for the water supply in some parts of Europe. Extensive programs to fight erosion are in progress in particular in the southern countries (**Spain**, **Italy**). In some cases major individual projects are carried out e.g. the reclamation of land in the **Netherlands** or the Coastal Conservation Plan in north-western **Germany**; measures for soil improvement, frequently linked with land consolidation operations, are closely interrelated with the improvement of the farm size and of the pattern of settlement, as for instance in **Italy**.

1.3. IMPROVEMENT IN THE FARM SIZE PATTERN

A combination of farm sizes in which the family farm predominates is the typical agrarian pattern in all European countries. Considerable differences, however, exist due to varying historical, soil and climatic conditions which favour the development of special farm types. In Southern Europe, for instance, a small farm under intensive cultivation might be sufficient for yielding a satisfactory income, whereas in Northern Europe the size of predominantly fodder and grain farms must be larger. Seen as a whole, farms with less than 50 hectares agricultural acreage predominate in 2/3 of the European agricultural area. In Northern Europe, including the Federal Republic of **Germany**, large estates are not frequently found. As a result of historical developments, large estates occupy a considerable part of the agricultural acreage only in the **United Kingdom** and in some countries of Southern Europe.

Problems of economic size and farm lay-out have demanded increasing attention from European Governments in the post-war years. The mechanization of agriculture has necessitated large-scale reorganization of farm units to facilitate agricultural progress

and thus to improve the social well-being of the farming population. Particular attention has been given to the establishment of more economic holdings. One of the most important criteria for the definition of the economic holding has been agricultural efficiency. The farm should be as close as possible to the optimum size of the type of farm concerned – the size which will permit the best use of all agricultural resources, capital, and labour, as well as land. But Western European countries, particularly the **Netherlands**, wish to reconcile this approach with the need to determine the size of the farm in relation to the desired standard of living and the working hours needed to obtain this standard.

The optimum size therefore can be defined only within broad limits in relation to the type of farming practices; it will be subject to continuous changes, as the economy develops and closer settlement necessitates a more intensive use of the land or the composition of the farming family changes.

The disadvantages of too small and too large farms become evident chiefly in two directions:

- a. Undersized holdings do not provide adequate income and full-time employment to the farming families; they originate from the subdivision of the land among heirs, from indebtedness and speculation, or from the establishment of supplementary farms which were supposed to support families in part-time non-agricultural occupations.

Today these farms constitute a specific problem, the so-called smallholder problem, which dominates the agricultural policy of many European countries particularly in Southern Europe where the position of undersized farms together with the problem of large estates has resulted in considerable social problems.

Conditions are particularly unfavourable wherever the problem of inadequate farm sizes is aggravated by other structural deficiencies, viz. fragmentation of land, irregular water supply etc.

- b. The predominance of big estates, (either as large-scale farming units operated by hired managers and dependent upon hired labour, or as concentration of landed property in a few hands but formed by tenants or share croppers), hampers the economic development of farmers and has contributed frequently to the growth of social tension. In some Mediterranean countries large estates are still prevalent, while others have introduced extensive land reform projects (**Italy, Spain**).

The family farm is usually considered as the model unit to be adopted for the establishment of a better agrarian structure. However, this view is not so much based on the conception that the family farm gives the best revenue, but rather on social reasons and general considerations of policy. Although the definition of the term 'family-farm' is not very concise, the aim remains the establishment of farms, the size of which is determined on the basis of the income needs and the working capacity of the average farming family using modern farming methods.

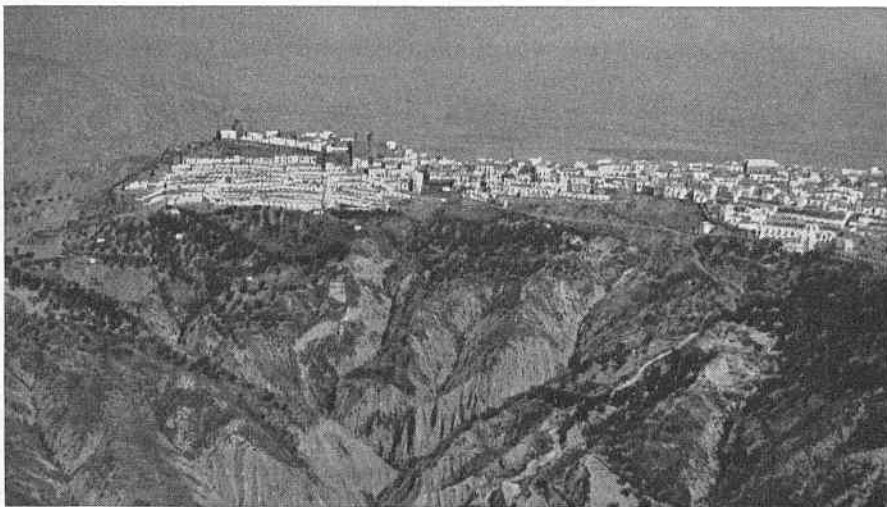


Fig. 4. Pisticci, a big old village (agro-town) in Lucania, Southern Italy.

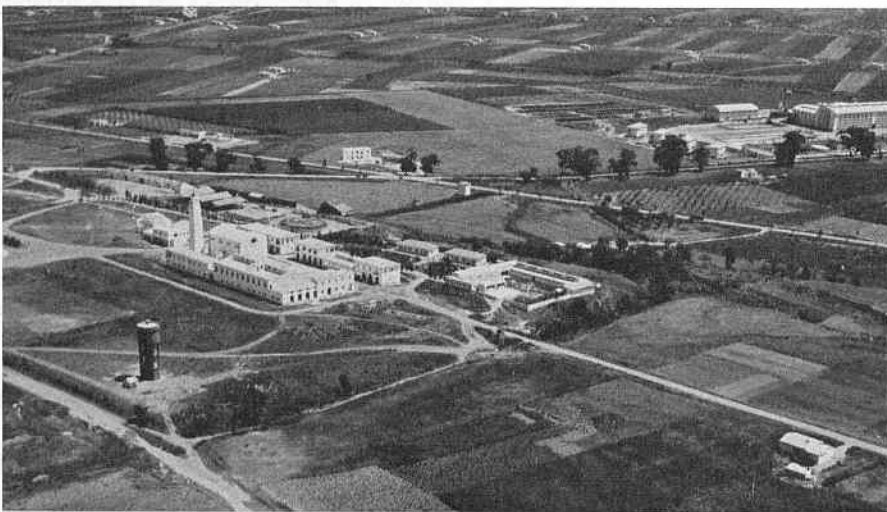


Fig. 5. Policoro, a new village centre with sugar factory (on the right) in the land reform project of Lucania, Southern Italy. Note: dispersed location of the farms.

1.4. IMPROVEMENT OF THE PATTERN OF SETTLEMENT

In many parts of Europe the congested village is characteristic for the pattern of rural settlement: the farm sites are crowded together leaving no space for sufficient farm buildings, for the construction of new premises and for an adequate road system; the fields often comprise thousands of hectares of land dispersed in plots over a wide area, and many hours of walking to and from the fields cannot be avoided.

The problem of the location of holdings presents itself on a very broad scale in some countries of the region, particularly in the **Netherlands** but also in **Italy** and **Spain**, where the implementation of agrarian reform programs is closely associated with the establishment of new holdings. But on a smaller scale, these problems are encountered in many countries of the region (particularly **Germany** and **Switzerland**) in connection with congested villages. In these countries family farms, originally placed in old settled villages, are resettled on an increasing scale at the external perimeter of the consolidation scheme; this action is recognized as an important feature of land consolidation with a view to establishing modern farms and better villages which may offer sounder and more comfortable living conditions to the rural population. In any region with compactly settled villages, land consolidation is alone no longer sufficient, and considerable efforts are made either to combine land consolidation with resettlement or to encourage resettlement as an independent individual action. Doubtless, resettlement is now recognized as a task of paramount importance for improving the agrarian structure.

While much emphasis has been given to the importance of resettlement, modern sociologists became doubtful about the appropriateness of isolated homesteads in newly established settlement areas under changing conditions. Modern communications and particularly the automobilization of the roads have made it possible to overcome distances of five to ten kilometers in a few minutes and consequently the advantages of a well organized village life, with ample and relatively easy extension possibilities and reduced costs for social amenities, are frequently considered more important than the disadvantages associated with the separation of holding and homestead. In **Sweden**, particularly, the opinion is expressed that modern villages are better suited to keep the young generation on the land than the isolated homesteads.

The enlargement of individual farms as well as the establishment of small groups of resettled farms are generally considered as outstanding objectives of agrarian reconstruction. Measures of this type are carried out successfully in north-western Europe and in the northern part of the Federal Republic of **Germany**. In **Denmark** resettlement is a problem of only minor importance, as the villages were broken up long ago. In the south-western part of **Germany** and in southern European countries (particularly in **Italy** where the farming population is often concentrated in big centres, located far away from each other) resettlement action has increasing importance.

2. SPECIFIC MEASURES INTRODUCED IN INDIVIDUAL COUNTRIES

The measures introduced in individual countries reflect their different conditions, both historically, economically and socially, but at the same time reveal the common objectives of agrarian policy in Western Europe. Again the analysis is carried out with respect to fragmentation, soil melioration, improvements of the farm size pattern and of the pattern of settlement.

2.1. RE-ALLOCATION AS PART OF LAND CONSOLIDATION

Austria, Denmark and the **Netherlands** have taken action very early in this field and their success story justifies the sacrifices made in implementation of the reforms. Of particular interest is the permanent attention given by **Denmark** to problems of agrarian reconstruction in her successive legislation of 1924, 1949 and as recently as 1958. Great efforts are made to defend the progress achieved and to adjust Danish agriculture to the fast changing conditions of production.

Wherever possible, European Countries appeal to the self-help of the peasants and restrict themselves to giving support to individual action. The Danish authorities, for example, refund all direct expenditure incurred in the course of the technical and legal implementation of land consolidation, while the costs associated with the actual improvements of the farms must be borne by the farmers themselves.

Also **Norway** and **Sweden** apply considerable amounts for these purposes. In **Sweden**, governmental aid is given in the form of guaranteed loans and grants for expenditure as well as for improvements. Consolidation operations are extended to the forest districts and include partly the re-forestation of parcels of land located far away from the farm buildings.

The remodelling of the landscape and of its agricultural and economic organization is particularly important in old settled agricultural areas, where economic life is stagnating and progress is slow. Construction of highways and water-ways constitutes the basis

for any improvement in production; electrification of the farms particularly opens the way to the application of modern machinery and conveniences (**Netherlands and Spain**). Land consolidation has proved to be both a start and a tool for such favourable development, and has become one of the suitable means to overcome retarding traditional factors and to initiate new activities. In the **Netherlands** particularly great efforts have been made in conjunction with the technical advisory service, to associate land consolidation operations with measures needed for the modernization of agricultural production and rural life, all with the view to improving the conditions on the farm to achieving greater productivity with less man power. The migration of agricultural workers, freed by the mechanization, to other branches of the economic life is considered an essential criterion for the success of the reforms.

The general line of agrarian policy is best exemplified in **Sweden** and in the **Netherlands**. In both countries it was recognized that rearrangement of ownership is not sufficient, but that it must be integrated into a large scale regional development program. In **Sweden** agricultural policy aims at a systematic remodelling of farm sizes with the objective of promoting more efficient agriculture by strengthening uneconomic holdings, which have survived due to the earlier policy of agricultural subsidies into viable units. On the other hand, the **Netherlands** aims to remove by the means of agrarian reconstruction the large differences between the more developed and the less developed agricultural provinces in the country and to raise the productivity of the less advanced areas; in this way the government attempts to make agriculture in the retarded areas definitely independent of any temporary support by subsidies. The **Netherlands**, as a great exporter of agricultural products is interested in strengthening the competitive position of Dutch agriculture. **Sweden** has supported agricultural prices on the home market since the beginning of the thirties but also carries out since the beginning of the fifties a policy of agrarian reconstruction which aims (a) at a certain decrease of the production by non cultivating inferior land and absorbing undersized holdings out of production and (b) at the enlargement of smallholdings, to change them into economic units which can exist without any subsidies.

To illustrate the scale of the operation both in the **Netherlands** and in **Sweden** some figures may be of interest. The present program of the **Netherlands'** government involves 157,000 hectares of which some 30,000 to 40,000 hectares are to be re-distributed annually. In **Sweden**, between 1945 to 1952, operations affected 24,000 hectares of cultivated land and 244,000 hectares of other land.

The extent of the consolidation operations is also remarkable in **Germany** where the reorganization of land is proceeding now at the rate of about 200,000 hectares per annum. During the period from 1945 to 1955, a total of almost 400,000 acres was developed for **settlement** purposes, i.e. for the creation of new farms; of this surface, about 75,000 acres were used for increasing the size of existing farms within the framework of the consolidation scheme. A further 270,000 acres were used for actual farm settlement, whereas 62,500 acres were taken up by commercial market gardening holdings, part-time

holdings, as well as settlements of agricultural and forestry workers. The achievements of the **re-allocation** scheme have increased constantly ever since 1945: The acreage affected comprised about 185,000 acres in 1949 and approximated 500,000 acres in 1956. In order to carry out such ambitious programs, an accelerated and simplified procedure has been introduced in cases where a fundamental reorganization of the village structure with all the complementary measures is not necessary or not yet possible.

The changes involved in land consolidation operations are so considerable, that much extension work in the villages has to be done. In the **Netherlands** the extension service works in the consolidation area, both before and also after the operation, to prevent a relapse into the former conditions. In **Denmark**, however, no special steps are taken to reorganize the farms, since in accordance with the Government's report, Danish farmers are quite capable of adjusting themselves to the new conditions.

2.2. LAND RECLAMATION AND SOIL IMPROVEMENT MEASURES

Clearance, draining, and marling of the soil are the most important aspects of soil amelioration in Northern Europe carried out in close coordination with land consolidation operations. In many countries (for example, **Sweden** and **Denmark**) the emphasis is placed on self-initiative which is supported by individual loans and subsidies to farmers. Within the framework of the so-called 'external rationalization' of the farms which is concerned with the enlargement of the holdings of both arable and forested land or with the improving of their layout and composition, the **Swedish** Government provides guaranteed loans and subsidies, generally 20 %, for any work of clearance, removal of boulders, drainage, and digging of ditches. Subsidies not exceeding 25 % of the expenditure will be granted for the construction and improvement of farm buildings and not exceeding 40 %, for any drainage work and for the removal of stonework; if the project, however, calls for the draining of several undertakings, the State can assume more than 40 % of the total cost. But these subsidies will only be paid to smaller farmers whose acreage does not exceed 20 hectares of arable land, provided that this support is needed. At large reallocations however, subsidies of 50 % are given to all participants for road construction, etc. In **Denmark** where the draining and marling of the soil belong to the most important aspects of soil amelioration, the Government has offered during the last years grants up to 35 % of the actual costs as an average and up to 50 % at present. The balance of costs can be covered by loans. Since the beginning of this century more than 400,000 hectares of land have been drained.

Reclamation of land by large-scale operations is a specific feature of the policies in the **Netherlands**. In the near future 200,000 hectares will be reclaimed by draining operations in the polders of the Zuyder Zee. This area will not only make a considerable contribution to the replacement of cultivated land lost due to the enlarging of towns and to road construction but will also make space for the resettlement of farming families coming from congested areas in other provinces. But apart from the reclamation of land, drainage

and irrigation systems are established to improve water conservation in close association with the land consolidation operations. Reclamation work in **Germany** is carried out on a smaller scale, mainly within the framework of the so-called Coastal Plan; worthwhile possibilities of cultivating waste land and marshes exist only in a few parts of Northern Germany.

In Southern Europe soil improvement is usually an essential aspect of agrarian reconstruction in combination with land redistribution and land consolidation operations. Irrigation connected with draining operations are in the focus of development programmes in which the establishment of intensive types of farming is needed. Drainage is often necessary to reclaim permanent grassland. **Spain** assumes 40 % of the cost of the installation of draining systems and on the strength of this policy new drainage systems covering an area of more than 100,000 hectares were established during 1957. Both in **Italy** and **Spain** this approach is of over-whelming importance, but frequently complementary measures are found to be necessary. Agricultural programs in **Italy**, i.e., include better adapted crop rotations; in Southern **Italy** afforestation of eroded areas is carried out in order to improve soil and water conservation.

2.3. MEASURES FOR THE IMPROVEMENT OF THE FARM STRUCTURE

In most European countries efforts have been made to split up large estates as well as to enlarge undersized holdings into viable units. Countries usually consider the existence of as many independent farm units as possible as an important objective of national agrarian policy. Thus **Denmark** endeavours to prevent farm combinations and the enlargement of economically sized farms. **Sweden** takes the middle course in this respect: the existence of farms of all sizes is considered the best solution, but a certain tendency exists towards increasing the size to one- and two-families mechanized farms. The division of large farms is very unusual in **Sweden** and very large estates are almost unknown.

There is no way of fixing an appropriate standard size of the farms to be established. Their total acreage will to a larger extent depend on physical conditions and intensity of land use. Consequently a larger area is needed to provide a family living on poor land under extensive use than on good land under intensive use. For instance, in Southern Europe even a small irrigated farm may be adequate if under cultivation of intensive crops. In the Federal Republic of **Germany** the aim is to establish farms of 10 to 15 hectares of agricultural acreage, if average conditions prevail, whereas in **Denmark** a lower limit of farmsize of 8-10 ha middle-class land is considered as appropriate; in **Sweden** a trend exists to establish family farms between 10 and 20 hectares each, and nowadays even up to 30-50 hectares. In the **Netherlands** farms of 10-20 hectares are being established to provide farmers with a net annual income of at least US \$ 1500 per worker; here also a trend towards increasing farmsizes can be observed. In the Federal Republic of **Germany** the Committee for improving the agricultural structure has drawn



Fig. 6. Reclamation of land combined with reallocation in North Jutland, Denmark.
Situation in may 1957. As a result of pumping the land has almost emerged from the water.

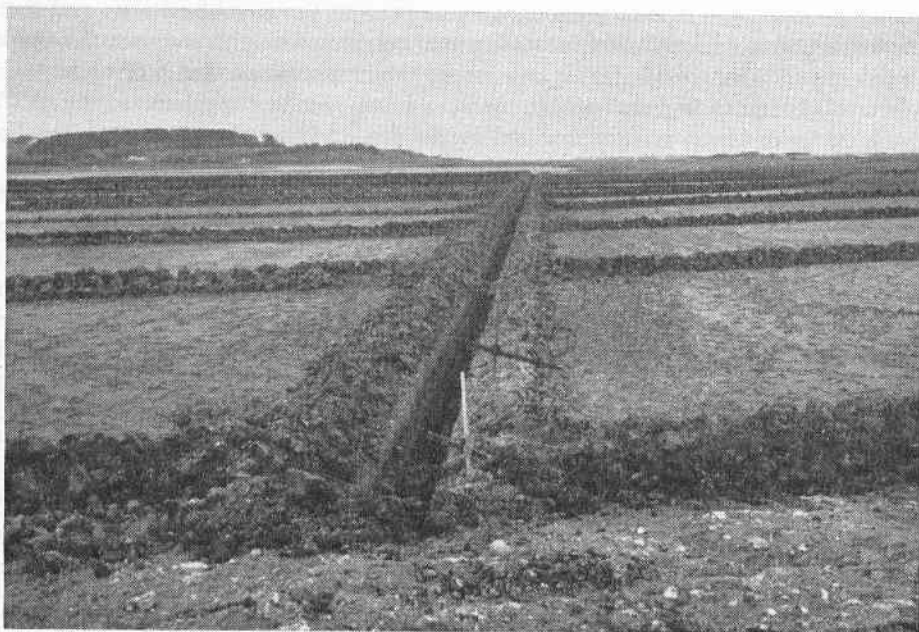


Fig. 7. The same area in a later stage; the drainage system under construction.

up manuals for determining the proper size of a family farm and has put forward as a goal, the establishment of farms to be operated by two fulltime workers. Size and degree of intensified cultivation shall secure work and a decent standard of living for two agricultural workers and their family members.

Land reclamation offers the best possibility for the establishing of favourable settlement conditions, not only on the new land, but also in the old settlement areas from where families are transferred as it is the case in the **Netherlands**. By modernizing the structure of the old areas, land reclamation in combination with settlement operations, offers the best opportunity for achieving well rounded farming units and adequate tenure arrangements.

The **Netherlands**, in particular, but also **Denmark**, use newly reclaimed land for the purpose of agrarian reconstruction. Family farms can be established by allotting land to farming families, who lease or buy the land (in the latter case with help of a state loan) or by granting lease-holds in other regions against annual rents based on the profitability of the farm, as it is the case in the Zuyder Zee polders. In **Denmark** early attention was given to the development of small holdings, and as early as 1919 a Land Law Committee was charged with the development of family farms. This committee is entitled to buy land either in the open market or on the strength of a right of pre-emption on all farms above a certain size. Its land reserve is supplemented by newly reclaimed land along the coast, the marshes and the rivers. The available land is used to establish new small holdings of which 35,000 now are created, or to enlarge existing small farms. To protect the new agrarian structure against disintegration, both the subdivision and fusion of farm units are prevented by law. In **Denmark** the average size of the farming unit is 16 hectares and 95.4 % of the Danish farmers are owner-cultivators occupying 93.8 % of the land.

External rationalization, in the sense of the Swedish term (see page 28), gives the framework for action both in **Sweden** and **Norway**. In both countries the emphasis is not as much on settlement on reclaimed land but on the enlargement of undersized farms into well rounded family operated units. Both countries include forest land in this operation, in **Norway**, however, (in accordance with the Land Act of 1955) only with the reservation, that forest land can be included in the operations if it is advantageous to the community as a whole. **Sweden** does not restrict this possibility in the same way, but places for enlargement purposes arable and forested land on the same level. Again legal provisions exist to enable the government to acquire land on the strength of a pre-emption clause or by expropriation, always provided that the government is not in the position to obtain land required for enlargement in another way at a reasonable price, and that the expropriation will not impose an undue disadvantage on the owner of the land. If necessary, the farmer can obtain a guaranteed loan that covers the expenses of land acquisition; subsidies and loans are granted irrespective of the income and financial position of the applicant (**Sweden**). In a similar way, **Austria** grants low interest loans (for 50 % of the purchase price and redeemable in ten years) for the enlargement of small farms.

In the **Scandinavian** countries and the **Netherlands**, the improvement of the structure of

the individual farm is considered of fundamental interest to the community as a whole, and consequently, governments are interested that the necessary action is taken independently of private economic considerations. The governments have to build up land reserves which can be passed to undersized farms for enlargement purposes and special agricultural boards are organized to buy up land and to distribute it to undersized holdings.

The unique position of the **Netherlands** which has large areas of new reclaimed land at her disposal provides great possibilities, which are fully recognized and utilized by the Government. Farmers from congested areas who hand over their land voluntarily for the purpose of enlargement within the framework of land consolidation, qualify for priority in the allocation of settlement farms on reclaimed land, and a considerable part of the area available is reserved for this purpose. The mobility of the settlement pattern is further strengthened by the fact that a growing number of small holders and their family members find permanent employment in industrial occupations and no longer depend on the yield of the small holdings. This is a result of the increasing industrialization of rural areas, which is closely associated with large consolidation and settlement schemes. The land of the resettlers will be available for other farming families who need their holdings enlarged, but such a procedure does not mean that smallholders, transferred to non-agricultural employment, are not allowed to return to farming at a later date.

This policy has led to results of considerable importance in the countries concerned. In the **Netherlands**, for example, the number of small holdings ranging in size from 1–8 hectares have been reduced by about 11,000 during the period 1950–1955, while the number of farms ranging in size from 8–10 hectares have increased by 3,000 during the same period. In **Sweden** every year a considerable amount of small undersized farms were eliminated during the years 1950 to 1957. The initial figure of 3,000 per year has been increased to 5,000 annually in 1956 and 1957. While in the Netherlands the reclaimed area largely provided the necessary space for the reconstruction of the agrarian system, in **Sweden**, the industrial expansion and increasing urban living standards facilitated the absorption of the farming families, which left the rural areas.

In a similar way **Ireland** endeavours to reduce the pressure of the land in its western parts by resettlement of farming families in the eastern provinces. The trend of this policy is supported by measures to convert large badly worked estates into small economic farming units. Land settlement operations are on a relatively large scale and have resulted in the distribution of 1.4 million acres among some 92,000 allottees in the course of the past 35 years. In this period State funds to the extent of about £ 10,000,000 in the form of land bonds, have been made available for the acquisition and purchase of lands required for the land settlement programme. Expenditure on estate improvements viz. the provision of essential roads, fences, drainage, buildings, etc. in the period amounts to about £ 13,000,000.

Large scaled administrative support is extended also to small farms in the Federal Republic of **Germany**. Settlement authorities in close co-operation with independent

settlement companies operating in the public interest, are financed by the federal and state governments with a view to implementing settlement programs. In **Germany**, as in **Sweden**, the expansion of industrial employment facilitates the enlargement operations, and makes it possible for the settlement companies to acquire land and to transfer it to farming families who need their holdings enlarged. Such operations are preferably carried out in connection with land consolidation. More recently, federal loans have been made available to individual farmers and in **Germany**, **Sweden** and **Denmark** self-help action by individual farmers is encouraged by these loans. This procedure has contributed to a useful acceleration of agrarian reconstruction, since it is more flexible and not hampered by administrative strings and routine. For the purpose of the reconstruction of farm buildings, state loans are also available. It is interesting to note that **Germany** has also been successful in reducing its number of small farms of 2-5 hectares by 10 % since 1949, while the number of farms ranging in size from 10-20 hectares has been increased by 3-5 %.

Again in Southern Europe the situation is quite different. The limiting factor in Southern **Italy** and **Spain** is the shortage of water, and both countries try to combine the provision of irrigation with resettlement projects; for this purpose large land tracts are expropriated against compensation. Measures of agrarian reform and over-all economic development are coordinated in order to establish a new equilibrium in the countries' economy. In **Italy**, the elimination of large estates and the creation of independent, small family farms on their land was introduced by the agrarian reform laws of 1948 and 1951. But until recently no initiative was taken in the field of consolidation of fragmented holdings. In some way it can even be said that the implementation of the agrarian reform laws has to some extent contributed to an increase of fragmentation by providing parcels of land, the so called quotas, to undersized farms and to persons mainly employed in non-agricultural occupations.

The government of **Spain** believes strongly in the merits of an agricultural system in which a variety of farm types is represented. In **Spain** the land taken by the Government in the way of expropriation is divided into farms of various sizes: estates of 125 ha, family holdings of 4-5 ha and gardens of 0.5 ha.

The situation in **Cyprus** is in many aspects very much like the situation in southern **Italy**. The government acquires extensively cultivated estates in order to establish economically sized farm units and to enlarge existing small holdings.

2.4. MEASURES FOR THE IMPROVEMENT OF THE PATTERNS OF SETTLEMENT

In the Scandinavian countries resettlement of farm families from congested villages is not a major problem anymore since in **Denmark** and **Sweden** the villages were loosened up generations ago; and only a few resettlements within the framework of land consolidation operations had to be made. In **Norway** the congested village disappeared gradually with the implementation of land consolidation schemes. The Government, however, is

still ready to give subventions to individual farmers, when resettlement is advisable, in order to accelerate procedures, but the resettled farmers have to pay a part of the costs of resettlement themselves in accordance with the advantages achieved by them.

In some countries as in the **Netherlands**, resettlement has become an essential part of land consolidation operations and represents the proper solution for farmers who have to cultivate their land on large distances and whose farm buildings are inadequate. In general, the resettled farmer has only to pay the difference in value between the old and the new farm. In the **Netherlands** specialized advice on farm management is given to resettlers, a practice which has proved to be very successful.

Resettlement is of greatest importance also in **Switzerland** and **Germany**. In **Switzerland** congested villages with frequently remote and not easily accessible fields are a typical feature of the settlement pattern, and here – as in some areas of **Germany** – resettlement

Fig. 8 Farm displacement in the land consolidation area 'Maas and Waal-West' (The Netherlands)
Photograph above left: Old farmhouse along the river dike. Below right: New farmbuilding along the new-built road

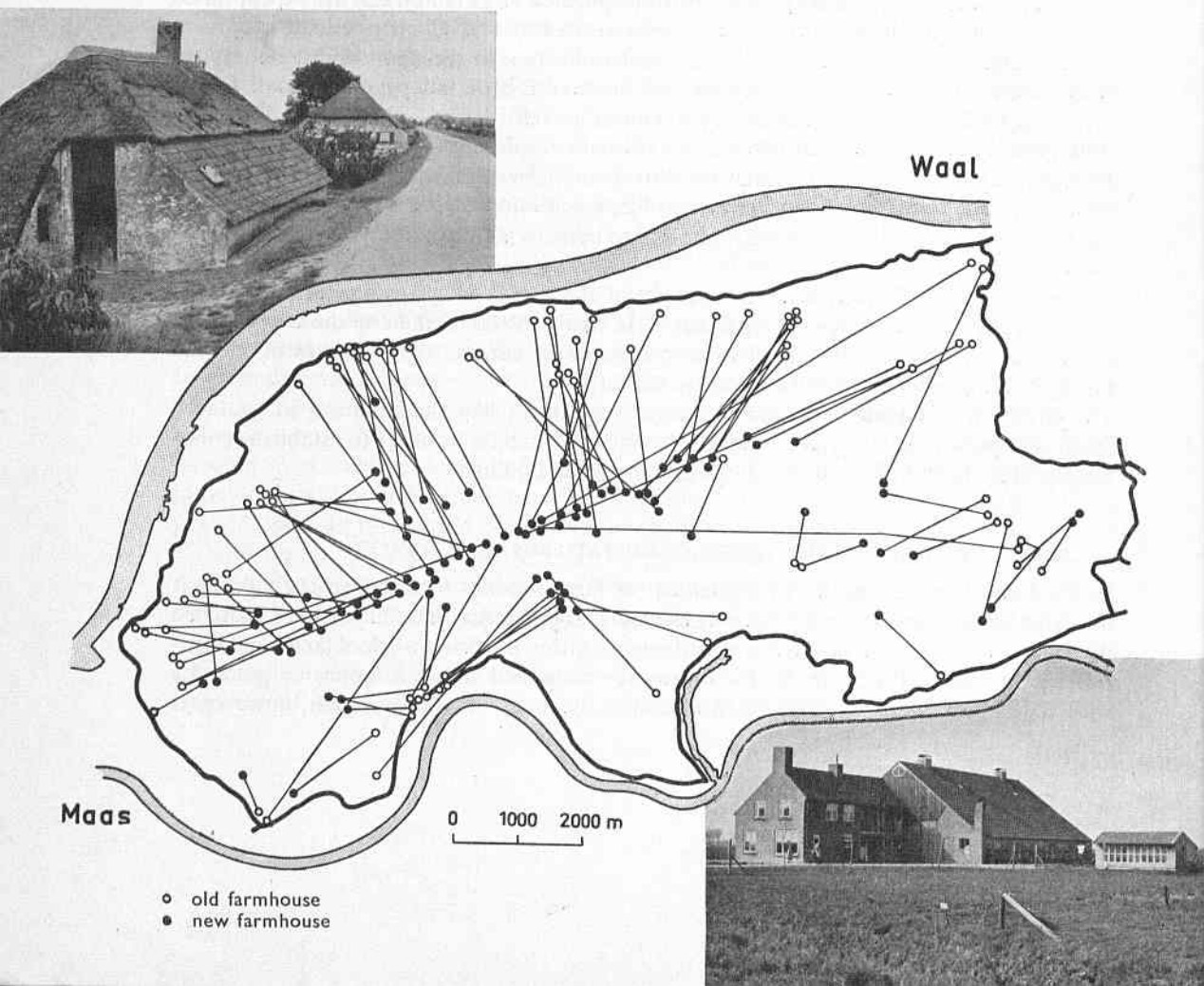




Fig. 9 Farm resettled from the village of Ardning (Steiermark), Austria (village in the background).

action presents the only possible solution. The resettlement of farming families at the external perimeter of consolidation schemes was started at the beginning of the twenty's. The establishment of such 'homestead-holdings' within the framework of land consolidation schemes became a typical feature both in the German and Italian speaking parts of **Switzerland**, while in the French speaking part a certain reluctance has been observed. The costs associated with the execution of resettlement are very considerable. In **Switzerland**, since 1926, 642 holdings at a total expense of more than 60 million Frs., have been reestablished in the course of resettlement action and 59 projects at a cost estimate of 7.2 million Frs., were at the end of 1957 under implementation.

In the Federal Republic of **Germany** resettlement is recognized as an official settlement action. But the Government also encourages farmers' self-help, by granting loans until the maximum amount of 60 % of the total costs of the new establishment; additional financial assistance is provided for the construction of new roads, for electrification and water supply. From September 1956 till September 1957 about 1000 new holdings were established on personal initiative of the farmers and a considerable increase is expected during the coming years. Similar action is taken in **Austria** where the government bears a considerable part of the expenses associated with the resettlement. If the resettlement is done within the framework of land consolidation, the resettled farmer gets a loan of up to 2/3 of the building expenses.

In Southern Europe resettlement has been carried out, particularly in some of the southern provinces of Italy and in Spain; where both new individual holdings and a number of small villages have been established.

3. ECONOMIC AND SOCIAL EFFECTS OF THE IMPROVEMENT OF THE STRUCTURE OF INDIVIDUAL FARMS

The evaluation of the economic and social effects of land consolidation is a difficult task and only a few countries have made an attempt to appraise them, though they neither have isolated the impact of land consolidation proper from the effect of other measures associated with land consolidation operations. For the purpose of this publication, however, the appraisal made in the reports of **Austria, Germany, Italy and Switzerland** is useful, since it evaluates the effects of an integrated approach to the problem of agrarian reconstruction of which land consolidation operations are an essential part. The Appendix to this Chapter contains a report by Dr. W. Sommerauer on the effects of Land Consolidation in Switzerland.

Measures adopted for improvement of the agricultural structure have resulted in a considerable increase in production and in a better utilization of agricultural labour in Austria, Germany, Italy and Switzerland. In **Italy**, production was in part tripled or quadrupled owing to changes in crop intensification and irrigation. **Austria** has reported that in one community milk production was increased by 50 % after land consolidation had been introduced, while the gross yields of farms rose by 18-40 %. The average increase in net production as a whole, amounted to 25 % in **Austria**; this improvement was achieved with a labour force reduced by 14 %. In **Switzerland and Germany** thorough investigations were carried out and established proof for the fundamental impact of agrarian reconstruction on labour productivity and the volume of agricultural production.

In **Switzerland** several farms were observed by investigators for one year prior to, and for three years after land consolidation. A rise in the agricultural output by 20-30 % was noted, and in individual communities the cattle stock rose by 10-25%. In another community the yield of the livestock rose by 15 % and the total gross yield of the farms by 20%. The net profit, therefore, increased from 62 to 152 Frs. per hectare. In every case, land consolidation has led to an increase in live-stock and to an expansion of the cultivated area. There is no doubt that land consolidation in **Switzerland** was associated

with increased intensification and improved methods of cultivation which altogether resulted in a substantial increase of productivity.

Specific attention has to be given to the productivity increase which was the result of the resettlement action. In accordance with expert estimates the direct and indirect effects of the resettlement of 642 farming families at the expense of around 60 million Frs., resulted in an annual production increase amounting to 6-8 million Frs., besides a considerable reduction of production costs.

In the Federal Republic of **Germany** the effects were not less considerable. Investigations¹⁾ in two villages have shown that prior to land consolidation, badly fragmented fields located at long distances from the villages, outdated farm buildings, and inadequate road communications and water supply, have kept agricultural production at a very low level. As a result of land consolidation operations and the implementation of complementary measures, the productivity increased considerably.

The operational organization was intensified by an increase in the production of root crops, the introduction of cash crops, the increase of livestock and the reduction of the forage area per cattle unit. At the same time the yields were increased by improved cultivation methods and a more intensive use of land, labour, and equipment.

The effects of agrarian reconstruction have greatly benefitted the farmers. The intensification of the operational organization and the reduction of the production costs very soon resulted in a better rentability of the farms and an increased standard of living.

A keen analysis of the available material proves that the effects were at a considerable variance in individual cases, but that land consolidation in all cases had a most favourable effect, both on the production level and on the standard of living. With all reservations made for individual cases, it may be stated that under average conditions:

1. the gross yield of the holding can be increased considerably, probably between 20 to 70 % in accordance with the extent of the operations introduced;
2. the working methods will undergo considerable changes following the structural improvements which eliminate unproductive efforts, such as long walks etc., together with other obstacles for the development of the farm;
3. the man power requirements will be reduced considerably.

The combination of increased production combined with a decrease in man power requirements probably will lead to a duplication of the labour productivity and in the case of resettlement, even to triplication. The result will be a considerable improvement of the farmers' standard of living, **provided that the size of the farm is well adjusted to the working capacity of the farming family and to the desired standard of living. Land reform programmes which place the emphasis on the settlement of the greatest possible number of people rather than on the standard of living, will have more limited effects on the social level of the farming population.**

The importance of over-all planning and of the coordination of land consolidation operations with other improvement measures became evident by the striking success of

¹⁾ Hermann Priebe, Wirtschaftliche Auswirkungen von Massnahmen zur Verbesserung der Agrarstruktur im Rahmen der Flurbereinigung. Schriftenreihe für Flurbereinigung, Heft 15, Stuttgart 1957.

the agrarian reconstruction programmes in the Netherlands, Germany and Switzerland. **The more comprehensive the structural reform, the greater the effects of the measures introduced.**

The own initiative of the farming population contributed in many European countries to lightning improvements, at the same time cutting out administrative difficulties and red tape. The utilization of the improved conditions offered by the improvement for production remains largely the lone responsibility of the farmers, though it may be useful to guide them on their way to economic progress.

A well considered agrarian policy will strengthen the initiative and vitality of the farming population and help them to find their proper place in the economic life of the nation. This, however, can only occur, after agrarian reconstruction has made a considerable contribution to the equalisation of the technical, economical and social conditions for agricultural and industrial labour, and in this way to the maintenance and regeneration of social vitality in rural areas.

APPENDIX (to PART I)

Switzerland

DR. W. SOMMERAUER: EFFECTS OF LAND CONSOLIDATION IN SWITZERLAND

The present report is intended to deal in particular with the *economic* effects of land consolidation and to give a brief survey of the most important investigations carried out in Switzerland. Switzerland has not as yet carried out any large-scale research on the sociological repercussions of land consolidation upon the rural population. Moreover, in many instances the time elapsed since the completion of the re-allocation work has been too short to enable us to make any conclusive appraisal of the situation.

NAEF was one of the first research workers to investigate the economic advantages of land consolidation. He carried out investigations at 30 farms in the Stammheimer Valley in the Canton of Zürich regarding changes in the gross output and the input, taking as the operative dates one year prior to and three years after the new properties had been taken over. According to Naef's calculations, the gross output had increased by 12.5 % while the net yield had increased by an average of Swiss fr. 95 per hectare. The farms thus investigated had tried to improve the farm results mainly by intensifying their activities. It ought to be noted that the farms comprised small or medium-sized family enterprises that relied principally upon family labour.

STUDLER carried out an enquiry into the economic effects of the land consolidation projects in the Canton of Aargau in 1936. According to the results of that survey, the output of the re-allocated farmlands had risen by 20-30 %; in some of the communities, the head of cattle had increased by 10-25 %. A considerable increase of arable farming, particularly of cereals could be noted.

Using the accounting data of the department of profitability investigations of the Swiss Farmers' Secretariat, HÜNI published a very illuminating study entitled: 'The Influence of Land Consolidation upon farm results with particular regard to labour input and gross output.' The study investigates the most essential soil utilization systems (types of farming) of Swiss agriculture and thus has taken into account most regions of our country. Hüni found the following results (average for 1933-1934) applying to the

soil utilization system of improved triennial crop rotation according to the extent of consolidation:

| | Extent of consolidation | | |
|---|-------------------------|-----------|------------|
| | unfavourable | average | favourable |
| Number of parcels per farm | 28 | 23 | 10 |
| Labour input per hectare | Fr. 478.— | Fr. 459.— | Fr. 394.— |
| Material input per hectare | „ 448.— | „ 505.— | „ 506.— |
| Total gross output per hectare | „ 1034.— | „ 1132.— | „ 1133.— |
| Total gross output per 100 Fr. labour input | „ 216.— | „ 247.— | „ 288.— |
| Net yield per hectare | „ 108.— | „ 168.— | „ 233.— |
| Net value of yield | „ 1260.— | „ 2524.— | „ 3744.— |

The increase in labour productivity as well as in net yields and net values emerges clearly from this comparison.

Upon a suggestion of Professor O. Howald, the author carried out an investigation during the years 1948–1950 on 'Effects on Farm Management and Results of Land Consolidation in a Municipality of the Jura Mountain Region in the Canton of Argovie'. The investigations were carried out in the municipality of Mandach with the dual purpose of enquiring into the effects of land consolidation upon farm management in smallholdings and likewise of critically discussing the problem of securing and analysing the economic results of land re-allocation on the basis of an example. For this purpose, a calculation of the results was carried out on behalf of all farms of the municipality in question as a whole. The most important findings were the following:

Labour-economic factors: The data pertaining to labour-economic factors provide the key to an understanding of the entire development of the farms after reorganisation of land ownership. The improvement of the parcelling brought about a decrease in the time expended on work in the field. A reduction of the proportion of unproductively used time on the farm resulted in the release of labour which could be fully employed in order to increase the labour intensity on the farms. The arable acreage was increased; specifically intensive crops such as vegetables, viticulture and fruit growing were considerably extended. Considered as a whole, the labour input remained therefore rather constant in time; however, its internal structure changed as the proportion of unused time decreased. The increased growing of labour-intensive crops brought about a higher gross output again. The result was therefore increased productivity of human labour. However, the labour strength as well as the number of days worked per acre remained unchanged. This striking constancy in the conditions governing labour is a typical phenomenon pertaining to family farms, a type which predominates overwhelmingly in the municipality investigated. While the farm employing hired labour will in certain circumstances dismiss some personnel in order to adjust the labour force to the decreasing demand in this

manner, the sociological unit of the rural family is maintained on the family farm for reasons transcending the purely economic considerations.

Arable crops. The most striking phenomenon of the progress following land consolidation was a substantial extension of bread grain crops. This was coupled with a rapid improvement of the growing methods so that one of the earliest tangible results was a considerable increase in deliveries of bread grains. The average bread grain yield could be calculated fairly precisely from the bread grain statistics. It amounted to:

- 17.68 quintals per hectare
for the 3 years *preceding* land consolidation (1929–1931),
- 23.50 quintals per hectare
for the first eight years *following* land consolidation (1932–1939)
- 27.71 quintals per hectare
for the war years (1940–1945).

The average of the increase in cereal yields during the first years following consolidation amounted to a full 33 %.

As regards *fodder crops*, an essential improvement of the manuring system, a reduction of the hay harvesting time and an expansion of grassland farming were the most prominent features. *Viticulture*, a specifically labour-intensive crop of smallholdings likewise benefited largely from the release of labour. Within a period of 10 years following consolidation, the entire area under vine had been reorganised. The field vegetable crops were likewise enlarged.

The *effects* of the improved fodder production upon animal husbandry naturally took somewhat longer to make themselves felt; however, their presence could likewise be proved clearly.

The centre piece of the investigation was the *proof of the economic success of land consolidation* in the municipality of Mandach. The *aim* of the calculation of this success consisted of a comparison between the profitability and the income of agriculture prior to and after land consolidation. Thus the investigation was carried out according to the method of vertical temporal comparison. The periods of comparison selected by me were the last three years preceding land consolidation (1929–1931) and the period 1937–1939; there is a transitional period of 5 years between the two. The comparison is affected by a recession of the prices for agricultural produce. The average total index of producers' prices amounted to 182 points for the period 1929–1931 as against an average of only 149 points for the period 1937/1939. However, the costs of the means of agricultural production dropped along with the prices.

The most important results have been summarized in the table on page 43.

The agricultural capital assets of all farms rose from Fr. 5929 per hectare to Fr. 6450. This increase in value expresses clearly the all-round development of the farms.

During the two periods under review, the capital assets of the farms whose accounting data were subject to comparison remained at approximately the same level.

| | 1929-1931 | | 1937-1939 | |
|---------------------------------------|----------------|--------------------|----------------|--------------------|
| | total Fr. | per hectare Fr. | total Fr. | per hectare Fr. |
| Agricultural capital assets | 2229340.— | 5929.— | 2425410.— | 6450.— |
| Gross output | 321481.— | 855.— | 332288.— | 883.72 |
| Gross output per 100 Fr. labour input | 190.— | | 225.— | |
| Produce consumed on farms | 92242.— | (32%) | 77579.— | (26%) |
| Market production | 194389.— | (68%) | 216342.— | (74%) |
| Operating expenditure | 298288.— | 793.32 | 274992.— | 731.36 |
| Net yield | 23193.— | 61.68 | 57296.— | 152.36 |
| Net yield in % of the capital assets | 1,04% | | 2,36% | |
| Production costs | 394893.— | 1050.25 | 363924.— | 967.87 |
| General income | 204347.— | 543.— | 217436.— | 578.— |
| Agricultural income | 139778.— | 372.— | 155946.— | 415.— |
| Labour income | 75570.— | | 98929.— | |
| Property income | 16243.— | | 22916.— | |

The *total gross yield* increased by 3.4 % only, due to receding prices. The greatest increase to be noted was in arable production. The gross yield of arable production rose from Fr. 25,000 to Fr. 44,000.

The breakdown of gross yield into *produce for consumption on the farm* and *produce for marketing* is very significant. The proceeds from the sale of the marketed produce are at the disposal of the farmers in the form of cash that can be used for operating costs as well as for the consumer needs of the farmer and his family. The market production rose by 11 % from Fr. 194,000, to Fr. 216,000. Prior to land consolidation, 68 % of the gross output was marketed while afterwards 74 % was marketed. The greatest increase took place in arable production which formerly served almost exclusively for consumption on the farm. Prior to consolidation the market production amounted to only 28 % of the gross arable output; later, it amounted to 61 %.

The *increased output in kind* can be computed from the final gross output by multiplying the output in kind of both periods with the same prices. Thus the price differences of the two periods under review will be eliminated; the resulting difference derives solely from the increase of the output in kind.

The increased output in kind was:

- (a) In the arable sector 29.7 %
- (b) In animal husbandry 15.4 %
- (c) In all farms of the municipality of Mandach together 20.4 %

The *output increase* for the community as a whole amounted to 20.4 %.

The *operating expenditure* dropped from Fr. 298,000 to Fr. 275,000, or from Fr. 793 per hectare to Fr. 731 per hectare. The causes of this drop can be found in a reduction of costs only, particularly in the lower valuation of human labour. If one presumed equal

prices to apply to the agricultural means of production, the operating expenditure would even have risen by several percent. – The same holds true of the production costs.

The *net yield* rose from Fr. 23,000 to Fr. 57,000, or from Fr. 62 to Fr. 152 per hectare. Thus there is an increase of Fr. 90 per hectare. This increase in net yield strikingly coincides with the results of NAEF's and HÜNI's investigations.

Furthermore we drew a comparison between *gross output* and *labour input*. Prior to re-allocation, every Fr. 100 of labour input yielded a gross output of Fr. 190; in the period 1937 to 1939 however, the latter rose to Fr. 225. This relation clearly illustrates the increased productivity of human labour.

Considered as a whole, the profitability and income conditions prior to land consolidation proved entirely unsatisfactory – a phenomenon which is typical for the Jura Mountain areas with a fragmentation of holdings. In the period following land consolidation, there has been evidence of an improvement of the economic results which although it may not be revolutionizing is yet clearly proven.

The measures taken for the improvement of farming conditions took their full effect only during the farming activities of the Second World War. Since, however, agricultural production at that time was strongly influenced by factors external to agriculture, a straightforward comparison with the preceding period has not been made.

In conclusion it is to be noted that land consolidation in the municipality of Mandach became the point of departure for a rapid development of agriculture. The farms were developed in several directions; the production process was improved by the application of new working methods and the use of new machines.

PART II

LEGISLATION, FINANCING AND ADMINISTRATION

INTRODUCTION

Since land consolidation comprises a wide variety of measures, legislation, financing and administration in this field is necessarily complex. Seen from a legislative and administrative point of view the reorganisation of agricultural holdings may proceed as:

- a. Reallocation of scattered plots without expanding the size of the individual farms (equivalent exchanges – ‘remembrement parcellaire’);
- b. Enlargement of individual farms (without any reallocation); or
- c. Consolidation in the wider sense, reallocation of plots into larger contiguous units combined with the expansion of individual farms (‘regroupement des exploitations’).

When the reorganization of holdings is placed in relation to land improvement, a distinction has to be made between:

- a. Consolidation of fragmented holdings without any construction work;
- b. Consolidation of fragmented holdings with small improvements in the road system etc., but without major construction work; or,
- c. Land Consolidation or consolidation in the wider sense combined with all kinds of construction work which may be connected with the reorganization of holdings (‘amélioration intégrale’).

Land consolidation is carried out in many European countries, but is termed very differently, i.e. as:

- Kommassierung in Austria;**
- Remembrement avec travaux connexes in France;**
- Flurbereinigung in Germany;**
- Remembrement intégral in Greece;**
- Ruilverkaveling in the Netherlands;**
- Concentración parcelaria in Spain;**
- Integralmelioration in Switzerland.**

One of the most significant features of land consolidation is its time consuming aspect. No doubt, only well considered planning and careful implementation can avoid the risk which is connected with operations of inferior quality. But the need for accelerated action is generally recognized and has led to a serious endeavour to use simplified procedures, in order to make the most appropriate use of the available administrative resources. It is, however, generally agreed that the quality of land consolidation and the security of and fairness to the participants should not be risked by speeded procedures.

Of no less importance is the position of the landowner and cultivator in the procedure. Shall land consolidation be imposed on the farmers in a compulsory way, or on the contrary, shall it be based on their voluntary decisions, and shall the farmers and not the authorities carry the lone responsibility for the procedure? Closely associated with these questions is the protection of the minority and the determining of the qualified majority both in terms of land and participants.

Since land consolidation with all its technical and administrative aspects, is a highly expensive enterprise and far beyond the farmers' paying capacity, it has to be decided whether and to what extent the State shall contribute to the costs, i.e., by straight grants, loans, provision of services, etc. Problems of land assessment are here of great importance, together with the careful balancing of the costs and benefits carried out derived by the individual farmer from land consolidation operations.

Consideration has to be given also to the organization of the services in charge of the implementation of land consolidation. Shall land surveyors be private professionals or officials? Shall the farmers be organized (as is the case in **Germany** and **Switzerland**) in administrative bodies of a cooperative type which deal under their own responsibility but under administrative supervision, or shall everything be directed by the authorities? One of the most important problems to be faced by legislation and administration is the prevention, or at least the retarding, of future sub-division and fragmentation of holdings; the fixation of farm sizes makes it necessary to take population trends and the probable rate of technical progress in consideration.

All these questions are closely associated with the relative problem of conflicting interest groups and problems related to the social grouping of the community. The community as a whole and their various groups, as for instance, owners and tenants, can rightly claim careful protection of their rights at the different stages of land consolidation.

The various European countries have taken different approaches to the legal and administrative aspects. **Switzerland** and **Germany** e.g. have been greatly concerned with the time-consuming aspect of existing land consolidation procedures and **Sweden** has also tried to practice a simplified form of land exchange.

Reallocation of land in close coordination with the enlargement of individual farms is in the focus of the operations, in **Ireland**, **Denmark**, **Germany**, the **Netherlands** and **Sweden**. For this purpose wide powers for land acquisition have been granted to the Government and specific expropriation-legislation has been established in these countries.

All European countries give considerable attention to the administrative aspects of land

consolidation, as distinguished from its legal procedure. While for instance in **Sweden** the legal procedure includes road construction as the most urgent work, other improvements as e.g. enlargement of farms, improvements of buildings, etc., are executed or supervised by administrative authorities. Also in **Norway** reallocation and enlargement of holdings are controlled by different authorities. The **Netherlands** in their legislation distinguish between two parallel branches:

- a. one to achieve the reallocation of parcels and the incidental construction work connected with it, which seldom is applied; and
- b. the other to carry out the comprehensive program of integrated reorganization of the whole region including road and water-course construction, resettlement, demolition of old farms, slum clearance, reclamation and land improvement. In the majority of cases the comprehensive program is carried out.

This chapter will deal with all those issues both separately and in relation to the various stages of land consolidation.

4. LEGAL PRINCIPLES FOR THE ACCOMPLISHMENT AND IMPLEMENTATION OF LAND CONSOLIDATION

4.1 THE INAUGURATION OF A LAND CONSOLIDATION PROJECT

The choice between the voluntary and compulsory method is generally considered as the fundamental issue. The decision must be made on the basis of the historical and social background of the country, and must take into account both the need for speeded action and the wish to keep compulsion at a minimum. Between both aspects a whole range of solutions exists which have to be judged according to tradition and individual conditions. The legal and administrative approach therefore, has to be adapted to the mentality of the population in accordance with a careful appraisal of their probable psychological reactions.

The question is: shall the authorities have the decision on the initiation of a land consolidation project and take the appropriate step or must it be taken by individual farmers, and if so, by single farmers, by a minority or a simple (51 %) or a qualified majority? The common attitude is that a land consolidation project should not be started until a considerable part of the participants are in favour of the project. This holds true irrespective of whether the execution is decided upon by voting or by decisions of the authorities. General agreement exists that the successful implementation of consolidation schemes depends to a major degree on the atmosphere in the village and consequently appropriate steps have to be taken to secure the goodwill and cooperation of the participants. This fact makes it obvious that compulsory action, contrary to the opinion of the greater part of the village people, should be avoided wherever possible. Legislative and administrative approaches therefore should comprise preliminary steps which secure that the policy of the authorities will be carried out by the greatest possible sector of the village population. Viewed from a practical point, the dividing line is not so much between compulsory and voluntary schemes as it seems from an ideological point of view. The real issue is to organize and coordinate educational and informative efforts in such a way that voluntary action or a minimum of compulsion will lead to desirable results. Even in very individualistic orientated countries, such as **France**, compulsory action is to some extent part of the procedure. In the **Netherlands** and **Switzerland** where the execution of a

project is dependent on the consent of the participating owners absence is construed as consent to consolidation procedures. This provision has done much to reduce the need for compulsory action.

In some countries, as for instance in **Denmark**, **Norway** and **Sweden**, land consolidation procedures can only be initiated upon an application from a landowner in the area, in **Denmark** subject to a positive vote of a majority of the owners controlling 2/3 of the land. The final decision is then made by the consolidation authorities. In **Sweden** a majority both in terms of participants and of tax values is required for the execution of the scheme. In **Norway** the decision is not voted but is made by the Land Consolidation Court. The majority of countries have developed schemes which have proved to be fully adequate. Land consolidation procedures are initiated either by application of an interested party or on the initiative of a public body. Thereafter the authorities have to arrange a meeting where public opinion can be examined. In view of the present need for land consolidation in European countries and the increasing interest of farmers in the implementation of consolidation schemes, the authorities are in a favourable position when they make their decisions. Within the framework of their budgets they will give preference to consolidation schemes in those areas where the need is most urgent and private initiative weak: in other areas they will encourage private initiative by drawing up preliminary schemes and by the promise of Government support. They may also operate wherever necessary to in the land market with a view to acquiring or, if necessary, expropriating land.

As already mentioned, the success of consolidation schemes depends to a major extent on what preparatory steps have been taken to secure the goodwill and cooperation of the participants. Preliminary plans which state the economic aim of the operations and preliminary projects which cover the necessary improvements in the projected area and include a survey of the costs and ways of financing, are of great help. Such an approach will elucidate the advantages of land consolidation and arouse interest in action and even enthusiasm, if carried out in the right manner. Too detailed preliminary plans and projects should be avoided since they may deviate the attention to problems of minor importance and not unify, but split public opinion.

The various approaches are clearly recognizable in those countries where land consolidation procedures are a substantial part of the agrarian policy. Both the **Netherlands** and **Belgium** recognize the need (a) for initiative to be taken by the owner or by agricultural associations or (b) for initiative to be taken by governmental bodies. In the **Netherlands** the application is passed on for approval or disapproval to the Central Committee. After the approval, a report stating the boundaries of the block, the details of the project and the estimate of the costs, will be submitted to voting. The project is accepted, if either a majority of the number of owners, or if owners representing more than half of the area in question have voted for it. However, if public interest requires the execution, the Minister of Agriculture can order the project to be carried out if at least 3/4 of the majorities mentioned above have approved the project.

In **Germany** and **France** land consolidation is inaugurated by a public body which will act mostly upon application from landowners or from an association. In **Ireland** land consolidation schemes are initiated, prepared, and implemented by the Land Commission, which alone is responsible for the administration of the Land Settlement Programme.

Of particular interest is the line which various countries have taken with respect to the position of owners and tenants at this stage of the procedure. The great advantage of the cooperation of both groups is evident and certainly it would be to the disadvantage of land use and agricultural development if the owner-interests would prevail in the tenant areas and if in this way the interests of the actual operators would be neglected.

Land consolidation is not only a legal problem, it deals primarily with dynamic factors and consequently these factors should have decisive impact on planning and implementation of the scheme. It is therefore understandable that many countries recognize the important part of the tenant-operators in the consolidation scheme and endeavour to secure both at the initial and the later stage their whole hearted cooperation.

In **Belgium**, the Minister of Agriculture has to decide on the initiation of the procedure upon an application submitted by a public body, three landowners, or three operators. At the voting owners and usufructories vote in one group and the operators in another. A majority is required in both groups by the number of heads and by the area. If only one of the groups has accepted the project, while in the other one the project got at least 25% of the votes, the final decision is with the Crown.

In order to give equal protection to all groups affected by land consolidation operations a detailed preliminary investigation of the rights in land is necessary. Although this need is generally recognized, the ways of investigation vary considerably. In the southern cantons of **Switzerland**, for instance, a committee with representatives of the land owners makes its distinction marks on the various parcels by means of temporary marks on the ground, whereupon the whole area is photographed from the air with a view to mapping the proprietary rights. In **Sweden** the detailed investigations of the proprietary rights are supplemented by legal prescription in accordance with which claims can be placed before the Land Court at the beginning of the consolidation.

Since it is generally agreed, that land consolidation should only be carried out if considerable numbers of landowners and operators support it, it can be assumed, that in Western Europe a provision acting for the initiative of at least three landowners or tenants, would involve no practical inconveniences; it would, however, strongly indicate the need for thorough informative and educational work by the authorities in advance of the operations. If the farmers are rightly informed they will understand the usefulness of the project and an application for the initiation of the land consolidation procedure will almost automatically follow. Only in exceptional cases the authorities should be entitled to open land consolidation procedures on their own initiative.

The preparatory work in advance of the inauguration will have to be done not only at meetings, but also by a more individual approach since experience shows that landowners

frequently hesitate to apply for consolidation due to considerations of good neighbourship.

As stated above, a few countries, as for instance the **Netherlands** and **Switzerland**, have introduced a rule in accordance with which those, who do not participate in the voting are considered to give their vote in favour of the scheme.

This rule is a suitable instrument and helps to produce the majority which makes it possible to avoid compulsory action. Its justification rests in the assumption that those who do not participate approve the projected scheme. Uninterested farmers are not entitled to oppose progress and farmers who are against the scheme should voice their reasons and be ready to argue with their neighbours.

4.2. THE ESTABLISHMENT OF THE CONSOLIDATION SCHEME

In the majority of the European countries special bodies are organized with well defined responsibilities for the implementation of consolidation projects. In some countries (**Austria, Belgium, France, Italy, the Netherlands, Spain, and Switzerland**) a kind of Executive Committee is established consisting wholly or partially of owners and tenants from the area involved; the participants have the opportunity to take part in the preparation of the schemes by their representatives in the Committee. In other countries the design of the consolidation scheme is the responsibility of the consolidation authorities who are responsible for the procedure, while the owners are kept informed of developments and have the right to protest at all stages of the procedure.

The consolidation work itself has to be closely coordinated with the planning of the related improvement work, such as roads, ditches, resettlement, etc. While the work is in progress, details are determined and carried out; operators have to be kept informed during the whole procedure and have to participate in its growth and share its 'growing pains'. Again the **Netherlands** give an excellent illustration for an efficient approach to this problem.

In the **Netherlands**, the local committee, composed of owners and tenants, and assisted by Government experts, outlines the consolidation scheme as objectively as possible. When the farmers do not want to consent to the consolidation scheme, they can lodge their objections with the local committee. If an agreement cannot be reached, the judge-commissary will try to reconcile the parties. If he fails, the Court will give its decision by means of a verdict against which no appeal exists.

In **Belgium** with its large tenant population, great emphasis is put on a sound balance between the interests of both groups. The affected owners, usufructuaries and tenants have opportunity to express their opinions in a general assembly. After the opening of the procedure is accepted, an Executive Committee of seven members is established, including two representatives for the owners and usufructuaries and two for the tenants. Each of the representatives can lodge his protest against every decision of the committee with the Minister of Agriculture. Each participant has the right to appeal to a court of law against the decision on the areas and the assessment.

In **Sweden** and **Norway** the owners have the right to be heard in legal procedure, while the decision itself rests with the authorities: in **Sweden** with a land surveyor and two arbitrators and in **Norway** with the Court. While in **Sweden** the consolidation scheme is drawn up by the land surveyors with the consent of the provincial agricultural committees and in contact with the participants, the establishment of the consolidation scheme in **Denmark** is practically depending on the consent of the participating owners.

Another suitable way is the establishment of a semi-public body, a kind of agency, which is set up to design and implement the scheme. In **Switzerland**, for instance, the interested farmers establish a kind of cooperative society, acting under Government supervision; the technical execution of the project is left in the hands of a private engineer. The consolidation is carried out gradually in the following way: recording of the present position – land valuation – road construction – new allotments. At each stage the participants have the right to protest, and the procedure stays until the objections have been settled.

Other countries, **Ireland** and **Spain** for example, leave the establishment of the consolidation scheme to a Land Commission, which is dependent on active cooperation from the participating owners and operators. **Spain**, especially, has a very interesting administrative machinery for the implementation of land consolidation. Only at the initial stage the consolidation is voluntary while at later stages the procedure is compulsory. The body charged with the procedure is the so-called 'Local Commission', under the Chairmanship of the Judge of the Lower Court and composed of civil servants and two representatives of the owners. The Local Commission fixes the terms for consolidation (perimeter of the zone to be consolidated, classification of the territories, list of the owners, list of the holders of encumbrances etc.), which are submitted to a public enquiry. Finally, a provisional consolidation scheme, modified as far as possible in accordance with the suggestions of the participants, is submitted to public examinations.

The establishment of a responsible body for the implementation of the scheme is an essential pre-requisite for the successful implementation of a consolidation project. A review of the European situation in this field proves that various approaches have led to satisfactory results, and proved to be workable. The final choice has to be made on the basis of historical and sociological considerations. There are, however, several indications that consolidation authorities functioning as executive bodies for the whole procedure and maintaining close contact with the participants, reach practical results at a faster rate than bodies consisting wholly or partly of participants, who are burdened with the responsibility for the scheme's execution and the construction of works. But in all countries of the region, experience has proved that it is of the greatest importance for land-owners and operators to participate actively at all stages of the implementation of the scheme. Their interest can be stimulated by making them responsible wholly or partly for details, especially with respect to the construction works.

4.3. LAWS AND REGULATIONS FOR THE ACQUISITION OF LAND NEEDED FOR ROADS AND FOR ENLARGING UNECONOMIC HOLDINGS

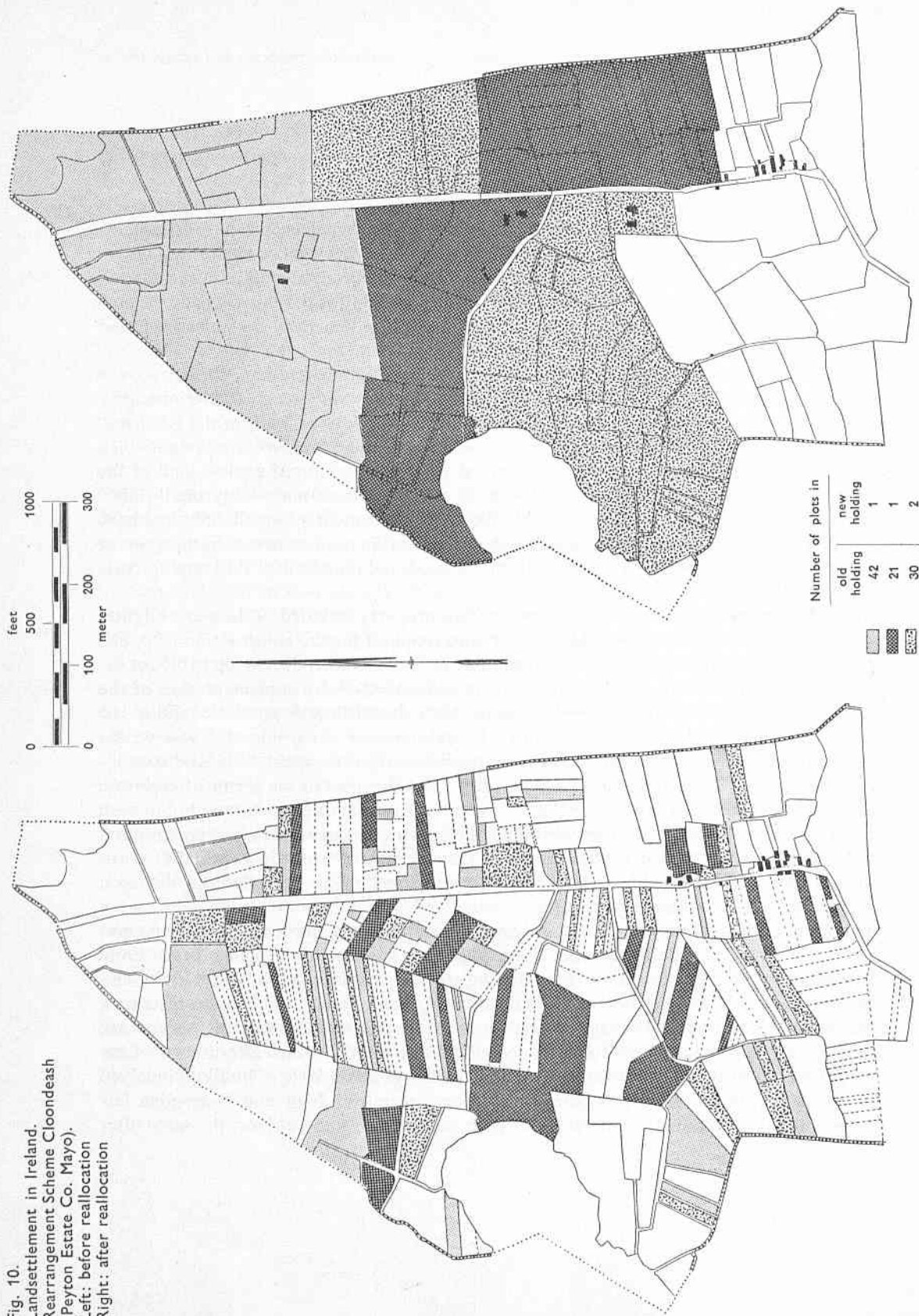
In most European countries authorities have the right to expropriate land against compensation in the public interest. Their legislation provides legal procedures to secure land necessary in the common interest and needed for the execution of the consolidation schemes. More difficult, however, is the acquisition of land for the purpose of enlarging uneconomic holdings, since the terms for expropriation generally do not cover land acquisition for the purpose of enlarging private farm units.

Land acquisition associated with the implementation of consolidation schemes is very common; in general the participants supply the land jointly without great administrative difficulties. Seen from the landowner's point of view, the loss of land, in the great majority of cases, is inconsiderable when compared with the increased land value which results from consolidation operations. Generally, land is exchanged against land of the same value and consequently compensation in money settles usually only small differences. Measures to make land available for the enlargement of small holdings have usually to be based on special legislation. The coordination between both types of expropriation and the actual reallocation demands administrative skill and private cooperation.

In the **Netherlands**, the total area and value of all property included in the consolidation scheme is reduced by the area and value of land required for the construction of public roads and water courses. In general, all land owners have to accept losses up to 5 % of the total value of their land provided that this is necessary for the implementation of the land consolidation scheme. In **Sweden** special Agricultural Boards purchase land in the open market for enlargement of farms. The existence of a considerable reserve for rationalization purposes is considered to be the necessary pre-requisite for land consolidation schemes. The Board has a strong position and can even refuse permits for private land transactions, if the land is needed for the reorganisation of other farms; but in such a case, the board is obliged to buy this land. This regulation operates like a pre-emption right. **Spain** places the lone responsibility for the enlargement work in a special Governmental body, which procures land for farm rationalization by operations in the open market or by expropriation procedures.

The Land Commission in **Ireland** has very wide powers of acquisition, including compulsory means. In badly congested areas, if land consolidation is planned, the Land Commission may acquire almost any holding which is badly worked. The Land Commission also purchases land on a voluntary basis, for land bonds, and in some instances, on the open market, for cash; in addition tenancies are resumed and suitable, tenants are transferred from the congested areas to new holdings mainly in the eastern parts of the country. In these ways land becomes available to enlarge about 90 % of holdings involved in consolidation schemes. In contrast with some countries Irish and **Norwegian** law assures the participants that the value of each holding has to be at least the same after

Fig. 10.
 Landsettlement in Ireland.
 Rearrangement Scheme Cloondeash
 (Peyton Estate Co. Mayo).
 Left: before reallocation
 Right: after reallocation



consolidation as before. In this way no participant can be forced to accept less land against money compensation in order to facilitate the enlargement of small holdings. Land purchases for enlargement purposes are made by the Land Commission in **Ireland** and by a Governmental Board in **Norway**.

Denmark tries to avoid expropriation action and prefers conciliation attempts. In **Denmark**, emphasis is placed on the right of the State to pre-emption and not on expropriation.

4.4. THE FINANCING OF LAND CONSOLIDATION

In recognition of the importance of agrarian reconstruction, European countries finance consolidation operations fully or at least to a considerable part, because they are well aware that farmers are not in the economic and financial position to pay the expenditures associated with the re-construction work. In **Belgium, Denmark, Ireland, Italy** and **Spain** the expenses for the consolidation operations are paid completely by the Government, while **Austria, Finland, Germany, the Netherlands** and **Sweden** pay the greater part of the cost. Construction work and land improvements are generally subsidized by Government grants.

In the **Netherlands**, execution of land consolidation is entirely financed by the State, but a part (at present $\pm 35\%$) has to be refunded by the owners in equal annuities during 30 years at a very low interest rate. In **Spain** with a similar system, the participants have to pay back only a small part of the costs. In **Ireland** the participants' contributions are limited to the supply of free family labour for the erection of new buildings and to repayment, by way of annuity, of some part of the expenditure on additional land, buildings and general improvements. In fixing the repayment obligations of farmers, who in the course of land consolidation have been provided with new buildings, care is taken to ensure that no holding is burdened with an annuity too heavy in times of agricultural depression.

Also in **Germany** the Government gives substantial financial support to agrarian reconstruction. In accordance to 'The principles for the grant of credits and subsidies for resettlement and enlargement of holdings outside of the official procedure' (1956) the farmers are entitled to loans for resettlement and enlargement operations until the size of a family farm. For melioration work and for the establishment of the necessary public services and conveniences, financial assistance is placed at the disposal by the Government and even assistance is given for the implementation of changes in the land use pattern to the extent to which it is necessary because of the resettlement operations. In some European countries, for instance, in **Norway**, the contributions of the farmers are limited to work and cash payments are avoided. While the Government finances the more substantial activities, such as resettlement, road construction, etc., the owners assist in the work of mapping the boundaries and resettlement.

In general, the participants have to contribute to the costs for projects of common

interest, be it by work or by cash payments. Where the Government does not carry the full remainder of the costs, it is divided among the participants after the deduction of the grants. In **Switzerland**, the **Netherlands** and **Italy**, this division is made in accordance with the benefits derived from the consolidation. In **Denmark** the same principle is applied but limited by the rule that the owner's responsibility for the costs of land improvement by drainage and land reclamation, should not exceed the value of the actual improvement of the land concerned. In **Sweden** allocation of the costs is made in accordance with the assessed values of the land allocated to the farmers. But, here also, some adjustments can be made to relate the division of the costs to the benefits derived from consolidation. Expenses for work in the interest of a specific private holding must generally be paid by the farmer concerned, to the amount to which they have not been covered by grants; this is valid both for the improvement and enlargement of the farm.

The extent to which Governments are prepared to finance and to bear expenses of land consolidation operations is necessarily dependent on Government appropriations. Since in the great majority of the countries, inspite of all Government support, a considerable part of the costs finally has to be borne by the farmer, the repayment conditions are of great importance; installments therefore, should be extended through a long period. Among the several methods adapted in the various countries for financing land consolidation operations, the Dutch approach appears to be most suitable. In the **Netherlands**, the authorities cover all expenses and allow the farmer a period of thirty years during which he has to pay off his share of the costs by equal annuities; but legal, financial and partly psychological reasons will in some countries make it difficult to follow this approach. The examination of the present methods for financing land consolidation in European countries indicates the need for new approaches to this problem.

Difficulties in financing arise particularly in those countries where Government contributions are relatively low. In such cases measures of this type may be considered:

- Establishment of a consolidation fund by the community.
- Advance payments by the participating owners.
- Construction credit at a low interest rate (use of public funds).
- Sufficient time for amortization, to allow the owners to pay off their debts.

The right combination of subsidies with loans is very important; governmental credit guarantees for loans at a subsidized interest rate could contribute substantially to the success of the schemes. In the interest of smooth financing of consolidation schemes, serious attention should also be given to the various methods of levying a rate on land owners some years in advance of land consolidation. At later stages the financial upkeep of public works is of great importance and has to be organized in the most efficient way. Where a cautiously planned project is accompanied by measures of this type, the cost of land consolidation will be tolerable for the owners and quicker execution may be possible, particularly if the public contribution can be slightly increased. The capital invested in consolidation operations will soon return to the farmer, and to the country as a whole, due to increased productivity and reduced production costs.

Future land transactions, which transfer consolidated land to non-agricultural use, present a specific problem, for they nullify the benefits derived from Government subsidies and loans, granted in the course of consolidation operations. The decisive question is: shall public subsidies be repaid in the event of future transactions contrary to the purpose of consolidation? The general principle is, that the considerable amounts invested by Governments in the improvement of agrarian structure have to be protected. In **Denmark**, for instance, public loans are to be reimbursed when the consolidated farm is transferred to other proprietors. In **Switzerland** repayment of public contributions, especially for resettlement, have to be made within a period of twenty years when consolidated land is sub-divided for non-agricultural purposes. In **Sweden**, grants for land acquisition and for land improvement can be reclaimed by the Agricultural Committees if, within a period of ten years, the land owner makes transactions which are contrary to the purpose of land consolidation.

A short survey of the financial regulations in various European countries will help to illustrate the picture. It will show that individual countries combine various principles in order to comply with the needs of the individual farmer and that the emphasis is differently placed. Costs for land consolidation consist of the amounts paid for the procedure for acquisition of land and for the work involved. The following combinations are the most frequent ones: (1) The Government can pay all the costs and reclaim a part of them from the individual farmers. (2) The Government may grant direct contributions, facilitate loans and subsidize the rate of interest. (3) The Government combines grants and Government credit guarantees. (4) The Government and the Communes contribute considerably, but besides this, financing remains the task of the land owners themselves. In the **Netherlands** and **Spain**, all costs are paid by the Government but later on the participants have to refund a small part of it. In **Spain**, works of general agricultural and economic interest are totally paid by the Authorities. The participants however, have to repay the Government within twenty years 60 % of the costs for works of interest to their own group of holdings (common interest); for works of private agricultural interest the participants have to pay 30 % as soon as the work is finished. If the farmer can offer sufficient guarantees, authorities may advance the remaining 70 % and facilitate the repayment.

In **Denmark**, the Government usually bears the administrative and technical costs of land reallocations and normally finances and subsidizes the costs of land improvement and road construction etc. For land acquisition a public fund is established and, if necessary, financial problems are solved by additional yearly appropriations. Specific credit is available to resettling farmers for the construction of buildings (construction credit). The interest rate of 4 % can be reduced to about 2½ %.

Sweden, again, has a different approach. The tariffs for surveying and other Government services are reduced below costprice and can in special circumstances be publicly defrayed in its entirety. Also the land survey office can give governmental contributions for part of

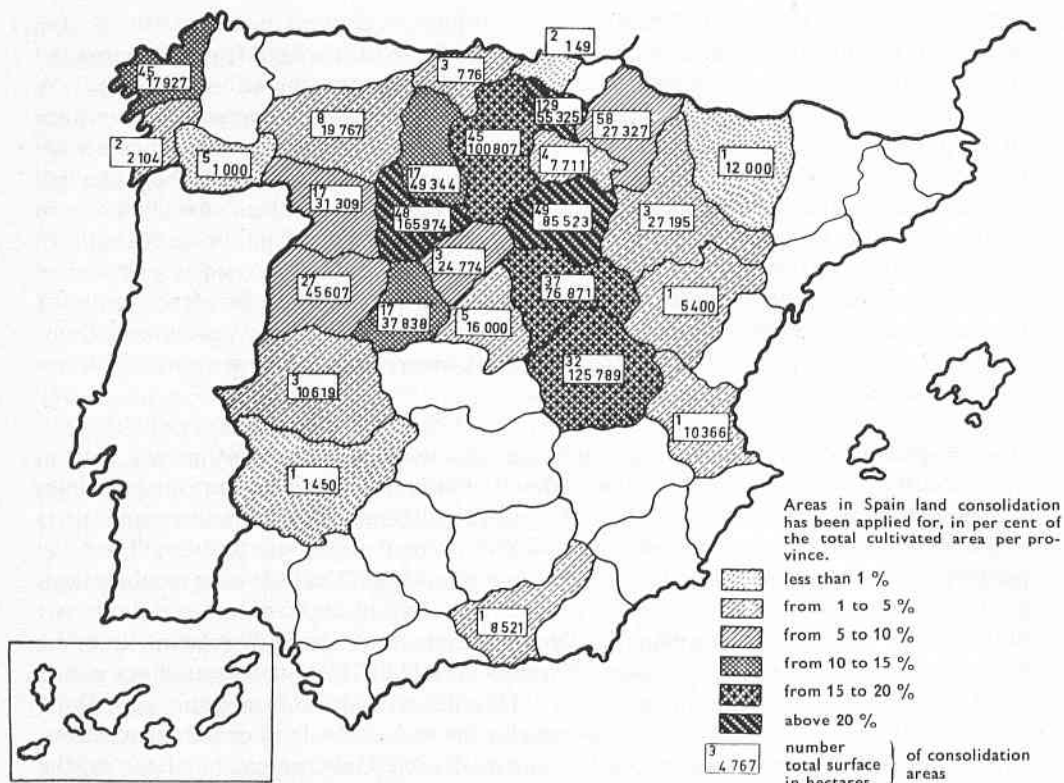


Fig. 11. Survey landreallocation in Spain ultimo 1957.

the costs of some basic works as for instance, for road construction which is obligatorily combined with consolidation operations. All other costs are divided between the participants and are collected by their own executive representative. No loans are given for the legal procedure, but frequently a special administrative authority, the provincial Agricultural Committee, will assume the responsibility for the expenses of the procedure, partly or wholly, and can also contribute to such measures of land improvement as are desirable, but not obligatorily combined with land consolidation. The Agricultural Committees generally give Government guarantees for loans (for the purchase of additional land and for land improvement). The interest rates for guaranteed loans are generally as low as the rates for the primary estate credit.

In **Switzerland**, Federal and Cantonal contributions are granted to cover a considerable part of the costs of the consolidation operations. Beyond that, communal contributions, can be given up to an amount of 5 % or 10 % of the total costs. The remainder is financed by loans, mostly by means of 2½ % bill credits in banks. By good coordination of the

various activities and by proper timing of public payments to the pace of the work, the use of outside capital for consolidation purpose is reduced to a minimum and the costs of interest are kept down; the installments of the participants are based upon estimates and too high contributions are refunded after the completion of the scheme. The land owners have the possibility of actively participating at all stages of the project to keep costs down. **Belgium** applies a similar system but the financing is in the hand of a Governmental company. In **Austria** public contributions are given but there are no loans or facilities for loans.

In **Norway** the Government pays the expenses for the procedure and subsidizes resettlement, cultivation, ditching and the construction of farm and forest roads, Special Government funds exist for land acquisition. When land is purchased for consolidation purposes, a certain loss is calculated in advance.

4.5. MEASURES FOR SIMPLIFICATION AND ACCELERATION OF CONSOLIDATION PROCEDURES

In a number of countries legislation provides opportunities for applying simplified procedures. The application of such procedures is dependent on the existence of a satisfactory land register, of relatively uniform economic and soil conditions, of the number of holdings involved and the quality of the existing system of roads and water resources.

Legislation of this type will avoid the loss of time necessarily associated with land consolidation operations in the broader sense, but nevertheless will secure the advantages of reallocation of lots in such cases where improvement work is not immediately needed. Since reallocation is a very different operation from land consolidation, both concepts should not be confused: reallocation is a temporary and ad hoc solution while land consolidation is a permanent one.

The accelerated procedure of re-grouping of land, as applied in **Germany** and in the western part of **Switzerland** is based on the existing land survey. The old roads and lanes are maintained and no extensive works, such as drainage, irrigation, canalization of surface water, etc., are carried out. Land consolidation on the other hand involves the creation of a new road system and farm lanes to form new holdings with regular boundaries; the old official land survey map is replaced by a new one corresponding to the new state of ownership.

By decree of 20 September 1954, **France** recognized the need for re-grouping operations. The *Génie Rural Français* in January 1955 has stated that:

'The period needed for consolidation in fact depends on the funds and the number of competent technicians available, for it must be remembered that technical competence alone is not enough, as consolidation demands at least three parts of psychology and diplomacy for one part of technique.

'Meanwhile, it is unreasonable to preach patience when a simpler and cheaper method of exchange grouping could quickly give widespread results.

'To conclude, exchanges (re-grouping) should be regarded as a simple and cheap method of achieving quick results and improved farming conditions, whereas consolidation will have to wait, even if it can be accelerated.'

'It must not, however, be supposed or implied that exchanges (re-grouping) will be able to solve the many problems involved in the improvement of agrarian structure. Exchanges will reveal the advantages of reallocation and prepare public opinion for land consolidation. We should not, therefore, speak of an alternative 'exchange or land consolidation' but of 'exchanges and land consolidation'.

Based on similar considerations, the Federal Republic of Germany has introduced a procedure for accelerated reallocation. Its purpose is a quick and large-scale re-grouping of fragmented parcels within the frame-work of a simplified procedure. This procedure will promote the improvement of the agrarian structure in communities where the construction of new roads, water courses and other expensive measures are not necessary or not yet appropriate. It is applied primarily in communities with a limited number of holdings under simple conditions. But a necessary pre-requisite for this procedure is the readiness of the farmers to recognise the advantages associated with re-grouping and their active cooperation. Such a procedure, however, cannot and will not replace land consolidation measures in the broader sense. It would, therefore, be much more realistic to consider this procedure as a first step to later land consolidation operations which will be facilitated by the regrouping of the lots.

In Germany the accelerated procedure can be initiated upon the application of at least two owners or of a farmers' association.¹⁾

The accelerated consolidation procedure is applied particularly in such cases where comprehensive re-allocation cannot be carried out in the foreseeable future. It is limited in most instances to reducing the fragmentation of parcels and thus likewise constitutes an effective measure of improvement, although it is not always possible to achieve the same high degree of consolidation and to take into account all those follow-up measures as in the actual comprehensive re-allocation procedure.

The accelerated consolidation procedure offers likewise opportunities for **resettlement** and **enlargement** of individual farms.

It will be difficult, however, to proceed without the full cooperation of the agricultural association representing the interests of the farmers. In some cases the limitation of this procedure to the property of a few owners may be practical and in others again it may be useful to operate separate schemes.

The Canton of de Vaud (Switzerland), in its law of 1951, introduced re-grouping as a separate procedure; re-grouping will meet, at a small cost, the imperative need for reallocation of land based on the old land survey boundaries without a new road system, new land survey maps, or other technical work. But the operations nevertheless may cover a whole village or even a few communities B. Petitpierre²⁾ emphasises that the reallocation operations will make it possible to re-group areas in fifteen years, which could not be consolidated in less than sixty years.

¹⁾ See Section on 'Resettlement of Farm Families' p. 104; resettlement action in Germany is now carried out often independent of reallocation, which may follow at a later stage. By carrying out fundamental measures of land consolidation rapidly and on a big scale, if even isolated from reallocation measures proper, important results are achieved in a simplified and relatively quiet way.

²⁾ 'Land Consolidation, cheaper and more simplified methods' (OEEC Paris 1957).

Thus, the farmer can enjoy the benefits of re-grouping over a long transitional period, until it is possible to carry out extensive land consolidation operations and land development measures.

In the Canton de Vaud, the Classification Committee and the Surveyor responsible for the reallocation scheme, inquire the farmers' views, keep control over the project as a whole, and give the necessary guidance to the farmer. Properly organized consultations will produce an outline for the new ownership position. Quality differences in the land are taken into consideration from the beginning of the reallocation procedures.

The great problem inherent in all schemes is the difficulty of re-grouping one farmer's holding without prejudicing the other farmers' legitimate interests; every solution, therefore, can only be a compromise. If the farmers are not ready to recognize this basic principle, the project should be dropped. In **Switzerland** the Classification Committee, fully conscious of the need to re-group one holding without harming other farmers, frequently tries to settle first the small holders, along the existing farm roads in specific areas. In this way the small farmers are assured of adequate access and still sufficient land will be left to settle the larger land owners.

Very different from all other approaches is a **Greek** method developed at the OEEC Seminar for Land Consolidation in Wiesbaden 1955¹⁾ by Professor Kypriades which is an attempt to combine simplified procedures with the achievement of 100 % consent by the farmers concerned. In accordance with the Greek method, procedures should only be started when an application for reallocation is received from the majority of land owners (or by the legal minimum) owning the minimum area required. Preliminary work as the preparation of a basic plan is carried out by an advisory committee of five to seven persons, elected by the majority of the owners concerned.

At the second stage of the operation, an agricultural adviser will study the existing position of the farms, including the land use and make a provisional relative valuation of the various land categories, (as for instance, 10 acres of the first category are equal to 12 acres of the second category and to 15 acres of the third category). He will also provide the landowners concerned with official information on the quality differences between the various categories and on their comparative provisional valuation; thereafter they will have the opportunity for open discussion at a meeting convened by the adviser.

The third stage of the procedure is concerned with the final valuation and choice of categories of land. The owners will be called upon in turn to state which categories they prefer or how many hectares they wish to have in each category and their statements will be entered in a table with a column for each category of land. Before the registration begins it is necessary to equate the various properties according to their area by categories, always in relation to their provisional value.

If the farmers concerned are not ready to accept the suggested valuation of the land and consequently the difference between supply and demand per lot is fairly large, attempts will have to be made to persuade the owners to move into the less popular groups. If these attempts fail, the original provisional values will have to be replaced by another

¹⁾ op cit., p. 33.

more appropriate scale. Such a change has to be made by trial and error, either by reducing the value of the category in least demand or by increasing the value of the one in most demand or both together.

Kypriades (OEEC, page 38) recognises that the change cannot be based on mathematical rules because incalculable, psychological or individual factors of great significance have to be taken into account. As a result of a change in the relative values of the various land categories, all property values will have to be revised. The owners will then be called upon again to state whether they will be ready to move into the new categories in order to take advantage of the change in the relative values. This procedure, which may involve a chain of changes, will be continued until a balance is established between the supply and demand of land in all categories.

At the fourth and final stage, the siting of the properties in the selected categories will begin. Kypriades suggests that the final scheme should remain provisional for a short period so that, if necessary, minor alterations can still be made.

In the opinion of Kypriades who has carried out numerous consolidation schemes in Greece, the advantages, amongst others, are as follows: (1) absolute satisfaction of the farmers, (2) rapidity of execution, (3) great reduction in cost, (4) possibility of forming unified properties independently of the number of units belonging to individual owners, (5) radical transformation of villages in a single operation, (6) valuation of land categories by objective means, which provide full satisfaction to all concerned, owing to their own participation.

It is, however, difficult to conceive how the Greek method could be applied under rather complicated conditions. The OEEC seminar (p. 43) stated that the method could only be practised if certain favourable conditions existed: (1) the quality of land should not vary too widely, (2) lease or share-cropping agreements should not exceed a certain period, and (3) the community in question should be on the point of implementing a specific agricultural programme. At the same time, it expressed the opinion that in countries where the rights of land owners have been clearly defined long time ago, the introduction of a new system based on entirely different principles would be difficult. It could be added that by placing the final valuation of the land in the hands of interested farmers, a considerable risk of emotional decisions and consequently of unfair land assessments is involved. The quality of land consolidation operations will certainly be reduced if the final valuation is not in the hands of an unprejudiced expert.

5. SPECIFIC PROBLEMS ASSOCIATED WITH LAND CONSOLIDATION OPERATIONS

5.1 LAND VALUATION

The problems of land valuation are of great importance for the exchange of parcels, particularly in context with resettlement operations.

Two cases of resettlement have to be distinguished:

1. Removal of a farm from the village centre to some other place within the consolidation area and
2. Removal of farm families from a congested district who are compensated by a farm in another district.

In the case of resettlement operations which move a farm from the village centre to the periphery of the consolidation scheme, the valuation of the land is generally made so that land on the external perimeter is valued considerably lower than land in the village. In this way, land owners with relatively modest land resources are enabled to acquire a distant property of more appropriate proportions. This principle was successfully applied in **Switzerland** and other European countries. But contrary to **Sweden**, Switzerland burdens the resettling farmer alone with the expenses and so indebts the resettling generation to the maximum. In **Sweden** where resettlement occurs not so frequently, the operation, including the erection of buildings, is performed at the cost of all affected participants, since all of them enjoy the advantages of the loosening up of the congested village; the Government, however, usually gives a support up to 50 % of the costs. By appealing to the understanding and cooperation of the participants the Swedish approach seems to present a fair solution. In a similar way **Norway** recognizes the common interests of the participants in resettlement, and allocates to them a share in the costs fixed in accordance with the assessment of the land tax; if necessary, the Government may contribute to the costs.

A very complex system of land valuation is introduced in **Italy**:

1. Land which has been procured by means of expropriation in the course of agrarian reform is evaluated according to the extraordinary assessment and is allocated to the farmer at that price.

2. Land which has been obtained by means of expropriation on the basis of the Veteran legislation (ONC) is appraised by capitalizing the normal net returns and assigned to farmers at that price.
3. Land which has been acquired by the Small Farm Institute (Cassa per la Proprietà-contadina) is valued at the market price and sold to the farmers at the same price with special loans at low interest.
4. Land of communal tenures is valued at the market price and handed to the farmers in the form of a permanent tenancy (emphyteusis).

In the **Netherlands** where farmers are transferred from gradually urbanized areas to newly reclaimed land, the difference in values and the additional expenses of resettlement are paid by those who apply old agricultural land to non-agricultural purposes.

In forest areas considerable differences in land values arise from price differences between land with a mature standing and lots with a growing stock. In **Norway** and **Sweden** the creditor is allowed to cut the timber, the value of which will mostly correspond to the difference in land values.

In the conduct of consolidation operations, land has to be assessed with a view to facilitating agrarian reconstruction, and to finding a more or less fair solution for all the interests involved. **Ireland**, for instance, has made a particular effort to protect the small tenant in his move to the new standard farm and to reduce his financial burdens when fixing the price of his new holding. To this end a special reduction in the price of the new holding is allowed.

This reduction, called 'occupation interest' varies in range from £ 50-£ 500 or more, depending on the value of the vacated holding.

5.2. THE DEFENCE OF THE LEGAL POSITION OF OWNERS AND TENANTS WITH RESPECT TO LAND CONSOLIDATION

In previous chapters the part of owners and tenants in the inauguration of the procedure and particularly in the establishment of consolidation schemes was mentioned. The purpose of this section is different; it will show how and to which extent the position of owners and tenants, with respect to land consolidation, is protected with a view to achieving results which not only are fair from a legal point of view but also facilitate agricultural progress; for land consolidation has to reconcile the owner and tenant interests in a way which serves the purpose of agrarian reconstruction.

The position of the tenant under the entire procedure is of great importance since he is closest to the use of the land and primarily interested in agricultural development. If he would be placed on a second, less important, level, the effect would be detrimental to the purpose of land consolidation operations. But, on the other hand, tenant interests should not be an obstacle to the implementation of land consolidation schemes and consequently land consolidation authorities are in many European countries entitled to authorize the termination of tenancy contracts and the reorganization of tenancy if and when necessary.

The fundamental principles expressed in European legislations are the following ones:

1. The owners and in many countries, also the tenants, are entitled to a farm of the same type and value, wherever the arrangements of the consolidation project permit. Where deviations from this principle have been made by compulsion these exceptions must be well defined and limited in their purpose.
2. In all European countries, the land owner is entitled to appeal against decisions made by the consolidation authorities; judicial or administrative bodies are established to consider his appeal. The courts of appeal in the European countries are of very different structure and composition. They can be judicial or administrative and in the latter case, a possibility for further appeal to a judicial court is mostly given.
3. Tenant operators have, in many countries, a highly protected position and are entitled to appeal to the courts when they consider their interests affected by consolidation procedures.

A short survey on the legal and administrative arrangements for the protection of owners and tenants will illustrate not only the broad variations in approach, but will also implicate their close relationship to the historical and institutional background of the countries concerned. In **Austria** and other European countries whose legal system is based on the Roman law, the ordinary court of law has still an important part in the defence of the rights of participants. In **Austria** the participants are entitled to appeal first to an administrative court thereafter to a law court and finally to the Supreme Court. In **Switzerland** a combination of arbitration by special courts and administrative settlement exists for matters not coming under civil law. In Swiss experience the arbitration courts are in a better position than the administrative authorities to take care of the interests of the parties concerned and to settle conflicts.

Since consolidation procedures in **Switzerland** advance at different stages appeals can be made between these stages. While some appeals have to be considered by the arbitration courts and others by the administrative authorities, disputes coming under civil law have to be brought before the ordinary courts. A similar arrangement exists in **Italy**. In the **Netherlands** every owner and tenant is entitled to maintain the economic substance of his right and consequently both of them may raise objections against assessments, allotment schemes and the list of financial arrangements. The objections are lodged with the local committees but may be referred to the court which has the final decision. In a similar way, in **Spain**, participants may appeal against the conditions of consolidation to the Central Commission on Consolidation, thereafter to the Ministry of Agriculture and finally in certain cases to the Supreme Court of Justice. Remarkable is the solution in **Germany**, where a special senate for land consolidation at the highest administrative court is established to decide on appeals against decisions of the land consolidation authorities.

In **Denmark** a special board is established, the decisions of which have immediate legal effect. If the party (owner or tenant) is unsatisfied with its decision, an appeal can be

made to the Minister of Agriculture. A final decision, favourable to the applicant will, however, not overrule the decision of the board, which in the meantime has been implemented. The applicant has to accept the fact that his claim is converted into a title for damages. This Danish approach is interesting as it gives a high measure of protection to the party, without delaying the consolidation procedures.

Norway's legislation tries to achieve a similar result by providing that no appeal can be made until consolidation procedures are concluded; only in exceptional cases when appeals are made against the very reasons for consolidation, the consolidation procedures have to be suspended until a final decision on the appeal is reached.

In Sweden appeals have to be made to specially established authorities. In Sweden appeals against consolidation procedures as well as disputes on proprietary rights go to the so-called consolidation courts; but appeals against the decisions of the provincial agricultural committees, which are concerned with land acquisition, financial support, etc. go to the administrative authorities. In Ireland consolidation of holdings is not compulsorily effected and, accordingly, no question of an appeal on that score arises. It is open, nevertheless, to any participant in a consolidation scheme to initiate legal proceedings should he consider that his rights have been infringed. In regard to the acquisition of land for inclusion in consolidation schemes or for the provision of new holdings for the accommodation of migrants from congested areas, the owner has a right of appeal to the Land Commission Court against acquisition and further to a special land court termed the Appeal Tribunal. On questions of law, a further appeal lies to the 'Supreme Court'. In Ireland, similarly to the Netherlands, the tenant can initiate legal proceedings when he feels that his rights are violated by his neighbours or the Land Commission. In the Netherlands, tenants without written leases can be provided with proper documents for better protection. The land consolidation authorities, however, are responsible only for that part of the lease which is included in the consolidation scheme, while its other parts have to be approved by the Land Administration Bureau. In Denmark the tenants enjoy legal protection like the possessors of rights and mortgages.

Much consideration is given in Norway to tenants who are affected by the consolidation scheme. They become party on their own right to the consolidation transactions and consequently have the right to appeal. The land consolidation court, if necessary, will rearrange the relationship between the tenant and the owner by adjusting the rent, land use practices etc. But the final decision concerning the tenant's demand to terminate the lease because of the damaging effects of consolidation, rests with the ordinary Court of Law. In Sweden, the claim of the tenant to terminate his lease comes under civil law, and is protected by ordinary court procedures.

The new Spanish legislation does not grant the authorities the right to dissolve a lease agreement, but they are entitled to determine the content of the lease agreement provided that the lease concerns a newly consolidated or established holding and the interested parties cannot reach agreement.

5.3. TYPES OF ORGANISATION

The implementation of a land consolidation project depends fully on the authority charged with the execution of the scheme. As it was stated in the section on the establishment of the consolidation scheme, two alternative possibilities exist:

1. the consolidation authorities can function as an executive body for the whole procedure and carry out the essential construction works in close contact with the participants,
2. special bodies established in the beginning of the legal procedure and composed wholly or partly of participants can be responsible for the implementation of the scheme and particularly for the construction work. Those bodies, appointed by the participants or by the authorities take care of the participants' common interests along cooperative lines.

In European countries both types of administrative arrangements are represented; they have worked both efficiently and successfully. What really matters, is the coordination between the executive body, the participants, and the technical services and more specifically the survey system.

With respect to the organisation of the land survey system, considerable variations are found in the European countries. Here also, the historical background and the individual approach of countries to problems such as 'free enterprise or centralised administration', plays a considerable part. In some countries land surveyors are private professionals who compete with each other for the confidence of the clients. In other countries the land survey system is a branch of the land administration. Those who recommend the private enterprise type of land surveying emphasize that only such a system will avoid bureaucratism and the high degree of rigidity which is often associated with a centralized administration. The advocates of a government service for land surveying assure that private surveys in this field are expensive and not always reliable, while Government officials are impartial and independent. A government survey system can be better coordinated with the other activities of the administration necessary for the implementation of land consolidation schemes and has in its advocates' experience frequently resulted in the acceleration of the procedure and thus in cost reduction.

There is no doubt that both systems have made remarkable results possible. **France** and **Switzerland** who followed the free enterprise line were not less successful than **Germany**, the **Netherlands** and **Sweden** who have a governmental Land Survey System. The decisive point is that even a private land survey system must be carried out under close supervision by government authorities in order to assure efficient work.

On the other hand, the governmental land surveyor will only live up to the expectations if he is a good professional man. If this is the case he will not lack initiative as the Government services in the **Netherlands** and **Sweden** prove, where the position of the land surveyor approaches the position of a judge.

In the practical work, however, a considerable part of the differences between both organisational types will disappear. The position of the land surveyor has to be viewed

in its relation to the executive body which implements the land consolidation scheme. If he is a private professional, he will be a consultant for the executive body and will work under the supervision of the authorities concerned. If he is a Government official equipped with the right of decision, he nevertheless can be attached as an expert to the executive body in charge of the implementation of the scheme as it is the case in the **Netherlands**. Whatever the position of the land surveyor is, he may be the leader of the procedure or the assistant to an executive body, the lone responsibility for the technical planning and for the rapid execution of the procedure will rest with him.

Thus, the dividing line between private enterprise and Government service has lost a considerable part of its actual importance. It is generally agreed, that the real problem is to ensure the surveyor's efficiency and his proper place in the consolidation scheme.

The coordination of land acquisition and land consolidation presents administrative problems of no less importance. The enlargement of small holdings is recognized in most European countries as one of the most important features of consolidation schemes. From legal and administrative points of view, it contains many complex problems; the exchange of land taken from one farm against land of the same value from another farm, for instance, is a difficult task. No farmer can be forced to buy more land than he wants, and since small holders are likely to be affected by the financial claims of consolidation, generous credit and grant arrangements have to be made. On the other hand, it will frequently be very hard to meet the demands for additional land within a consolidation scheme and operations in the market, pre-emption and expropriation measures will be necessary to make land available for the enlargement of farms.

Who will carry out the acquisition of land? The consolidation authorities or other bodies, and if so, governmental or nongovernmental ones? No doubt, it would be to the great advantage of land consolidation if all operations could be concentrated in the hands of one authority. A joint administration of all operations would be the most effective solution, but on the other hand, it cannot be denied that the acquisition of land by free operations in the market, pre-emption or expropriation, is a very complex task demanding both commercial, legal and administrative capacities. Furthermore, it will frequently be impossible to carry out the enlargement of farms within the framework of the consolidation procedures and it might be necessary to continue enlargement operations even after the completion of consolidation proper.

Taking all considerations into account, the establishment of a separate organisation in charge of land acquisition seems to be the most suitable solution. Such an organisation could form a land reserve, available for enlargement operations both inside and outside the consolidation schemes.

Information now available does not provide sufficient indications for an ideal solution to the problem of coordination of land acquisition and consolidation activities. Further research in this field is necessary before final conclusions can be reached.

A short survey will illustrate the basic features of the various administrative systems in European countries.

In **Austria** the administrative functions are concentrated and exercised by **one** public authority. Land consolidation itself is carried out by the so-called 'Agrarbehörden' who dispose of all practical knowledge required for the implementation of consolidation schemes; they have also the right of jurisdiction in land consolidation matters. In **Ireland** the Land Commission, consisting of Government officials, is responsible for the entire consolidation procedures, that is including the rearrangement, the acquisition of land, land improvement, etc. In **Sweden**, public authorities are in charge of land consolidation. The legal procedures for the reallocation of land and for the most necessary obligatory improvements, such as road construction, are in the hands of the land surveyor, while the agricultural engineers are in charge of the legal procedure for drainage works. In both cases two arbitrators can be summoned. The enlargement of holdings by acquisition of land, falls in the competence of the Agricultural Committee under the chairmanship of the Provincial Governor; active farmers form the majority of these committees (four out of seven) while the others are officials.

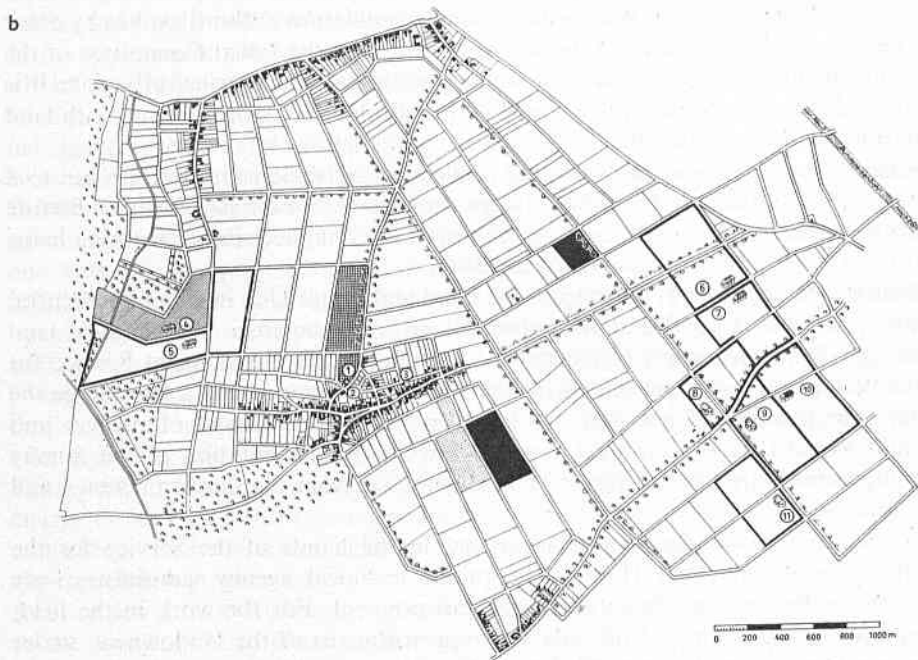
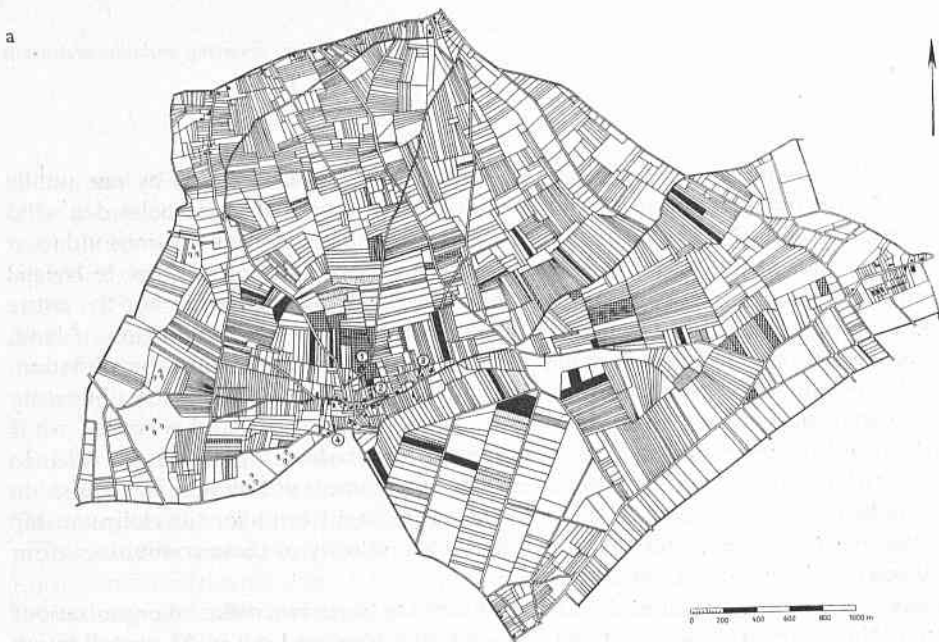
In **Norway**, the Government administration is divided between two different organisations under the Ministry of Agriculture. Land consolidation is carried out in 57 consolidation districts, each headed by a consolidation judge. Similarly to **Sweden**, problems of farm enlargement in **Norway** are not dealt with by the consolidation authorities, but by other bodies: the board of the County Agricultural Society and the Local Committee of the district. This arrangement, however, has seemingly not worked satisfactorily since it is now suggested that an administrative coordination of all activities associated with land consolidation would be preferable.

In **Denmark** different types of measures are carried out by various authorities, but to a certain extent, the matters are administratively coordinated. Special Reallocation Boards and Land Reclamation Committees are established; the final decision concerning loans and grants rests with the Ministry of Agriculture.

In the **Netherlands**, the Central Committee for Land and Water Use, in which the Central Government and the Agricultural Organisations are represented, is in charge of land consolidation. The drawing up of the scheme is done by the Government Service for Land and Water Use in cooperation with the Central Committee. At a later stage the provincial executive council nominates a local committee, composed of owners and tenants and assisted by Government experts. For the implementation of the Survey the committee can enlist the services of a land surveyor from the Governmental Land Registry Service.

In **Spain**, the land consolidation operations are in the hands of the Service for the Consolidation of Fragmented Holdings, a public technical agency, administratively separated from the state but financed by the Government. For the work in the field, local commissions consisting of officials and representatives of the landowners, under the chairmanship of a judge from the Lower Court, are established; sub-commissions are concerned with the actual execution of the scheme.

In **Italy**, the Ministry of Agriculture and Forestry has the administrative and technical



Reallocated holdings; farms remaining in the village (Dorfbetriebe)

| | number of plots | | surface in hectares | |
|---|-----------------|-----|---------------------|------|
| | old | new | old | new |
| ① | 19 | 2 | 18.7 | 17.3 |
| ② | 21 | 2 | 15.8 | 15.1 |
| ③ | 15 | 2 | 11.0 | 11.0 |

Reallocated holdings, involving new farmbuildings outside the village (Aussiedlungsbetriebe)

| | number of plots | | surface in hectares | |
|---|--------------------------|-----|---------------------|-----|
| | old | new | old | new |
| ④ | 14.6 | 1 | 9.8 | 16 |
| ⑤ | other resettled holdings | | | |

Fig. 12 Land Consolidation Project Straberg, Federal Republic of Germany
 a) before landconsolidation b) after landconsolidation

control of all measures relating to land consolidation. With respect to public works, the Ministry of Public Works has to be consulted. Resettlements and improvements in connection with the creation and consolidation of small holdings are a task for the public resettlement agencies. The actual implementation of consolidation schemes is in the hands of syndicates, established by participating farmers and subject to Governmental supervision. These syndicates execute both the public and the obligatory works in private or common interest. Major works are frequently handed over to contractors.

France, Germany and Switzerland have very different types of administration. In all three countries the actual implementation of the scheme rests primarily with the bodies representing the participants. In **France** the law of 1941 has established Communal Commissions as responsible authorities for land consolidation operations in the broadest sense. Under their supervision, local associations of the owners of the consolidated areas, carry out the projected works.

In **Germany** land consolidation is implemented by the local and regional consolidation authorities which work closely together with the participants (including the tenants) and the agricultural associations. The participating owners form a participants' association which as a body of the public law is supervised by the land consolidation authorities. The participants' association is in charge of the common interests of their members and carries out, along cooperative lines, the implementation of the scheme to the extent determined by the consolidation project. Within this administrative framework, considerable variations exist between Bavaria and the other Federal States.

In **Switzerland** each canton has its 'Amelioration Office' which is in charge of land consolidation. At the beginning of the procedure the participating owners establish an association which works in accordance with detailed rules under the supervision of the authorities; the latter have to approve the project, the bye-laws and the technical implementation. The Association normally enlists the services of a private engineer. For all practical purposes the authorities supervise the whole enterprise and the technical staff. In their capacity as advisers they participate in the meetings of the association, determine the conditions with which the participants have to comply, for instance, with respect to repair work and proper management. Building permits are first granted when the requests of the authorities are complied with.

5.4. PREVENTION OF FUTURE SUB-DIVISIONS AND FRAGMENTATION OF HOLDINGS

To maintain the state of consolidation, that means to prevent future fragmentation, is as important as the consolidation of holdings which are already fragmented. Since the serious effects of minute sub-division and excessive fragmentation have been recognised, interest was focussed on the possibility of preventing new fragmentation by legislative, administrative or educational methods. The establishment of minimum sizes as a suitable approach, was frequently suggested. Experiences, however, have proved that minimum sizes alone will not be sufficient to stop fragmentation on the land use level

and in the final result may even lead to serious discrepancies between the land records and the actual situation in the field.

The problems of a legislation aiming at the prevention of future sub-division of farms are very complex. It is certainly not sufficient to declare acts which will destroy the result of land consolidation operations nul and void, since such legislation will hardly prevent those who wish to sub-divide their holdings from finding ways to get around. A legislation concerned with the prevention of future sub-division and fragmentation will have to take into consideration not only traditions, but also the various aspects of the disposal of property rights, and particularly acquisition on the strength of inheritance and testamentary dispositions.

It is obvious that the rigid prohibition of sub-divisions is not an ideal solution, since it does not recognize the social facts of life and the urgent need for individual arrangements. The emphasis has rather to be placed on compromise solutions which slow down the progress of sub-division of agricultural land.

It is little wonder that European countries have introduced rather different systems for the purpose of prevention of fragmentation. The majority believe in prevention or at least in the possibility of restricting the right to effect sub-divisions and fragmentation. **Cyprus, Denmark, Ireland, Italy, Norway, Spain, Sweden and Switzerland** have introduced legislation to this end. **Denmark, Norway and Sweden** have, in consequence of this principle, restricted the right to purchase or to sell parts of agricultural real estate. In the case of inheritance, legislation in **Denmark, Italy and Norway** favours the succession of one heir to the property and both **Denmark and Sweden** try to facilitate the purchase of the other shares in the jointly held estate by the succeeding heir. **French** legislation tends to secure economic agricultural units against subdivision and protects the family property 'bien de famille' against seizure and foreclosure provided such a property, including livestock, implements and fixtures does not exceed 5 millions Fr. francs.

Experience has proved that the climate in consolidated areas is frequently favourable for the maintenance of the agricultural units, since the farmer enjoys the advantages of consolidation and is able to make comparisons with the past. It is, however, doubtful if this attitude can be expected to continue during the next generation which is no longer acquainted with the difficulties and toil associated with fragmentation. European countries are well aware of the need to establish conditions that are favourable for maintaining consolidated holdings and for preventing fragmentation, since they know that legislation alone is not sufficient. In many European countries credit facilities are available for giving financial support to the succeeding heir to enable him to take over the partner's shares in the jointly held estate. The **Netherlands** have successfully applied the service of the extension and educational branches in order to prevent future fragmentation.

An administration, conscious of this goal has definite means at its disposal to strengthen the law. **Sweden**, for instance, makes a distinction between the position of holdings which are legally sub-divided (registered lots), from those which are sub-divided on the

strength of private agreements between the interested parties or which are established even in disagreement with the survey records. Such holdings can be mortgaged only with difficulty and are excluded from Government grants for purchase and improvement purposes.

While the majority of the European countries have introduced legal provisions aiming at the prevention of future sub-division, the **Netherlands**, **Belgium** and **Austria** have not yet taken any initiative in this field; but they are considering such legislation for the near future. The **Netherlands** are also preparing an amendment to the existing legislation to prevent the division of a leasehold owing to the death of the leaseholder.

A short survey of existing legislation will illustrate the position:

In **Cyprus**, the legislation lays down a minimum size of plot below which sub-division is illegal and provides the possibility for eliminating ownership on minute plots and trees.

In **Denmark**, the shape of the plots after sub-division must be appropriate; the remaining land (with the farm buildings) has to meet the legal requirements for a minimum size and the holding must be suitable for proper farming. The minimum size depends upon the value of the soil based on estimated productivity and deviations in size and lay-out have to be approved by the authorities. But, on the other hand, special measures are taken to facilitate sub-division of larger estates and to counteract any tendency to a concentration of land in a few hands; the law prevents anyone from owning more than two holdings. For generations the Danish farmer has been accustomed to give his farm to one of his children. New legislation favours this trend and places at the disposal of the heir of smallholdings, established by the Government, cash and credit for the compensation of his co-partners.

In **Switzerland**, sub-division is prohibited and exception only given for important reasons, as for instance, in the interest of the enlargement of joining farms, for the construction of building sites and for gravel and loam pits. When such permits are granted, the repayment of Government grants can be asked for in certain cases, particularly when the land is withdrawn from agricultural use.

In **Sweden**, permission is required for all sub-divisions and also for the purchase of estates. The permission, however, will only be granted if each unit is economically sized, but in exceptional cases permanent additional income may also be taken into consideration. Joint ownership originating from inheritance or from transactions among close relatives is not prohibited, but as mentioned before, such holdings will be under-privileged with respect to Government support and credits. The Swedish policy has proved to be quite successful but nevertheless the need for additional measures to counteract the trend to private sub-division is generally recognised.

Norway is one of the countries in which sub-division of land has been carried extremely far and restrictions on fragmentation have been introduced as late as 1955. Sub-division due to inheritance or other reasons is subject to consent of the authorities and this consent is given only if economic considerations justify the division of the farm. In the case of inheritance, the nearest of the heirs is entitled to buy out his partners.

Ireland associates economic consideration not with the act of sub-division, but rather with the new units to be established; applications for sub-division resulting in the creation of uneconomic units should generally be refused. No restriction, however, exists to prevent the creation of larger land holdings.

The new legislation in **Spain** gives considerable attention to the prevention of fragmentation. On the strength of the Consolidation Law of 1952, the Ministry of Agriculture is entitled to fix minimum farming units for each consolidation district. Later on, this principle was extended to other areas by the so-called Law of Minimum Farming Units of 1954. The minimum farming unit is fixed for each zone or region of each province on the basis of local conditions. The division of estates creating lots smaller than minimum units is prohibited; if, in spite of the law, the subdivision is carried out, the adjoining land owners are entitled to acquire the undersized units at a fair price. This legal prohibition also effects hereditary partitions. Indivisible real estates will have to be awarded to only one of the heirs and if none of them wants to be the successor of the testator, the estate will be sold at a public auction. Acts or contracts, in virtue of which an indivisible holding is sub-divided, are null and void and will have no effect between the contracting parties or in relation to third persons.

5.5. EDUCATION AND INFORMATION PROBLEMS ASSOCIATED WITH LAND CONSOLIDATION

The importance of adequate information on the purposes of land consolidation, on its possible effects on farm management, on the need of the prevention of fragmentation and other aspects related to agrarian reconstruction, is generally recognised in Europe. Great efforts are made to give extension and education their proper place within the framework of land consolidation; for this purpose propaganda by films, radio, television and newspapers, excursions to consolidation schemes, consultant services, etc., have been organised. If this is efficiently done, the difficulties usually associated with land consolidation will be less and larger obstacles will be eliminated with the result that consolidation will proceed faster and consequently will be cheaper because of savings in staff and time; at the same time its results will be improved.

The **Netherlands** have built up an efficient organisation to deal with this task, as they are fully aware that the population has to be prepared for the new production conditions, which are the result of land consolidation. The local Agricultural Extension service is concerned with the so-called 'preliminary care' which will prepare the farmer for the necessary changes. After the execution of the scheme, the farm people will, for a long time, be subject to the so-called 'after care' in order to ensure the effective utilization of their new holdings with a view to preventing a relapse into the previous stagnation. Advisory services on social problems of the farm family are carried out in close connection with the reorganization of farms, which usually leads to a new way of life for the whole family.

Germany considers it an important task for the agricultural associations to draw up

preliminary plans stating the agricultural objective of the consolidation scheme and the projected land use pattern.

In **Switzerland**, consolidation operations start with a preliminary project covering the objectives, road construction and other works in the area; at the same time alternative solutions are presented.

In all European countries, great emphasis is placed on adequate information at all stages of land consolidation operations. Owners and tenants have to be kept informed ahead of the development of the schemes, on all details of implementation and on possible effects of the consolidation operations on their holdings. The consolidation authorities and particularly the surveyors have great responsibilities in the educational field. In some of the European countries they fulfill their task, (for instance in **Germany** and **Switzerland**) in close cooperation with the agricultural associations. In the **Netherlands** and **Sweden**, where land needed for the enlargement of small farms is generally acquired years a head of land consolidation operations, these preparatory transactions are often the starting point for information on and discussion about problems of land consolidation.

APPENDIX (to PART II)

SURVEY ON LAND CONSOLIDATION PROCEDURE IN VARIOUS EUROPEAN COUNTRIES

(i) *The inauguration of a land consolidation project*

| Country | The first step: application from interested parties or the initiative of an authority | How the execution of a consolidation is decided upon: | |
|-------------|---|--|---|
| | | by voting | by an authority (compulsory) |
| Austria | At the request of 1/3 of the landowners, representing at least half of the value of the estates, or at the request of 50 per cent of the landowners. (For the consolidation of forest areas: 50 per cent of the value.) | | Is possible, but very seldom applied. |
| Belgium | Three owners or operators or a public body. | After a verbal inquiry among the owners and operators the Minister of Agriculture decides if a general assembly is to be summoned. There the landowners and usufructuaries vote in one group, and the operators in another. In both groups a majority both by the number of heads and by the area is required. | If only one group has voted for the project, the King can decide upon its execution if 25% of the other group voted for the consolidation. (Absence = yes.) |
| Denmark | One land owner | Mostly voluntary; after consent to the project of 50 per cent of the owners, representing 2/3 of the area, the Government can decide upon the execution. | |
| Ireland | One or more landowners or the Land Commission | | Decision by the Land Commission |
| Italy | Land owners (the proprietors' syndicate) or by public body. | | Is applied |
| Luxemburg | Land owners. In principle voluntary participation. | | |
| Netherlands | a. 1/5 of the land owners, or b. companies or foundations working in agriculture, horticulture, silviculture or livestock farming; or c. the Government or other authorities. | A majority among the owners, either by the number of heads, or by the area. | Decision by the Minister of Agriculture if at least 3/4 of the majorities, referred to, have given their consent. |

APPENDIX (CONTINUED)

| Country | The first step: application from interested parties or the initiative of an authority | How the execution of a consolidation is decided upon: | |
|-------------|---|--|---------------------------------------|
| | | by voting | by an authority (compulsory) |
| Norway | One land owner. | | The Land Consolidation Court decides. |
| Spain | Most 60 per cent of the land owners, representing 60 per cent of the area, Exceptionally public bodies. | | The Minister of Agriculture. |
| Sweden | One land owner | Majority by the number of heads and by the taxation value. | |
| Switzerland | | Majority by the number of heads and by the area. | |

(ii) Administration and organization

| Country | Executive institutions | Superior administrative authority | |
|---------|---|---|--|
| Austria | Administrative authorities (Landesagrarrbehörden). | Department of the Government | Federal Ministry of Agriculture and Forestry |
| Belgium | A committee of 7 persons. Three are appointed by the King, two by the owners and usufructuaries, and two by the operators. The committee is assisted by a consulting commission of 3-5 persons, appointed by the Minister of Agriculture. | The Ministry of Agriculture. | |
| Denmark | Reallocation Boards and Land Reclamation Committees. | The Minister of Agriculture | |
| Ireland | The Land Commission, which is part of the Department of Lands. | The Minister, Department of Lands. | |
| Italy | Syndicates, established by the participating farmers. | The Ministry of Agriculture and Forestry. | |

APPENDIX (CONTINUED)

| Country | Executive institutions | Superior administrative authority | |
|-------------|---|---|--|
| Netherlands | A local committee, composed of owners and tenants, and assisted by government experts (agriculturist, surveyor etc.). | The Provincial Executive Committee. | The Central Committee for Land and Water Use (Cultuur-technische Dienst) |
| Norway | a. Public administrative authorities, each headed by a consolidation court judge. Each office employs surveyors. | Superior Consolidation Courts. | The Ministry of Agriculture. |
| | b. Purchase of land: I. The Board of the County Agricultural Society. II. The Land Committee of the district. | The Board of the County Agricultural Society | The Ministry of Agriculture. The Ministry of Agriculture. |
| Spain | A Local Commission, established for each actual work. Presided by the Judge of the Lower Court, and composed of Civil Servants and lawyers, agricultural engineers, two representatives of the landowners, and an administrative official. (Within that commission, a Subcommittee of Work is established.) | The Section for the Consolidation of Fragmented Holdings, a technical body of a public character. | The Minister of Agriculture. |
| Sweden | a. The District landsurveyor and two arbitrators, who must not be participants. | The Land Survey Board. | The Minister Agriculture. |
| | b. The purchase of land etc.: the provincial agricultural committee, governmental, composed of 7 members, the majority of them laymen. | The Board of Agriculture | The Minister of Agriculture. |
| | c. The legal procedure of ditching: the agricultural engineer and two arbitrators (non-participants). | The Board of Agriculture. | The Minister of Agriculture. |
| Switzerland | A committee, composed of owners, assisted by a private engineer. | The Cantonal amelioration office (Kantonales Meliorationsamt). | |

PART III

TECHNICAL ASPECTS OF LAND CONSOLIDATION

INTRODUCTION

A natural consequence of the comprehensive scope of land consolidation, as it is understood in Europe, are the numerous and complex technical problems which the European Governments have to face. Accepting the concept of agrarian reconstruction in its widest sense as the framework of consolidation operations most of the European countries agree that planning on the country level is necessary in order to achieve the desired results and to avoid later impairment of the consolidation. Land consolidation has not only to take into account agricultural interests but, if necessary, also the public interest in using agricultural land for non-agricultural purposes. This is particularly the case in countries where the dividing line between agricultural and urbanized areas is fluctuating, as in the **Netherlands**.

Technical problems of land consolidation comprise road construction, drainage and irrigation works, the use of photogrammetry, land classification, settlement and the so-called problems of the internal and external perimeters. The latter are of greatest importance in connection with the technical aspects of resettlement and the loosening up of congested villages. Problems of more specific character are land consolidation in mountain districts, forested and grape cultivating areas.

A significant feature of land consolidation is the fact that the economic, social and technical problems are closely integrated with each other. Changes in the composition of the holding affect the land utilization pattern and the farm management aspect of the holdings. Road construction is important not only from the purely technical point of view but also with respect to the marketing and the social aspect. Technical considerations again decide if an optimal re-allocation can be achieved. The change in the utilization of hilly land from crop area to pasture may not only be advisable from the point of view of labour economics, but also in order to avoid erosion. In **Germany** and **Switzerland** considerable attention is given to this problem and a remedy is seen in the building of terraces on sloping land. In individual cases the decision will often be between the two alternatives: the risk of erosion or the acceptance of the disadvantages of non-mechanized agriculture.

6. PROJECT PLANNING AND EXECUTION OF THE SCHEMES

6.1. PROJECT PLANNING

Project design involves the planning of consolidation operations in agreement with the existing physical conditions; since these conditions are varying, every scheme is a problem of its own. The skeleton of the land consolidation scheme is its system of roads, which, if perfect, makes the holding accessible from all sides. The quality of the road system determines not only the internal and external position of the holding both from a communication and transportation point of view, but also, to a considerable extent, its commercial value. Roads and ditches have to be coordinated to ensure the optimal effect of the consolidation scheme.

But the planning does not have to be based exclusively on technical considerations. In the experience of the **Netherlands** the existence of an economic and social survey of the area involved is of equal importance for the success of the scheme; the estimates of these surveys take into consideration possible developments during the next 30 to 50 years. On the basis of all these considerations the enlargement of plots has to be envisaged and the road system planned. In planning agrarian reconstruction and more specifically the lay-out of individual consolidation schemes, not only the needs of agriculture, but also of other sections of the economy, for example, industry, have to be taken into account.

In the experience of many European countries no general scheme, which is acceptable everywhere, exists for the establishment of farm sizes; and of sizes and outlays of individual plots. From the farm management point of view, the size of the plot has to be determined in accordance with the needs of the rotation cycles. This demand, however, understandable as it is, can only be realised under very equal soil conditions and in areas with a regular and homogeneous system of roads and water courses. Under other conditions the farmers would hardly be prepared to neglect such important factors as differences in soil quality and distance.

To determine the proper size of the farm is one of the major problems of settlement policies. The determination of the size has to be viewed in relation to the desired standard of living and to the working hours needed under good technical cultivation conditions

to obtain this standard; also the quality of the soil, the capital needed and available to carry on cultivation operations, and the actual market situation, are of importance in this context. One of the major difficulties involved is the fact that a family, at the different stages of its development, may wish to apply various types of farming. When the family is young and labour is scarce, grain and a few vegetables may be the right crops while in later years when the family is growing, agriculture has to be intensified and the emphasis may be placed on live-stock production. When water is available, irrigation might be introduced into areas of increasing population.

The solution of these problems demands thorough examination; in the **Netherlands** for instance, investigations are carried out to determine how many hours skilled labourers have to work to be fully employed during a farm year. These investigations are made with a view to determining optimum sizes of farms for the various crops, dairy farming and poultry. The working hours spent per year to obtain a satisfactory standard of living are of primary importance.

Problems of under-sized farms, in areas where no enlargement is possible, may often be solved by introduction of more intensive cultures. In this case the physical qualities of the land are of importance, provided that its size suggests a type of farming appropriate for the area concerned. On a very small farm the choice between various farming types is by necessity limited; if the adequate type disagrees with the general market situation the farmers will have to face serious difficulties. Under such conditions the resettling of the farming families may be the best solution which will make it possible to use their old land for the enlargement of other holdings. Such measures are carried out on a larger scale in the **Netherlands** and also in **Sweden**.

The farm size problem of dynamic nature. Its solution, largely dependant on local conditions and standards, asks for a policy, which takes into account its close inter-relationship with population and technical aspects. In areas where the pressure on the land is maintained and even increased, the farm size problem cannot be solved in purely agricultural terms. Under such conditions even the best calculated arrangements cannot prevent the farm area from being gradually overcrowded and farm sizes from shrinking unless the population is absorbed by industrial development. Thus, the farm size problem is closely tied to the trend of general economic development.

But even if the excess population should be absorbed, the technological aspect remains valid and with it the advance of mechanization, and improved farming methods, all of which will make the farm size of today obsolete tomorrow. Changes and adjustments in the cropping system may help, but they have their natural limitations, although the introduction of irrigation may make it possible to reduce farm sizes and ease the situation for one or two generations. Seen from this point of view, land consolidation in itself is a continuous process which has to be repeated from generation to generation as it is done in **Sweden**, in order to adjust the agrarian structure to the dynamic growth of population and techniques. It is the duty and the privilege of the technicians in the field of land

consolidation to make the necessary adjustments of the farm size with a minimum of disturbance and hardship for the people concerned.

A realistic approach to this problem will try to ensure that farm sizes are not only adequate under present conditions but also in 10 or 20 years when farm techniques will have been further advanced. Experience has proved that farm sizes of 6 to 8 hectares, as determined in the first years after the war in **Swiss** consolidation schemes, are now too small and have to be adjusted, while the Dutch approach to the size problem is more elastic. In the **Netherlands**, where the medium size is about 10 ha, farms are generally extended to a medium size of about 15 hectares. With respect to the number of plots belonging to one holding a similar elastic approach is advisable. A holding should be composed of so many plots as justified under existing physical and topographical conditions with a view to obtaining a land use pattern which makes possible the most efficient use of the agricultural resources. Plots should at least be so large that the farmer has to work there during half a day which means that he does not have to walk to another plot during this period. The actual size of the plot will largely depend on the extent to which machinery is applied and on local conditions.

6.2 BOUNDARIES OF LAND CONSOLIDATION AREAS

A problem to which European countries give increasing importance is the location of the farm buildings in relation to the holding. In **Germany**, the **Netherlands** and **Switzerland** an important part of land consolidation operations, wherever necessary, is the removal of farms from the village centres to the periphery and the removal of farming families from congested districts to other areas. But in **France**, and the western part of **Switzerland**, resettlement is not a part of land consolidation. The position of the countries to this question is closely related to their sociological and traditional background. Within the framework of land consolidation the problem can be formulated in this way: shall the villages be included in the **internal perimeter** of the consolidation scheme?

In the majority of European countries the village is a part of the scheme. **France** and **Spain**, however, exclude the villages and fix the internal perimeter on their immediate outskirts. In most of the other European countries the inclusion of the village is considered essential, since it facilitates the replanning of arterial roads and the correction of plot boundaries within the village. Where village land is expensive, specific compensation methods are used, primarily building subsidies and profit sharing between old and new land holders. In special cases, administrative impartial re-distribution of land is carried out according to legal regulations based on agricultural principles. Such a re-distribution has to be closely coordinated with the land consolidation operations.

The boundaries – those of the municipality and of the district – are not necessarily boundaries of the consolidation scheme. Some tenants may own land belonging to different communities and districts and therefore, it will often be necessary to extend the **external perimeter** of consolidation operations and to merge land belonging to

various communities into one consolidation scheme. The **French** law of 1941 provides for the possibility of extending consolidation to the land of neighbouring villages. One of the essential objectives in this case is to draw agriculture closer to the village by exchange operations and to establish the boundaries in accordance with the economic facts. But other considerations may also justify the extension of the external perimeter. As land consolidation intends to establish complete agricultural units, its boundaries are not always identical with village and district borders. In order to establish well balanced agricultural holdings, special types of land use, as the areas of grape and berry cultivation, orchards and even woodland (**Northern Europe** and, since 1946, **Switzerland**) are frequently included in the operations though they may be located beyond municipality and district boundaries. The extension of the scheme is also often of great help in the construction of an efficient road system and creates additional possibilities for compensation purposes. Both the internal perimeter with the inclusion or exclusion of villages and the external one with its restriction to, or its extension beyond municipality and district boundaries, determine the boundaries of the land consolidation scheme.

6.3. ROAD SYSTEM

The density of the road system is dependent on the type of land utilization, the size of holdings, the influence of the gradient of the area and the amount and intensity of precipitation. A systematic appraisal of these factors is extremely difficult due to the variety of local conditions; all of them, however, have to be taken into serious consideration when an efficient road system shall be established.

Road density varies very much in European countries because of great local variations. In **Switzerland**, due to the small size of the holdings, the high precipitation and the steep gradient of the land, the average density of the road system lies between 60 and 110 meters per hectare, while in **Spain**, with its low precipitation the density is only between 3 and 11 meters per hectare. The distances between the roads also greatly differ and are determined among others by the size of the holdings, and the farm types. In hilly country, and mountainous regions, distances between the roads are often relatively short. In hilly vine yard areas the distances between the roads depend upon the gradient slope and vary between 50 and 100 meters, while on level land the distances may be between 100 and 150 meters.

Road intensity is generally more pronounced in orchard districts than in purely agricultural areas. In forested regions the distance between the roads is more considerable; in **Sweden**, between 200 and 1200 meters; in **Switzerland** between 150 and 300 meters. A reallocation of land in larger parcels is fundamental for a cheap and efficient system of public roads. In the course of land consolidation operations, the density of the road system has to be adjusted both to the size of the holdings, to the projected intensity degree of land utilization and to the probable technical progress. The construction of a new system of roads in the consolidation scheme has primarily the purpose to eliminate the interior position of some agricultural plots and to assure full access to a public

road for each holding; each farm has to be reached without any difficulties and the road system should facilitate the optimal use of the land. The ideal, but expensive solution would be that every holding is located between two roads, because in this case the farmer could be able to turn both backwards and forwards with oxen or tractor; for this purpose, additional supplementary roads have to be constructed. In the course of land consolidation operations, the main traffic roads will generally be maintained, but allowance has to be made for forthcoming changes in the main communication system by reservation of land needed for future extension.

The road system is generally adjusted to the size pattern of the consolidation scheme. The adjustment has to serve the most pre-dominant type of farm sizes while in the interests of the others, some later corrections will be sufficient. The roads must have the appropriate width and in planning them the advancing mechanization of agriculture has to be taken into consideration. One of the purposes of land consolidation in European countries is to facilitate mechanization and consequently the probable number of tractors and agricultural machinery which will use the roads after land consolidation is completed, is of decisive importance. Since land consolidation tends to multiply the use of agricultural machinery, road construction in many European countries takes this development into account and plans on the basis of the probable results of land consolidation and not on the background of the previous traffic. Road construction usually begins immediately after the consolidation plan is accepted, in order to assure that the roads are ready when the consolidated holdings start to work.

In the case of intensive cultivation and high precipitation many European countries apply a two road system and surface both roads. If the cultivation is less intensive and precipitation lower, the improvement of the main agricultural road is sufficient. **Sweden** has carried out several economic and technical investigations which have proved that under Swedish conditions, the one road system, almost without exception, is sufficient. If the cultivation is less intensive only the main agricultural road has to be improved. In meadow and mountain areas the one road system with a surfaced track is most usual. In forestry areas all roads should be surfaced.

With increasing mechanization of agriculture, great attention is given to stabilizing roadways, since motorization has resulted in a considerable increase of the road maintenance costs which burden the agricultural production with additional expenses. Various European countries, such as **Austria, Germany, the Netherlands and Switzerland** have therefore surfaced the main agricultural roads with concrete or bitumin. In recent years experiments have been made in **England, Germany, the Netherlands and Switzerland** with the less costly process of mixing the actual surface soil with cement.

6.4. IMPROVEMENT OF THE WATER MANAGEMENT AND OTHER AMELIORATION MEASURES

Water management conditions in Europe are a long way from being ideal and land improvement by drainage and irrigation in connection with land consolidation operations

is almost always desirable. The expenses for the consolidation might be increased in this way, but in turn the cost for hydraulic works will be considerably less in consolidated areas than in fragmented ones.

The coordination of land consolidation operations with improvement measures is particularly justified in the densely populated areas in Western Europe where the pressure on the agricultural land is significant. The integrated approach to the problems of agrarian structure and specifically to fragmentation, has opened new prospects for the agrarian policy in Europe.

The establishment of a large scale efficient drainage system can hardly be conceived without coordination with land reallocation operations with a view of reaching a well balanced redistribution of land and meadows. On the other hand no reallocation can be carried out successfully without a reorganisation of the water management, which will facilitate a better reallocation of the land.

Consequently the planning of an improved lay-out of the water courses is generally recognized as one of the fundamental features of most consolidation projects. The location of channels, ditches and roads, forms the skeleton for the redistribution of the agricultural land. A new channel must often be constructed where the natural water course does not follow the most favourable line; frequently it will be sufficient to straighten the water course and to eliminate numerous meanders. Such measures, however, cannot be carried out exclusively on the basis of agricultural considerations since fishery interests have to be protected and natural characteristics of the landscape have to be preserved. In the **Netherlands** and **Switzerland** therefore, great attention is given to the protection of the land against dangerous winds, freezing and erosion. A better balanced water management, established in the course of land consolidation operations, will also improve soil humidity in the dry season. Well distributed minor water ponds frequently help to soften the temperature differences between day and night, and in periods of frost. In Southern European countries consolidation operations are closely coordinated with irrigation work wherever necessary, as, for instance, the framing of springs, the construction of artificial or natural water ponds and of proper facilities for the raising of the water level.

Improvement of moorland, heath and waste land in close coordination with land consolidation operations is carried out in many European countries which are in need of more agricultural land.

By doing so, attention is given to the fact that sometimes the maintenance of water or humidity ponds is more useful from an agricultural point of view than the expansion of the agricultural area at the expense of great efforts and high cost.

Such improvement measures are carried out almost in all western European countries on a large scale. In **Denmark**, for instance, where the first land consolidation operations only partly included moorland and heath, much is being done and still more can be done by coordination of land consolidation operations and improvement measures. The remaining moorland areas, however, need extensive draining operations.



Photograph K.L.M.

Fig. 13
Reconstruction of an old polder area in the Netherlands.
Left: In the old situation the parcels are intersected by canals, thus they can only be reached by means of boats. Right: The land reconstruction scheme involved: filling up ditches, improving the water management, road construction, reallocation, resettlement of farms, etc.

In the Federal Republic of **Germany**, the inclusion of improvement measures in the framework of land consolidation operations is assured by the law on Land Consolidation of 1953. Major draining projects are carried out by a special water and soil association established for this purpose and integrated in the scheme. In this way the costs for draining operations are covered independently from the other costs.

France is interested in the greatest possible acceleration of consolidation operations and restricts herself to the most necessary measures in the field of water management. In the Rhone Valley, however, considerable land has been drained in connection with consolidation operations and at the same time irrigation facilities have been provided.

In the **Netherlands** the establishment of a sound water economy is the most essential part of the consolidation scheme: the fundamental technical problem is the integration of the natural drainage into the water systems. This means that water management considerations in the **Netherlands** have to go beyond the consolidation scheme and are by necessity 'overregional' which makes any planning restricted to the consolidation scheme, unrealistic and, therefore, impossible. The Land and Water Use Authorities draft their preliminary consolidation project in close cooperation with representatives of the Government and of the Provincial Water Administration. This project will be submitted to the first meeting of the participants and is the basis for voting on the scheme. If the scheme is accepted, the competent local commission can supplement the planned water and road system and even make smaller corrections. Projects concerned with the change of the water courses and the improvement of moor and waste areas are, in general, carried out by private enterprise, but are under the supervision of competent agencies of semi-public character.

The significant feature of the Dutch improvement technique is the drainage of large water areas and their change in first class agricultural land. Utilization of the reclaimed areas is carried out in accordance with principles, which from the point of view of land consolidation operations, are ideal. A generous road and water course system facilitates the distribution of land in the shape of large right angled parcels over extended areas. The buildings are placed either in small groups or as single settlements along the roads and directly built on the property. In the North East-Polder the parcels are 800 meters long and 300 meters wide; thus, only a relatively small road length per hectare of cultivated land is needed: in the Wieringermeer-Polder the relation is 12.5 meters and in the North East-Polder 10 meters per hectare. Schemes of this type save considerable areas of arable land.

In large areas of **Sweden** the soil is very wet because of too generous precipitation. The Swedish water law, therefore, makes participation in draining measures to a considerable extent compulsory and each participant has to pay in accordance with the advantages (but not more) derived from the system. The coordination between reallocation and drainage is not yet regulated by law, but during the last few years some progress was made in this field.

In **Switzerland** reallocation and improvement measures are implemented in close

coordination with each other. In the Zürich Canton the participating owners are obliged to carry out the necessary draining work on an cooperative basis, as soon as they have approved the scheme for land consolidation.

Land consolidation offers the possibility of bringing the physical conditions of agriculture as close as possible to the ideal solution, provided that considerations for water -, soil - and land use management and for the protection of the landscape, are coordinated and reconciled with each other: then, and only then, will land consolidation produce optima results.

6.5. RESETTLEMENT OF FARM FAMILIES

Resettlement at the external perimeter in close coordination with land consolidation was first successfully done in the **Northern European countries** and later on in a similar way in **Austria, Germany, Ireland, the Netherlands, Spain and Switzerland**.

It is generally agreed, that resettlement operations have the optimum effect when the resettled family is placed close to the external perimeter. Only in this case the proper utilization of the more distant land, which usually was neglected before, will be secured. The most important feature of the resettlement operations, next to the actual consolidation work, is the fixation of the size of the holding, which usually will be considerably larger than the old one. If the resettled farm family (as is the case all over Western Europe) works with lower production costs than at the old holding, resettlement has been paid, also from a farm management point of view.

Resettlement action establishes a well consolidated farm unit with the homestead on the land, which is preferable to all other types of settlement at the present stage of development. Its advantages are obvious since small distances save time and costs and give the possibility for efficient supervision and control of the work. The crop is practically in front of the barn and consequently the risks of sudden thunder-storms which might cause damage, are reduced to a minimum. The consolidated single farm makes the most intensive and rational farm management possible, which is particularly important for the dairy farm type. Resettlement, however, is not only advantageous to the resettling family, but also to the other farmers who remain in the village. But despite these substantial advantages some sociological arguments (given in Chapter I above), retain their weight. In Western European countries the loosening up of villages and the resettlement of farming families is not compulsory, since such a measure, decisive for the whole way of the family life, can only be implemented on a voluntary basis.

In order to reconcile, to some extent, the advantages of resettlement with the conveniences of village life, resettlement in some of the European countries, particularly in the Federal Republic of Germany, is now carried out in the form of group resettlement where a few farmsteads - generally three to six - are, in a neighbourly way, combined. Although the homestead in this way is not directly located on the farm, the disadvantage from a farm management point of view is not considerable and is more than com-

pensated for by the possibility of mutual aid and the merits of neighbourly life. Also, the expenses for electricity, telephone, and water supply installations will be reduced considerably in this way.

Under Western European conditions resettlement operations are generally carried out if the distance between the agricultural land and the village is more than 3 kilometers and in hilly areas where the agricultural parcels are located considerably higher or lower than the village. In congested villages, where the farms are situated very closely to each other and no space remains for normal operations, resettlement is recognized as the appropriate solution, since it will considerably improve the farm operational aspects of the village. In such cases, however, it is not the small farm but the large one which will have to leave the place and be transferred to the external perimeter of the land consolidation scheme.

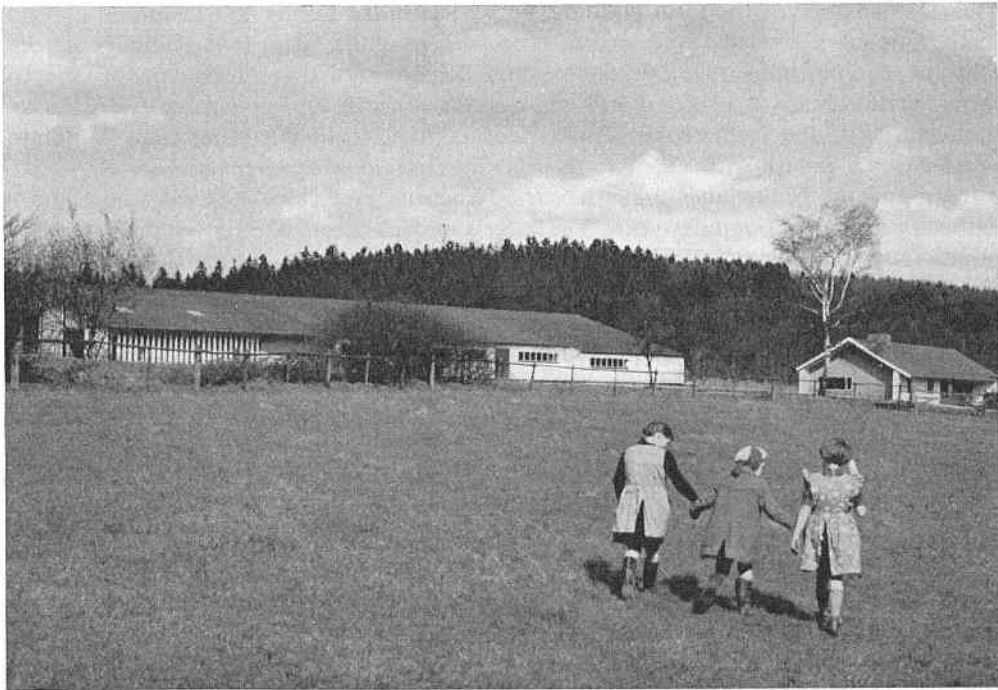


Fig. 14. Cattle farm, resettled from a congested village in Nordrhein – Westfalen, Federal Republic of Germany.

Switzerland, and more specifically, the Canton Zürich, has been extremely active in the field of resettlement.¹⁾ In order to promote as far as possible the settlement of less-accessible areas in close coordination with the consolidation operations, agricultural land is valued on the basis of distances from the village so enabling farmers from in the village to establish on the external perimeter of the consolidation scheme larger holdings which are sufficient for the support of their families. However, not only the distance from the village but also the increase of land values by drainage operations may influence the size of the resettled farm.

While the increase in land values resulting from the drainage belongs to all the participants, an adequate part of the excess value will be allocated to the owners of the drained land against payment of their shares in the cost of the drainage. The remainder can be utilized both for resettlement and for other purposes, as for instance, the expansion of smaller farms and, in the public interest, for school buildings, hospitals, etc.

The size and type of the farm buildings for the resettled family will primarily depend on the amount of allocated land, as well as on the type of the farm. It is generally agreed that the equipment should be suitable and consistent with requirements of modern farming. But details of planning and construction are still subject to extensive research, particularly in the **Netherlands**. **Switzerland** constructs houses and farm buildings at relatively high cost with a view to their lasting for two or three generations.

Sweden and the **Netherlands** prefer cheaper constructions calculated for amortization within a period of about thirty years. The latter approach takes into account the possibility of imminent changes in agricultural techniques and construction which soon may make obsolete farm buildings of today's construction.

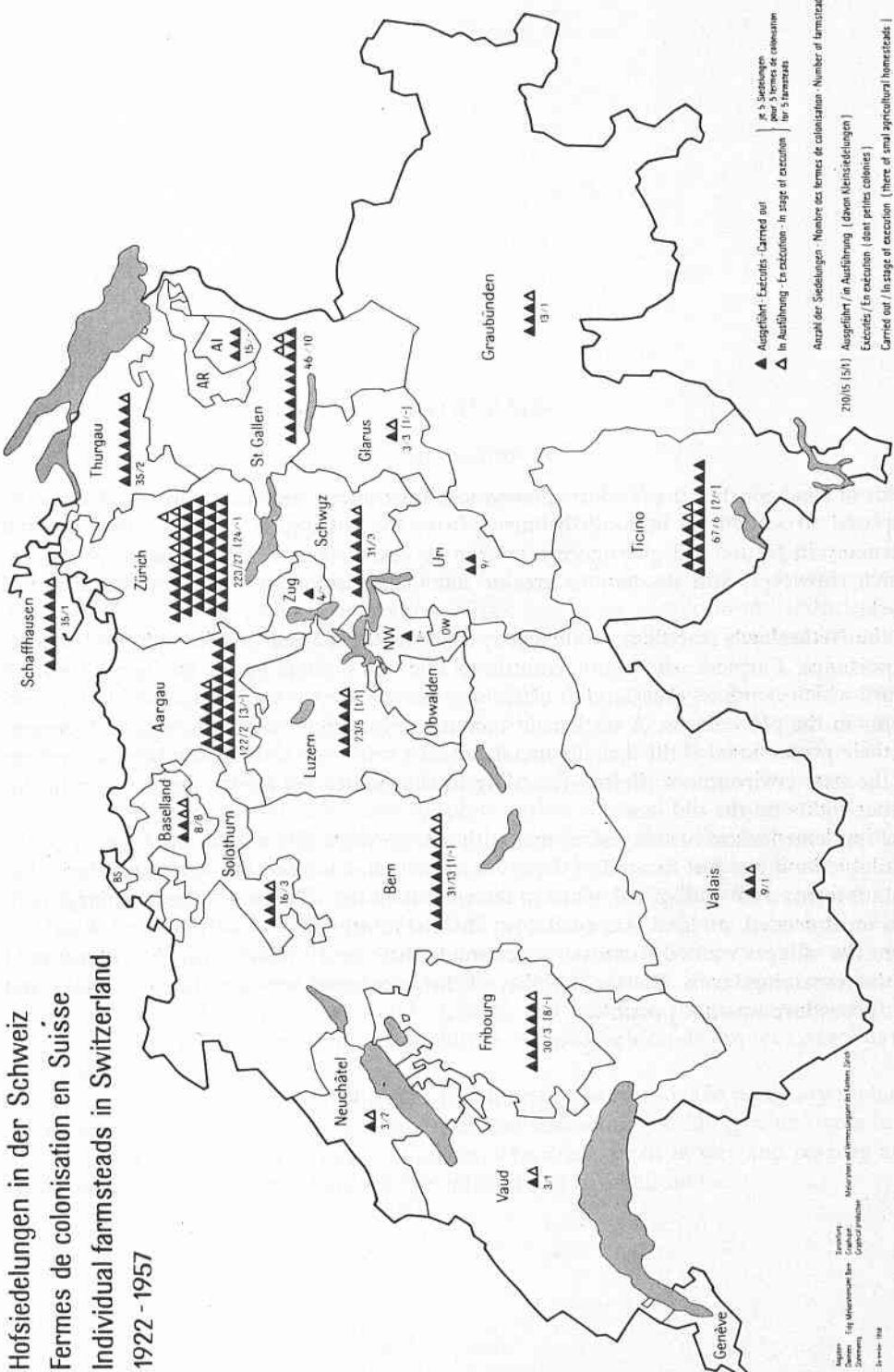
The Federal Republic of **Germany** follows a very rational line, and is reluctant to spend large amounts for the construction of farm buildings. In **Germany** the new farm buildings, though comfortably equipped, are not constructed to last through generations; their construction makes it possible to adjust the buildings easily to new technical developments without spending considerable sums.

Germany places emphasis on the farmer's own initiative in the field of resettlement, independent from any official scheme, while financial support is granted by the authorities. The **self-help measures** aimed at the improvement of the agrarian structure taken outside of the official procedures began in the summer of 1956. The Agricultural Mortgage Bank which has been entrusted with the financial implementation of these measures as the Central Institute, had approved loans for more than 6,000 projects of which nearly 1,500 resettlement schemes for entire farms and more than 3,000 enlargement schemes. The number of applications has been increasing steadily since. In 1956-1957 not less than 424 resettlement projects²⁾ were implemented with Government subsidies amounting to DM 17 million, which covered about 45 % of the estimated costs. But only 173 resettled farm families have been placed at the external perimeter of the scheme; the remaining farms were settled at the village periphery partly because of lack of funds and partly because of the insufficient cooperation of local authorities, particularly in the

¹⁾ E. Tanner. Progress in connection with the removal of farm buildings out of the village in Land Consolidation, OEEC, p. 45.

²⁾ H. Priebe and Hiltrud Lange. 'Förderung bauerlicher Selbsthilfe bei der Verbesserung der Agrarstruktur'. Frankfurt 1957, pp. 19.

Hofsiedlungen in der Schweiz
 Fermes de colonisation en Suisse
 Individual farmsteads in Switzerland
 1922 - 1957



Angaben: Siedlungen - Eig. Messungen von - Construction - Mesures par les fermes de colonisation
 Siedlungen - Eig. Messungen von - Construction - Mesures par les fermes de colonisation
 Siedlungen - Eig. Messungen von - Construction - Mesures par les fermes de colonisation

fields of road construction and fire prevention. Insurance companies, also, are frequently opposed to settlement at long distances from the village. It can be expected that **Germany** in future will give more attention to resettlement at the external perimeter, which, however, will necessitate greater financial support for preparatory technical work.

In the **Netherlands** resettlement on newly reclaimed land is a problem of fundamental importance. Farmers who want to settle in the new polders apply to the reallocation board which examines their land to see if it can be used for the enlargement of under-sized farms in the old villages. A settlement committee examines the applicants with respect to their professional skill, their financial capacity and their ability to adjust themselves to the new environment. Before resettling in the polder the farmer has to give up his owner rights on the old land.

The implementation of this policy met with considerable difficulties, since a part of the available land was not located in the areas of the greatest need. In some cases large but distant farms were at disposal, while in the vicinity of the villages, where the enlargement was most needed, no land was available. The distant plots could only be used if farmers from the villages wanted to move, which made their land available for the enlargement of the remaining farms. But the mobility of the population was sometimes so slight that this procedure was not possible.

7. SPECIFIC TECHNICAL PROBLEMS

7.1. LAND CONSOLIDATION IN MOUNTAIN DISTRICTS

In some European countries, particularly **Austria**, the southern part of **Germany** and **Switzerland**, the mountainous districts present considerable and serious problems. Their proper solution, is of great importance both from an economic and social point of view. The difficult production conditions in the valleys lead, in countries with expanding industries, to an ever growing migration of the mountain people to the industrialised areas. The result is the de-population of the mountain valleys, where the remaining farmers live under most unfavourable and worsening conditions.

Within the framework of an integrated approach to the complex problems of mountain regions, European countries give specific attention to the agrarian structure. In some districts of **Austria** and in the **Swiss** Cantons, Graubünden, Tessin and Wallis, the successive sub-division of land has led to excessive fragmentation and in some of the Cantons the average number of separate plots within a farm unit, amounts to 22 to 27 pieces of land; and many farmers have even more than 100 plots. The average size of the plot in those areas is as minute as 0.06–0.20 hectares. Mountain districts illustrate much better than other regions the need for more substantial help than the reallocation of plots can provide. The lack of roads and of proper transport facilities makes efficient farming impossible; road construction and the installation of cable cars and milk pipe lines have to be closely coordinated with reallocation measures, if a real success is to be achieved. In addition drainage – and in some districts also irrigation work and the construction or improvement of farm buildings, have to be included in the consolidation operations.

A specific problem of land consolidation in mountainous areas is the necessary exchange of shares in buildings and the liquidation of and compensation for specific rights in the use of pastures, forests, and watering places. The drainage of moors and marshy areas will make it possible to gain land for the enlargement of small units.

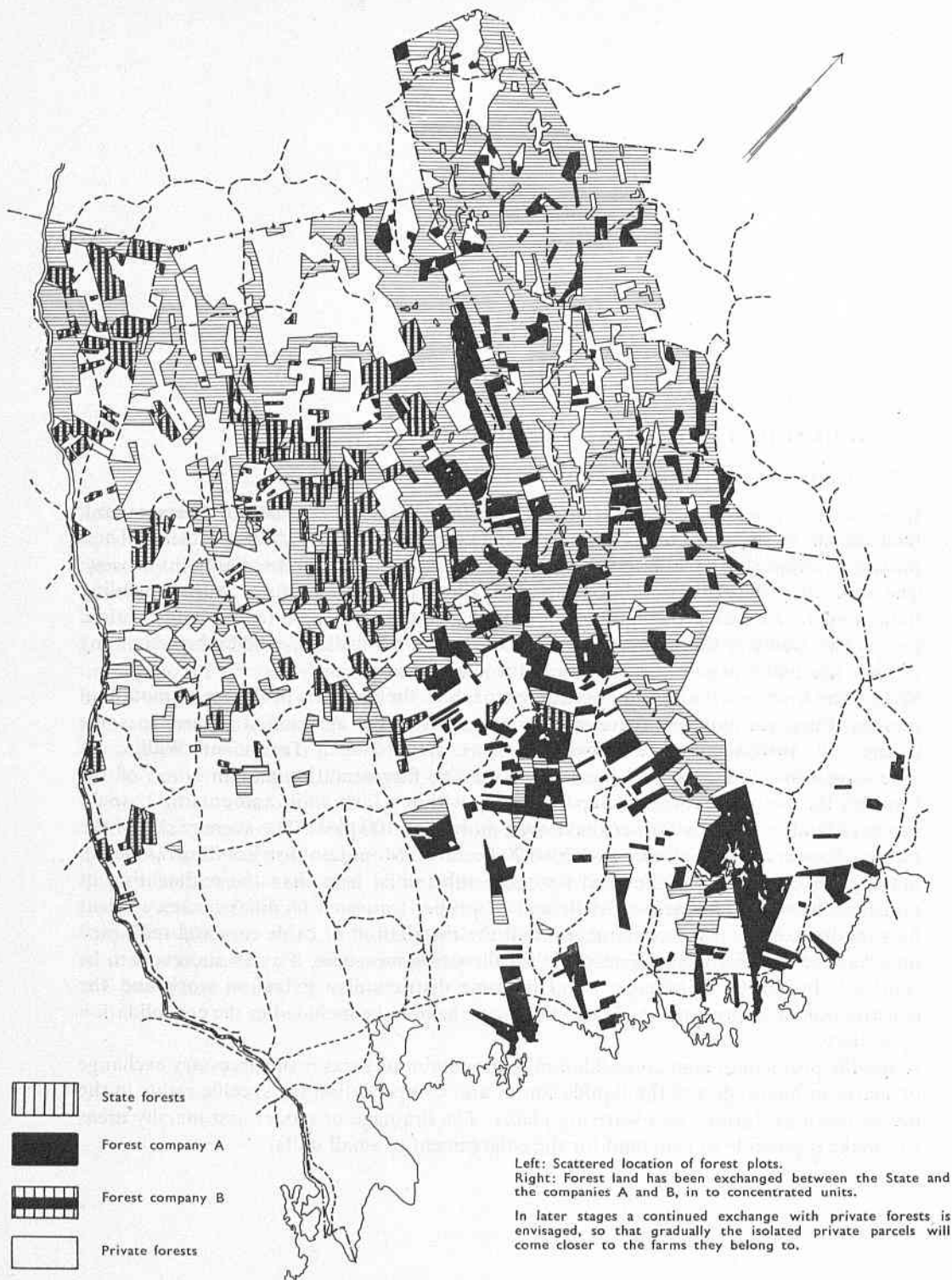
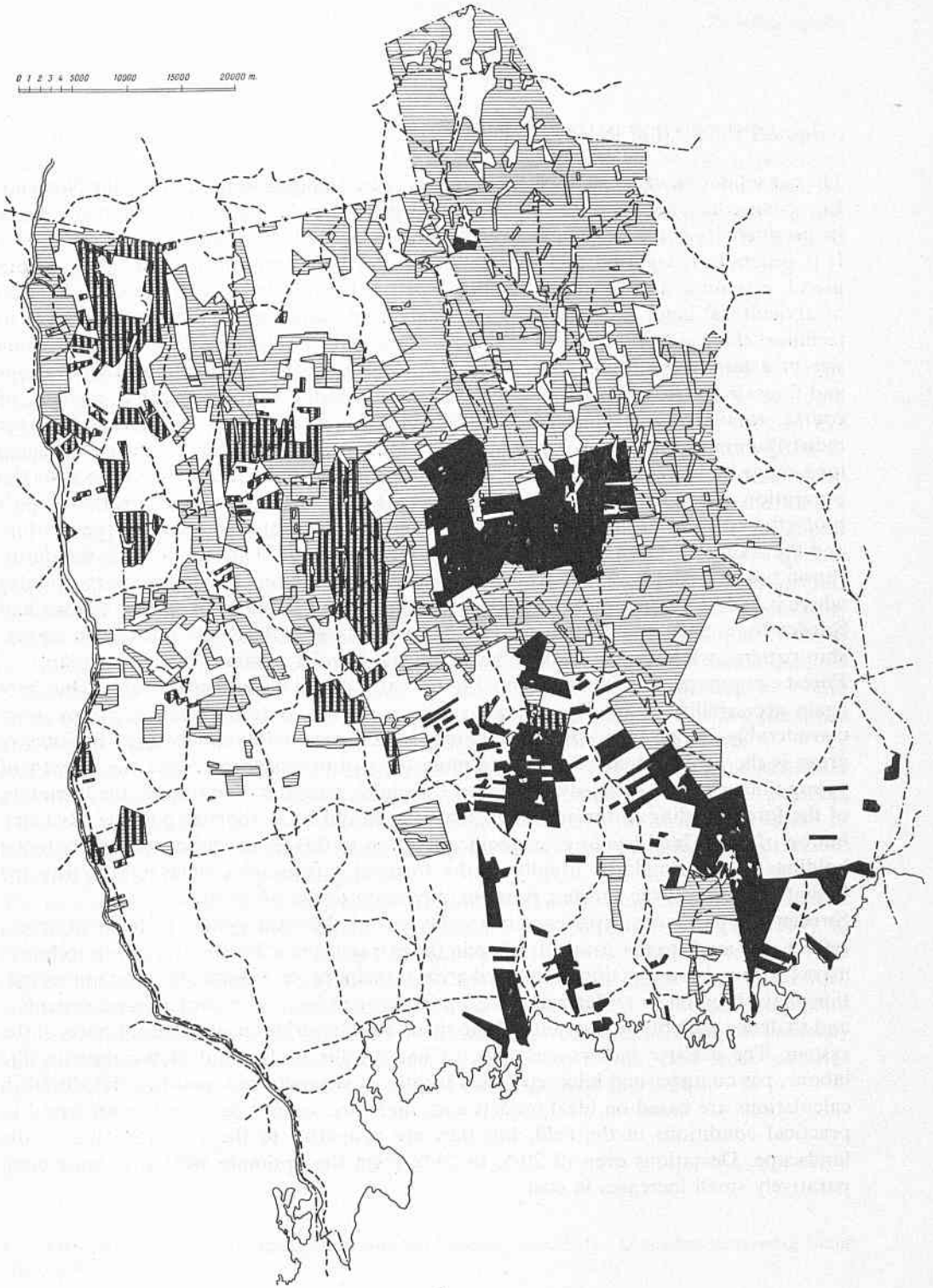


Fig. 16. First stage of a forest consolidation scheme in Sweden.

0 1 2 3 4 5000 10000 15000 20000 m



7.2. CONSOLIDATION IN FOREST AREAS

The consolidation of forest areas is a problem of outstanding importance in the Northern European countries where the forest plays a great part in the national economy, since its productivity could be greatly strengthened by consolidation measures.

It is generally recognized that the reallocation of combined farm-forest holdings into useful, economic and manageable units must go hand-in-hand with the consolidation of agricultural land. In the case of the small farms which are especially vulnerable to technical changes likely to occur in the near future, their enlargement to the appropriate size of a family enterprise will involve the inclusion of a combination of food crops and forest in accordance with local, economic and social conditions. Such a concept, of course, entails specific financial and legal provisions favouring purchase of land for redistribution to small-farm owners, security of tenure and long-term loans encouraging long-range improvement. Of significance to forestry are particularly such aspects as the prevention of refragmentation, compulsion to accept consolidation where the forest's protective role was neglected, control of exploitation during the period of reorganization, and the standardization of acceptable assessment methods. The lack of such standardization has been the principal obstacle to forest consolidation in almost every country where it had been attempted, **Switzerland** being the outstanding exception. **France** and **Sweden** have made an effort to create forest-owner associations with unchanged ownership pattern, while the forest complex is managed under a common working-plan.

Forests, in general, are not fragmented to the same extent as agricultural areas, but here again accessibility to roads and water courses serving as transportation means, is of considerable importance. One main objective of consolidation measures in forestry areas is the achievement of adequate plots for cutting purposes. Since the growth of young timber can be seriously influenced by joining long standing timber, the boundary of the forest holding to the adjoining property should be as short as possible. Redistribution of forest land has to give specific attention to this point and consequently forest holdings are consolidated usually in the form of quadrangles since in this way the boundary length is the shortest possible in relation to the whole area.

Sweden has particular experience in the lay-out of the road system in forested areas; reference is made to the Annex I, wherein the extract from a Swedish report on technical aspects of road construction in forested areas is included. In Sweden, thorough investigations have been made to determine the optimum road interval of certain road systems and to define the optimum quality of the roads and its variations in different parts of the system. The decisive factors are costs, of hauling the timber and of transporting the labour, per cu. meter and kilometer road lengths at various road qualities. The Swedish calculations are based on ideal models and, therefore, cannot be directly transferred to practical conditions in the field, but they are adaptable to the characteristics of the landscape. Deviations even of 20 % to 25 % from the optimum will only cause comparatively small increases in cost.

The consolidation of forest areas, particularly of private forests in northern European countries is combined, wherever possible, with the consolidation of the agricultural land. In order to ease the financial burden of the participating owners, the work on forest roads is usually allocated to the participants after the construction work in the agricultural area is concluded; construction work in forest areas is generally distributed over long periods.

7.3. CONSOLIDATION OF VINE YARDS

The consolidation of vineyards presents specific technical problems, which in many European countries have not yet been solved. Consolidation of small plots to one unit, is of particular importance in vine yard areas, since grape cultivation is four to five times more labour intensive than agriculture. Among the various technical aspects of this type of consolidation, the very considerable differences in land values, depending on location, soil qualities and even commercial standing of the produce (trade mark), involve the greatest difficulties, since they complicate the exchange of plots in the course of consolidation operations. In **France**, consolidation in areas producing high quality vines is considered impossible, because of the immense differences in soil values, while **Switzerland** in similar areas has carried out such consolidation operations successfully despite of these difficulties. In **Germany** resettlement action, even in 'high quality' areas is closely coordinated with consolidation operations. This was done, for example, quite successfully, in the famous Lorely region (Taunus), where the resettlement of twelve farms has cost about DM 950,000 (US \$ 235,000). **Portugal** intends to follow the Swiss and German lead and is considering a consolidation legislation for vine yards.

Acceleration of land consolidation operations in grape-cultivating areas is of particular importance, since the owners of the vineyards have to start replanting as soon as possible. To achieve this, a certain work schedule has to be established, the strict observation of which is dependent on that part of the necessary work, as rooting and road construction, which is jointly done by the participants.¹

The best conditions for grape cultivation are assured in an homogeneous area, which is not interrupted by other cultivations. In such an area, it will be relatively easy to establish a road system, which makes it possible to fix the most adequate length of the parcels and to establish a uniform distance between the various fields. Only under such conditions it will be possible to use efficiently the very expensive technical equipment, applied in modern grape cultivation and the drainage facilities. Experiences in **Germany** and **Switzerland** have proved that consolidation operations in vine yard areas have not only reduced costs (labour) but also increased and improved the yields.

¹ H. Gamperl, 'Die Flurbereinigung im Westlichen Europa', Bayerischer Landwirtschaftsverlag München, 1955, pp. 245.

8. SUMMARY

The technical work associated with land consolidation is so complex and comprehensive, that it cannot be dealt with here in all its aspects. The geometric and cadastral technical work, for instance, has been omitted from this survey though its importance for the success of the operations can hardly be overstated. A well organized and technically high standard of the geometric and cadastral services will speed operations, eliminate obstacles and reduce the frictions between participants; in other words, it will save time and costs. A satisfactory solution of the complex problems involved in consolidation operations is impossible without a highly qualified staff. The scope of consolidation work combines technical, economic, and social aspects. Land consolidation is not a technique but rather an art, since all three aspects are part of agrarian reconstruction and have to be coordinated in the execution of the consolidation scheme. The majority of the European countries have recognized this fact and try to strengthen the quality of the personnel involved in consolidation operations by broad scientific training; but, in addition, large scale economic, social and technical research is needed if the success of the scheme is to be assured.

In the following an attempt is made to show the main problems involved in the various stages of land consolidation operations:

8.1. PREPARATION FOR LAND CONSOLIDATION

- a. Provident acquisition of land by the community, settlement societies or agricultural organisations for the purpose of enlarging holdings to the size of profitable family enterprises and provision of land for public interests.
- b. Establishment and building up of community funds as a financial preparation for land consolidation, especially for expensive improvement measures.
- c. Increased information and education as mental preparation on land consolidation problems and, in congested villages, on the advantages of resettlement.

8.2. EXECUTION OF CONSOLIDATION MEASURES

- a. Coordination of the various measures in the sense of total planning combined with the greatest possible consideration of public interests.
- b. Practical road construction and melioration work. Use of machinery that will reduce costs. Lowering of maintenance costs by road stabilization. Implementation of resettlement schemes.
- c. Use of time and money saving technical methods of calculation, measurement and valuation.
- d. Simplification of the operations by removing timewasting legal and administrative regulations.
- e. Providing extension service before the procedure is initiated and after the consolidation operations are completed.

8.3. MAINTENANCE OF LAND CONSOLIDATION WORK

- a. Improvement of cadastral surveys and of the land records.
- b. Regulations for the upkeep of buildings and facilities.
- c. Prevention of renewed sub-division and fragmentation of the land.

8.4. TECHNICAL PERSONNEL AND RESEARCH

- a. Increased training of the personnel concerned with land consolidation.
- b. Increase of knowledge by promotion of economic, social, and technical research.

PART IV

CONCLUSIONS

AGRARIAN RECONSTRUCTION: A CURRENT RESPONSIBILITY

The Western European countries use land consolidation as a tool of agrarian reconstruction to improve the production conditions of agriculture and to assure a better way of life for the farming population. Although methods and emphasis vary greatly in the individual European countries, the fundamental reasons for land consolidation are the same all over: agricultural regions have been more or less by-passed by the general economic development; the farming families on fragmented holdings toil with an effort unproportionate to the limited economic results; the most energetic young people leave the backward agricultural regions for the towns, where work and life is less hard and the reward for labour comparatively high.

Land consolidation is a coordinated effort to stop this trend and to reintegrate agriculture into the economic development of the country by remodelling production conditions and by placing the standard of life of the farming population on an equal footing with industrial labour.

Experiences of the post-war years have proved the rightness of this policy and it is safe to say, that satisfactory results have been obtained by proper planning. However, agrarian reconstruction or particularly land consolidation should not be considered, as it is still done, by some countries, as limited in time and in focus and therefore coming to an end, if fully implemented. On the contrary, it will continue to present itself even if in another, but not less provocative shape. Agrarian reconstruction will also in future be concerned with the need for directing economic and social progress and regulating the process of adjustment to technical advance and demographic development, in order to avoid frictions and the unnecessary loss of human and material values which, as we know, is so closely associated with the ways of economic and social development. Such a policy, however, will call for considerable and continuous public investments though the Finance Ministers in Europe very much dislike the ever-expanding budgets for agrarian reconstruction; but such investments might be the only way to avoid much larger losses in terms of human and economic values.

Some European countries are already faced with the task of reconciling the competitive interests of agricultural and urban development. With increasing free time and mounting labour insecurity, industrial workers and artisans will wish to have their own vegetable gardens close to their homes, and part-time agricultural labour may thus assume a different aspect under changed conditions. On the other hand, farmers will claim everywhere homes of equal standing to those found in urban districts. Future technical developments will also demand readjustments of farm sizes, since our present planning obviously was not wise enough.

The motorization of the rural areas in Western European countries will of necessity have a great impact on the settlement schemes of the future. In some countries the advantages of isolated homesteads on the holdings may not be considered as important in future when a motorized farm family living in the village can reach their fields in a few minutes by car. From a community point of view modern village settlement is preferable since it saves expenses for water and electricity, schools, extension and other public services. But still more important is the fact that its conveniences and cultural attractions might help to stem the migration to the town of the more enterprising young people, thus preventing that the reduction of the agricultural population, which is an integral part of agricultural and economic progress, takes place by way of anarchic depopulation of the rural areas and by a negative selection of those who remain there.¹⁾ The most suitable and energetic farmers will likely decide to stay in agriculture, if it renders them adequate economic rewards and moral and cultural satisfaction.

The technical and physical progress of our age does not permit an indifferent attitude to the pressure of the forces of modern economic and social life. The European countries wish to establish the firmest foundation for human and economic progress and therefore are determined to remodel physical and agrarian conditions to face the great challenge of our age. Land consolidation has been a decisive step in the right direction.

¹⁾ F. T. Wahlen, Die Welternährungslage und ihre möglichen Auswirkungen auf die deutsche und europäische Landwirtschaft; Flugschriften der Deutschen Landwirtschafts Gesellschaft Band 27, Frankfurt-Main; page 20.

ANNEX I

FRAGMENTS SELECTED FROM COUNTRY REPORTS

AUSTRIA

LAND CONSOLIDATION

Where the evaluation of the soil is concerned, the only land which is considered to be of higher value than the rest is land located within the village boundaries, fields outside this area are valued alike, and the distance from the village need not be taken into consideration. In view of the high building costs, we apply almost everywhere schemes of neighbourly help both for the repair and reconstruction of new buildings in the course of land consolidation. In such instances the neighbours usually help with transportation or they provide daily labour, according to their capacity.

FINLAND

EVALUATION OF COMPARATIVE VALUES OF LAND PARCELS

The evaluation of the comparative value of different land parcels in the consolidation of fragmented holdings depends on the nature and location of the parcels and on the net income which can be obtained permanently from such parcels under normal conditions, if they are used in the proper manner according to their category. On the contrary, the temporary degrees of cultivation (fertility) should not have any influence in this kind of evaluation. However, the conditions of the soil with regard to fertility may vary in many respects and usually its content of nutrients varies considerably. As these variations can be determined neither by visual appraisal nor from the standing crop, and are difficult to evaluate, it is necessary to find some other method to arrive at a fair conclusion.

Bearing this in mind, it has been planned in Finland to use soil fertility analyses for this purpose. The most important soil nutrients (Ca, K and P) are analysed and the indemnities to be paid in cash when exchanging different parcels are determined on the basis of the coefficients obtained. The differences in the content of these nutrients in the soil may be so large that their value will be equivalent to the actual price of the land. It usually happens to a certain extent, when an exchange is made, that cultivated parcels are exchanged with other kinds of parcels. For this reason alone, it is necessary to determine

the value of each of the nutrients to be considered as the basis for the calculation of indemnities to be paid in case of variations from it.

In some soils the average content of lime, potash or phosphorus may very well be double the content in others, but the variations in the efficiency of cultivation may also vary within the same range.

The comparison of data obtained from soil fertility analyses with the quantities of fertilizers corresponding to the increase of these figures should be investigated under different conditions, and the normal content of nutrients to be used as the minimum requirement for each kind of soil should be determined. Only on the basis of these figures will it be possible to calculate fairly the part played by the content of nutrient in the state of fertility of the plots to be exchanged.

This kind of investigation is not merely part of the consolidation process, the costs of which should be added to the total costs of this enterprise. These soil fertility analyses have great value for the actual cultivation, and remain valid for many years. Soil fertility analyses are widely used for this purpose in Finland. If they were done only with a view to the consolidation of fragmented holdings, they should be done only for the parcels to be exchanged. However, the farmer requires this information also for all the other parcels he is cultivating, even if they are not to be exchanged. If the farmer has the soil of all his land analysed after the consolidation process has been completed he will have all the necessary information concerning the different parts of the farm. In this way it is possible to obtain a sound theoretic basis for the needs of consolidation enterprises easy to use in practice without unduly increasing their costs.

FRANCE

LAND CONSOLIDATION AND REALLOCATION

French legislation (Law of 9 March, 1941, as amended by the Decree of 20th December 1954) provides for two methods of land development:

- *consolidation*, properly so-called, i.e., the redistribution of the farm-land of a commune by lots, coupled with the revision of the railway system and any other land-development schemes, where appropriate;
- *land re-allocation*, which is a less drastic operation, consisting merely of making exchanges with a view to the abolition of isolated lots of land and the re-adjustment of boundaries.

A special committee decides whether one or other of these operations will take place in the commune. In actual fact, only consolidation proper has been used up to date.

The Act of 9th March 1941 which resulted from experience based upon former legislation is well adapted to the desired aims and has rendered possible the re-allocation of more than two million hectares in favourable circumstances.

A certain number of adjustments of details has been envisaged which, however, do not affect the fundamental principles.

It must be emphasized that this Act as well as also previous legislation has provided for the implementation of works allied to land consolidation; the considerable development of these works in the course of the past few years derives from the fact that the re-allocation operations which formerly were limited to areas with open fields, without any obstacles, now extend to areas where woods, a more contorted relief, the soil type, and the conditions governing the water-management make these allied works indispensable for the efficient running of the re-allocation operation.

GERMANY

FARM SETTLEMENT

The resettlement of a farm without connection with a land consolidation system is recognized as a settlement measure in some of the Federal *Länder*. The directives of the 31 March 1954, and the *Siedlungsförderungsgesetz* (Law promoting rural settlement) dated 15 May, 1953, provide for loans for this purpose. The settler must make a down-payment of ten percent of the loan for the purchase of land and erection of the buildings. Ninety percent of the required expenditure is granted as a loan and can also be given, in part, in the form of subsidies. The settler's payment amounts to one percent for interest and two percent for amortization. If the settlement authority decides that the interest, in addition to the amortization, cannot be paid from reasonable profits, the payment of interest can be postponed.

ACCELERATED RE-ALLOCATION PROCEDURE

The accelerated reallocation procedure is used, in particular, where a comprehensive land consolidation action cannot be carried out within a fixed time. In most cases it is limited to the elimination or reduction of fragmentation.

Since fragmentation is a particularly serious defect of the agrarian structure, even an accelerated procedure can be an effective improvement measure. Frequently it will also be the precursor of a full land consolidation scheme to be effected at a later date. Like land consolidation, it is an official procedure, and may be initiated as soon as several farmers or farming associations apply for it.

In communities where only part of the agricultural acreage is cultivated by full-time farmers, and where in consequence some land-owners are not much interested in land consolidation, the accelerated procedure can be of great help to farmers, the more as it can be combined with re-settlement and enlargement of individual farms.

SUCCESS ACHIEVED IN THE IMPROVEMENT OF THE AGRICULTURAL STRUCTURE

From 1945 until 1955 nearly 160,000 hectares were made available for settlement purposes, i.e., for newly-established farm units of which 30,000 hectares were provided for the enlargement of farms within the framework of marginal holdings. Of the land

available for agricultural settlement purposes, some 100,000 hectares were used for the actual settlement of farmers, whereas the balance of some 60,000 hectares was allocated to commercial horticultural undertakings, part-time farms, and to settling agricultural and silvicultural workers.

Distribution of the Land for Settlement from 1945 until 1955

| | Number of agricultural settlements | Area in hectares |
|---|------------------------------------|------------------|
| Agricultural settlements: under 5 hectares in size | 710 | 2,413 |
| from 5 to 15 hectares in size | 3,435 | 38,053 |
| 15 hectares and more in size | 3,273 | 67,844 |
| Total | 7,418 | 108,310 |
| Commercial horticultural settlements | 668 | 1,583 |
| Settlements of agricultural and silvicultural workers | 13,105 | 10,647 |
| Part-time farms | 29,136 | 12,505 |
| Grand total of agricultural settlements | 50,327 | 133,045 |

Since 1945 land consolidation has been steadily expanded year by year.

Expanse of consolidated farm land in hectares

| | |
|---------|---------|
| 1945/48 | 80,024 |
| 1949 | 73,627 |
| 1950 | 107,059 |
| 1951 | 131,520 |
| 1952 | 159,010 |
| 1953 | 160,158 |
| 1954 | 181,585 |
| 1955 | 195,233 |
| 1956 | 200,000 |

Apart from eliminating land fragmentation, particular attention has been devoted to the construction of *good roads*, to water supplies and to other communal projects. The cultivation of waste-land was further increased. In 1955, 9,914 km of new roads were built and 2,856 km of old roads were reconditioned. The total area of drained land increased to 6,433 hectares in 1955 (as against 4,681 hectares in 1954).

The self-help procedure for improving the farm structure through non-official channels was not initiated until the summer of 1956. Up to 31 March 1957 the Landwirtschaftliche Rentenbank, in its capacity as a central banking institute in charge of the financing of any such action, had approved 1,305 projects including 443 resettlements, 805 enlarged

small farms and 57 applications for purchasing a former farmstead. In the meantime the number of applications has increased.

IRELAND

MEASURES TO HELP THE RESETTLED FARMER

In this country difficulty is occasionally experienced in inducing tenants from the congested districts counties to migrate to new holdings in the eastern part of the country. One of the major imponderables confronting a prospective migrant is the problem of meeting the obligations of the new holding in the early years following migration. It is a big undertaking for the tenant of a typical poor holding in the West to move to a standard holding in the East. The comparative figures are approximately as follows:

| Holding | Area (acres) | Rateable Valuation £ | Land Annuity (nett) £ | Total Outgoings Rates and Annuity £ |
|------------|---|-------------------------|--------------------------|-------------------------------------|
| Old (West) | 10 with undivided commonage share of 300 acres | 3. 10 land 10 bldgs. | 20 | 8 |
| New (East) | 40 | 35 land 3 bldgs. | 40 | 100 |

Care has to be taken not to impose too heavy a burden on the migrant in fixing the price of his new holdings, in order to avoid the danger of his early failure. To this end, a special reduction (termed 'Occupation Interest') in the price of the new holding is allowed to each migrant. Occupation Interest varies in amount from about £ 50 to £ 500, or more, depending on the value of the vacated holding. In disposing of the latter, provision is made for recovery of the Occupation Interest allowed. In practice, the vast majority of these migrants from the congested counties make good in their new localities.

PRIORITIES ESTABLISHED FOR LAND ALLOTMENTS

The classes of persons who receive allotments of land under present policy and practice may be listed in descending order of priority, as follows:

- (1) displaced employees
- (2) local uneconomic holders
- (3) persons exchanging land
- (4) trustees for public purposes, e.g. cow-parks, sports-fields, etc.
- (5) cottiers requiring accommodation plots
- (6) landless applicants

Some elasticity is permitted to meet exceptional circumstances or special types of allotment, e.g. turbarry.

ITALY

INCREASED PRODUCTIVITY

The perfecting of equipment and of production technique, the increase of sources of income due to the above-mentioned measures as well as the greater production effort obtained by the creation of new smallholdings all contribute toward a noticeable and sometimes even very considerable increase in productivity.

THE NETHERLANDS

ADJUSTMENT PROBLEMS OF RESETTLED FARMERS

The houses in Walcheren were very simple, on many farms even running water and electricity were unknown. The circumstances for farming were unfavourable; the parcels were small and scattered, in many cases at great distances from the farm-building, so that much time was lost in transporting people, materials, and produce. Consequently the productivity of labour was small. Many farmers, especially the older ones, had no further education after their elementary schooling. In spite of their low earnings most of the Walcheren farmers could meet the financial requirements of the Zuiderzeepolders Development and Colonization Authority. The resettlement took place voluntarily. In spite of the striking differences between Walcheren and the fertile North East Polder only 198 farmers out of 1,366 applied for a farm in the Polder, probably because of their reluctance to leave the intimate surroundings and their inability to realize the advantages of the new farms. Of the 198 candidates, 22 had second thoughts on the matter, and withdrew; 37 did not meet the requirements; 21 farmers did not accept the Board's terms, and only 118 farmers became resettlers. Considering the slight mobility it is striking that the majority of the farmers resettled are approaching middle age; 62 were over 40 years old, and 16 were over 50.

The resettlers adapted themselves, *technically*, fairly quickly to the new conditions. The adjustment to the *social* climate of the North East Polder, however, caused greater difficulties. The relations between the inhabitants in the new area are far more businesslike than those in Walcheren, since the Polder community is larger, more modern, and more rationalistic.

A socially prominent farmer in Walcheren is only one of the numerous new farmers in the North East Polder and it is only by his mode of life and achievements that he may prove to belong to the better-class farmers. In many cases those who belonged to the big farmers on Walcheren were established in the North East Polder on small farms, as a result of which their place in the community is quite different to what they were previously accustomed. The scope and nature of the social adjustment process suggest great caution in settlement action, and emphasize the need for intensive advice and guidance, which can be provided by the farmers' and farmers' wives' organizations.

ADVISORY SERVICES FOR THE FARMER'S FAMILY, ESSENTIAL IN CONNECTION WITH THE REORGANIZATION OF FARMS

It has only been realized in recent years in the Netherlands that technical and economic advice to farmers is not sufficient. With the stimulating assistance of the Government, private agricultural organizations are building up a machinery for giving advice on social problems of the farm family.

For the farmer and his sons the main questions of importance concern the fragmentation of holdings, the choice of vocation and vocational guidance, care of health, social work and cultural life.

For the wife and daughters the advisory work relates to household problems, the furnishing of the home, and the possibilities for the farmer's wife to use modern techniques in her work. In this connection account should also be taken of an effective spending of income (home economics).

Further, there is in rural areas a need for family care and social work, youth leaders and educational leaders, sociologists and other skilled workers who try to find new possibilities to increase the prosperity and well-being of the population. By the side of the pilot farm the pilot dwelling has gained a place in the agricultural community.

For the Government, successful land consolidation will mean that agriculture in under-developed areas is no longer in need of temporary support in the form of subsidies, price protection, etc.; therefore in the last few years more and more consolidation plans have been designed. Through intensive advisory work and the granting of premiums it is attempted to improve the 'internal' conditions for production.

In addition, funds are made available for advisory work in the social field and also for the organization and furnishing of the farmhouse. Pilot farms and pilot dwellings which are established in the consolidation areas may be of great influence on the surroundings. The advisory work is expected to stimulate investments, and premiums are granted for all sorts of improvements of farm equipment and livestock.

Systematic advice to groups of from 25 to 30 farmers, coupled with individual advice, may give very good results in rather a short time. In this connection mention should be made of the rationalization centers, which comprise groups of some dozens of farms serving as models for their surroundings. It appears that this group advisory work may yield good results and stimulate the initiative of the farmers.

Thus land consolidation has become part of a comprehensive regional development plan, and the integral approach has become the starting-point of the activities.

PROBLEMS OF EVALUATION OF THE EFFECTS OF LAND CONSOLIDATION

It is extremely difficult to measure these effects because a 'vertical' comparison requires the studying of all sorts of factors for years or decades and also other conditions may affect the subject-matter under study. This applies particularly to land consolidation,

which, through an 8-10 years' period of application, causes a wide gap between the first and the second period of vertical research. Besides, a research in the land consolidation in the island of Walcheren showed that after the completion of the consolidation of fragmented holdings it takes the population a few years to adapt itself to the new conditions.

Another possibility is the application of a 'horizontal' research in which at a given time an improved area or an improved farm is compared with a comparable area or a farm where these improvements have not, as yet, been made.

Since only a few investigations have been made, not much value may be attached to the sparse results obtained in this way. Evaluation work, however, should be developed so as to make it possible to base the execution of land consolidation and the advisory work on the results of scientific research.

NORWAY

THE POSITION OF THE TENANT IN LAND CONSOLIDATION SCHEMES

Tenants affected by the consolidation operations become participants of the consolidation scheme and may appeal the decisions. If it is found necessary, the Land Consolidation Court may arrange the relations between tenant and owner, *inter alia* by adjusting the rent and land use practices, etc. A tenant's claim to terminate his lease because of the effects of consolidation can be brought to the ordinary courts irrespective of any arrangement between owner and tenant which may have been established by the Land Consolidation Court.

SPAIN

THE PROBLEM OF PREVENTION OF FRAGMENTATION

The problem of maintaining the results of land consolidation constitutes one of the most difficult questions, not only because of the inherent difficulty of finding a proper solution to the problem, but also because of the difficulty of implementing decisions in this field. Even if a transaction is declared illegal, and is consequently void, it is probable that the contracting parties will find ways of evading this decision.

If the State pays the expenses of the consolidation, the latter being justified by reasons of the public interest, it might appear only logical that the estates so created should not be divided. However, such a conclusion can only be maintained from a purely technical agricultural point of view, completely leaving aside other considerations of a more sentimental, traditional, and family character. Indeed, as far as we know, no country dared to go so far; on the contrary, most of them limited themselves to making the division of estates created by consolidation dependent on administrative decisions to be reached in each particular case. But even this more modest solution may be doubtful as it does not apply an objective rule, generally known and applicable to the future division of estates.

SWEDEN

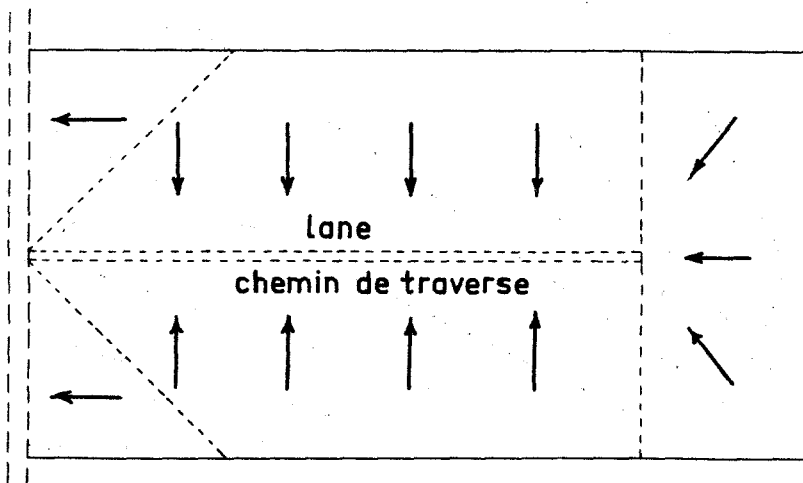
RATIONALIZATION OF AGRICULTURE

The honouring of the Government's pledge to guarantee the rentability of agriculture demands continued and intensified rationalization, i.e., adequate efforts to increase effectiveness in the agricultural sector. The program is based on the assumption that Swedish agriculture will continue to be a family farm system, and that efforts for improvement have to be concentrated on the family-farm units. The improvement of conditions should primarily be the farmer's own concern, but the Government should facilitate the implementation of improvements through financial support, and by legislation. The term 'the rationalization of agriculture' embraces all measures which tend to advance production conditions on a farm. These measures are classified into three groups, namely, those comprising 'external rationalization', those for 'internal rationalization', and those for 'the rationalization of operating conditions'. External rationalization is concerned with measures for the enlarging of a farm's area of arable and forest land, or of improving its lay-out or composition. Internal rationalization refers to measures for the permanent improvement of the land and farm buildings or to technical arrangements on existing or planned farms. The rationalization of operating conditions comprises measures to advance productivity; they have no permanent effects on land and buildings (for example the procurement of machines for the cultivation of crops).

ROAD NETWORK FOR FOREST AREAS

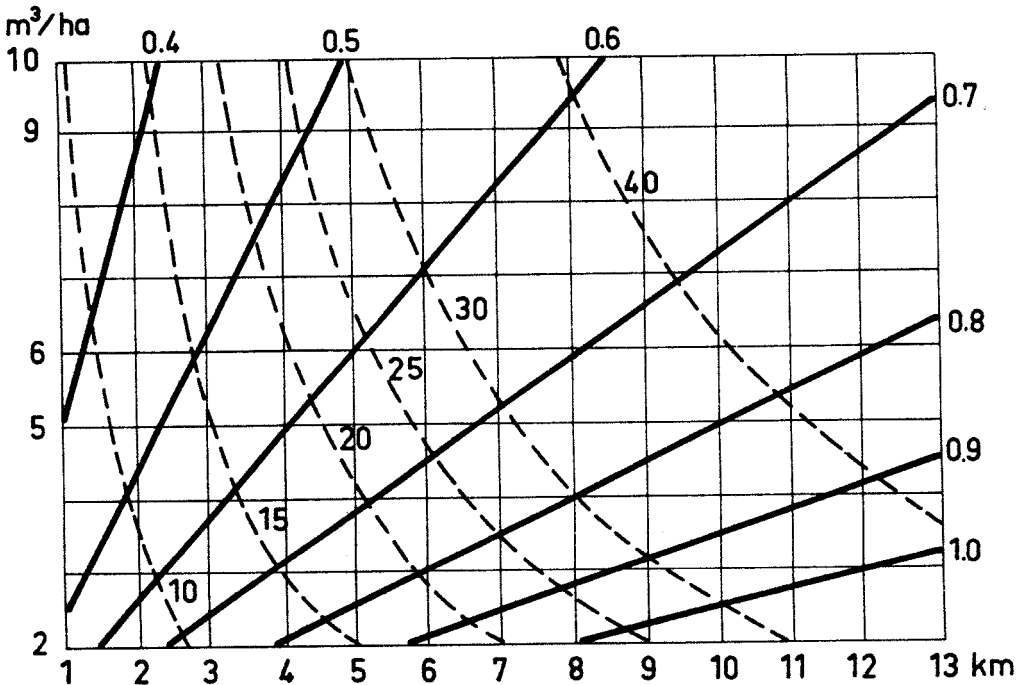
For the road network in forest areas calculations based on schematic models, have been made to determine the optimum structure of the networks. The following description of that work is mostly a summary of a paper published by Larsson (1956).

The models used in the investigations may be represented by the following figure:



The aim of these investigations has been to determine the optimum road interval of certain road systems and also to find out the optimum quality of the roads and its variations in different parts of the road system. It has been stated as the principal point that the cost of timber and labour transport per unit timber has to be kept at a minimum. To determine the optimum structure of the forest road system it is necessary to know (1) the relationship between the costs of hauling the timber and transporting the labour in the forest per cu. meter and unit road length; and (2) the relationship between the costs of timber and labour transports on the roads per cu-metre and kilometre road length at various road qualities. The first of these relationships has been traced mainly by work studies, driver's contracts, etc., but the second relationship was much more difficult to determine and, hence, the procedure had to be somewhat schematic. The functions necessary for calculating the optimum road system are complicated and much work has to be spent on the calculations. To facilitate calculation of various alternative cases a method of applying electronic calculating machines (BESK) has been devised. The following diagram, mainly intended as an average plan for central Sweden, may serve as an illustration of the solutions that can be obtained by such calculations.

In the diagram the average production per hectare and the distance between the main



haulage road and the border of the felling area (road length) are given as independent variables. Continuous lines are used to indicate the optimum reach of work in kilometres (the 'reach of work' equals the maximum hauling distance measured as the crow flies, i.e., half the distance between the forest roads, or less), corresponding to a given average production and a certain road length. Dotted lines are employed to indicate the road quality (as average speed in motor-lorry transport) which is optimum at the main haulage crossroads. (From this it is also possible to calculate the optimum road quality at any point of the track). Example: At an average production of 6 cu.m/ha. and a road length of 5 km the reach is found to be 0.6 km and the road quality at the crossroads sufficient to allow an average transport speed (by motor lorry) of almost 25 km/hr.

Of course the models used in working out these calculations cannot be directly transferred to the practical conditions in the field. So it is necessary to adapt them to the topographic peculiarities of the landscape. Small deviations (20-25 per cent) from the optimum reach will only cause comparatively small increases in cost.

SWITZERLAND

GRADING OF SOIL VALUES ACCORDING TO DISTANCE FROM THE VILLAGE

The grading of soil values according to distance from the village corresponding to the yield value enables land owners with a relatively modest title to obtain a farm away from the village for the subsistence of the family. On the other hand, those interested in the settlement scheme who have a relatively important title may be expected to accept a smaller allocation without the acreage of the farm dropping below the size of a family farm as a result. The bulk of land resulting from reduced allocations constitutes a valuable reserve for future allocations.

The increase in acreage of the settlements on the one hand is contrasted of course by a corresponding decrease in acreage of the farms remaining in the villages. This reduction in acreage is, however, distributed over the entire non-settled area and will therefore be of modest dimensions as regards the individual concerned. In the view of agricultural experts, an average of 5 % should not be exceeded. Any loss of acreage exceeding this figure is not justifiable and should be capable of compensation by purchase of additional land in cases of overall land consolidation schemes, or by application of the increased value procedure.

ANNEX II

LIST OF ENACTMENTS* AFFECTING CONSOLIDATION OF HOLDINGS IN EUROPEAN COUNTRIES

| | page | | page |
|----------------------------|------|-----------------------|------|
| Austria | 115 | Netherlands | 129 |
| Belgium | 117 | Norway | 130 |
| Denmark | 118 | Portugal | 130 |
| Finland | 120 | Spain | 131 |
| France | 122 | Sweden | 133 |
| Germany (Fed. Rep.) | 125 | Switzerland | 135 |
| Greece | 126 | Turkey | 136 |
| Iceland | 126 | United Kingdom | 136 |
| Ireland | 126 | <i>(Cyprus)</i> | 137 |
| Italy | 127 | Yugoslavia | 137 |
| Luxemburg | 128 | | |

AUSTRIA

- Act No. 251 re-publishing the text of the Act relative to real estate transactions. *BGBI.* 62. St., 28 July 1937.
- Federal Act No. 123 on the renewal of the Austrian legislation governing land transactions. - 18 June 1946. - *BGBI.* 40. St., 10 August 1946. - [Summarized in the *AILA*, 1946, p. 600]. [The Act renews text of 13 March 1938 of the Act of 1937 relative to transactions in real estate and provisions pertaining thereto].
- Act. No. 174 repealing legislation relative to hereditary farm holdings (*Erbhofrecht*) and legislation governing land exploitation. - 19 September 1945. - *St. GBl.* 43. St., 28 September 1945.
- Federal Act No. 85 relative to the execution of Act No. 174 of 19 September 1945 relative to the repeal of the legislation pertaining to hereditary farm holdings and of legislation governing land exploitation. - 21 March 1947. - *BGBI.* 24. St., 28 May 1947, p. 561.

* This list is based upon the documentation held by the FAO Legislative Service. Certain enactments as indicated have been published in full or in extract form in the 'Annuaire International de Législation Agricole' (*AILA*, in French only) or in the FAO Quarterly 'Food and Agricultural Legislation' (*FAL*) which appears since 1952 in English, French and Spanish. Microfilms or photocopies of the original texts of the enactments listed can be provided on a fee basis on application to the FAO Legislative Service.

- Federal Act amending the Federal Act of 21 March 1947 repealing legislation pertaining to hereditary farm holdings and legislation governing land exploitation. - 29 March 1950. - *BGBI.* 25. St., 13 May 1950, p. 552, text 100.
- Federal Act No. 88 amending the Federal Act (of 21 March 1947) relative to the execution of the Act on the abolition of hereditary farm rights and land exploitation rights. - 7 March 1951. - *BGBI.* No. 88, 30 April 1951, p. 415.
- Federal Act amending the Act (of 21 March 1947, *BGBI.* No. 85) relative to the execution of the Act relative to the extinction of hereditary farm rights and land exploitation rights (Procedure). - 8 July 1953. - *BGBI.* No. 27, 31 August 1953, p. 539.
- Federal Act No. 178 on procedure applying to agricultural authorities. - 2 July 1947. - *BGBI.* 39. St., 1 September 1947, p. 816.
- Order No. 103 of the Federal Government re-publishing legal provisions relative to agrarian reform. - 13 February 1951. - *BGBI.* No. 23, 19 May 1951, p. 463. - Annex I - *Flurverfassungsgrundsatzgesetz.* (Basic Act on Regulations governing the soil). - [This Act refers to consolidation, partitioning and alignment of rural land and to the re-establishing of rural roads, and also contains special provisions relative to the partitioning of rural land in Burgenland].
- Federal Act No. 106 containing special provisions concerning partition of rural property. (Inheritance Law.-*Anerbengesetz*). - 21 May 1958. - *BGBI.* of 6 June 1958.

BURGENLAND

- Act relative to transactions involving agricultural and forest land plots (Land Transactions Act). - 11 February 1955. - *LGBl.* 5. St., 5 August 1955, Text 11, p. 21. - [Such transactions are permissible only with the consent of the Land Transactions Commission concerned].

CARINTHIA

- Federal Act amending and amplifying the Act of 16 September 1903 [*LGBl.* and *BGBI.* (No. 33)] relative to special provisions on partition concerning medium-sized agricultural holdings. - 11 July 1930. - *BGBI.* No. 235, 24 July 1930, p. 1178.
- Act No. 7 relative to consolidation of holdings. - 7 December 1935. - *LBGl.* 3. St., 23 January 1936.
- Act relative to transactions involving agricultural and forest land plots (Land Transactions Act). - 9 June 1954. - *LGBl.* 8. St., 19 June 1954, text 28, p. 31.

LOWER AUSTRIA

- Act relative to transactions involving agricultural and forest land plots (Land Transactions Act). - 19 July 1956. - *LGBl.* 16. St., 17 September 1956, text No. 79, p. 61.

SALZBURG

- Act No. 94 relative to agricultural consolidation. - 19 January 1934. - *LGBl.* 30. St., 17 September 1934.

STYRIA

- Act proclaiming provisions relative to transactions in agricultural or forest lands (Land Transactions Act, *GVG*) - 18 June 1954. - *LGBl.* No. 24, 19 June 1954, p. 71. - [Conveyances, grant of usufruct, etc. for agricultural or forest land are permitted only with the permission of the Land Transactions Commission concerned]. - [Extracts published in *FAO Quarterly FAL*, 1955, Vol. IV, No. 1].

TYROL

- Act containing regulations on land consolidation. - 6 June 1935. - *LGVBll.*, XVIII. St., 23 August 1935.
- Act No. 48 reviving the Act of 17 March 1931, *LGBl.* No. 7, relative to the specific designation of traditionally inherited agricultural holdings in the Tyrol. - 26 September 1957. - *LGBl.* No. 48, 13. St., 18 December 1957, p. 83.

UPPER AUSTRIA

- Act relative to approval of agricultural and forest land transactions (Upper Austrian Land Transactions Act). - 26 May 1954. - *LGBl.* 11. St., 24 June 1954, text 16, p. 23.

VORARLBERG

- Act containing regulations on land consolidation (Consolidation Act - *FIVG*). - *LGBl.* 3. St., 12 March 1951, text 4, p. 5.
- Act relative to transactions involving agricultural and forest land plots (Land Transactions Act). - 20 June 1954. - *LGBl.* 5. St., 30 June 1954, text 15, p. 13.
- Act amending the Land Transactions Act (1st Supplementary Act). - 6 Sept. 1955. - *LGBl.* 12. St. 6 Sept. 1955, text 32, p. 33 [Concerns appeals against rulings of the Provincial Commission].

BELGIUM

INHERITANCE LAW

- Act amending regulations governing inheritance in relation to smallholdings. - 16 May 1900. [Commentary in the 'Annuaire de Législation Etrangère', 1900, p. 338]. [The provisions of this Act afford the possibility of avoiding parcelling by maintaining joint possession, contrary to the consequences arising from the application of Article 745 of the Civil Code (on inheritance of descendants) and Article 815 of the Civil Code (whereby nobody may be obliged to remain a joint-owner)].

CONSOLIDATION OF HOLDINGS

- Royal Order No. 64 containing the Code of registration, mortgage and record duties. - 29 November 1939 [In force as from 1 February 1940]. - *M.B.* 1st December 1939. - p. 8028. - [Tax reduction to facilitate acquisition of smallholdings (Articles 53 *et seq.*); fiscal reductions and exemptions in case of exchange and consolidation of holdings (Arts. 159(10), 732)].
- Act designed to promote the voluntary consolidation of rural estates. - 4 May 1949. - *M.B.* No. 153, 2 June 1949.
- Act amending the Code of registration, mortgage and recording duties with a view to promoting the exchange of rural properties on which no buildings are erected. - 26 July 1952. - *M.B.* No. 243, 30 August 1952, p. 6163.
- Act relative to the legal consolidation of rural estates. - 25 June 1956. - *M.B.* No. 191-192, 9-10 July 1956, p. 4588. - [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 3].

DENMARK

- [The Acts and Orders referred to are to be found in the Danish Official Gazette 'Lovtidende A' under the year and the number].
- Act No. 563 relative to the entering into free possession of feudal and patrimonial estates and of entailed estates and capital. - 4 October 1919. - [Article 5 stipulates that the area of forest of former entailed estates may not be less than 600 hectares. Such forests may not be divided up into parcels without the permission of the Minister of Agriculture]. - [Published in the *AILA* of 1919, p. 798].
 - The Forest Act, No. 164. - 11 May 1935. - [Article 20 provides that if a 'preserved forest' is divided between at least three owners, the majority of owners owing more than half the total area are entitled to apply for the establishment of 'Forest Societies' for joint management of the forest in question]. - [Published in the *AILA* of 1935, p. 450].
 - Order No. 151 publishing the Act for the promotion of marling societies. - 6 April 1940.
 - Act No. 290 relative to parcelling out of land and to amalgamation of holdings. - 31 March 1949.
 - Act No. 291 relative to rural property. - 31 March 1949.
 - Act No. 214 on streams and water courses. - 11 April 1949.
 - Act No. 240 (on land improvement). - 25 April 1949. [Subsection 2 of Section 2, relating to amendment to the Act on marling societies].
 - Act No. 101 relative to loans for liquid manure tanks, dung pits, siloes. - 10 March 1950.
 - Order No. 388 promulgating the text of the Act relative to rural property. - 25 September 1951.

- Act No. 210 relative to loans for modernization of dairies, slaughter-houses etc. - 7 June 1952.
- Act No. 240 relative to the use of and free-ownership to certain agricultural holdings. - 7 June 1952. - [Published in FAO Quarterly *FAL* Vol. I, No. 2].
- Act No. 241 relative to the use etc. of certain properties in the rural districts. - 7 June 1952. - [Published in FAO Quarterly *FAL*, Vol. I, No. 2].
- Act No. 242 of amendments to the Act (and order) relative to rural property. - 7 June 1952.
- Order No. 153 publishing the Act on public Drainage and Land Reclamation (as amended up to date). - 30 April 1953.
- Order No. 164 publishing the Act of smallholders purchasing societies. - 20 May 1954. - [Governmental loans to approved societies with purpose of buying livestock and farm equipment to the members].
- Order No. 125 publishing the Act of Establishment of workmen's houses in the rural districts. - 25 April 1955.
- Act No. 129 on Reallocation of fragmented holdings. - 28 April 1955. - [Published in FAO Quarterly *FAL*, Vol. IV, No. 3].
- Order No. 320 relative to Reallocation of fragmented holdings. - 30 December 1955. - [Specifies the duties of Reallocation Boards as referred to in Act No. 129 of 28 April 1955 etc.].
- Order No. 11 promulgating etc. the Act on the Establishment and Enlargement of Small Farms, etc. - 13 January 1956. ('The State Smallholders Act' No. 339, 9 June 1948). - [Full text of the Act as completed and brought up to date (January 1956)].
- Order No. 216 publishing the Act on loans for modernization in agriculture, horticulture and orcharding. - 28 July 1956.
- Order No. 104 publishing the Land Improvement Act (Drainage etc. Act No. 240. - 26 April 1949, as amended up to date). - 3 April 1957. - [Published in FAO Quarterly *FAL*, 1957, Vol. VI, No. 4].
- Act No. 127 relative to agricultural holdings belonging to associations and institutions. - 16 April 1957. - [Restrictions of the right to acquisition, etc.].
- Act No. 128 relative to loans for improvement of hygienic conditions in farm buildings. - 16 April 1957.
- Act No. 129 of amendments to the State Smallholders Act. - 16 April 1957.
- Act No. 297 relative to loans for workmen's houses in the rural districts. - 21 December 1957.
- Act No. 26 relative to loans for State Smallholdings, etc. - 5 February 1958.
- Act No. 173 of amendments to the Act (No. 240 of 7.7.1952) relative to the use of and free-ownership to certain agricultural holdings. - 7 June 1958.
- Act No. 174 of amendments to the Act (and Order) relative to rural property. - 7 June 1958.

- Act No. 175 of amendments to the Act (No. 290 of 31 March 1949) of parcelling out of land and amalgamation of holdings. - 7 June 1958.

FINLAND

THE LAND ACQUISITION ACT*

- The Land Acquisition Act, No. 396. - 5 May 1945. - *F.F.* No. 396-406. - 7 May 1945.
- Act No. 152 amending the Land Acquisition Act. - 10 April 1953. - *F.F.* Nos. 152-161, 1953, p. 381.
- Act No. 171 amending the Land Acquisition Act. - 14 April 1952. - *F.F.* Nos. 171-175, 25 April 1952.
- Act No. 751. - Land Acquisition Act pertaining to Kuusamo and Salla communes (Northern Finland). - 20 July 1945. - *F.F.* No. 751-758, 1945, p. 1385.
- Act No. 325 to amend the Land Acquisition Act pertaining to Kuusamo and Salla communes. - 9 July 1953. - *F.F.* No. 324-329, 1953.
- Act. No. 2 relating to the amendment of the Land Acquisition Act (No. 751, 20 July 1945), as amended by Act No. 325/53 of 9 July 1953, pertaining to Kuusamo and Salla communes. - 4 January 1957. - *F.F.* No. 2-13, 12 January 1957, p. 107.

EXECUTION OF THE LAND ACQUISITION ACT

- Decree No. 506 relative to the execution of the Land Acquisition Act. - 2 June 1945. - *F.F.* No. 506-513, 8 June 1945.
- Decree No. 59 relative to the amendment of the Decree on the execution of the Act concerning allocation of land (Land Acquisition Act). - 18 January 1952. - *F.F.* 1 February 1952, No. 57-65, p. 168.
- Ordinance No. 121 amending the ordinance relative to the execution of the Act relative to the allocation of land (Land Acquisition Act). - 14 March 1952. - *F.F.* No. 120-131, 21 March 1952.
- Ordinance No. 197 amending the ordinance relative to the execution of the Land Acquisition Act. - 2 May 1952. - *F.F.* No. 193-200, 10 May 1952.
- Ordinance No. 222 amending the ordinance on the execution of the Act relative to the allocation of land (Land Acquisition Act). - 16 May 1952. - *F.F.* No. 216-225, 19 May 1952, p. 387.
- Ordinance No. 307 amending the ordinance relative to the execution of the Act on the allocation of land (Land Acquisition Act). - 1 August 1952. - *F.F.* No. 303-311, p. 524, 19 August 1952.

THE COLONIZATION ACT, ETC.

- The Colonization Act No. 332. - 6 November 1936. - *F.F.* No. 332-339. - 10 Nov. 1936.

*) The Land Acquisition Act and the Colonization Act are repealed by a new Act on the use of land (Act No. 353 of 16 August 1958, *F.F.* No. 353-362, 20 August 1958, p. 829), which is coming into force on 1 January 1959. New related legislation is also enacted.

- Act No. 38 relative to the implementation in certain cases of the Colonization Act. - 21 January 1955. - *F.F.* Nos. 34-40, 28 January 1955, p. 162.
- Act No. 502 amending the Colonization Act. - 9 December 1955. - *F.F.* No. 499-512. - 20 December 1955, p. 968. - [This Act covers all categories of loans granted under the Act].
- Act No. 346 to expedite rapid settlement of the displaced persons. - 28 June 1940. - *F.F.* No. 346-349, 20 June 1940.
- Resolution No. 381 relative to the Act to expedite the internal colonization as a consequence of transfer of populations. - 8 July 1940. - *F.F.* No. 381, 18 July 1940.

ENLARGEMENT AND CONSOLIDATION OF HOLDINGS

- Act No. 157/25 on the consolidation and taxation of fragmented holdings and on the redemption of State-owned land in three communes in North Finland. - 28 April 1925.
- Act No. 325 amending the Act relative to the consolidation and taxation of parcelled holdings and the redemption of State-owned land in three communes in North Finland. - 1 June 1956. - *F.F.* No. 325-329, 6 June 1956, p. 607.
- Act No. 120 relative to the redemption of leased land in densely populated localities. - 28 February 1936. - *F.F.* No. 120, 3 May 1936. - [Published in the *AILA*, 1936, p. 839].
- Act No. 27 amending the Act relative to the redemption of leased land in densely populated localities. - 16 January 1953. - *F.F.* No. 27-31, 1953, p. 141.
- Decree No. 126 on the execution of the Act relative to the redemption of leased land in densely populated localities. - 10 March 1936. - *F.F.* No. 126, 10 March 1936.
- Act No. 403 concerning consolidation of agricultural holdings. - 29 June 1951. - *F.F.* No. 402-405, 6 July 1951.
- Amended by Act No. 348. - 8 August 1958. - *F.F.* No. 348-352, 14 August 1958.
- Ordinance No. 28 amending the ordinance for the implementation of the Act relative to redemption of leased land in densely populated localities. - 16 January 1953. - *F.F.* No. 27-31, 1953, p. 143.
- Act No. 257 relative to the distribution of additional land to the communes of Kemijärvi and Salla and to the small agricultural holdings in the commune of Kuusamo. - 14 April 1944. - *F.F.* No. 257-262.
- Act No. 324 amending the Act relative to the grant of additional land to small holdings in the communes of Kemijärvi and Salla and in the village of Liikonen in the commune of Kuusamo. - 9 July 1953. - *F.F.* Nos. 324-329, 1953, p. 689.
- Act No. 3 amending Act No. 257/44 of 14.4.44, as amended by Act No. 324/53 of 9.7.53, relative to the grant of additional land to excessively small farms in the commune of Kemijärvi, Salla and Kuusamo (in Northern Finland). - 4 January 1957. - *F.F.* No. 2-13, 12 January 1957, p. 109.
- Partition Act No. 604. - 14 December 1951. - *F.F.* No. 64, 15 December 1951.

- Ordinance No. 407 containing supplementary provisions relative to partition of land. - 28 November 1952. - *F.F.* No. 407, 28 November 1952.

FRANCE

LAND RE-ORGANISATION AND CONSOLIDATION

Rural Code. - Provisions concerning land re-organisation and consolidation. - Book I Title I. - Articles I-57. - *Code Rural.* Edition of 15 November 1956.

Rural Code, Book I, Title II, on country roads and farm roads. [Act of 28 August 1881 relative to country roads (*J.O.* of 26 August 1881), as amended]. - *Code Rural*, Edition of 15 November 1956.

- Decree No. 37 specifying Govt. Regulations giving application to the Act of 9 March 1941 relative to the re-organisation of real estate and to consolidation. - 7 January 1942. - *J.O.* No. 25, 29 January 1942. - [Ratified by the Ordinance of 7 July 1945]. - [Published in the *A.I.L.A.*, 1942, p. 524].
- Decree No. 55-1271 specifying regulations governing the application of Part II (Special inducements to private exchanges) of Decree No. 54-1251 of 20 December 1954 for expediting agrarian adjustment and consolidation of holdings. - 29 September 1955, *J.O.* No. 231, 30 September 1955, p. 9625.
- Decree No. 56-112 issued in execution of Art. 28 of Act of 9 March 1941 and Art. 29 of the Decree No. 54-1251 of 20 December 1954 (agrarian adjustment and consolidation of holdings). - 24 January 1956. - *J.O.* No. 20, 25 Jan. 1956, p. 934.
- Act No. 374 relative to the carrying out of land surveying and land registration operations and to the maintenance of signposts, boundary and survey posts. - 6 July 1943. - *J.O.* 15 July 1943.
- Decree No. 47-371 containing regulations to implement the Act No. 46-2172 of 30 September 1946 establishing a National Forest Fund. - 3 March 1947. - *J.O.* 4 March 1947. - [Article 18 provides loans to prevent fragmentation in case of inheritance or partition].
- Decree No. 48-98 of 14 January 1948 containing regulations relative to the loan provided for in the Act of 30 September 1946 establishing a National Forest Fund. - 14 January 1948. - *J.O.* 16 January 1948. - [Article 9 mentions the loans to prevent fragmentation].
- *General Tax Code.* [Exemptions in the case of consolidation of rural estates]. Arts. 1308, 1309, 1310. - Decree of 6 April 1950. - *J.O.*, 30 April 1950.
- Order relative to State participation in works connected with consolidation. - 28 October 1952. - *J.O.* No. 264, 5 Nov. 1952, p. 10437.
- Decree No. 52-1200 codifying the enactments relative to forests. - 29 October 1952. - *J.O.* No. 260, 30 October 1952, p. 10.271. - [Under Art. 199, the provisions of Act of 29 March 1941 relative to land consolidation are applicable to forest land]. - [Published in *FAO Quarterly FAL*, 1952, Vol. I, No. 4].

- Decree No. 54-1302 to foster the establishment of associations for reforestation and forest management. - 30 December 1954. - *J.O.* No. 308, 31 December 1954.
- Decree No. 55-1068 containing regulations for the application of Decree No. 54-1302 of 30 December 1954 relative to the establishment of associations for reforestation and forest management. - 4 August 1955. - *J.O.* No. 188, 10 August 1955.
- Decree No. 55-1685 relative to miscellaneous land rearrangements. - 29 December 1955. - *J.O.* No. 308, 31 December 1955, p. 12.818. - [Specifies procedure to be observed in connection with applications for and grant of subsidies for elimination of certain obstacles to the rational utilization of the soil, *inter alia* as regards consolidation and re-organization operations].
- Order establishing the rules designed to ensure agreement between the real estate card-index and the land register in connection with consolidation operations. - 14 May 1956. - *J.O.* No. 114, 17 May 1956, p. 4563. - [Specifies procedure with regard to registration of documents concerning consolidation operations for the purpose as specified above].
- Order establishing rules for ensuring agreement between the real estate card index and the land register subsequent to rural consolidation operations. - 15 May 1956. - *J.O.* No. 229, 1-2 October 1956, p. 9343. - [Specifies procedural regulations whereby *inter alia* the Rural Civil Engineering Service shall transmit to the Land Registry for recording purposes all documents relative to consolidation operations performed.].

ALGERIA

- Decree No. 56-290 relative to real estate planning in *Algeria*. - 26 March 1956. - *J.O.* No. 74, 26-27 March 1956, p. 2926. - [Real estate planning in the form of private exchange, re-organization of estates and consolidation. A consultative committee on land planning is to be established for the purpose]. - [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 1].
- Decree No. 56-291 establishing a rural estate and holding acquisition fund in *Algeria*. - 26 March 1956. - *J.O.* No. 74, 26-27 March 1956, p. 2931. - [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 1]. - [Loans and credits may be granted to small-holders, and operations associated with acquisition, planning, parcelling, assignment etc., may be effected by the Fund which grants payment facilities up to a period not exceeding twenty-five years].

INHERITANCE LAW

- Decree amending Articles 815, 822, 827, 832, 859, 860, 866, 1075 of the Civil Code (Inheritance Regulations). - 17 June 1938. - *J.O.* No. 151, 29 June 1938. - [Published in the *AILA*, 1938, p. 757].
- Act No. 5 relative to the successional transmission of agricultural holdings. - 15 January 1943. - *J.O.* No. 17, 20 January 1943.

- Order relative to the application of Art. 3 of the Act of 15 January 1943 relative to the successional transmission of agricultural holdings. - 22 July 1944. - *J.O.* No. 185, 3 August 1944. - [Maximum area and value according to departments to which Arts. 815 and 832 of the Civil Code apply].
- Order to fix the maximum value of agricultural holdings to which provisions of Arts. 815 and 832 of the Civil Code apply. - 19 September 1947. - *J.O.* No. 228, 27 September 1947, p. 9739.
- Order applying Article 3 of Act of 15.1.1943 (Arts. 815 and 832 of the Civil Code) concerning inheritance of agricultural holdings. - 7 February 1952. - *J.O.* No. 42, 16 February 1952. - [The maximum value of holdings is fixed at 12 million francs].

Civil code

Maintenance of joint ownership (Art. 815). [Amended by the Act of 15 January 1943 and Legislative Decree of 17 June 1938, amended by the Act of 20 June 1940]. - Total assignment to one of the joint owners (Art. 832). [Text deriving from the Legislative Decree of 17 June 1938, the Act of 9 November 1940, the Act of 15 January 1943 and Act No. 55-1413 of 28 October 1955].

Donation or legacy (Art. 866). [Text deriving from Legislative Decree of 17 June 1938]. Division of estate by ascendant (Art. 1075 *et seq.*). - [Leg. Decree of 17 June 1938, Act of 20 July 1940].

General tax code

- Art. 440bis. Exemption from balance and reversion taxes on behalf of family agricultural holdings incorporated in the partition of inheritances. [Text deriving from Art. 36 of the Act of 15 November 1943 and Art. 23 of the Act of 16 June 1948. - Codification of 6 April 1950. - *J.O.* 30 April 1950].

SPECIAL LEGISLATION CONCERNING AGRICULTURAL FAMILY HOLDINGS (SMALLHOLDINGS; HOMESTEADS)

- Act relative to the establishment of non-distrainable family holdings. - 12 July 1909. - *J.O.* 13 July 1909. - ['Annuaire de législation française' 1909, p. 102; 'Lois et décrets d'usage courant', 1932, p. 370].
- Decree specifying Government Regulations giving executive effect to the Act of 12 July 1909 relative to the establishment of non-distrainable family holdings. - 26 March 1910. - *J.O.*, 27 March 1910. - ['Annuaire de législation française', 1909, p. 106].
- Act designed to bring the Act relative to non-distrainable family holdings into conformity with other laws governing smallholdings, more particularly the Act of 5 December 1922. - 14 March 1928. - *J.O.* No. 66, 17 March 1928. - [Published in the *AILA*, 1928, p. 868].

- Act to harmonize the inheritance rules concerning low-cost dwelling and those relative to family holdings. - 13 February 1937. - *J.O.*, 14 February 1937.
- Decree relative to non-distrainable family holdings. - 14 June 1938. - *J.O.* No. 139, 15 June 1938. - [*AILA*, 1938, p. 756].
- Act No. 48-1082 amending the Act of 12 July 1909 as amended by the Leg. Decree of 14 June 1938 relative to the establishment of non-distrainable family holdings. - 7 July 1948. - *J.O.* No. 160, 8 July 1948.
- Act No. 53-183 amending the Act of 12 July 1909 relative to the constitution of non-distrainable family holdings. - 12 March 1953. - *J.O.* No. 62, 13 March 1953, p. 2371.
- Act codifying legislation relative to low-cost housing and smallholdings. - 5 December 1922. - *J.O.*, 10 December 1922.

GERMANY (*Federal Republic*)

CONSOLIDATION OF HOLDINGS

- State Land Settlement Act. - 11 August 1919. - *RGBl.* No. 155, 18 August 1919, p. 1429. - [*AILA* 1919, p. 787].
- Agricultural Tenancy Act. - 25 June 1952. - *BGBl.* I, No. 26, 26 June 1952, p. 343. - [Article 5 stipulates that the agricultural authorities may raise objections to contracts especially when such contracts would result in any partition of land prejudicial to economy]. - [Published in *FAO Quarterly FAL* 1952, Vol. I, No. 2].
- Act relative to the promotion of Agricultural Settlement. - 15 May 1953. - *BGBl.* I, No. 22, 22 May 1953, p. 224. - [Published in *FAO Quarterly FAL* 1953, Vol. II, No. 1].
- Act relative to the affairs of displaced persons and refugees (Federal Displaced Persons Act). - 19 May 1953. - *BGBl.* I, No. 22, 22 May 1953, p. 201. - [Especially para. 39 (Settlement on expiring and abandoned farms uneconomically fragmented)]. - [Extracts published in *FAO Quarterly FAL* 1953, Vol. II, No. 2].
- Consolidation of Holdings Act. - 14 July 1953. - *BGBl.* I, No. 37, 18 July 1953, p. 591. - [Extracts published in *FAO Quarterly FAL* 1953, Vol. II, No. 3].
- Act relative to judicial procedure in agricultural matters. - 21 July 1953. - *BGBl.* I, No. 40, 27 July 1953. - [The Act affects proceedings relating to agricultural leases, conveyance of agricultural or forest land, safeguards for farm equipment, determination of tenancies, successions, etc.].

INHERITANCE LAW

- Kontrollratgesetz No. 45 repealing the Act on hereditary farm holdings and introducing a new transactions regime for agricultural and forest holdings. - 20 February 1947. - *AmtsBl.* 1947, p. 247.
- Hereditary farms regulations (*Höfeordnung*). - Schedule B. to Ordinance No. 84 of the British Military Govt. (*BMRVO* No. 84). - 24 April 1947.

- Acts of the *Länder* reintroducing the right to inheritance of farms:
 - Württemberg-Baden: 30 July 1948, *RBl.*, p. 165.
 - Württemberg-Hohenzollern: 13 June 1950, *RGBl.*, p. 249.
 - Rheinland-Pfalz: 7 October 1953, *GVBl.*, p. 101.
 - Hessen: 1 December 1953, *GuVBl.*, p. 12.
 - Baden: 12 July 1949, *GuVBl.*

GREECE

- Civil Code [in force as from February 1946]. Art. 1889. [Agricultural holdings which constitute an economic unity may be granted to one heir by the tribunal].
- Act No. 2258 relative to the expedition of final distribution of properties settled hitherto by the Committee for the Re-establishment of Refugees (E.A.P.) and to the dissolution of all special practical arrangements and provisions pertaining thereto. - 7 October 1952. - *E.K.* No. 805, 7 October 1952, p. 1889. - [Consolidation is obligatory if at least 51 % of the owners so request].

ICELAND

- The Land Reclamation and New Homesteads Act, 1941.
- The Land Reclamation and New Homesteads Act (Amendment), 1945.
- The Udal Tenure Act, 1941. - [Concerns heritable freehold farms, which cannot be put on the market].
- Act No. 42 on inheritances. - 23 May 1949.

IRELAND

- The Land Acts, 1870-1954.
Especially:
- Land Law (Ireland) Act, 1881. - [Constituted the Irish Land Commission (Sec. 41) and prohibited subdivision of certain holdings (Sec. 2)].
- Purchase of Land (Ireland) Act, 1891. [Constituted the Congested Districts Board (Sec. 34) with power to ameliorate conditions on holdings in the poorest part of the country, known as the congested districts, by consolidation schemes etc.].
- Irish Land Act, 1903. - [Authorised expenditure on estate or land improvements works (Sec. 23)].
- Irish Land Act, 1909. - [Authorised the exchange of holdings for holdings of not less value (Sec. 23)].
- Land Law (Commission) Act, 1923. - [Dissolved the Congested Districts Board and transferred its functions to the Irish Land Commission].
- Land Act, 1923. - [Gave the Land Commission extensive powers of acquisition (Sec. 24) and purchase (Sec. 36) of untenanted land for the relief of congestion and further

prohibited the subdivision of holdings or parcels of land (Sec. 65); Sec. 46 authorises exchanges of registered holdings].

- Land Act, 1927. - [Contains further provisions prohibiting subdivision of holdings (Secs. 3 and 4)].
- Land Act, 1931. - [The provisions for quasi-compulsory re-arrangements or consolidation schemes are in secs. 33 and 34, while secs. 28 and 29 provide the necessary legal powers for legal completion (i.e. by revesting) of schemes for the elimination of fragmentation); See also in this regard sec. 17, Land Act, 1953].
- Land Act 1950. - [Authorises the purchase of holdings by the Land Commission in the open market for cash (secs. 27 and 28)].

ITALY

CONSOLIDATION OF HOLDINGS

- Royal Decree No. 215 specifying new provisions relative to comprehensive land improvement. - 13 February 1933. - *G.U.*, 4 April 1933. - [In particular, Chapter IV, Consolidation of fragmented property (Arts. 12-37)]. [Provisions reproduced in the 1942 Civil Code, Arts. 850-854].
 - Act specifying provisions supplementing the Act relative to comprehensive land improvement. - 12 February 1942. - *G.U.*, 23 March 1942.
- Act No. 1078 containing provisions designed to avoid the fragmentation of holdings units assigned to farmers of the direct cultivator class. - 3 June 1940. - *G.U.*, 13 August 1940. [Land Exchanges].
- Act No. 2377 relative to special regulations in connection with land reform. - 20 December 1952. - *G.U.* No. 299, 27 December 1952, p. 4706. - [Published in *FAO Quarterly FAL*, 1952, Vol. I, No. 4].
- Act No. 1001 containing rules for carrying out an investigation on the fragmentation and dispersion of immovable property. - 15 October 1957. - *G.U.* No. 270, 31 October 1957. - [Sets up a Commission to effect the investigation].

Civil Code. (Text of 21 April 1942). II. Prohibition of fragmentation and transfer of production units. - Arts. 846-856. (Reorganization of rural property).

SICILY

Act No. 104 relative to the Agrarian Reform in Sicily. - 27 December 1950. - *G. U. della Sicilia* No. 50, 27 December 1950. - [Art. 38 fixes the minimum and maximum extension of parcels and land to be distributed].

SMALLHOLDINGS

- Legislative Decree specifying provisions in favour of smallholdings. - 24 February 1948. - *G.U.*, 12 March 1948.
- Ministerial Decree governing the organization and operation of the Fund for Esta-

- blishing Smallholdings, founded under Art. 9 of Legislative Decree of 5 March 1948. – 22 September 1948. – *G.U.*, 18 November 1948.
- Act No. 230 containing provisions for the colonization of the Sila region and neighbouring regions. – 12 May 1950. – *G.U.* – No. 115, 20 May 1950. [Art. 16 refers to Act of 24 February 1948 on Smallholdings].
 - Act No. 991 containing provisions in favour of mountain territories. – 25 July 1952. – *G.U.* No. 176, 31 July 1952 [Articles 35–36 grant fiscal exemptions in connection with transfer of ownership effected to consolidate Smallholdings].
 - Decree No. 1979 by the President of the Republic approving the rules for application of Act No. 991 of 25 July 1952, containing provisions in favour of mountain territories. – 16 November 1952. – *G.U.* No. 291, 16 December 1952, p. 4539.
 - Act No. 2362 relative to measures in favour of peasant smallholdings. – 11 December 1952. – *G.U.* No. 698, 24 December 1952, p. 4698. – [Published in *FAO Quarterly FAL*, 1952, Vol. I, No. 4].
 - Act No. 604 amending provisions relative to the facilities in favour of smallholdings. – 6 August 1954. – *G.U.* No. 182, 11 August 1954. – [Particularly Art. 8].
 - Act No. 53 specifying provisions relative to the development of smallholdings. – 1 February 1956. – *G.U.* No. 49, 28 February 1956, p. 767.

Sicily

- Act No. 24 specifying facilities for the development of peasant smallholdings. – 11 March 1957. – *G.U.* No. 280. – [Grant of loans, etc.].
- Act No. 56. Provisions relative to consolidation of smallholdings within the perimeters of land improvement. – 21 October 1957. – *G. U. della Sicilia* No. 58, 26 October 1957.

INHERITANCE LAW

- *Civil Code*. (Text of 21 April 1942). Rules governing inheritances. – Art. 720: *Indivisible Real Property*, Art. 722: Property indivisible in the national interest.
- *Code of Civil Procedure*. Art. 577: Indivisibility of land.

Trentino – Alto Adige

- Provincial Act governing ‘closed holdings’ (*Massi chiusi*). – Approved on 5 February 1954 by the Provincial Board of Bolzano. Date of coming into force, 1 April 1954. – [Text contained in ‘*Rivista di Diritto Agrario*’, Année XXXIII, 1954, Fasc. I–II].

LUXEMBOURG

- An Act to facilitate voluntary exchange of agricultural land, through temporary exemption from taxes. – 17 April 1951. – *M.L.* No. 27, 27 April 1951.
- Grand Ducal Order prolonging the Act of 17 April 1951 for facilitating the private

- exchange of rural lands by the approval of such acts of exchange without charge. – 11 April 1954. – *M.L.* No. 17, 15 April 1954, p. 311.
- Act extending for a further period of three years the Act of 17 April 1951 designed to facilitate the private exchange of rural lands by means of acts of exchange executed free of charge. – 27 April 1957. – *M.L.* No. 25, 29 April 1957, p. 489.

NETHERLANDS

- Act relative to the Census on the Island of Walcheren. – 27 November 1947. – *Stbl.* No. H-400, 9 January 1948, p. 1. – [Special legislation relative to consolidation owing to special circumstances obtaining in the area].
- Act No. 446 regulating certain legal dispositions concerning agricultural land (Act relative to the alienation of agricultural land). – 7 August 1953. – *Stbl.*, 8 September 1953, text 446, p. 765. – [In force as from 21 December 1953 (*Stbl.* No. 563 of 1 September 1953)]. – [Particularly Art. 9]. [Published in *FAO Quarterly FAL*, 1953, Vol. II, No. 3].
- Act relative to the Alienation of Agricultural Land. – [Amended text of Act of 7 August 1953 (*Stbl.* 446)]. – 15 August 1956. – *Stbl.* 15 August 1956, text 429, p. 1133.
- Act prescribing new conditions relative to consolidation (Consolidation Act, 1954). – 3 November 1954. – *Stbl.* text 510, 26 November 1954, p. 1297. – [In force as from 15 February 1955 (*Stbl.* No. 45, 9 February 1955, p. 67)]. – [Published in *FAO Quarterly FAL*, 1954, Vol. III, No. 4].
- Decree relative to the application of the 1954 Consolidation Act, prescribing more detailed rules regarding the composition, activities and operation of the Central Technical Farming Commission and the assistance to be given to such Commission by the Technical Farming Services. – 4 February 1955. – *Stbl.* text 43, 7 February 1955, p. 63.
- Decree relative to the coming into force of the 1954 Consolidation Act and concerning the application of Art. 134, Para. 3 of the Act (Consolidation effected in accordance with the earlier (1938) Act and subsequent decrees). – 7 February 1955. – *Stbl.* Text 45, 9 February 1955, p. 67.
- Act relative to Farm Tenancies. – 23 January 1958. – *Stbl.* text 37, 4 February 1958, p. 51. – [Article 5 excludes approbation of farming contracts capable of provoking uneconomic fragmentation or uneconomic size of holdings. Other provisions of the Article are aimed at preventing future fragmentation of agricultural holdings in districts where consolidation projects have been carried out. Transfer of a leased holding by tenant [Art. 49 (3)] or succession to the farming contract [Art. 53 (6)] is also rejected in similar circumstances]. – [Published in *FAO Quarterly FAL*, Vol. VII, No. 2].

INHERITANCE LAW

- Act relative to the collection of inheritance, gift and conveyance duties (Inheritance Act, 1956). – 28 June 1956. – *Stbl.* Text 362, 6 July 1956, p. 967.

- Decree relative to application of the 1956 Inheritance Act. - 20 July 1956. - *Stbl.*, 24 July 1956, text 407, p. 1075. - [Repeals the Decree *Stbl.* 444, of 1939 relative to the application of Art. 3 of the Inheritance Act].

NORWAY

- The Roads Act. - 21 June 1912. - *N.L.* No. 2.
- Act prohibiting to detach from an estate the quantity of forest and mountain lands necessary for cultivation. - 20 August 1915. - *N.L.* No. 37, 23 August 1915.
- The Watercourse Act. - 15 March 1940. - *N.L.* No. 11, 27 March 1940, p. 313.
- Act No. 2 relative to division of immovable property. - 22 December 1950. (In force 1 November 1951). - *N.L.* No. 50, 30 December 1950.
- Act regulating the use of land (The Land Act). - 18 March 1955 (In force since 1st January 1956). - *N.L.* No. 13, 4 April 1955, p. 226. - [Article 1*b* and Chapter IV, Art. 10 *et seq.*]. [Published in FAO Quarterly *FAL*, 1945, Vol. IV, No. 2].
- Resolution relative to the coming into force of the Land Act of 18 March 1955. - 21 October 1955. - *N.L.* No. 35, 2 November 1955, p. 1029.
- Royal Resolution establishing provisions relative to county agricultural boards and land boards pursuant to Art. 8 of 18 March 1955. - 10 February 1956. - *N.L.* No. 7, 23 February 1956, p. 112.

INHERITANCE LAW

- Act relative to right of allodial possession and right of retention of inherited possession. - 26 June 1821. (Amended by Act of 31 July 1854 and Act of 9 May 1863). [No texts available].
- Act amending the Act of 26 June 1821 relative to right of allodial possession and right of retention of inherited possession. - 18 March 1955. - *N.L.* No. 13, 4 April 1955, p. 238.

PORTUGAL

- Decree No. 7033 establishing family holdings. - 16 October 1920. - *D.d.G.* Series I, No. 208, 16 October 1920. - [Published in the *AILA*, 1920, p. 595].
- Decree No. 16.731 amending the tax system. - 13 April 1929. - *D.d.G.* Series I, No. 83, 13 April 1929. - [Arts. 97, 98, 104, 105 and 106 concern reduction of taxes in case of division or consolidation of certain holdings].
- Act No. 1949 entrusting the State with the study and execution of hydraulic works of special economic and social interest. - 15 February 1937. - *D.d.G.* Series I, No. 37, 15 February 1937. [Basis XIV concerns consolidation of holdings, and Basis XV, establishment of Smallholdings]. - [Published in the *AILA*, 1937, p. 439].
- Decree No. 36.709 promulgating (in relation to Act No. 2014 of 27 May 1946) regulations relative to exploitation of waste land. - 5 January 1948. - *D.d.G.* No. 3, 5

- January 1948. – [Provisions on Smallholdings]. [Published in the *AILA*, 1946, p. 697].
- Act No. 2072 establishing general land settlement plans for zones having benefited from drainage and irrigation schemes either already completed or in progress, and revoking various provisions of Decree No. 36.709 of 5 January 1948 and partially amending the rules contained in Basis No. 6 of Act. No. 1949 of 15 February 1937 and in Art. 53 of Decree No. 28.652 of 16 May 1938. – 18 June 1954. – *D.d.G.* No. 131-I, 18 June 1954, p. 675. – [Provides for the establishment of family farm units operated on a tenancy or share-tenancy system basis in areas covered by irrigation schemes].

SPAIN

CONSOLIDATION OF HOLDINGS

- Order providing rules of procedure to govern measures relative to Consolidation of Holdings. – 16 February 1953. – *B.O.E.* No. 66, 7 March 1953, p. 1288. – [Published in *FAL*, 1953, Vol. II, No. 1].
- Order establishing regulations applicable in carrying out the consolidation of holdings. – 2 July 1953. – *B.O.E.* No. 186, 5 July 1953, p. 4076. – [Published in *FAO Quarterly FAL*, 1953, Vol. II, No. 3].
- Order laying down regulations governing the sowing of fallow land in communes affected by consolidation works. – 18 September 1954. – *B.O.E.* No. 265, 22 September 1954, p. 6359.
- Joint Order by the Ministers of Justice and of Agriculture modifying the rules to be followed in procedures affecting consolidation of holdings. – 22 November 1954. – *B.O.E.* No. 328, 24 November 1954. – p. 7805 (*Corrigendum* of 18 December 1954).
- Order clarifying Sec. 7 of Order of 2 July 1953 establishing regulations applicable in carrying out the consolidation of holdings. – 22 November 1954. – *B.O.E.* No. 329, 25 November 1954, p. 7825. [Affects delimitation of area to be consolidated].
- Act relative to conservation and improvement of farm land. – 20 July 1955. – *B.O.E.* No. 202, 21 July 1955, p. 4439. [See particularly Art. 9d) as regards land consolidation]. – [Published in *FAO Quarterly FAL* 1955, Vol. IV, No. 3].
- *Decree approving the consolidated text of the Acts on Consolidation of Holdings.* – 10 August 1955. – *B.O.E.* No. 269, 26 September 1955, p. 5822. – [Published in *FAO Quarterly FAL*, 1955, Vol. IV, No. 3].
- Decree organizing the Service for the Consolidation of Holdings, in accordance with the provisions of the Act of 10 August 1955. – 9 December 1955. – *B.O.E.* No. 1, 1 January 1956, p. 7.
- Order containing the procedure governing appeals lodged against decisions of the Central Commission for the consolidation of holdings. – 22 December 1955. – *B.O.E.* No. 6, 6 January 1956, p. 174.
- Order containing the rules of organization and of procedure of the Service for the

- Consolidation of Holdings. – 11 February 1956. – *B.O.E.* No. 51, 20 February 1956, p. 1186.
- Joint Order by the Ministries of Finance and Agriculture containing regulations governing application of the Act on Consolidation of Holdings of 10 August 1955. – 14 March 1956. – *B.O.E.* No. 98, 7 April 1956, p. 2317.
 - Order containing regulations governing the grant of loans to participants in consolidation of holdings proceedings in application of Art. 60 of the Act of 10 August 1955. – 28 May 1956. – *B.O.E.* No. 156, 4 June 1956, p. 3648. – [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 2].
 - Joint Order of the Ministries of the Interior and of Agriculture issuing regulations to coordinate the Acts on Consolidation of Holdings and Local Government. – 20 July 1956. – *B.O.E.* No. 206, 24 July 1956, p. 4846.
 - Decree relative to execution and conservation of works carried out as a consequence of consolidation of holdings. – 11 July 1957. – *B.O.E.* No. 198, 3 August 1957, p. 684.
 - Decree establishing the Managing Board and the Regional or Provincial Boards required for the preparation and execution of Plans for Public Works, Land Settlement, Industrialisation and Electrification in the great irrigable zones. – 13 February 1958. – *B.O.E.* No. 47, 24 February 1958, p. 320.

MINIMUM UNITS OF CULTIVATION

- Act relative to the establishment of minimum units of cultivation. – 15 July 1954. – *B.O.E.* No. 197, 16 July 1954, p. 4841. – [Published in *FAO Quarterly FAL*, 1954, Vol. III, No. 4].
- Decree amplifying Art. 1 of the Act of 15 July 1954 on minimum units of cultivation. – 25 March 1955. – *B.O.E.* No. 105, 15 April 1955, p. 2411. – [Published in *FAO Quarterly FAL*, 1955, Vol. IV, No. 4].
- Decree amplifying Art. 1 of the Act of 15 July 1954 on minimum units of cultivation. – 22 September 1955. – *B.O.E.* No. 280, 7 October 1955, p. 6053. – [Published in *FAO Quarterly FAL*, 1955, Vol. IV, No. 4].
- Joint Order of Ministries of Justice and Agriculture declaring Arts. 2 and 3 of Decree of 22 Sept. 1955 [on minimum units of cultivation] inapplicable to areas liable to consolidation of holdings. – 24 November 1955. – *B.O.E.* No. 352, 18 December 1955, p. 7627. – [Published in *FAO Quarterly FAL*, 1955, Vol. IV, No. 4].

MODEL AGRICULTURAL HOLDINGS

- Act on model agricultural holdings. – 15 July 1952. – *B.O.E.* No. 198, 16 July 1952, p. 3264. – [Published in *FAO Quarterly FAL*, 1952, Vol. I, No. 3].
- Order establishing rules for the grant of titles 'Model Agricultural Holdings' and 'Efficient Agricultural Holdings'. – 31 October 1952. – *B.O.E.* No. 322, 17 November 1952, p. 5379.

- Order defining the scope of Arts. 1 and 6 of Act of 15 July 1952 and Art. 2, sec. b) of Decree of 31 October 1952 relative to Model Agricultural Holdings. - 22 December 1955. - *B.O.E.* No. 6, 6 January 1955, p. 174.

INHERITANCE LAW

- 1) *Civil Code Rules*. - *Division*. Art. 1056: Maintenance of the joint ownership by the testator's wish. - Art. 1062: Grant of property to a single heir in return for payment of compensation for the balance to other co-owners.
- 2) *Regional Customary Law*: Private regional civil law providing for the protection of the continuity of family holding units.

FAMILY ESTATES

- Act regulating the Family Estates established by the National Institute of Colonization. - 15 July 1952. - *B.O.E.* No. 198, 16 July 1952, p. 3260. - [Published in *FAO Quarterly FAL*, 1952, Vol. I, No. 3].
- Order providing regulations to govern the Family Estates established by the National Institute of Colonization in accordance with Art. 17 of the Act of 15 July 1952. - 27 May 1953. - *B.O.E.* No. 150, 30 May 1953, p. 3228. - [Published in *FAO Quarterly FAL*, 1953, Vol. II, No. 2].
- Joint Orders of the Ministries of Justice and Agriculture relative to family holdings and execution of decisions giving rise to eviction of settlers dependent upon the National Institute of Colonization. - 27 July 1953. - *B.O.E.* No. 225, 13 August 1953, p. 4911.
- Decree issuing regulations governing the award of the title 'Protected Family Agricultural Holdings'. - 27 January 1956. - *B.O.E.* No. 46, 15 February 1956, p. 1049. - [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 1].
- Decree granting to protected family holdings the benefits accorded to model agricultural holdings. - 11 January 1957. - *B.O.E.* No. 29, 29 January 1957, p. 510.

SWEDEN

(Titles of basic laws are *in italics*)

LAND ALLOTMENT ACT

- *Act of 18 June 1926 relative to the partitioning of rural land. (The Land Allotment Act)*. - *S.F.S.* No. 326/1926.* [French translation in the *AILA*, 1926, p. 456].
- Royal Order of 22 June 1928 establishing conditions governing the grant of State subsidies for effecting land operations in accordance with the Land Allotment Act of 18 June 1926. - *S.F.S.* No. 295/1928. [Amendments subsequently effected].
- Acts and Royal Orders of 17 June 1932, containing amendments to the Land Allotment Act of 18 June 1926 and special provisions relative to the distribution of land

* Included in the annual Swedish Code of Laws.

in certain parts of the Kopperberg province. – *S.F.S.* No. 223–231/1932.* [French translation in the *AILA*, 1932, p. 1231].

- Act of 6 March 1953 amending the Land Allotment Act of 18 June 1926. – *S.F.S.* No. 54/1953.*
- Act of 17 April 1953 amending the Land Allotment Act of 18 June 1926. – *S.F.S.* No. 155/1953.*
- Act of 3 June 1955 amending the Land Allotment Act of 18 June 1926. – *S.F.S.* No. 288/1955.*

RATIONALIZATION OF AGRICULTURE

- *Act of 30 June 1947 relative to the supervision of agricultural holdings.* – *S.F.S.* No. 288/1947.*
- *Royal Order of 11 June 1948 relative to State subsidies for the external and internal rationalization of agriculture.* – *S.F.S.* No. 342/1948*. – New Printing 11 May 1956, *S.F.S.* No. 159/1956, containing the amendments up to that date.
- *Royal Order of 31 May 1957, amending the Royal Order of 11 June 1948 (S.F.S. No. 159/1956) relative to State subsidies for the external and internal rationalization of agriculture.* – *S.F.S.* No. 239/1957.

THE LAND ACQUISITION ACT

- *Act of 3 June 1955 restricting the right to assign agricultural land (Land Acquisition Act).* – *S.F.S.* No. 272/1955.* [Published in the *FAO Quarterly FAL* 1955, Vol. IV, No. 3].
- Act of 16 May 1958 amending the Land Acquisition Act of 3 June 1955. – *S.F.S.* No. 212/1958. [Will be included in the Swedish Code of Laws for 1959].
- *Royal Order of 17 June 1955 relative to the application of the Land Acquisition Act of 3 June 1955.* – *S.F.S.* No. 414/1955.*
- *Royal Order of 7 June 1956 amending the Royal Order of 17 June 1955 relative to the application of the Land Acquisition Act of 3 June 1955.* – *S.F.S.* No. 326/1956.*

VARIOUS

- *Royal Order of 11 June 1948 relative to the State support for the Own Farm Movement.* – *S.F.S.* No. 366/1948. – [New Printing 11 May 1956, *S.F.S.* No. 160/1956, containing the amendments up to that date].
- *Royal Order of 31 May 1957, amending the Royal Order of 11 June 1948 (S.F.S. No. 160/1956) relative to the State support for the Own Farm Movement.* – *S.F.S.* No. 240/1957.
- *Royal Ordinance of 17 December 1920 relative to procedures for carrying out certain land measurement operations.* – *S.F.S.* No. 850/1920.* [Amended by *Royal Order of 25 November 1927, S.F.S. No. 420/1927*].

* Included in the annual Swedish Code of Laws.

- Royal Order of 22 June 1950 relative to State subsidies for the execution of surveying works. - *S.F.S.* No. 381/1950.*
- Royal Order of 4 April 1952 relative to the division of the country into surveying zones. - *S.F.S.* No. 116/1952.*
- Acts of 18 April 1952 on district common land. - *S.F.S.* No. 166/1952.* [Published in the *FAO Quarterly FAL*, Vol. I, No. 2].
- Act of 30 May 1916 with restrictions in the right of aliens to acquire rural land. - *S.F.S.* No. 156/1916.*
- *Act of 18 June 1928 with restrictions in the right of companies, associations and foundations to acquire rural land.* - *S.F.S.* No. 219/1925.*
- Royal Order of 24 May 1957 relative to the State support of the build-your-own movement. - *S.F.S.* No. 359/1957.*
- Royal Order of 20 September 1957 amending the Royal Order of 24 May 1957 relative to the State support of the build-your-own movement. - *S.F.S.* No. 540/1957.
- *Act of 28 June -1928 relative to watercourses.* - *S.F.S.* No. 523/1918.*
- *Act of 3 September -1939 relative to private roads.* - *S.F.S.* No. 608/1939.*

SWITZERLAND

- Federal Act relative to Confederation supervision of forest police. - 11 October 1902, 5 October 1923, 19 December 1951, 23 December 1953, 23 September 1955. - *R.L.F.* No. 42, 18 October 1955, p. 1297. [Provisions concerning consolidation of forest land: Art. 26; Art. 28; Art. 42 (d)]. [Published in *FAO Quarterly FAL*, 1957, Vol. VI, No. 1].
- Federal Act relative to the liquidation of debts encumbering agricultural estates. - 12 December 1940. (In force as from 1.1.1947). - *R.L.F.* No. 2, 10 January 1946. - Chapt. II. Inheritance Law. [Amends Arts. 619, 620, 621 and 625 of the Swiss Civil Code and adds Arts. 621bis, 621 ter, 621 quater and 625bis]. Order of the Federal Council promoting land reorganization. - 20 Nov. 1945. *R.L.F.* No. 53, 22 November 1945. - [Published in French in the *AILA*, 1946, p. 562].
- Federal Act on the preservation of rural landed property. - 12 June 1951. - (In force as from 1.1.1953). - *R.L.F.* No. 19, 24 April 1952, p. 415. - [Art. 19(c) refers to objections to sales in order to avoid uneconomic fragmentation; Art. 49 amends the Swiss Civil Code (Arts. 621 quater and 625 bis) as regards division of property in mountain regions; Art. 50 amends the Code of liabilities (Art. 218, 218bis and 218ter) as regards transfers in case of consolidation, etc.]. [Published in *FAO Quarterly FAL*, 1952, Vol. I, No. 1].
- Federal Act on the promotion of agriculture and maintenance of the peasant population (Agriculture Act). - 3 October 1951. - *F.F.* No. 41, 12 October 1951, p. 141. - [Particularly Part V. Land Improvements (Consolidation, etc.) (in force since 1 Jan. 1955); Part VII. (Federal Contributions and Funds); Art. 121 (Amends Art. 703 of

* Included in the annual Swedish Code of Laws.

the Swiss Civil Code relating to Land improvements)]. [Published in FAO Quarterly *FAL*, 1952, Vol. I, No. 1].

- Order of the Federal Assembly relative to the grant of unreduced Federal subsidies on behalf of certain categories of land improvements in mountain areas. - 4 October 1954. - *R.L.F.* No. 4, 27 January 1955, p. 77. - [Pursuant to Art. 91 of the Agricultural Act of 3 October 1951, the Federal Council authorized such subsidies, *inter alia* for consolidation and road schemes].
- Ordinance relative to the grant of subsidies on behalf of land improvements and rural buildings. - 24 December 1954. - *R.L.F.* No. 4, 27 January 1955, p. 79.

Civil code

- Arts. 349-350 relative to homesteads (*Heimstätten*). (Federal Acts of 12 December 1940, 12 June 1951 and 3 October 1951). Arts. 607-625 refer to partitioning procedures. Arts. 702-703 refer to parcelling operations. Art. 954 exempts exchanges of land effected for purposes of consolidation from payment of fees.

Code of Liabilities

Arts. 218, 218*bis*, 218*ter*: Transfers in case of consolidation, etc Art. 296: Right of both landlord and tenant to terminate tenancy contracts in case of consolidation.

TURKEY

- Act No. 4753. - Farmers' Settlement Act. - 11 June 1945. - *R.G.* No. 6032, 15 June 1945. - p. 8893.
- Act No. 5618 amending certain articles of the Farmers' Settlement Act, No. 4753 and adding some articles and transitional provisions to that Act. - 22 March 1950. - *R.G.* No. 7467, 27 March 1950, p. 18.166.
- Act No. 6603 adding new paragraphs to Arts. 41 and 43 of the Farmers' Settlement Act, No. 4753. - *R.G.* No. 9013, 27 May 1955, p. 11.942.
- Resolution No. 8751 relative to entry into force of the annexed 'Regulations governing grant of land to farmers' drafted in accordance with Art. 63 of Act No. 4753 of 15 June 1945 on grant of land to farmers, and already studied by the Council of State. - 28 February 1957. - *R.G.* No. 9566, 22 March 1957, p. 16.745.

UNITED KINGDOM

- Agriculture Act, 1947, 10 and 11 *Geo.* 6. Ch. 48. - [Particularly Part IV: Smallholdings; Part V: Sec. 86 (Control of subdivision of agricultural units) - Sec. 87 (Experimental schemes for readjustment of farm boundaries); Twelfth Schedule (Provisions as to schemes for adjusting Farm Boundaries or Amalgamating Farms)].

- Agriculture (Miscellaneous Provisions) Act, 1954. - *2 and 3 Eliz. 2* Ch. 39. An Act to amend Part IV of the Agriculture Act, 1947, with respect to the holdings to be treated as Smallholdings, etc. - [Sec. 3: Amendments as to Smallholdings in England and Wales].
- Smallholdings (Selection of Tenants) Regulations, 16 September 1949. - *S.I. No. 1754* of 1949.
- Agricultural Act, 1957. - *5 and 6 Eliz. 2*, Ch. 57. (Sec. 16 and Sec. 17: Grants towards costs of amalgamation).

SCOTLAND

- Agriculture (Scotland) Act, 1948. - *11 and 12 Geo. 6*. Ch. 45. - [Part V: Sec. 64: Provision of holdings by the Secretary of State].
- The Crofters (Scotland) Act, 1955. An Act to make provisions for the reorganization, development and regulation in the crofting counties of Scotland, etc. - 6 May 1955. - *CL St. 1955*, c. 21 (*3 and 4 El. 2*). - [The Act sets up a special Crofters' Commission to carry out reorganization of disorganised and decaying crofting communities. These powers may be used to secure the letting of crofts as enlargements to other crofts].

CYPRUS

- The Immovable Property (Tenure, Registration and Valuation) Law. - Chapter 231. - 1 September 1946. - Consolidated text; 1949, as amended by Law No. 8 of 4 March 1953 (Sup. No. 2 to the *Cyprus Gazette* No. 3675 of 4th March 1953), and Law No. 4 of 1954 (Sup. No. 2 to the *Cyprus Gazette* No. 3739 of 28 January 1954) [26: General Provisions relating to division, etc. of immovable property; 27: selling of property held in undivided shores in certain cases; 28: Partition of immovable property held in undivided shores; also 29, 31 and 32].
- Law No. 10 to amend and consolidate the Provisions relating to Fees and Charges levied and taken in the Department of Land Registration and Surveys. - 17 February 1954. - *C.G. No. 3744*, 18 February 1954. - [Section 3 provides that the Director of Land Registration and Surveys may, at his discretion, waive or reduce any such fee or charge in respect of any matter relating to a case promoting or tending to promote the consolidation of immovable property or of separate interests in immovable property or the elimination of dual ownership of immovable property].

YUGOSLAVIA

- Agrarian Reform and Colonization Act. - 23 August 1945. - *S.L. No. 64*, 28 August 1945. - [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 2, Fasc. 5, p. 3].
- Decision by the Federal Minister, Chairman of the Board of Agriculture and Forestry, regarding continuation of work of the consolidation of agricultural estate and rural work cooperative lands. - 5 January 1952. - *S.L. No. 3*, 16 January 1952, text 24, p. 48.

- Act relative to the Agricultural Land Fund of National Property and to the allocation of land to agricultural organizations. - 27 May 1953. - *S.L.* No. 22, 27 May 1953, text No. 150, p. 205. - [Published in *FAO Quarterly FAL*, 1953, Vol. II, No. 2, Fasc. 9].
- Act relative to commercial transactions involving real estate. - 15 June 1954. - *S.L.* No. 26, 23 June 1954, text No. 290, p. 414.
- Resolution of the Federal Executive Council exempting from administrative and judicial taxes operations relative to the consolidation of privately-owned holdings. - 30 July 1954. - *S.L.* No. 32, 4 August 1954, text 412, p. 552.
- Inheritance Act. - 25 April 1955. - *S.L.* No. 20, 11 May 1955, text No. 210, p. 305. - [*Corrigendum* in *S.L.* No. 21, 18 May 1955, p. 337]. - [Art. 3: Maximum area of agricultural land that may be owned by private persons; Art. 153: Inheritance rights on agricultural land].
- Act amending and amplifying the Agrarian Reform and Colonization Act. - 15 May 1956. - *S.L.* No. 21, 16 May 1956, text 241, p. 373. [Published in *FAO Quarterly FAL*, 1956, Vol. V, No. 2].

ANNEX III

PARTICIPATION IN THE SECOND SESSION OF THE WORKING PARTY ON CONSOLIDATION OF FRAGMENTED HOLDINGS

Vienna, Austria 1-3 October 1957

DELEGATIONS FROM MEMBER COUNTRIES

- Austria** *Dipl. Ing. Josef Wilfinger, Sektionsrat, Bundesministerium für Land- und Forstwirtschaft, Vienna.
Dr. Fritz Schwarzsacher, Ministerialrat, Vizepräsident des Obersten Agrarsenates, Bundesministerium für Land- und Forstwirtschaft, Vienna.
- Denmark** *Professor K. Skovgaard, Professor at the Royal Veterinary and Agricultural College, Copenhagen.
Mr. Sten Ryum, Chief, Land Distribution Office, Copenhagen.
- Finland** Mr. Reino Ritvala, Landsurveying Engineer, Nummela.
Dr. Jouko Vuorinen, Professor, Agricultural Research Center, Department of Soil Science, Helsinki.
- France** *Mr. J. N. Gatheron, Inspecteur Général de l'Agriculture, Ministère de l'Agriculture, Paris.
Mr. R. Brunotte, Ingénieur général du génie rural, Ministère de l'Agriculture, Paris.
- Germany
(Federal Republic)** *Prof. H. Priebe, Forschungsstelle für bauerliche Familienwirtschaft, Frankfurt a. M.
Mr. Robert Steuer, Ministerialrat, Bundesministerium für Ernährung, Landwirtschaft und Forsten, Bonn.
Mr. Theodor von Rickelen, Dipl. Landwirt, Dipl. Volkswirt, Forschungsstelle für bauerliche Familienwirtschaft, Frankfurt a. M.

* Permanent Representatives of the Working Party.

- Italy** *Dr. Daniele Prinzi, Director General, Ente Riforma Puglia e Lucania, Rome.
- Luxembourg** *Mr. C. Hansen, Directeur des Services agricoles, Luxembourg.
 Mr. Mathias Gillen, Dir. hon. de l'Administration des Services Agricoles de l'Etat, Luxembourg.
 Mr. Alphonse Eyschen, Directeur du Cadastre, Luxembourg.
- Netherlands** *Mr. S. Herweijer, Director, Government Service for Land and Water Use, Utrecht.
 Mr. F. L. A. Maandag, Inspector of Agriculture, Ministry of Agriculture, Fisheries and Food, The Hague.
- Portugal** *Dr. José Pereira Caldas†, Presidente da Junta de Colonizaçãõ Interna, Lisbon.
 Mr. Henrique de Mascarenhas, Eng. Agr. da Junta de Colonizaçãõ Interna, Aveira.
- Spain** *Mr. Ramon Beneyto Sanchis, Director, Servicio de Concentración Parcelaria, Madrid.
 Mr. P. Jordana, Asesor Juridico, Madrid.
 Mr. Luis Oteyza, Secretario tecnico, Madrid.
- Sweden** *Mr. Hans Wetterhall, Director, Board of Agriculture, Stockholm.
- Switzerland** *Mr. Ernst Tanner, Ing. Rural, Chef de l'Office Cantonnal des Améliorations foncières et du Cadastre, Kaspar-Escherhaus, Zürich.
 Mr. H. Meyer, Chef Eid. Meliorationsamt, Bern.
- United Kingdom (Cyprus)** Dr. D. Christodoulou, Land Consolidation Officer, Nicosia, Cyprus.
- Yugoslavia** Ing. Srboljub Vurasinovic, Komisionsrat, Beograd.

ANNEX IV

OFFICES CONCERNED WITH LAND CONSOLIDATION OPERATIONS

| | |
|---------------------------------------|---|
| Austria | Bundesministerium für Land- und Forstwirtschaft, Vienna. |
| Denmark | Statens Jordlovsudvalg, Jordfordelingssekretariatet, Holbergsgade 23, Copenhagen. |
| Finland | General Land Survey Office, Kirkkokatu 3, Helsinki. |
| France | Ministère de l'Agriculture, 72, Rue de Varenne, Paris 11e |
| Germany (Federal Republic) | Bundesministerium für Ernährung, Landwirtschaft und Forsten, Bonn. |
| Greece | Ministry of Agriculture, Athens. |
| Ireland | Department of Lands, Upper Merrion Street, Dublin. |
| Italy | Ministry of Agriculture and Forestry, Rome. |
| Luxembourg | Administration des Services agricoles de l'Etat, 40, Avenue de la Porte-Neuve, Luxembourg (Grand Duché). |
| Netherlands | Ministerie van Landbouw, Visserij en Voedselvoorziening, Cultuurtechnische Dienst, Maliebaan 21, Utrecht. |
| Norway | Jordskifte direktoratet Landbruksdepartementet, Oslo. |
| Portugal | Junta de Colonizaçãõ Interna, Lisbon. |
| Spain | Servicio de Concentraci3n Parcelaria, Alcalá, 54, Madrid. |
| Sweden | Kungl. Lantbruksstyrelsen, Rationalisering avdelningen, Stockholm. |
| Switzerland | Direktion der Volkswirtschaft des Kanton Zürich, Meliorations- und Vermessungsamt, Zürich. |
| United Kingdom (Cyprus) | Department of Agriculture, Government of Cyprus, Nicosia. |
| Yugoslavia | Ministry of Agriculture, Belgrade. |

PUBLICATIONS OF
THE INTERNATIONAL INSTITUTE FOR LAND RECLAMATION AND IMPROVEMENT

- No. 1: TAKES, Dr. Ch. A. P., Physical planning in connection with land reclamation and improvement, 1958.
No. 2: KALISVAART, Ir. C., Subirrigation in the Zuiderzee polders, 1958.
No. 3/E: JACOBY, Erich H., Land consolidation in Europe, 1959
No. 3/F: JACOBY, Erich H., Remembrement en Europe, 1959
No. 3/D: JACOBY, Erich H., Flurbereinigung in Europa, 1959
No. 4: SMITS, Ir. H. and WIGGERS, Dr. A. J., Soil survey and landclassification as applied to reclamation of sea bottom land in the Netherlands, 1959

In preparation:

Water deficiencies in Europe
Reclamation of soils flooded by salt water
Role of water in rice cultivation

BULLETINS OF
THE INTERNATIONAL INSTITUTE FOR LAND RECLAMATION AND IMPROVEMENT

- No. 1: BEERS, Ir. W. F. J. van, The auger hole method, 1958.

„INTEGRALMELIORATION AFFOLTERN AM ALBIS“

| <i>Deutsch</i> | <i>English</i> | <i>Français</i> |
|---------------------------|---------------------------------------|----------------------------------|
| Abgetauscht | - exchanged | - échangé |
| alter Bestand | - old situation | - ancien état |
| Anzahl | - number | - nombre |
| ausgeführt bis | - finished till | - terminé en |
| Autobahn | - highway | - auto-route |
| Autofahrbare Waldwege | - forest roads passable for motorcars | - chemins forestiers carossables |
| | | |
| Bäche | - brooks | - ruisseaux |
| Baum | - tree | - arbre |
| Beizugsgebiet | - limit | - périmètre |
| Besitzstand | - ownership | - propriétés |
| Bestand | - situation | - état |
| Bestandeswert | - value of timber | - valeur de peuplement |
| bewertete Bestandesfläche | - valuated area | - superficie estimée |
| Bewertung | - valuation | - estimation |
| Boden | - land | - terrain |
| Bonitierungswert | - estimated value | - valeur d'estimation |
| | | |
| Dichte | - density | - densité |
| Durchgangsstrassen | - principal roads | - routes principales |
| | | |
| Entwässerungen | - drainages | - assainissements |
| Erdwege | - unpaved roads | - chemins sans revêtement |
| | | |
| Feld | - field | - champs |
| Fläche | - area | - surface |
| Flurwege | - field-tracks | - chemins de dévestiture |
| | | |
| Gemeinde | - municipality | - municipalité |
| gemessener Vorrat | - measured stock | - réserve mesurée de bois |
| Gesamtmelioration | - total re-allotment | - amélioration integrale |
| Gesamtwert | - total value | - valeur totale |
| Grundeigentümer | - landowners | - agriculteurs |
| | | |
| Herbst | - autumn | - automne |
| höchster | - highest | - maximale |
| Hofsiedelungen | - farms | - fermes de colonisation |
| Holzschleifdistanz | - lumber hauling distance | - distance de traînage du bois |
| | | |
| Integralmelioration | - land consolidation | - amélioration integrale |
| | | |
| Jungwuchs | - young timber | - rajeunissement |

| | | |
|---|---|---|
| Klassenunterschiede | - differences between classes | - différences de valeur entre classes |
| Kulturland | - cultivated area | - surface cultivée |
| Landausscheidung | - reserved strip | - terrain réservé |
| Länge | - length | - longueur |
| Landw. Schule | - agricultural school | - école agriculture |
| Meliorations- und Vermessungsamt | - land consolidation and geodetic service | - service des améliorations foncières et des mensurations |
| Mittlerer Wert | - medium value | - valeur moyenne |
| Neuer Bestand | - new situation | - nouvel état |
| niedrigster | - lowest | - minimale |
| Oberforstamt des Kantons | - cantonal head forest-office | - inspection cantonale des forêts |
| Obstbäume | - fruit trees | - arbres fruitiers |
| öffentlich | - public | - public |
| Ortsverbindungsstrassen | - local roads | - routes locales |
| Parzellenzahl | - number of plots | - nombre de parcelles |
| Privat | - private | - privé |
| Rahmen | - scope | - cadre |
| Riedland | - reed-land, marsh | - marais |
| Rodung | - cutting down | - défrichement |
| Strassen | - streets, roads | - routes |
| Unproduktives Land | - unproductive area | - terrain non productif |
| unvermarkt | - not marked | - non aborné |
| Vermarkt | - marked | - aborné |
| verwendeten | - used | - usité |
| Vorrat | - stock | - réserve |
| Waldbestand | - forest | - forêt |
| Waldwege | - forest roads | - chemins forestiers |
| Wegnetz | - road-system | - réseau de chemins |
| weiterer | - other | - autres |
| Wertklassen | - value classes | - classes d'estimation |
| Winter | - winter | - hiver |
| Wirtschaftsparzellen | - plots | - parcelles d'exploitation |
| Zusammenlegung | - re-allotment | - remembrement |

„REMEMBREMENT RECOLOGNE (DOUBS)“

| <i>Français</i> | <i>English</i> | <i>Deutsch</i> |
|----------------------------|--|--|
| Ancienne | - old | - alter |
| après | - after | - nach |
| avant | - before | - vor |
| Chemins | - roads | - Wege |
| Commune | - municipality | - Gemeinde |
| contenance | - area | - Oberfläche |
| Échelle | - scale | - Maszstab |
| enclave | - enclave (parcel which can only be reached by passing the land of other owners) | - Enklave (Parzelle welche nur über das Land anderer Eigentümern erreicht werden kann) |
| Ilôt | - group of contiguous parcels belonging to the same landowner | - Gruppe von zusammen-geschlossenen Parzellen desselben Eigentümers |
| interessées | - interested persons | - beteiligten |
| Loi | - law | - Gesetz |
| longueur | - length | - Länge |
| Ministère de L'Agriculture | - Department of Agriculture | - Ministerium für Landwirtschaft |
| monoparcellaires | - with one plot | - mit einer Parzelle |
| Nombre | - number | - Anzahl |
| nouvelle | - new | - neuer |
| Par | - per | - pro |
| parcelle | - plot, parcel | - Parzelle |
| propriétaires | - landowners | - Grundeigentümer |
| Remembrement | - re-allocation | - Zusammenlegung |
| remembré | - re-allocated | - zusammengelegt |
| résultat d'ensemble | - total results | - totale Ereignisse |
| Situation ancienne | - old situation | - alter Bestand |
| situation nouvelle | - new situation | - neuer Bestand |
| surface moyenne | - medium area | - mittlere Oberfläche |

SITUATION ANCIENNE

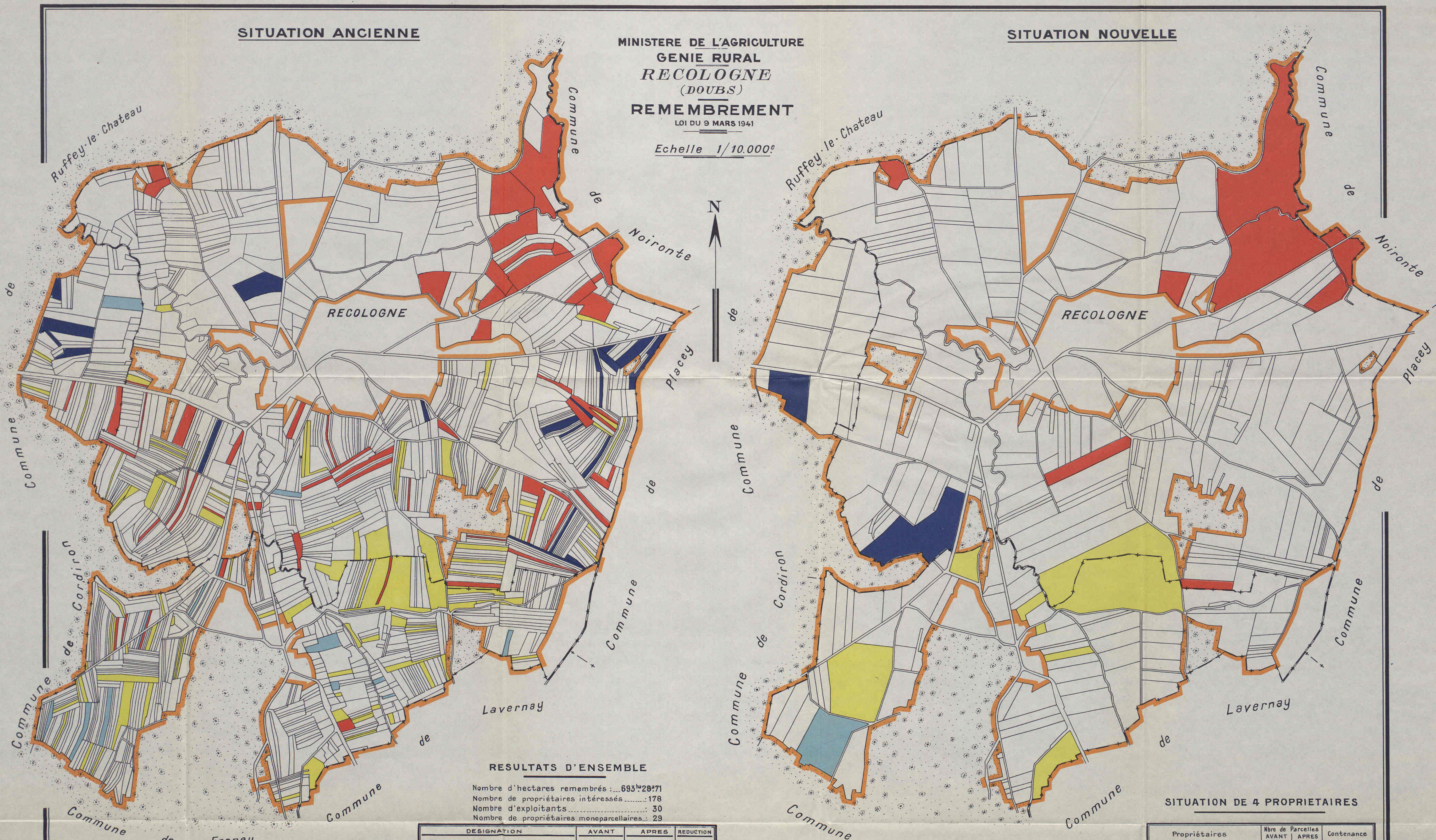
MINISTRE DE L'AGRICULTURE
GENIE RURAL
RECOLOGNE
(DOUBS)

REMEMBREMENT

LOI DU 9 MARS 1941

Echelle 1/10.000^e

SITUATION NOUVELLE



RESULTATS D'ENSEMBLE

Nombre d'hectares remembrés : 693^{ha} 28^a 71
 Nombre de propriétaires intéressés : 178
 Nombre d'exploitants : 30
 Nombre de propriétaires monoparcéllaires : 29

| DESIGNATION | AVANT | APRES | REDUCTION |
|--------------------------------------|---------------------|------------------------------------|-----------|
| Nombre de parcelles | 2.242 | 331 | 85,20% |
| Nombre d'ilôts | 1.840 | 219 | 88,09% |
| Nombre d'enclaves | 358 | 0 | 100% |
| Surface moyenne d'un îlot | 37 ^{ha} 70 | 3 ^{ha} 16 ^a 60 | |
| Longueur des chemins | 6 ^{km} 280 | 12 ^{km} 500 | |
| Nombre de parcelles par propriétaire | 21,6 | 2,23 | |

SITUATION DE 4 PROPRIETAIRES

| Propriétaires | Nbre de Parcelles AVANT | APRES | Contenance |
|---------------|-------------------------|-------|-------------------------------------|
| P..... | 14 | 1 | 5 ^{ha} 96 ^a 00 |
| B..... | 97 | 7 | 37 ^{ha} 51 ^a 00 |
| L..... | 59 | 7 | 49 ^{ha} 31 ^a 00 |
| J..... | 19 | 2 | 12 ^{ha} 31 ^a 60 |

INTEGRALMELIORATION AFFOLTERN a. Albis

Zusammenlegung

| | Alter Bestand | | | Neuer Bestand | | | Total | |
|--|---------------|----------|------------|---------------|----------|------------|-------------|-------|
| | Feld | | Wald | Feld | | Wald | | Total |
| | Privat | Öffentl. | | Privat | Öffentl. | | | |
| Kulturland (davon Riedland) | 813 | (90) | | 804 | (5) | | 1065 | |
| Wald | 88 | 178 | 266 | 92 | 169 | 261 | | |
| Unproduktives Land (Strassen, Wege, Bäche) | 33 | | 2 | 42 | | 7 | 49 | |
| Total | 846 | | 268 | 1114 | | 268 | 1114 | |

| | | | | | | | | | | |
|--|------|--------|--------|-----|-------|--------|--------|-----|-----|-----|
| Anzahl Grundeigentümer | 350 | 138 | 5 | 143 | 389 | 380 | 117 | 5 | 122 | 408 |
| Anzahl Wirtschaftspartellen | 1700 | 314 | 10 | 324 | 550 | 123 | 10 | 133 | | |
| Mittlere Fläche der Wirtschaftspartellen | 50 a | 28 a | 1780 a | | 154 a | 75 a | 1745 a | | | |
| Mittlere Parzellenzahl pro Grundeigentümer | 4,9 | 2,3 | 2 | | 1,4 | 1,1 | 2 | | | |
| Mittlere Waldfläche pro Grundeigentümer | 64 a | 3560 a | | | 79 a | 3380 a | | | | |

Bewertung des Waldbestandes (Herbst-Winter 1954)

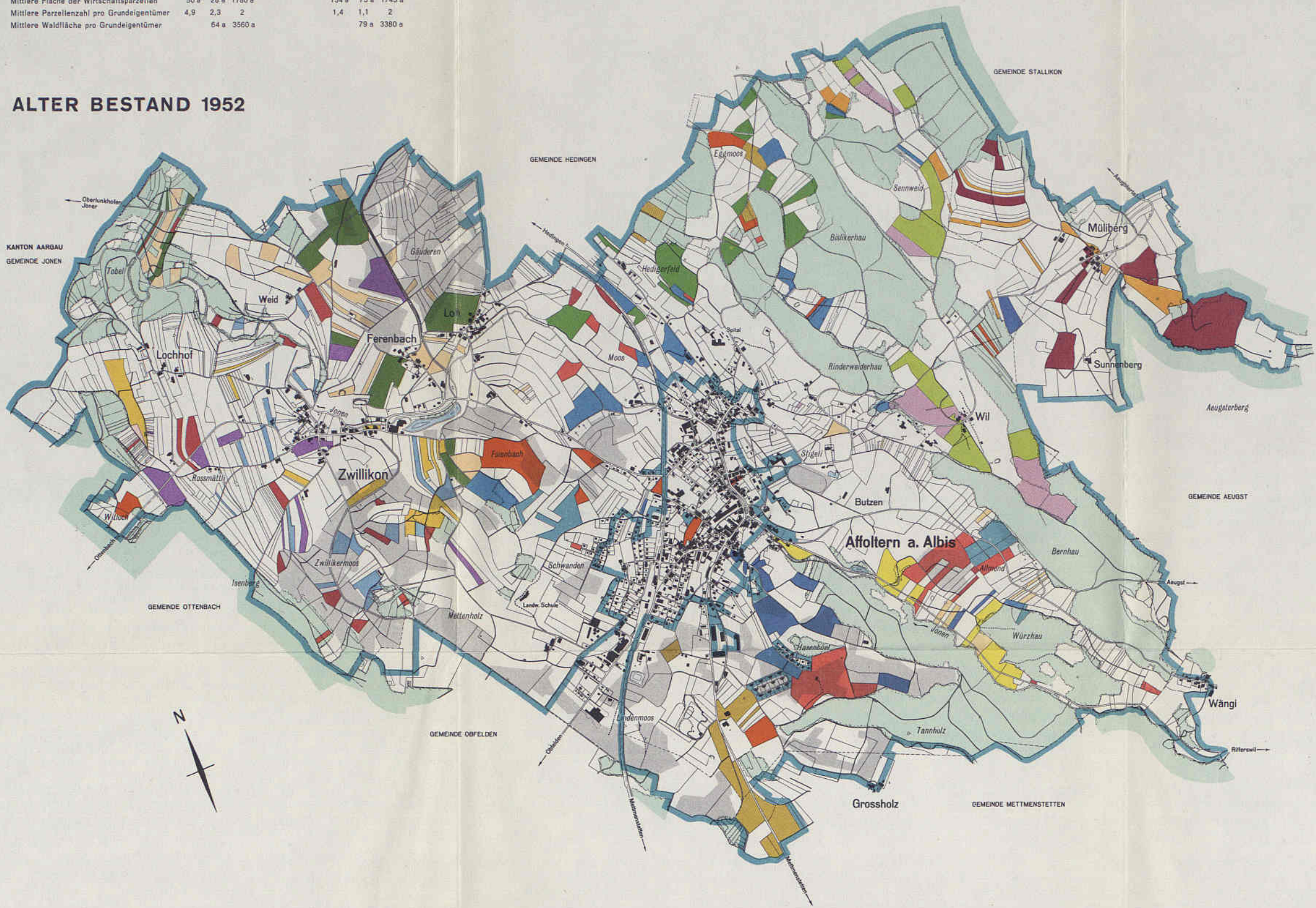
| | |
|--|---|
| Bewertete Bestandesfläche | 93,2 ha |
| Bestandeswert (inkl. Jungwuchs) | Total Fr. 1.047.720,- / pro ha Fr. 11.230,- |
| Gemessener Vorrat | Total 29.705 m ³ / pro ha 318 m ³ |
| Mittlerer Wert pro m ³ Vorrat | Fr. 34,20 |

Bonitierung

| Boden: | Gesamter Bonitierungswert | Feld | Wald | Total |
|------------------------------------|---------------------------|-----------------|---------------|-----------------|
| Anzahl der verwendeten Wertklassen | 41 | Fr. 3.449.495,- | Fr. 140.060,- | Fr. 3.589.555,- |
| Klassenunterschiede | 2 Rp./m ² | | | |
| Höchster Bonitierungswert | 80 Rp./m ² | | | |
| Niedrigster Bonitierungswert | 0 Rp./m ² | | | |
| Mittlerer Bonitierungswert | 41 Rp./m ² | | | |

| | | | |
|-------------------------|------------------------|--------|---------------|
| Kulturen: | Abgetauschte Obstbäume | Anzahl | 3305 |
| Gesamtwert | | | Fr. 125.350,- |
| Mittlerer Wert pro Baum | | | Fr. 38,- |

ALTER BESTAND 1952



Hofsiedlungen

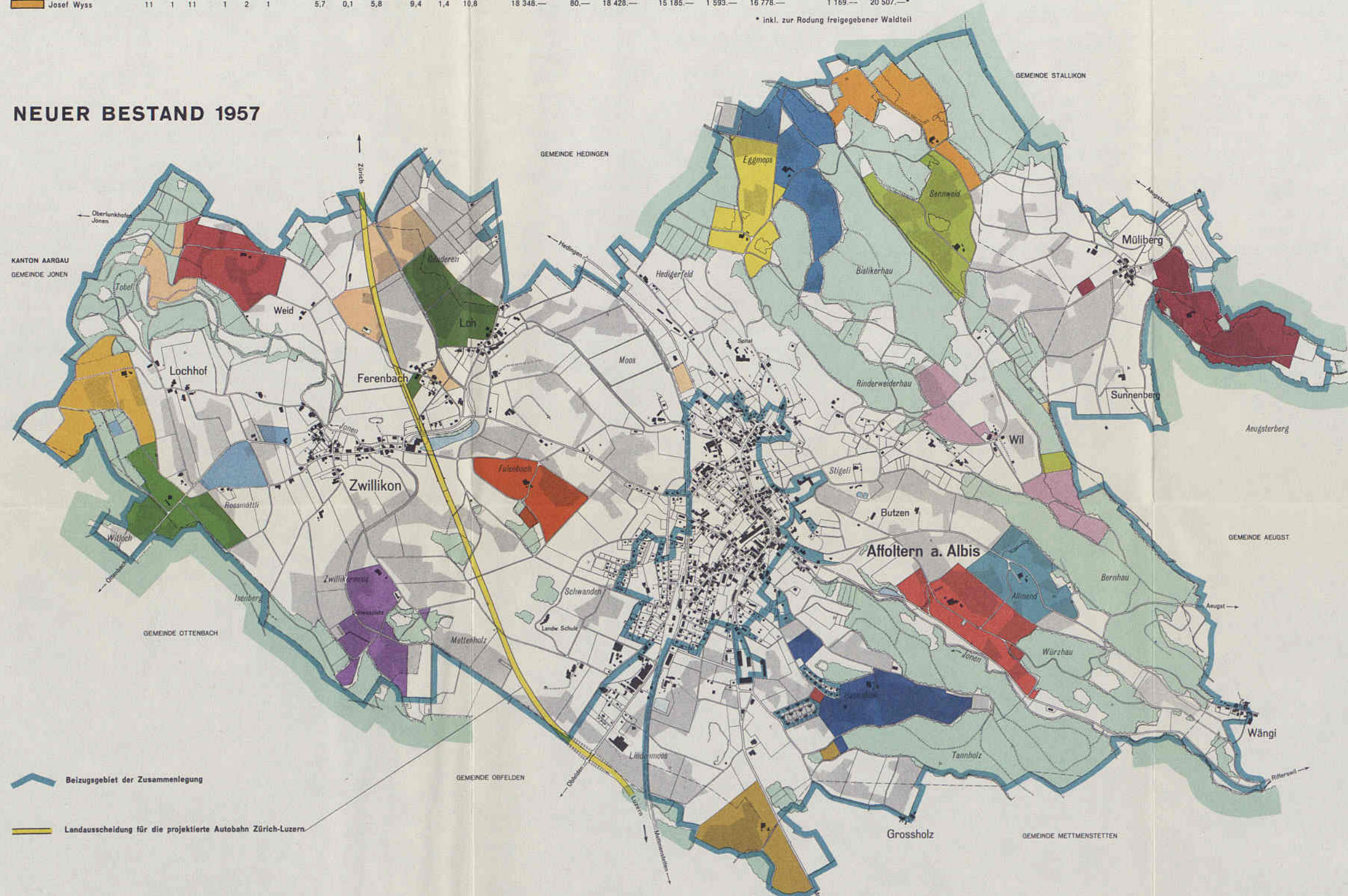
| Name | Alter Bestand | | | Neuer Bestand | | |
|---------------------|---------------|------|-------|---------------|------|-------|
| | Feld | Wald | Total | Feld | Wald | Total |
| Fritz Dubach | 5 | 2 | 5 | 1 | 2 | 1 |
| Walter Dunkel | 7 | 2 | 8 | 1 | 1 | 2 |
| Oskar Frei | 10 | | 10 | 1 | 1 | 2 |
| Walter Kleinert | 4 | 3 | 7 | 1 | 3 | 2 |
| Walter Lieschi | 5 | 2 | 5 | 1 | 2 | 1 |
| Rudolf Roth | 13 | 3 | 13 | 1 | 2 | 1 |
| W. Studer-Maurer | 11 | 1 | 11 | 1 | 1 | 1 |
| Fritz Suter | 9 | 5 | 12 | 1 | 1 | 1 |
| Emil Suter Erben | 15 | 2 | 16 | 2 | 1 | 2 |
| Max Tschudi | 8 | 2 | 10 | 1 | 1 | 1 |
| Albert Vollenweider | 9 | 4 | 12 | 1 | 2 | 1 |
| Walter Vollenweider | 18 | 5 | 20 | 1 | 2 | 1 |
| Ernst Winkler | 7 | 2 | 7 | 1 | 2 | 1 |
| Josef Wyss | 11 | 1 | 11 | 1 | 2 | 1 |

| Name | Alter Bestand | | | Neuer Bestand | | | Bonitierungswert | | | Wert des Waldbestandes | | |
|---------------------|---------------|------|-------|---------------|------|-------|------------------|-----|------|------------------------|-----|------|
| | Feld | Wald | Total | Feld | Wald | Total | Fr. | Fr. | Fr. | Alt | Neu | Fr. |
| Fritz Dubach | 17 | 0,22 | 409 | 17 | 0,41 | 17 | 431 | 19 | 489 | 212 | 19 | 701 |
| Walter Dunkel | 46 | 0,94 | 846 | 47 | 0,88 | 47 | 858 | 38 | 785 | 700 | 39 | 485 |
| Oskar Frei | 37 | 0,74 | 747 | 38 | 0,82 | 38 | 832 | 35 | 830 | 139 | 35 | 169 |
| Walter Kleinert | 33 | 0,66 | 663 | 34 | 0,74 | 34 | 712 | 32 | 710 | 364 | 35 | 748 |
| Walter Lieschi | 14 | 0,28 | 564 | 14 | 0,32 | 14 | 564 | 24 | 513 | 1681 | 26 | 194 |
| Rudolf Roth | 30 | 0,60 | 1206 | 31 | 0,62 | 31 | 1242 | 31 | 941 | 530 | 32 | 471 |
| W. Studer-Maurer | 25 | 0,50 | 1005 | 26 | 0,52 | 26 | 1042 | 26 | 699 | 2098 | 28 | 797 |
| Fritz Suter | 35 | 0,70 | 1410 | 36 | 0,72 | 36 | 1440 | 26 | 660 | 4363 | 31 | 1023 |
| Emil Suter Erben | 37 | 0,74 | 1482 | 38 | 0,76 | 38 | 1504 | 43 | 1725 | 371 | 43 | 1626 |
| Max Tschudi | 36 | 0,72 | 1440 | 37 | 0,74 | 37 | 1482 | 36 | 1440 | 781 | 37 | 1482 |
| Albert Vollenweider | 38 | 0,76 | 1512 | 39 | 0,78 | 39 | 1548 | 36 | 1440 | 481 | 36 | 1440 |
| Walter Vollenweider | 35 | 0,70 | 1410 | 37 | 0,74 | 37 | 1482 | 30 | 1206 | 2012 | 32 | 1248 |
| Ernst Winkler | 33 | 0,66 | 34 | 0,68 | 34 | 1362 | 24 | 960 | 953 | 25 | 978 | |
| Josef Wyss | 18 | 0,36 | 720 | 19 | 0,38 | 19 | 762 | 15 | 600 | 1593 | 16 | 624 |

Besitzstand weiterer Grundeigentümer

| Name | Alter Bestand | | | Neuer Bestand | | |
|------------------------------------|---------------|------|-------|---------------|------|-------|
| | Feld | Wald | Total | Feld | Wald | Total |
| Hans Eigenmann | 17 | 3 | 17 | 2 | 1 | 3 |
| Hch. Kleiner-Flückiger | 5 | 3 | 5 | 2 | 1 | 2 |
| Albert Schneebeli Erben | 27 | 4 | 30 | 4 | 3 | 7 |
| Walter Sidler u. Hans Sidler Erben | 6 | 4 | 10 | 2 | | 2 |

NEUER BESTAND 1957



1:20000

0,5 km 0 0,5 km 1 km 1,5 km 2 km

Entwässerungen

| | |
|--|--------|
| Im alten Bestand: Ausgeführt bis 1952 | 109 ha |
| Im Rahmen der Gesamtmelioration 1952-1957 ausgeführt | 82 ha |
| Im neuen Bestand: Total bis 1957 ausgeführt | 191 ha |

Wegnetz

| Wegart | Alter Bestand | | Neuer Bestand | |
|---|----------------|----------------|-----------------|----------------|
| | Länge | Dichte | Länge | Dichte |
| Durchgangs- und Ortsverbindungsstrassen | 19 km | 16,5 m/ha | 19 km | 16,5 m/ha |
| Flurwege (vermarktet und unvermarktet) | 41 km | 48,2 m/ha | 62 km | 73,6 m/ha |
| Waldwege: Erdwege | 11,7 km | | 0,4 km | |
| Autofahrbare Waldwege | 6,9 km | | 77 m/ha | |
| Durchgangs- und Ortsverbindungsstrassen | 1,9 km | | 1,9 km | |
| Total | 80,5 km | 70 m/ha | 101,8 km | 89 m/ha |

Mittlere Holzschleifdistanz an autofahrbare Waldwege: 150 m 66 m