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**Redistribution of  
Farm Land in  
Seven Countries**

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## SOME ECONOMIC ASPECTS OF FINNISH LAND SETTLEMENT POLICY

THE surrender of Finnish territory as a consequence of defeat in the Second World War was the principal reason for the extensive land settlement policy adopted by the Finnish Government and implemented especially through the Land Acquisition Act of 1945. Descriptions of this policy and its execution are available in English (Refs. 1-7) and it is not intended to deal with this legislation or with the organization or rate of progress of the settlement activities. Rather it is to try and make a preliminary appraisal of the financial and economic effects of the policy up to the present time. A final appraisal must wait until this extensive programme has been executed in full and comprehensive studies of the various effects become available.

To understand the dimensions of the post-war settlement programme it should be recalled that the number of rural families who were obliged to leave their homes in Karelia and other ceded areas was about 40,000. According to statistics they had tilled over 37,000 farms, consisting of about 300,000 ha. of arable and 1,250,000 ha. of forest land, comprising 11 and 5 per cent. respectively of the corresponding total areas in pre-war Finland. The nation undertook as a moral obligation to provide a means of livelihood for these citizens, and the procurement of new farm-holdings for them was regarded as the most practical measure.

But this was not enough. In the demoralizing circumstances following military defeat, claims were made for the distribution of land also to certain categories of citizens other than displaced farmers. During the war there had been discussion of special settlement measures for the benefit of disabled soldiers, war widows and orphans as well as front-line soldiers. This stimulated claims and by the time the Land Acquisition Act was enacted had led to a considerable extension of the list of land recipients beyond displaced farmers. Not only nearly 50,000 farmers but also 107,000 persons belonging to other groups applied for land, in most cases, however, for dwelling-sites only. There were also smaller groups of farm labourers and tenants—totalling 7,800—who were under threat of losing their jobs

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when land was taken from existing farms. A still larger group comprised smallholders who had been promised additional land to increase the size of their holdings. Applications from this group reached the figure of 51,000 during the first application period in 1945 and increased later to about 60,000. The number of approved applications in all groups is much lower (Table 1).

TABLE 1. *Number of applicants for land, approved applications and land units acquired for applicants up to the end of 1953 (thousands)*<sup>1</sup>

	Applica- tions	Of these approved	Land units bought by or contracted to applicant				
			Agricul- tural holdings	Part-time holdings		Dwelling sites, &c.	Total
				larger	smaller		
Displaced persons	49.7	46.2	19.8	7.7	4.9	4.8	37.2
Disabled ex-service- men, war-widows and orphans	14.9	11.9	1.2	1.3	2.3	3.5	8.3
Ex-servicemen with families	92.5	61.8	6.6	5.0	11.4	21.1	44.1
Former leaseholders and agricultural workers	7.8	4.0	0.8	1.1	1.7	0.9	4.5
Recipients of addi- tional land	59.8	26.1	..	..	..	26.8	26.8
	224.7	150.0	28.4	15.1	20.3	57.1	120.9

<sup>1</sup> About 11,000 applicants have relinquished their right to obtain land and 5,000 have refused to accept holdings offered to them.

The large number of applications, however, was scarcely an indication of genuine land hunger. The peace-time settlement policy had been rather effective and expanding industrial activities had absorbed the excess population from rural areas. Probably more significant factors were the experiences of war time, such as food shortages and the fear of currency depreciation, of which the older generation had memories dating back to the First World War. There was no commitment in making an application, so most persons who assumed they would benefit by applying did not neglect to do so.

The extension of the settlement policy beyond the group of displaced persons created much criticism during the parliamentary debate preceding the Act, and this criticism has continued. It was generally considered too great a strain for the highly burdened national economy, especially as heavy war reparations had to be paid at the

same time. In favour of the extension is the view that the thorough reorganization of land-tenure conditions which was involved provided the opportunity to satisfy the needs of these other groups.

In view of the large number of applicants, changes in land ownership by voluntary transfers only were excluded. The land settlement legislation was thus mainly based on expropriation. This, of course, presupposed detailed projects of expropriation and of placement of applicants. This phase of planning was no doubt the most important from the economic aspect of policy.

It may be mentioned that the wording of the Land Acquisition Act permitted the reduction of privately owned land units down to the maximum size of settlement holdings. By a resolution of the Council of State, progressively increasing maximum percentages of land to be surrendered were fixed for secondary surrenderers, i.e. professional farmers having more than 15 ha. of cultivated land. There was no such scale for forest land.

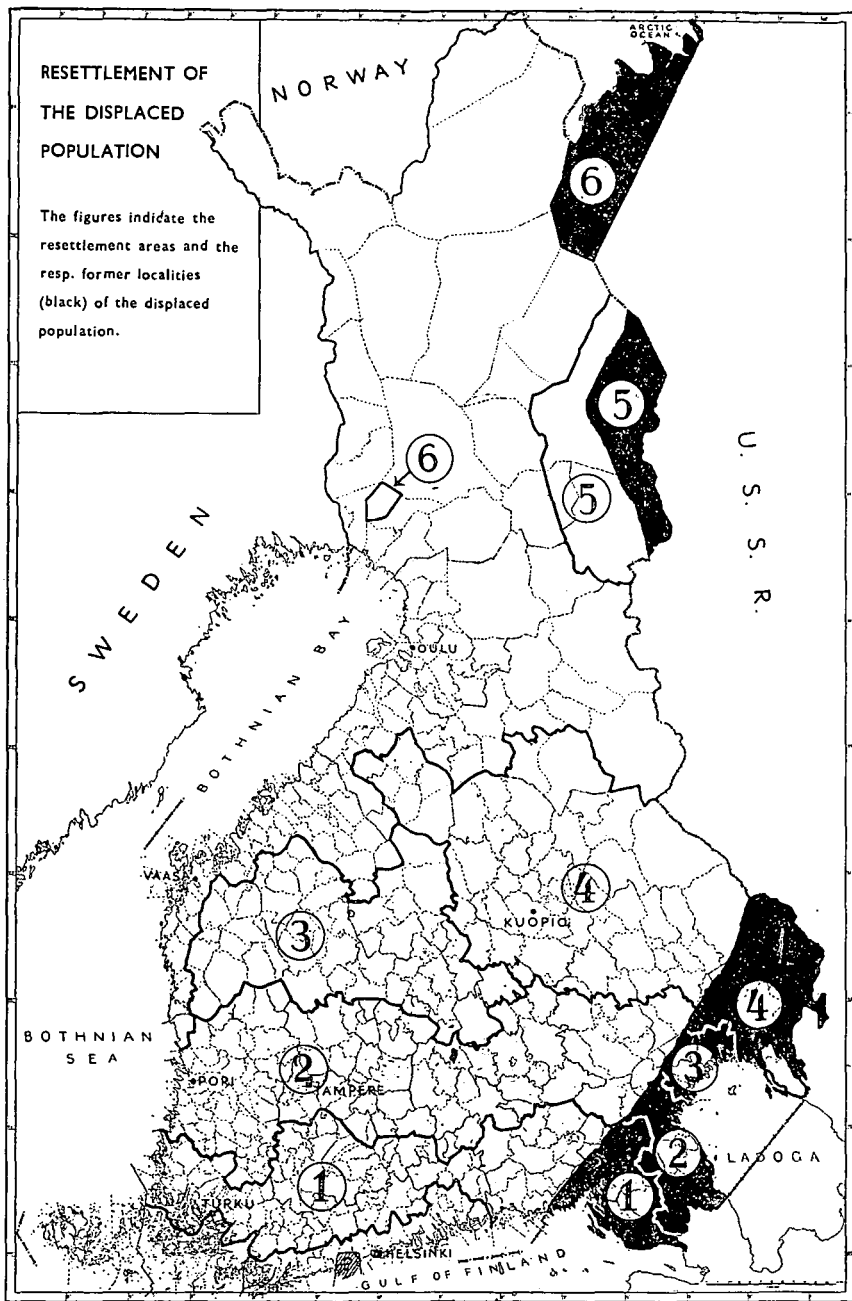
Certain very important decisions were inevitable before the scales of surrender could be fixed. First, the geographical location of settlement, which was associated with the problem of using for settlement purposes either more or less state and corporate land, with predominant forest resources, or private land with old cultivated field areas. Secondly, the size of other new holdings, which determined the requirements of land and the economic use of the new farms.

Finland has large unused or only partially used land resources but these are located mostly in northern and eastern regions which are regarded as climatically unfavourable. The representatives of the displaced population were unwilling to accept these locations. Only a small fraction of the applicants, chiefly from the same latitude, were thus settled in north Finland. The Swedish-speaking coastal areas were to a certain degree exempted from Finnish-speaking settlement according to a special provision in the Land Acquisition Act. The location of Karelian displaced farmers was thus concentrated mainly in non-coastal areas of the southern half of the country. The rural families from each Karelian community were usually resettled in the same area which also had at least some similarities with the old (see map). The other applicants generally were entitled to receive land in their own communities.

Economically, the principles of location were significant, because the relative areas of cultivated and forest land vary widely in different regions. Not only does the northern half of the country differ from

# RESETTLEMENT OF THE DISPLACED POPULATION

The figures indicate the  
resettlement areas and the  
resp. former localities  
(black) of the displaced  
population.



the rest, but there are great differences between the south-western, central, Ostrobothnian, and eastern areas. As the placement was governed mainly by the areas of cultivated land available, the south-western area was rather heavily burdened with the consequence that the economic conditions of the existing large agricultural holdings were considerably impaired, while the new holdings frequently had only limited possibilities for land clearing and often insufficient forest areas. It cannot be denied that some of the old farms, especially their distant fields, will often be farmed more intensively when in the hands of new owners, thus giving higher yields. But it is doubtful if this has always outweighed the economic losses caused to the old large farms in the form of less effective use of capital and labour.

However, since a large number of holdings were established in regions with land-clearing possibilities, net increases in productivity are to be expected in these areas. Special subsidies have been paid to recipients of so-called 'cold farms', i.e. holdings without buildings and totally or almost without any cultivated land. These subsidies amounted at first to from 130,000 to 400,000 Finmarks (U.S. \$960-2,940), but have been increased from time to time with the depreciation of the Finnish currency.<sup>1</sup> In addition to this, the holders, as do all other farmers, receive state subsidies for clearing land. More than 12,000 'cold farms' have been established, and only 1,000 are still waiting for their cultivators. Up to the end of 1952, 49,000 ha. had been cleared on these farms. More than 9,000 of them are outside the south-western area. Table 2, which indicates by provinces the average land uses of the new holdings, gives an idea of the varying possibilities for land clearing.

The geographical location of settlement has to some extent influenced the actual burden of different categories of owner (Table 3). In principle, the Land Acquisition Act designated the state, local governments, religious bodies and industrial corporations as primary surrenderers, together with owners of neglected farms, amateur farmers and land speculators. Professional farmers with more than 15 ha. of cultivated land were regarded as secondary surrenderers. Since most of the state-owned land is in the north, the state evaded very heavy expropriations. Other corporate owners also, whose property consisted mainly of forests, could not contribute very much. Thus the owners of middle-sized or large farms, although called

<sup>1</sup> Official exchange rate was, 1945, \$1 = 136: £1 = 547. For 1952 unofficial rates \$1 = 300: £1 = 840 are used.

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secondary surrenderers, had rather heavy quotas. Owners of 100 ha. of agricultural land, for instance, lost 45 ha. and those having 200 ha. lost not less than 120 ha.

TABLE 2. *Average land uses of agricultural and larger type part-time holdings and additional areas established on expropriated land under the Land Acquisition Act up to 31 December 1950, by provinces (hectares)*

Province	Agricultural holdings				Larger part-time holdings				Additional areas			
	a	b	c	d	a	b	c	d	a	b	c	d
Uusimaa . . .	7.0	4.8	16.4	28.2	3.2	1.4	6.7	11.3	0.5	0.5	3.0	4.0
Turku-Pori . .	8.8	3.1	21.3	33.2	3.6	0.5	8.1	12.2	0.8	0.5	4.2	5.5
Häme . . .	7.4	4.9	20.6	32.9	3.1	1.4	8.3	12.8	0.4	0.7	3.9	5.0
Kymi . . .	5.2	7.4	25.8	38.4	2.9	2.2	10.8	15.9	0.6	0.7	6.4	7.7
Mikkeli . . .	5.3	7.7	34.7	47.7	2.0	3.3	16.2	21.5	0.5	0.9	8.2	9.6
Kuopio . . .	3.3	8.9	42.4	54.6	2.0	4.3	19.5	25.8	0.4	1.3	9.8	11.5
Vaasa . . .	4.5	8.7	47.3	60.5	2.5	2.8	17.5	22.8	0.7	0.9	10.9	12.5
Oulu-Lappi . .	4.7	16.7	91.1	112.5	2.6	6.0	36.1	44.7	0.9	1.5	14.9	17.3
Average . . .	6.3	8.1	42.1	56.5	2.8	2.8	16.0	21.6	0.5	0.7	5.5	6.7

a = agricultural land (tillable); b = cultivable, not cleared land (tillable when cleared); c = other (mainly forest); d = total area.

TABLE 3. *Land acquired through voluntary transfers or expropriation from various owner categories, 1940-53<sup>1</sup>*

Owner group	Agricultural land (thousand ha.)			Total land (thousand ha.)		
	Before transfer <sup>2</sup>	Transferred or expropriated area	Per cent.	Before transfer <sup>2</sup>	Transferred or expropriated area	Per cent.
State . . .	60.5	20.3	33.3	10,670.6	706.4	6.6
Local governments	43.6	15.6	35.7	455.3	110.4	24.2
Church . . .	33.1	18.3	55.3	265.4	102.8	38.7
Corporations . .	67.7	38.9	57.5	2,334.2	425.5	18.2
Private persons .	2,519.8	199.0	7.9	16,692.7	808.3	4.8
Total . . .	2,724.7	292.1	10.7	30,418.2	2,153.4	7.1

<sup>1</sup> Including areas taken according to the Rapid Settlement Act of 1940.

<sup>2</sup> In the present area of Finland. The figures from the 1941 census have been adjusted to include transfers made before the census.

Table 4 shows approximately how the average farm size in the group of secondary surrenderers was affected by land surrender in the different provinces. The pre-war averages are, it is true, from 1929, after which some peace-time changes possibly occurred. The main changes, however, are due to expropriations.



The Land Acquisition Act defined eight types of holdings to be established for various purposes. The most important was the agricultural holding proper, intended to comprise, when fully developed, up to 15 ha. of arable land and forest land to an extent which will guarantee a maximum annual yield of 75-125 cubic metres of timber. In addition to this, part-time holdings were designed for regions

TABLE 4. *Number of farms of over 15 ha. of arable land, by provinces, and average areas of arable and forest land on farms 1929 and 1950*

Province	Number of farms (thousands)		Average area of arable land (hectares)		Per cent. change	Average area of forest land (hectares)		Per cent. change
	1929	1950	1929	1950		1929	1950	
Uusimaa <sup>1</sup>	5.3	4.6	37.6	29.7	-21	97.4	70.7	-27
Turku-Pori	8.4	8.4	34.5	27.2	-21	83.3	63.4	-24
Ahvenanmaa	0.1	0.1	21.6	20.3	-6	58.6	75.3	(+28)
Häme	5.3	5.4	33.6	27.0	-20	120.1	94.6	-21
Viipuri-Kymi <sup>1</sup>	(3.6)	2.3	(23.7)	23.0	..	(95.3)	73.9	..
Mikkeli	1.3	1.1	26.8	22.8	-15	241.0	190.6	-21
Kuopio	2.5	2.5	25.3	22.6	-12	188.7	140.7	-25
Vaasa	9.6	7.8	24.0	21.7	-10	75.0	65.7	-12
Oulu-Lappi <sup>1</sup>	2.7	2.9	25.8	23.7	-9	125.6	109.5	-13
Total	38.8	35.1	30.3	25.4	-16	104.9	84.6	-19

<sup>1</sup> Figures for year 1929 include the farms in the ceded area.

suitable for intensive culture or offering possibilities for subsidiary earnings, one type comprising not more than 6 ha. of cultivated or cultivable land and forest land and another with a maximum farming area of 2 ha. Fishery holdings, corresponding to both of the above types with regard to agricultural area and with forest for their own needs, were to be established in regions with fishing resources. Dwelling sites were intended only for housing and had a maximum total area of 0.2 ha. Other types were supplementary, including common pastures, common forests, which were of minor importance, and additional areas for old small farms. In addition to these there was a larger type intended for collective use by families who had been used to living together.

The prescribed sizes corresponded to the peace-time standards of settlement and were based on the idea that a self-sufficient holding must be able to offer employment for a medium-sized family and permit the economical use of two draft horses. The forest was not only to

furnish the firewood and timber needed on the farm but, in order to avoid uneconomical use of high quality timber, also to provide appropriate quantities of the better types of timber for sale. The executors of the Act were instructed that the size of the applicant's former holding was to some extent to be taken into consideration. The displaced farmers, however, could not obtain holdings with larger than a fixed maximum area; on the other hand, holdings smaller than those considered economical were not to be assigned to anyone whatever may have been the size of his possessions in the ceded area.

It has been pointed out that the farm types chosen may appear too small under modern conditions, but land resources in the south of Finland are limited and an increase in the size of farms would have been possible only by heavily curtailing the number of land recipients. Extensive land clearance must be done before the new holdings will have even their intended productive areas, and parts of them probably will remain uncultivated, especially if state aid for land clearance is reduced and income from agriculture remains low.

Through the distribution of additional land, a number of excessively small holdings have attained a more economical size. According to a sample survey, the original size of the holdings which have benefited from this distribution averaged 12.3 ha., of which 3.91 ha. was arable, 0.39 ha. natural meadow, 0.82 ha. other cultivable land, and 7.17 ha. forest. These have increased respectively by 0.26, 0.17, 0.77 and 7.33 ha. Thus, as a by-product of the Land Acquisition Act, some of the holdings which were too small have had their cultivable and forest areas nearly doubled. Unfortunately the possibilities for such improvement have varied very greatly in different places, thus causing dissatisfaction among some of the applicants.

Owing to the provisions of the Act, the new farms in most cases have more favourable layouts than the old ones had. A new holding should not be composed of more than three parcels. Expropriation of cultivated land should apply to the most distant fields. Thus it is estimated for the country as a whole that the settlement activities have caused a shortening of about 0.1 to 0.2 kilometres in the average distance to fields.

An idea of the amount of public and private investment in settlement activities is gradually taking shape and it is evident that the programme as a whole is a heavy burden on Finland's national economy.<sup>1</sup> The taxpayer's share alone will probably not be much lower than the

<sup>1</sup> An earlier attempt at estimation is published in Ref. 8.

total sum of Finland's war reparations (nominally \$226.5 million, but actually \$590 million at present rates), which were generally considered extremely high.

One must keep in mind, however, that investment in this project is not mainly of an economic but of a social character. The displaced persons had to obtain new homes, and investments in buildings for

TABLE 5. *Building requirements of the Land Acquisition Act, and buildings completed up to 31 December 1953*

Group of applicants	Total requirement	Available old buildings	New buildings built	Total space (millions of cu. m.) <sup>1</sup>	Average costs per building, <sup>2</sup>		Total costs		Estimated total cost of entire programme at 1953 values
					nominal value	at 1953 value	nominal value	at 1953 value	
					thousand Fmk.		thousand million Fmk.		
<i>Displaced farmers:</i>	no.	no.	no.						thousand million Fmk.
Dwelling-houses	36,000	5,000	27,200	8.66	904.4	1,153.9	24.6	31.4	35.8
Barns	30,000	3,500	20,900	10.55	1,114.3	1,452.3	23.3	30.3	38.4
Other buildings	45,000	12,000	31,100	4.67	117.2	196.1	3.6	6.1	6.1
							51.5	67.8	80.3
<i>Other applicants:</i>									
Dwelling-houses	60,000	3,000	31,900	10.32	934.6	1,147.1	29.8	36.6	65.8
Barns	20,000	1,000	9,800	4.96	1,169.1	1,452.3	11.5	14.3	27.6
Other buildings	30,000	3,000	14,600	2.19	124.8	196.0	1.8	2.9	5.3
							43.1	53.8	98.7
<i>Total costs</i>	..	..	..	..	..	..	94.6	121.6	179.0

<sup>1</sup> Assuming the same average building size for both groups (a simplification not fully tenable).

<sup>2</sup> Assuming the same average costs for both groups.

dwelling purposes were inevitable. Few even of their chattels were saved by evacuation. The loss of cultivated area had to be compensated for by land clearance if the displaced population were to continue to earn a living by farming.

Table 5 shows that the building costs, when the programme is completed, will at present values reach a sum of 179 thousand million Fmk., corresponding to not less than \$597 million, of which at least 20 per cent., i.e. \$120 million, is purely for providing the necessary dwellings for displaced farmers. Only about 10 per cent. of the need could be met with existing buildings. About 90 per cent. of the total building programme for displaced farmers was completed by the end of 1953, the corresponding figure for other land recipients being only

59 per cent. State loans to a nominal sum of 30.8 thousand million Fmk. have been granted for building expenses.

Construction has been under the supervision of expert members of local land settlement committees in connexion with agricultural societies. Standardized models have generally been used, and technically the new buildings are on a very satisfactory level. Maybe they often lack individual adjustment to the natural and economic resources, a feature not unknown in other construction activity. The economic advantage of investment in buildings under the settlement programme is even more dependent on their location—on how they serve production purposes. This will no doubt be one of the more interesting subjects for further investigation.

Investments in land clearance are of a mainly productive character. The cost of land clearance varies greatly according to soil, drainage requirements and existing vegetation (Ref. 4, p. 237). Nearly 30 per cent. of the land clearances connected with the settlement activity (74,000 ha.) have been performed by the state, whose costs have been on an average 70,000 Fmk. (\$230) per ha. Private clearance work has been subsidized by the state to an average of 33,000 Fmk. (\$110) per ha. (1952). In fact, the investments and state subsidies for land clearance are for the present minor items in the total sums used for land settlement.

The land settlement policy has stimulated land clearance also on old farms, especially on those which were obliged to surrender cultivated land. State subsidies have been granted to them on equal terms. In total, about 207,000 ha. of land had been cleared up to the end of 1953, and the total nominal sum of state subsidies for land clearance was nearly 6 thousand million Fmk.

The economic significance of land clearance depends naturally on the costs, also on the yields obtained from the newly cleared fields and the possible losses in timber production. The highest net increases in productivity are to be expected on peat lands, most of which previously were unproductive, and the lowest increase on good forest lands with rapidly growing timber stands. There are no statistics of the yields of newly cleared land nor of the proportions of various types and ages of cleared forests. Reliable estimation is thus very difficult.

Large investments in roads and drainage have also been inevitable. These are almost exclusively financed by the state and the practical execution of the projects has been in the hands of state officials. Not only the holders of new farms but others benefit from these invest-

ments. Thus the planned roads, altogether 12,000 kilometres in length, will serve 7,300 old farms besides 40,700 new ones. The drainage work, comprising when completed 13,200 kilometres of main drains with a drainage area of 279,000 ha., will benefit 23,200 old farms as well as 20,800 new settlers. About 90 per cent. of the roadmaking and 80 per cent. of the drainage had been carried out by the end of 1953. All these operations will have a favourable effect not only on agriculture but also on forest production.

TABLE 6. *Total bill for investments in land settlement activities up to 31 December 1953 (thousand million Fmk.)*

	<i>Estimated total at 1953 value</i>	<i>State subsidies</i>		<i>State loans</i>	
		<i>nominal sum</i>	<i>at 1953 value</i>	<i>nominal sum</i>	<i>at 1953 value of the Fmk.</i>
Public roads and drainage works . . .	8.0	6.69	8.06	..	..
Buildings . . .	117.2	4.28 <sup>1</sup>	5.67 <sup>1</sup>	30.82	47.73
Land clearing . . .	5.8	2.22	2.84	0.13	0.20
Inventories: Livestock, imple- ments, &c. . .	12.6	..	..	2.83	4.57
	143.6	13.19	16.57	33.78 <sup>2</sup>	52.50

<sup>1</sup> Subsidies to 'cold farms' for construction and land-clearing work.

<sup>2</sup> Of this, sum repaid by the end of 1950 was 17.6 thousand million Fmk. (mainly with indemnity bonds).

The approximate total investment up to the end of 1953 is presented in Table 6. The total sum, 144 thousand million Fmk. (c. \$480 million) will be exceeded by perhaps 45 per cent. if the approved programme is fully carried out. This may depend on future economic and financial developments.

About one-third of the investment in buildings can be regarded as non-agricultural in character, so the agricultural investment can be estimated at 100 thousand million Fmk. (\$330 million), i.e. 313,200 Fmk. (\$1,040) per ha. of agricultural land. These figures do not include the price of the land, which will be dealt with later.

The gross yearly income from farming in Finland is estimated to have been 60 thousand million Fmk. in 1951, i.e. 24,400 Fmk. (\$81) per ha. of arable land. Even if this average income were obtained on settler farms, they would still have great difficulties in finding the sums due for interest and depreciation.

The prices which the new owners have to pay for the land and the

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timber naturally have a great bearing on the private economy of the new farms. Some figures on this point are presented in Table 7. They are averages based on a partial survey. It is interesting to note that displaced farmers have been able to acquire their holdings without any noteworthy incurrence of debt, thanks to the indemnities paid by the Finnish Government for property left in the ceded territory.

TABLE 7. *Average prices fixed by authorities on settler holdings of different categories (thousands of Fmk. per farm) and the part paid by the receiver in cash or indemnity bonds: (a) displaced farmers; (b) other land receivers*

	Size of holding		Price of land and timber stand	State loans given before price fixing	Sum payable <sup>1</sup>	Paid		Of total sum in per cent.
	arable	total				in cash	in bonds	
Agricultural holdings	<i>a</i>	<i>ha.</i>	<i>ha.</i>					
	7.7	39.4	463.3	737.6	1,150.8	47.4	922.1	84.2
Larger part-time holdings	<i>b</i>	7.6	57.9	530.8	269.1	738.8	59.2	8.0
	<i>a</i>	3.3	17.8	202.9	550.7	716.2	24.3	76.3
Smaller part-time holdings	<i>b</i>	3.0	21.5	192.8	253.7	390.9	39.4	10.1
	<i>a</i>	0.8	1.3	51.5	363.6	404.1	6.2	285.6
Dwelling sites	<i>b</i>	0.7	1.3	43.7	154.9	182.0	9.6	5.2
	<i>a</i>	0.1	0.2	31.4	375.9	400.1	4.3	264.8
Fishermen's holdings	<i>b</i>	0.1	0.2	32.7	186.7	204.1	9.6	4.7
	<i>a</i>	2.7	12.4	185.1	374.6	538.8	33.9	349.9
Additional areas	<i>b</i>	2.1	11.5	130.6	161.7	257.8	12.9	5.0
	<i>a</i>	0.6	12.4	146.6	4.5	148.1	22.5	109.1
	<i>b</i>	0.5	9.1	76.6	1.9	74.4	32.2	43.3

<sup>1</sup> Balance after certain social deductions (depending on number of children, degree of invalidity, &c.)

Other land recipients, however, have been able to pay only a small part of the price.

A considerable part of the investment in the farms is public, i.e. financed by subsidies. The state loans, on the other hand, are subject to a reduced rate of interest (only 3 per cent. as compared with 7-8 per cent. on commercial loans), the difference being paid from the state budget. The main part of the loans granted to displaced farmers is repaid by them with indemnity bonds, in connexion with the formal sale, as will be described later. This procedure means that these loans are in fact repaid from the government budget.

There has been much discussion about the probable effects of the land settlement project on agricultural production and on costs—effects which are not yet clearly discernible.<sup>1</sup> The new farms have

<sup>1</sup> A study of the effects of the Finnish 'land reform' on agricultural production has recently been published in Bonn by Peter Dunkel (Ref. 9).

hardly developed their potential capacities and the old farms have not become fully accommodated to the new conditions. State subsidies, which have been increased a number of times, have created an artificial basis for the relative prosperity of smallholdings. Farm wages have been on levels which are abnormally high when compared with the levels of prices and other incomes. Available studies show that both intensity of farming and costs per unit are important factors to be considered.

According to statistics the medium-sized and large farms seem to have higher yields per ha. than small ones have. This is not necessarily an indication of better cultivation, because these farms generally are situated on better land and have retained their best home fields, which frequently are tile-drained and have for years been given larger amounts of manure. Thus, comparisons of yields per ha. between surrenderer and settler farms do not properly indicate the effects of the settlement policy.

The post-war agricultural policy has granted rather large subsidies to promote the use of fertilizers and lime. These subsidies are intended partly to bring about a general reduction of fertilizer prices and partly for free distribution of fertilizers and lime to smallholders. In fact the use of fertilizers has been doubled since pre-war and the proportional increases are highest on the smaller farms. This policy has probably contributed much more than any other factor to increased production.

When the land clearances also are taken into account, it is no wonder that increases in production are found in the land settlement areas. Thus Dunkel has calculated, on the basis of statistics gathered by the Board of Settlement from a sample of thirty-three surrenderer farms, that in 1951-2 the total bread grain production on this farm area had increased by 18 per cent. and milk production by 45 per cent. compared with 1939. This sample, however, was not fully representative since only fifteen of these farms were typical 'secondary surrenderer' farms. The present writer, using the basic data of the same sample, has found a decrease of 13 per cent. in bread grains and an increase of 22 per cent. in milk on these farms. This farm group, with its daughter farms, increased its arable area by 4.3 per cent. compared with a 30.8 per cent. increase in the whole sample.

It is evident that the policy will alter the structure of farm production. Small farms tend to produce relatively more animal products than do larger ones. This trend may actually be seen, not only in the

figures just presented but also in statistics covering the whole country. In spite of a smaller total area of arable land, Finland now has a level of milk production exceeding the pre-war production by about 5 per cent. whilst about 16 per cent. less bread grain is produced. Self-sufficiency in bread grain, which in 1934-8 was 75 per cent., was only 52 per cent. in 1951-2. This is more than can be explained by differences in price policy which, it is true, favoured animal products, at least up to 1951.

The disadvantages of the small farms are due not only to the relatively high capital cost of buildings but also to the inefficient use of draft animals and human labour. According to statistics, farms with less than 15 ha. of arable land had, in 1950, 16.5 horses per 100 ha., while larger farms had an average of 10.7. It is only natural that the settlement policy had the effect of increasing the number of draft animals, with a corresponding increase in their share of the produce of arable land and pasture. The data presented by Dunkel indicate an increase from 8.3 to 11.9 in the number of horses per 100 ha. in his sample of farms. The statistics for the whole country show an increase from 11.9 in 1939 to 13.8 in 1950 in the number of adult horses per 100 ha. in spite of a nearly threefold increase in the number of tractors (from 5,900 in 1941 to 16,000 in 1950).

Figures from the Agricultural Census and from book-keeping farms both indicate similar great differences in the use of human labour on farms of different size categories (Table 8). The farms in size classes corresponding to the larger type of settler holdings (5-15 ha.) have on average used fifty-seven converted man days per ha. and the part-time holdings (2-5 ha.) as much as ninety-three days. Thus the most efficient type of settlement holdings demand an average of about 60 per cent. more human labour than the surrenderer farms with more than 15 ha. arable land. This, it is true, is due partly to the larger proportion of animal products but mainly to lower efficiency.

The adult population working throughout the year on farms with more than 15 ha. arable land totalled, according to the 1950 Agricultural Census, 167,200, i.e. 0.19 adults per ha. The figures for farms with 2-15 ha. were 668,900 and 0.47 respectively, indicating more than twice as large a labour force on small farms. On the other hand the gross income from farming (for instance on book-keeping farms of the smallest size class, 5-10 ha. agricultural land), exceeds by only 20 or 30 per cent. the respective income in the larger size classes.

It has been claimed that the amount of labour in agriculture has



greatly decreased since pre-war in spite of land divisions. This argument is based on population statistics which have been misinterpreted to some extent, however, through misunderstanding the different bases of the statistics for 1940 and 1950. After careful consideration the writer maintains his doubts on this point and believes that no reliable basis for a quantitative estimate of the decrease in family labour is available except for book-keeping farms, which form only a very

TABLE 8. *Use of human labour for ordinary farming operations, not including work done on investments, on farms of different size categories, according to Agricultural Census of 1950 and business statistics of book-keeping farms for fiscal years 1949/50-1951/2<sup>1</sup>*

Farm size according to arable area ha.	Converted man days per ha. <sup>2</sup>			
	Census 1950	Book-keeping farms		
		1949/50	1950/1	1951/2
2-5 . . . . .	92.7	..	..	..
5-10 . . . . .	63.1	66.7	61.8	56.1
10-15 . . . . .	47.9	46.2	43.6	41.4
15-25 . . . . .	38.7			
25-50 . . . . .	32.0	33.6	32.3	29.3
50 and more . . . . .	32.3	29.4	27.9	26.9
Weighted average . . . . .	53.8	52.0	48.8	45.1
5-15 ha. . . . .	56.6	..	..	..
Over 15 ha. . . . .	35.0	..	..	..

<sup>1</sup> The Census figures are per ha. of arable land, others are per ha. of converted agricultural area (slight difference).

<sup>2</sup> The working day of a female worker is estimated to correspond to two-thirds, and that of a minor worker to one-third, of a man-labour day. The averages for book-keeping farms have been converted on the same basis, assuming that the average length of a working day is 8.3 hours.

small sample. Developments in the use of paid labour, however, can be estimated with more accuracy. Thus, the number of regular paid workers in 1950 was 73,800 on all farms with over 2 ha. of arable land, compared with 84,000 in 1941. The figures for farms with more than 15 ha. are 39,000 and 63,200, thus indicating a decrease of 38 per cent. in the paid labour force on surrenderer farms, or of 19 per cent. if these figures are given in relation to the corresponding arable areas.

The records of book-keeping farms indicate a continuously decreasing trend in the use of human labour per ha. (Table 9). Percentage decreases from 1936-8 vary in the different size classes between 13 and 21, with the largest decrease on farms with from 25 to 50 ha. of

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arable land. If no change had occurred in the relative areas of different farm sizes, a reduction of 15 per cent. in the total use of labour would have been observed on the basis of this sample. The shifting from large- and medium-sized farms to small ones has diminished this reduction to 9 per cent. Thus, due to the land settlement policy, the decrease in the use of labour has probably been retarded.

TABLE 9. *Use of human labour on book-keeping farms in Finland, converted to man hours per ha. of agricultural land<sup>1</sup>*

Size classes	1936-8	1949-52	Decrease
ha.	hours	hours	per cent.
5-10 . . . .	589	511	13
10-25 . . . .	426	363	15
25-50 . . . .	333	263	21
> 50 . . . .	270	233	14
Weighted average <sup>1</sup>	441	403	9
„ „ „ <sup>2</sup>	441	374	15

<sup>1</sup> Areas indicated by Censuses of 1941 (for 1936-8) and 1950 are used as weights. (Size class 5-10 ha. is weighted by the area of all farms with 2-10 ha.)

<sup>2</sup> Unchanged weights for 1941 are used in view of elimination of the effects of land divisions.

Small farms no doubt have opportunities for saving labour, especially if they develop more co-operation, but only the future will show how they can compete in this field with larger farms. The new settler farms evidently cannot offer so good a livelihood to their cultivators as the former surrenderer farms, but on a given area they offer a meagre living for a larger number of people.

Some aspects of forest production may be mentioned here in passing. The general opinion of forestry experts is that small forest holdings have a lower average productivity than larger ones. This is to some extent confirmed by the results of line surveys of forest resources during the 1920's and 1930's. These surveys indicated smaller timber stands and less growth on small units of less than 20 ha. of forest than on larger ones. It has been pointed out also that many of these units were established fairly recently under the land settlement project and the former owners often had removed much of the timber stand. Some experts believe that with proper education the small owners could reach a very satisfactory standard of forest management, especially as they have good opportunities for using low-valued thinning products for household purposes.

The land settlement policy, together with financial indemnities to the displaced population, meant a remarkable redistribution of property, which in consequence of continued inflation scarcely followed the expected lines.<sup>1</sup>

After the winter war of 1939-40 the Finnish Diet approved the principle of indemnification for lost property. According to the Indemnification Laws of 1942 and 1945, full compensation was to be paid up to 500,000 Fmk. for real estate and movables lost in consequence of the occupation. Compensation for larger properties was to be filed according to a regressive scale. Under the first law a small part of the compensation was to be paid in money and the balance in state bonds redeemable in from eight to twenty-five years. The total sum of compensation according to the First Law was 10.3 thousand million Fmk. of which the agricultural population received nearly 4.5 thousand million. The 1939 value was the basis of compensation. As the financial situation was still worse in 1945, there were discussions about some kind of compensation *in natura* by the distribution not only of land but also of other property collected as a capital levy. This idea was in the background when a part of the compensation, according to the Second Indemnification Law, was decreed to be paid in the form of specially issued shares of industrial companies. These shares are held by a holding company in which persons entitled to compensation are shareholders. In addition to this a guarantee to compensate for inflationary depreciation was granted on state securities used for compensation. Apart from a small sum paid in cash, these securities were used up to the sum of 200,000 Fmk., while shares in the holding company covered the rest. However, 80 per cent. of the compensation was withheld for the future payment of land and building loans in the case of persons who were entitled to land under the Land Acquisition Act.

For financing the indemnities, extraordinary taxes on property were decreed. The first Property Expropriation Tax was levied in the period 1941-6, at rates of 2.5-20 per cent. of the property values, the lowest taxable property being 40,000 Fmk. and the highest rate being applicable to properties valued at 40 million Fmk. or more. The Second Tax, collected in 1946-50, was still more sharply progressive; the lowest rate of 2.4 per cent. was applied to properties of 30,000 Fmk. and the highest, 21 per cent., to properties of 10 million Fmk. or more.

<sup>1</sup> A study of the financial aspects of the land settlement programme has been published by V. Procopé (Ref. 10).

In their applications for indemnity after the Second War the displaced persons estimated their total losses to be 85 thousand million Fmk. (\$620 million), while the local indemnity committees curtailed the estimates to 50 thousand million (\$370 million). The basis of valuation was the price level of December 1944. The nominal value of the indemnities granted was still smaller, 33 thousand million Fmk. (\$240 million), in consequence of a regressive scale. Those of the displaced persons who were entitled to land received a sum of 17 thousand million Fmk. (\$125 million), of which 14 thousand million were withheld. The state, however, has to pay a considerable amount in addition because it must redeem the bonds at prices corresponding to the rise in the wholesale price index. Although a definite calculation is not possible before the redemption of all the bonds, it seems that these *index payments* in the non-agricultural sector alone will reach a nominal sum of 50 or 55 thousand million Fmk., thus exceeding the granted value. Reduced to the 1944 value, this is equal to 14 thousand million Fmk., i.e. to 43 per cent. of the originally granted value. In addition to this the corresponding payments in the agricultural sector amounted by the end of 1953 to 9.4 thousand million Fmk. and probably will rise up to 17 thousand million Fmk. or, reduced to the 1944 value, to 2.7 thousand million Fmk. (\$20 million).

The property taxes yielded much smaller nominal sums, the first of them 8.9 thousand million and the second 28.6 thousand million Fmk. in nominal values. If converted to the value of 1944 currency, they amounted to 13.6 and 12.0 thousand million Fmk. (\$190 million). Though this double taxation of property during a decade was felt very heavily, it did not cover the indemnities (Table 10). This deficit undoubtedly had some inflationary effects, especially during the time of redemption of the bonds, i.e. to the end of 1955.

The land expropriated or bought by voluntary transactions was paid for with state bonds redeemable in from ten to fifteen years, and priced at the price level assumed to be prevailing in December 1944. There was no guarantee in these bonds against inflation, but the holders had the right to use them for payment of their mortgages and of the Second Property Expropriation Tax. Up to the end of 1953, 6.9 thousand million Fmk. had been paid to landowners in state bonds and 2.2 thousand million of these had been returned as payment for taxes.

The available statistics of the completed land transactions up to the

end of 1953 show that the different categories of land have been valued on average as follows: arable land 14,700 Fmk., cultivable land 2,870 Fmk., and forest land 1,100 Fmk. per ha. The value of standing

TABLE 10. *Balance of values lost or gained by different owner categories in connexion with indemnities and land settlement activities (thousand million Fmk., at 1944 values)*

	Losses in value			Gains in value						Net loss or gain
	Pay-ments in money	Losses in value of land and timber stand	Total	Price of land <sup>1</sup>	Indemnity payments according to the		Gains in value of land and timber stand	State sub-sidies <sup>2</sup>	Total	
					1st Law	2nd Law				
Taxpayers (property expropriation taxes only) .	25.6	..	25.6	..	..	..	..	..	..	- 25.6
Private land-owners .	..	8.4	8.4	2.5	..	..	..	..	2.5	- 5.9
State .	..	6.3	6.3	1.2	..	..	..	..	1.2	- 5.1
Other corporate owners .	..	6.4	6.4	2.1	..	..	..	..	2.1	- 4.3
Displaced population as a whole	2.0 <sup>3</sup>	*	2.0	..	7.3	28.0	11.0	1.7	48.0	+ 46.0
[Farmers]	[2.0]	[*]	[2.0]	..	[3.1]	[12.2]	[11.0]	[1.7]	[28.0]	[+ 26.0]
[Others]	[..]	[..]	[..]	..	[4.2]	[15.8]	[..]	[..]	[20.0]	[+ 20.0]
Ex-service-men, &c. .	1.2	..	1.2	..	..	..	6.8	1.3	8.1	+ 6.9
Existing small farmers .	0.3	..	0.3	..	..	..	1.8	0.1	1.9	+ 1.6
Total losses .										40.9
Total gains .										54.5
Deficit .										13.6

<sup>1</sup> Land prices payable in 10-15 years. Figures include corrections in the gains of private and corporate landowners 1.0 and 0.8 thousand million Fmk. (Use of bonds for paying taxes.)

<sup>2</sup> Divided approximately in the proportion of total building costs (Table 5).

<sup>3</sup> Land prices payable in 30 years.

\* The loss in ceded territory is not taken into account when estimating the deficit in the balance.

timber has been calculated at 8,400 Fmk. per ha. of forest area, including cultivable land. Building sites have been valued at 25,800 Fmk. per lot. If these values be applied to all transactions, the total value of land and standing timber bought or expropriated under the Land Acquisition Act may be estimated, by surrenderer and receiver categories, at the figures presented in Table 11. The total sum is not

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less than 21.1 thousand million Fmk. (\$155 million), but all the land included in this sum has not yet been distributed to recipients.

Because of inflation commercial land values have greatly increased in nominal Fmk. value since December 1944. Thus, the surrenderers of land, who will receive their final payment when the bonds are redeemed, lose most of the real value of their compensation. Judged on the basis of the wholesale price index, which was 314 in December

TABLE II. *Value of land and standing timber acquired for land settlement, according to the average prices fixed by authorities on basis of price level of December 1944 (thousand million Fmk.)*

	By surrenderer categories				By recipient categories			
	State	Other corporate owners	Private farmers	Total	Displaced persons	Other recipients of new holdings	Recipients of additional land	Total
Agricultural land .	0.25	0.89	2.57	3.71	2.41	1.29	0.24	3.94
Cultivable land .	0.20	0.32	0.41	0.93	0.36	0.24	0.05	0.65
Forest land .	0.63	0.51	0.53	1.67	0.85	0.54	0.16	1.55
Standing timber .	5.19	4.64	4.96	14.79	7.39	4.69	1.36	13.44
	6.27	6.36	8.47	21.10	11.01	6.76	1.81	19.58

1944 and 1,709 at the end of 1953, the loss to private landowners is about 80 per cent. of the present value, i.e. about 45 thousand million Fmk. As part of the bonds, however, have been used for the payment of taxes assessed at the 1944 currency value, the real loss will be somewhat smaller, probably not more than 40 thousand million, provided that the inflationary tendency has stopped, which at present seems likely.

Table 10 shows the balance of values lost or gained by the different owner categories in connexion with indemnities and land settlement activities, reduced to the 1944 values on the basis of the wholesale price index. Losses of value consist partly of taxes paid in cash, in this case including only the two property expropriation taxes, and partly of values of surrendered land as well as future incoming payments in cash for land, assuming a stable monetary value from 1953 onwards. Losses in the ceded territory are not taken into account in this connexion. Gains comprise, first of all, prices of land receivable by landowners, in this case taking into account the advantage arising from the possibility of paying property expropriation taxes with state bonds

during the earlier years of higher money value. The indemnities actually paid are also regarded as gains for the respective owner groups, as are state subsidies and land values received by displaced farmers and other recipients of land, all measured by the 1944 value of money. The balance shows more gains than losses, which indicates that the two property expropriation taxes and the land values have not been sufficient to cover the indemnities and the public cost of the projects. The deficit is not less than 13.6 thousand million Fmk., or 73 thousand million at present-day values (\$240 million), which must have been financed by other taxes, State loans, &c. It may be mentioned that the nominal sum of state indebtedness was about 59 thousand million Fmk. higher at the end of 1953 than in 1945.

The balance of land settlement loans shows a considerable amount of indebtedness to the state by the recipients of land. Of the total sum of state loans, in nominal value 33.8 thousand million Fmk. (cf. Table 6) 16.5 thousand million have been repaid, mainly by indemnity bonds. Thus, the land recipients, at the end of 1953, still owed to the state a nominal sum of 17.3 thousand million which also has to be taken into account when making a balance of payments.

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