

AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D. C. 20523  
BIBLIOGRAPHIC INPUT SHEET

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Batch 62

1. SUBJECT CLASSIFICATION  
A. PRIMARY  
Agriculture  
B. SECONDARY  
Agricultural economics--Taiwan  
AE10-0000-G748

2. TITLE AND SUBTITLE  
Land reform in Taiwan

3. AUTHOR(S)  
Koo, A.Y.C.

4. DOCUMENT DATE 1970	5. NUMBER OF PAGES 75p.	6. ARC NUMBER ARC
--------------------------	----------------------------	----------------------

7. REFERENCE ORGANIZATION NAME AND ADDRESS  
AID/PPC/EMS

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)  
(In AID Spring Review of Land Reform, 1970. v.3, SR/LR/C-25)

9. ABSTRACT

10. CONTROL NUMBER PN - AAD - 934	11. PRICE OF DOCUMENT
12. DESCRIPTORS Evaluation Taiwan Land reform	13. PROJECT NUMBER
	14. CONTRACT NUMBER AID/PPC/EMS
	15. TYPE OF DOCUMENT

AGENCY FOR INTERNATIONAL DEVELOPMENT

SPRING REVIEW

Country Papers  
Vol. 3

LAND REFORM

in

TAIWAN

by

Anthony Y. C. Koo  
Michigan State University

June 1970

Country Papers represent the views of their authors and are not generally intended as statements of policy of either A.I.D. or the author's parent institution.

SR/LR/C-25

AGENCY FOR INTERNATIONAL DEVELOPMENT

SPRING REVIEW OF LAND REFORM

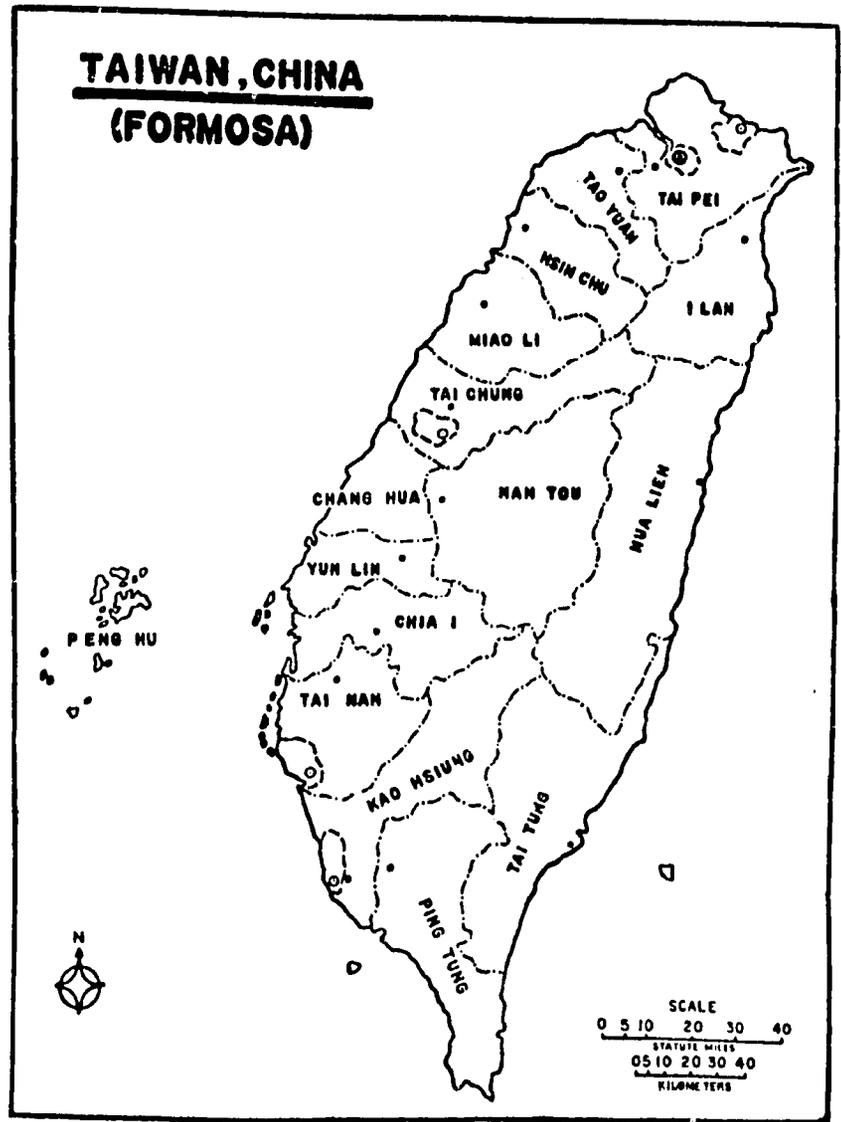
TAIWAN

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**TAIWAN, CHINA**  
**(FORMOSA)**



## LAND REFORM IN TAIWAN

Anthony Y.C. Koo

### I. Summary

Taiwan, better known as "Formosa" in the Western world, is a tobacco-leaf-shaped island in the western Pacific Ocean, spanning the Tropic of Cancer. It is 240 miles long from north to south and about 85 miles at its greatest width. Its area, including adjacent islands, is 35,961 square kilometers, or 13,885 square miles. The island is predominantly mountainous and has a generally warm climate, with heavy rainfalls. The major crops are rice and sugar cane. Secondary crops are sweet potatoes, tea, fruit and peanuts. When Taiwan was ceded to Japan by China in 1895, it had a population of 2.6 million and 550 thousand hectares of cultivated land. It was retrocessed to China in 1945 and has since been a province. Taiwan has undergone two distinct stages of development, chiefly in connection with agriculture. In the first phase, the Japanese Government introduced and extended modern agricultural technology in Taiwan. Large-scale development of water resources as well as technological improvement in rice and sugar cane production were promoted. The second phase mainly concerns the impetus to agriculture provided by the land reform, instituted after 1945. First, there was a program of rent reduction in 1949, followed by sale of public land in 1951 and a land-to-tiller program in 1953.

The magnitude of the job of land reform could best be illustrated by the number of families affected. Lease contracts that were revised under the new tenancy law totaled 377,000. About 140,000 families bought public land. Of the landlords, 106,000 sold their land to the government, which in turn sold it to 195,000 families under the land-to-the-tiller program. Administratively, land reform was by no means a simple and routine operation. The implementation of the program called for the establishment of special agencies such as farm tenancy committees and the training of staff workers. For example, the training was carried out on four different levels of administrative unit:

provincial, hsien and city, district, and village and township. There were, in addition, the problems of dissemination of information and educating the public. Equally challenging were such tasks as the appraisal of land value, screening and approval of prospective buyers, compilation of lists of land to be compulsorily purchased, compensation to landlords, collection of first installment from the farmer-purchasers, and handling of disputes. All of this, and many more details were completed in five years.

The impact of land reform on the Taiwan economy was both immediate and far reaching. Income redistribution through rent limitation was made effective at once, and it is noteworthy that the interests of landlords were reasonably well protected. A far more important aspect of land reform is the increase of agricultural productivity. Indicators based on aggregate statistics and the data of the major crops (paddy rice, in particular) pointed toward historical heights. It is admitted that the increase cannot be attributed entirely to land reform. The real issue is, therefore, this: Given the resources and technology of Taiwan in the late 1940's, was agricultural development, with land reform as its first step, the most logical economic policy to follow? Our study found that the resources and technological constraints of Taiwan in the late 1940's were such that land reform did not preclude the economy from developing industrially.

Looking at the positive side, we found land reform contributed to the industrial development of Taiwan. Exports related to output from the agricultural sector averaged two thirds of the total exports in the 1950's. There was stimulus to industrial output brought about by the demand for such agricultural inputs as fertilizer and insecticide and by the enlarged demand for consumption goods following the rise of farm income. Many who got the immediate benefit of land reform can believe that there is a relationship between reward and performance. The power of incentive in an economy should never be underestimated. This is evidenced by the prevalent utilization of incremental income on the part of farmers to educate their children. Since education makes possible the fullest and optimum use of human resources, an economic policy that contributes to this end has laid a foundation for a dynamic and productive society.

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## II. Pre-reform Period

### A. Introduction: Economic and Political Background

The total population and labor force recorded in 1905 was 3,309,751 and 1,393,476 respectively; of the latter, 73.71 was in agriculture.<sup>1</sup>

In the period 1905-1915, the estimated rate of population growth was less than 1.12 percent a year.<sup>2</sup>

Viewing the distribution of national income in the pre-land reform period 1911-1940, primary industry including agriculture, fisheries, forestry, and mining accounted for about one-third to slightly less than one-half.

Table II.A

Total National Product and National Product  
of Primary Sector 1911-1940

(1935-37 constant price T \$1,000,000)

<u>Year</u>	(1) <u>Total</u>	(2) <u>Primary Sector</u>	(3) <u>(2) as percent of (1)</u>
1911-15	293.6	140.6	[48]
1916-20	336.6	123.0	[39]
1921-25	399.2	159.4	[39]
1926-30	560.2	218.0	[39]
1931-35	706.4	248.6	[35]
1936-40	796.4	280.4	[45]

Source: Lee, Teng-Hui, Intersectoral Capital Flows in the Economic Development of Taiwan, 1895-1960 (unpublished thesis, Cornell University, Ithaca, New York, 1968).

<sup>1</sup>The Taiwan Governor General Office, The First Population Census, October 1, 1905.

<sup>2</sup>George W. Barclay, Colonial Development and Population in Taiwan (Princeton, N.J.: Princeton University Press, 1954), pp. 146-147.

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Several measures of economic significance initiated during this period are worthy of mention. First was a continuous inflow of Japanese technical and professional personnel to Taiwan. Counting the talents of net immigrants, commerce and communication people stood out as the largest single group at the turn of the twentieth century. In the decade of 1910-19, agriculture and fishery headed the list with nearly 18,000 persons. The lead switched during the 1920's to civil servants and professionals with nearly 17,000 persons.

The work directly related to agriculture was the establishment of a cadastral system, under which the categories, grades and areas of land were duly investigated and surveyed, and rights properly registered. A by-product of the survey was the uncovering of farms that had not been on the tax roll. Such a discovery raised the revenue and increased the tax base. In short, the land survey of 1898 to 1904 established and simplified the land-ownership on the western side of Taiwan and that of 1910-14 made a clear division of public and private lands. The ownership of land on the eastern side of Taiwan was established in 1915-25. The clear definition of ownership of land was a prerequisite for capital investment in land development. The efforts also paved the way for land reform. It was largely due to a cadastral system that 1949 land reform legislation was quickly and effectively implemented.

Effective utilization of water resources constitutes the first step toward increasing rice production. Conservation projects covering twenty-seven major rivers were undertaken from 1898 to 1940, yet damage caused by the

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flooding of farms (loss of top soil; destruction of farms through piling of sand; and losses in crops, farms, land, and cattle) still ran into millions of Taiwan dollars.

The work of rice seed improvement was started by the Taipei Agricultural Experimental Station in 1899. The most notable achievement of the research was the introduction and adaptation of Ponlai rice to the local conditions in Taiwan. This brought a major breakthrough in rice production, an innovation of greatest importance for the Taiwan economy. There remained the job of quick dissemination. Fortunately, keeping farmers informed of improved methods of production was undertaken early through an extensive network of agricultural associations.

The implications of these early measures on the land reform program are clear. A reliable cadastral system made an immediate implementation of the land reform program possible. More than money and manpower, it takes time to complete a cadastral survey, and time was essential for the implementation of the 1949 land reform in Taiwan. The early extension service to educate the farmers on better methods of seed selection, fertilizer application, and more effective use of water resources had a long-term effect. Such knowledge was later put to the fullest use by the farmers when they had the proper incentive, such as the rent limitation program of 1949. Moreover, because of past successful experiences, farmers became more receptive to adopt other new measures for productivity increase. The desire to increase land productivity on the part of the tenants, and their early exposure to some technical know-how, made the land reform program in Taiwan more than a mere redistribution of income between the landlords and tenants. It explains in a large measure the increases in agricultural output and land productivity.

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Profit from government monopolies and from consumption taxes provided the bulk of investment funds, and exports of sugar and rice provided the necessary foreign exchange for development. The story of the economic development in Taiwan during this period can be briefly summarized as an example of a successful combination of circumstances, namely, shrewd utilization of indigenous resources, fiscal manipulation to achieve forced savings, a few fortunate developments in agricultural research, and years of rising market for its exports, with the average citizens bearing the brunt of the burden of financing.

## II.B Land Tenure Structure

### II.B.1. Characteristics

In 1948 the percentage distribution of farming families by tenure is as follows: owner cultivator, 35.02; part-owner, 24.10; tenant farmer, 36.08; and farm hand, 6.80. Fragmentation of the land holdings in Taiwan, however, has been continuous for some time. In 1921, only 15 per cent of the land holdings were below 0.9699 hectare (1.0 chia); three decades went by before the percentage reached 25 percent in 1952. The following table gives the number of cultivator families by percentage for selected years.

Table II.B.1

<u>Holding Size</u> (chia)	<u>1921</u>	<u>1932</u>	<u>1939</u>	<u>1956</u>
Below 0.5	30	25	26	30
0.5-0.99	23	20	20	27
1.0-2.99	34	39	39	36
3.0-9.99	12	15	14	7
10.0 and over	1	1	1	0
	—	—	—	—
	100	100	100	100

Source: Koo, Anthony Y. C., The Role of Land Reform in Economic Development - A Case Study of Taiwan (New York, N.Y.: Frederick A. Praeger, 1968)

In terms of average size of farms, it was 1.5 hectares in 1900-1909; 1.89, 1910-19; 1.96, 1920-29; 2.0, 1930-39 and 1.66, 1940-49.

### II.B.2. Changes

In 1905 the system of double land ownership was abolished. Holders of the first titles, also known as "large absentee landlords," were required to give up their land ownership with reasonable compensation in government bonds. These absentee landlords were originally creditors to small resident landlords or holders of secondary titles. At the same time, it was made known that after December 3, 1905, no new holders of first titles were allowed and their right would not be recognized. For giving up their rights, the holders of first titles received bonds at a market value of T\$3,672,000 (T\$ represents Taiwan dollars) in addition to T\$107,000 cash compensation, making a total of T\$3,779,000. Following this, all holders of secondary land titles were recognized as sole owners of the land, thus simplifying the land ownership system.

### II.C.1 Land Availability

Cultivated land just before the land reform was 853 thousand hectares and crop land 1,288 thousand hectares. A more meaningful measure of land availability is in terms of land-man ratio. It was 0.23 hectare per agricultural person and 0.51 per agricultural labor force. The following table shows the changes of land-man ratio in Taiwan from 1926 to 1960.

Table II.C.1

Changes of land-man ratio, Taiwan, 1926-1960

Period	Cultivated Land Area (1) ha.	Crop Area (2) ha.	Agricultural Population (3) people	Agricultural Labor Force (4) people	$\frac{(1)}{(3)}$ ha.	$\frac{(1)}{(4)}$ ha.	$\frac{(2)}{(4)}$ ha.
1926-1930	802,222	982,261	2,452,155	1,187,719	0.33	0.68	0.83
1936-1940	856,108	1,138,520	2,908,116	1,374,130	0.29	0.62	0.83
1946-1950	852,911	1,288,308	3,751,752	1,658,152	0.23	0.51	0.78
1951-1955	873,962	1,501,891	4,378,293	1,741,569	0.20	0.50	0.86
1956-1960	875,897	1,575,849	4,943,625	1,725,285	0.18	0.51	0.91

Source: Lee, op. cit., p. 86.

### II.C.3. Identification and Titling

The original cadastral records of registered land in Taiwan were compiled according to land plots, under which the names of their respective owners were recorded. The plots of land were entered in the register one by one according to the order of their serial numbers, and all particulars of each plot of land, the name of its obligees, and all rights thereon were specified. This system may be called the "plot-to-the-owner" system, but it does not show how many plots of land any given landowner has, nor its size and use. This latter sort of information can be furnished only by the reverse or "owner-to-the-plot" system. It was to meet the need for such an "owner-to-the-plot" system that the general landownership classification was undertaken before the land reform.

As far as the land categories and grades are concerned, the Japanese authorities had undertaken a comprehensive survey of all farm lands in the years 1898-1904. Both paddy fields and dry land had been divided into ten grades each. Periodic readjustments were made in land grades at intervals of several years. In the last readjustment in 1942-44, the number of grades for both paddy field and dry land was increased to 26.

## II.D Rural Production and Productivity

For the twenty-five year period from 1915-1940, the increase in the value of paddy land per hectare was 2.0 percent per year while per hectare annual yield grew at the slow rate of 1.4 percent per year, and per hectare annual land rent grew at the still lower annual rate of 1.2 percent. In the long run, value of paddy land is generally influenced by land rent, per hectare yield of rice, and the terms of trade of rice. This means that real income of landlords increased in the period as the result of increases in land rent in kind and land value at favorable real prices of rice. The details are shown in the table below.

Table II.D

Value of paddy land, annual land rent and  
the per hectare yield of rice, Taiwan, 1926-1940

unit: Paddy rice

Period	Value of paddy land in terms of <u>paddy rice</u> Kg/ha.	<u>Land rent in kind</u> Kg/ha.	Per hectare yield of rice (1st & 2nd season) Kg/ha.
1926-1930	18,810	2,174	4,331
1931-1935	20,142	2,590	5,041
1936-1940	22,387	2,623	5,241
Average annual growth rate (%)	2.0	1.2	1.4

### II.E. Rural Population, Employment and Underemployment

Farm practice in Taiwan has long been characterized by intensive use of labor under the unfavorable condition of land-man ratio. Average labor input per hectare of land was 195 man-days in 1911-1915 and then increased to 305 man-days in 1956-1960. On the other hand, the annual average working day per farm worker increased from 117 man-days in the period 1911-1915 to 143 man-days in 1926-1930, decreased to 115 days in 1946-1950, and then increased again to 155 man-days in 1956-1960. These facts show that total days of labor input in agriculture increased quite rapidly from 135 million man-days in 1911-1915 to about 268 million man-days in 1956-1960, or by 98 per cent.

The labor force in the national economy as a whole increased at the rate of 1.51 per cent per year which was far less than the increase in the population. The percentage of the labor force in the total population declined from 49.61 per cent in 1895 to 31.62 per cent in the period of 1956-1960. Distribution of the labor force by sectors can be stated briefly. The agricultural sector had 78.0 per cent of the total labor force in 1895 and declined to 57.54 per cent in the period of 1956-1960. The growth rate of the agricultural labor force was about 0.90 per cent and of the nonagricultural sector was 2.77 per cent per year through the whole period, as shown in tables below.

Table II.E. (1)

Average annual working days per  
hectare and per worker, Taiwan, 1926-1960

Period	Per hectare of cultivated land (days)	Per hectare of crop area (days)	Per worker (days)
1926-1930	211	173	143
1936-1940	228	171	142
1951-1955	276	160	138
1956-1960	305	170	155

Source: S. C. Hsieh and T. H. Lee, "Analytical Review of Agricultural Development in Taiwan," Joint Commission on Rural Reconstruction, Economic Digest Series No. 12, July 1958, Appendix Tables 3 and 4.

Table II.E. (2)

Labor forces in the agricultural sector  
and the nonagricultural sector, Taiwan, 1926-1960

Period	Total No.	Growth Rate (%)	Agricultural sector		Nonagricultural sector	
			No.	Growth Rate (%)	No.	Growth Rate (%)
1926-1930	1,746	1.32	1,187	1.06	559	1.89
1936-1940	2,166	2.17	1,374	1.33	792	3.73
1951-1955	2,959	2.57	1,741	0.98	1,218	4.83
1956-1960	3,184	1.48	1,725	-0.18	1,459	3.68

Source: Lee, op. cit., p. 70.

## II.F. Income Distribution

The following table indicates the changes in net farm income distributed to landlords and money lenders, government and cultivators. By cultivators we mean the owner-cultivators, tenants, and part-landlords in agriculture. In periods 1926-30 and 1936-40 the ratio of income distributed to cultivators was roughly in the range of 66 to 67 per cent with a slight increasing trend. This was largely due to the increase in land rents lagging behind the increase in agricultural productivity. The ratio of farm income distributed to landlords and money lenders declined from 26.4 percent in 1926-30 to 25.2 percent in 1936-1940. The government share of farm income through taxing and investment repayment was largely constant in both periods.

Since land reform in 1953, income distribution in agriculture has changed, and the share of landlords in farm income has declined sharply. The percentage of farm income distributed to landlords and money lenders was 9.76 percent in 1950-1955 and only 6.26 percent in 1956-1960. The share of cultivators in farm income increased to 77.18 percent in 1950-1955 and 81.43 percent in 1956-1960. Government and public institutions have increased their share to 13.06 percent and 12.31 percent in the respective periods.

Table II.F.  
Distribution of farm income, Taiwan, 1926-1960

unit: current price  
at 1.000 T\$

Period	Total agricultural production	Net farm income	Landlords <sup>1/</sup> and money lenders	Cultivators	Government and other public insti- tutions
1926-1930	297,085	224,809 (100.00)	59,272 (26.37)	149,545 (66.52)	15,992 (7.11)
1936-1940	509,014	390,150 (100.00)	98,299 (25.19)	261,707 (67.08)	30,144 (7.73)
1950-1955	7,214,976	5,447,963 (100.00)	531,969 (9.76)	4,204,438 (77.18)	711,556 (13.06)
1956-1960	16,034,968	11,801,328	738,790 (6.26)	9,609,844 (81.43)	1,452,694 (12.31)

Source: Lee, op. cit., p. 205.

<sup>1/</sup> Landlords (noncultivator and absentee landlords) and money lenders are included in the financial institutions.

## II.G.2. Credit

Prior to 1950, private money lenders played an important role in Taiwan's agricultural financing. According to a sample survey conducted by the Provincial Department of Agriculture and Forestry, 82 per cent of the farmers' credit needs in 1949 was financed by private money lenders, particularly landlords.

#### II.G.4. Infrastructure

The practice of water conservation and controlled irrigation has a long history in Taiwan. The biggest percentage increase in irrigated land took place in the 1920's and 1930's when more than 10 percent of new irrigated and drained land was added. In absolute figures, the big increase in irrigated acreage (single and double paddy) took place in the 1930's with the completion of the huge Chianan irrigation development in the west-central part of the island. Most of the increase, however, was in single-paddy irrigation because of the limited water supply. Each farmer in the Chianan system was restricted to a single rice paddy crop once every three years and a double crop in the other years. During the 1940's, there was almost no net gain in irrigated acreage.

A summary of expenditures for irrigation from 1901-60 (by decades) is shown in Table II.G.4. The data give a breakdown between investment and operational outlays (repairs, maintenance, and administrative expenses). But within the investment category, no satisfactory further allocation between new projects and replacement is feasible. In order to eliminate money value changes, they are deflated by the price index (1935-37 price index equals 100). Only direct government expenditures devoted to irrigation and expenditures by the irrigation

Table II.G.4

Outlays for Irrigation by Government and Irrigation  
Associations, by Decades  
(Unit: 1935-1937 Taiwan dollars)

Decades	Total Investment (in \$1,000)	Per Cent by Government	Per Cent by Irrigation Association	Operational Outlay (in \$1,000)	Total Invest- ment and Opera- tional Outlays (in \$1,000)
1901-10	6,230	92	8	9,417	15,617
1911-20	9,457	91	9	19,049	28,506
1921-30	81,765	35	65	131,438	213,203
1931-40	24,710	31	69	93,569	118,279
1941-50	19,861	2	98	50,091	69,952
1951-60	21,168	45	55	47,902	69,070

Source: E. L. Rada and T. H. Lee, Irrigation Investment in Taiwan (Taipei: Sino-American Joint Commission on Rural Reconstruction, 1963), p. 37.

## II.G.4. (continued) -- Page 3

associations are included. In the absence of private expenditures by farmers on irrigation facilities, the figures, therefore, generally represent an understatement of the actual costs. A rough indication of the contribution of individual farmers is the ratio of self-installed to public-installed irrigation facilities. In the Report on the 1956 Sample Census of Agriculture, 12 percent of irrigated acreage was self-installed. Another element of understatement is the free labor commandeered by the government for some parts of the construction work.

The policy of gradual withdrawal of the government's support in such investment has definite merit. In the early years of agricultural development, investment in irrigation was risky and the expected yield uncertain. Hence, the leadership role of the government was much needed. As experience multiplied, the risk became minimal, and private investors were encouraged to take over. The resources of the government so freed were thus made available to be used in new fields where government pioneering could accelerate the rate of growth.

### II.H.1. Peasant Associations and Power

The farmers' associations were organized by farmers in the early 1900's. There were 16 in 1908 and they were brought under governmental control. The number was reduced to eight in 1927 with one in each of the then eight counties. In 1938 the Taiwan Farmers' Association became a centralized organization with branches in each township. Cooperative organizations had a steady growth from 16 in 1913 to more than 500 in 1940. In 1942, the Taiwan Federation of Cooperatives was established. The main work of the cooperative was concerned with the provision of credit and later on extended to cooperative purchasing, marketing, warehousing, rice milling and distribution of fertilizer and consumption goods.

In 1942 the government combined all farm associations and cooperatives into one association. In 1946 it was recognized into two units with the farmers association responsible for extension services and the cooperatives for credit, marketing and other services but the split proved to be unsuccessful and they were reunited in 1949.

### III. Land Reform Program

Land reform in the rural area of Taiwan proceeded by stages, of which rent reduction was the initial one. Arrangements for implementing the program started in January, 1949 and actual enforcement began in April. The second and third stages were the sale of public land and the land-to-the-tiller program under which absentee landlords were forced to sell their land in excess of certain maximum holdings.

### III.A. Legislation

The legal foundation of land reform was based on the Land Law promulgated by the National Government [of Mainland China], June 30, 1930; enforced, March 1, 1936; amended, April 29, 1946. In Article 110, it is provided that farm rent shall not exceed 8 percent of the value of the land. The implementation work was done only half-heartedly and intermittently and did not lead to any concrete results. For example, few localities had ever assessed the value of their land. The National Defense Supreme Council, therefore, took upon itself to resolve that all farm rents payable by tenants should be 37.5 percent of the total annual main crop yield. The figure 37.5 percent was arrived at by taking one-quarter of the total annual yield as the tenant's share and then dividing the remaining three quarters equally between landlord and tenant. The resolution was handed down to the different provinces through an order of the Executive Yuan on March 20, 1947, on which the 1949 land reform of Taiwan province was based.

Though there are detailed provisions governing the lease of farm land in Chapter IV, Part III of the Land Law, the standard adopted by the Taiwan province for the computation of farm rent was different from the one prescribed in Article 110 of the Land Law. The Regulations Governing the Lease of Private Farm Land in Taiwan Province, together with the detailed rules governing the application of these regulations, were formulated and promulgated by the Taiwan Provincial Government on April 14, 1949.

### III.A. Legislation (continued)

These regulations contain elaborate provisions for the reduction of farm rent, but no adequate provision for the protection of the tenant's right owing to the restrictions imposed by certain articles of the Land Law and the Civil Code. It was necessary that some special law be enacted to serve as a guide. The Executive Yuan drafted a law, which was subsequently passed by the Legislative Yuan on May 25 and promulgated by Presidential decree on June 7, 1951. This law is known as the Farm Rent Reduction to 37.5% Act.

### III.B. Institutional Arrangements

The Farm Rent Reduction to 37.5% Act provides for the creation of a Farm Tenancy Committee for each hsien, city, village and township, consisting of representatives elected by and from among landlords, owner-farmers, and tenant farmers. It was on the basis of this provision that the Taiwan Provincial Government proceeded to draw up Rules for the Organization of Farm Tenancy Committee on the different levels and Rules for the Election of Members of Farm Tenancy Committee. The rules were promulgated in February 1952. These newly created committees were all duly elected in the summer of 1952 to replace the original 37.5% Farm Rent Campaign Committees.

The authorities in charge of the execution of the rent reduction program in Taiwan were the Land Bureau on the provincial level and the Hsien or City Government on the hsien or city level. In order to facilitate enforcement, supervisory agencies were created on the different levels, composed of representatives of relevant government agencies, community leaders and, at the lower levels, landlords and tenants.

### III.B. Institutional Arrangements (continued)

The Hsien or City 37.5% Rent Campaign Committee was responsible, among others, for the fixing of the periods of lease, the appraisal of the standard amounts of the total annual main crop yield, and the conciliation of disputes. The District, Village, or Township Sub-committee of the 37.5% Rent Campaign Committee had functions similar to those of the Hsien or City Committee. All these committees and sub-committees were created in April and May, 1949.

### III.D.1. Redistribution of Land Ownership

The public land administered by the hsien and city governments was offered for sale first of all, and that administered by the public enterprises next. There were five successive sales from 1948-1953. The total value of paddy fields amounted to 254,674 M.T. of rice, and that of dry land to 560,480 M.T. of sweet potato.

The farming families that had purchased public land in the successive sales of such land reached a total of 121,953, which figure is 26.7 per cent of the average number of farming families of tenant farmers, part-owner-farmers, and farm hands, and 17.3 per cent of the average number of all farming families in Taiwan for the three-year period, 1950-1952 inclusive.

The area of public land purchased by the farmers differed, as a matter of fact, from individual to individual. According to a statistical study made by the Taiwan Land Bureau in October, 1952, it is shown that of the 96,906 farming families that had purchased the 49,702 chia of public land under the sales programs of 1948, 1951, and 1952, each had purchased 0.51 chia on the average. But over 66 per cent of those farming families had each purchased less than 0.5 chia, about 20 per cent had each purchased from 0.5 chia to 1 chia, and less than 14 per cent had each purchased more than 1 chia.

Table III.D.1 (1)  
 STATISTICS ON THE SALE OF PUBLIC LAND IN TAIWAN  
 PROVINCE, 1948-1953

	Public Land Origin- ally Administered by Hsien and City Governments	Public Land Origin- ally Administered by Public Enterprises	Total
Number of Plots of Farm Land Sold (Plots)	144,037	94,802	238,839
Area of Farm Land Sold (Chia)	36,400	26,000	63,000
Area of Paddy Field Sold (Chia)	17,881	13,490	31,731
Area of Dry Land Sold (Chia)	18,519	13,110	31,629
Area of Non-Farm Land Sold (Chia)	8	13	21
Number of Farming Families Purchasing Public Land	77,211	44,742	121,953
Sales Value:			
Rice (M. T.)	154,209	100,465	254,674
Sweet Potato (M. T.)	310,516	249,964	560,480

Source of Data: Statistics on the Sale of Public Land compiled by the Taiwan Land Bureau in December, 1953.

Table III.D.1 (2)  
 THE NUMBER OF FARMING FAMILIES PURCHASING VARIOUS  
 AMOUNTS OF PUBLIC LAND IN 1948, 1951, AND 1952

Amount of Land Purchased	Number of Farming Families Making the Purchase	Percentage
Under 0.5 chia	64,279	66.33%
0.5 to 1 chia	19,462	20.08%
1 to 1.5 chia	7,525	7.77%
1.5 to 2 chia	3,226	3.33%
2 to 3 chia	1,782	1.84%
3 to 4 chia	477	0.49%
4 to 5 chia	107	0.11%
5 to 10 chia	48	0.05%
Total	96,906	100.00%

Source of Data: Statistics on the Sale of Public Land compiled by the Taiwan Land Bureau in October, 1952.

### III.D.2. Changes in Tenancy Systems

Arrangements for rent reduction started in January, 1949, and actual enforcement began in April. It limited farm rent to a maximum of 37.5 per cent of the total main crop yield. At the same time, all extra burdens, such as advance rent payments and security deposits, were abolished. In the case of crop failure caused by natural disaster, rent reduction or remission in proportion to the degree of damage to the crop might be permitted.

The revision of farm lease contracts in Taiwan was carried out as part of the procedure for negotiation according to the regulations for rent reduction. In this way, all farm lease contracts were written. It was further provided by law that the lease period should not be shorter than six years. For the duration of the contract, the landlord might not, except for legally specific reasons, such as arrears in excess of two years' rent, terminate the contract. If, at the end of the lease period, the lessee were willing to continue the lease, the contract would have to be renewed, unless the lessor would take back the land for his own cultivation.

Contracts for private farm land under lease that had been duly revised by June, 1949, totaled 377,364. The figure marked the formal completion of the first phase of the rent reduction program. The follow-up program included spot inspection and rechecking by the Taiwan Provincial Government for possible violations of the new lease terms. In view of the number of irregularities discovered and duly corrected (34,867 cases) the practical significance of the rechecking program should not be overlooked.

#### III.D.4. Consolidation and Enclosure

The redemarcation of land in Taiwan is a part of the land reform program aimed at bringing about a more economical utilization of land in order to achieve the goal of reducing production costs and increasing yields. Even after the land-to-the-tiller program, factors still exist that prevent the full development of the land potential. They are: (1) poor drainage and inadequate irrigation; (2) undesirable division of farm lots in irregular shapes; (3) dispersal of farmland owned by the same farmer; and (4) shortage of good farm roads for transporting fertilizers, produce, farm machinery, and equipment. The land redemarcation project was carried out in stages. A total of 817 hectares of flooded farmland in nine different hsiens was redemarcated.

Gratifying results of the redemarcation of flooded land led to the subsequent decision that the program should be carried out on a much wider scale. Because of seasonal factors in seeding and harvesting various crops on the farm, the timing of the implementation is of crucial importance to the success of the project. For example, the ideal time for redemarcation of the

#### III.D.4. Consolidation and Enclosure (continued)

double-crop paddy land is between the end of November to February of the following year. For single-crop field, it is between April and June. Attention to such details made the project acceptable to more than 98 per cent of the landowners of the eleven affected districts. A total of 3,362 hectares of farmland was redemarcated. The details of the achievement are reflected by the following comparison. First, there is a net increase in the producing area of 4.47 per cent. Second, 81 per cent of the lots are concentrated in one place and 14 per cent at two sites, as compared with 40 per cent and 35 per cent, respectively, before the consolidation. Third, land with direct drainage and irrigation has increased more than threefold. The success of these two projects has led to voluntary requests by farmers in many other districts for redemarcation of their land.

#### III.D.5. Classification, Identification and Titling

The general landownership classification in Taiwan was undertaken on the initiative of JCRR. The procedure consisted of the following steps: examination and correction of the original cadastral records; compilation of land-record cards; land ownership classification; compilation of land ownership cards; compilation of joint ownership cards; compilation of statistics; and registration of changes in land rights. Altogether a total of 4,039,685 land record cards involving 3,972,112 plots of registered land amounting to 1,336,468 chia was compiled. The statistics of general land ownership classification for Taiwan were completed in April, 1952.

In 1950 the Taiwan provincial government undertook an adjustment of the categories and grades of those lands that had been duly registered. The actual work of readjustment was begun immediately in the various hsien and cities.

When proposals for the readjustment of land categories and grades had been worked out, the hsien or city government would notify those tenant farmers, owner-farmers, and landlords of each unit region whose interests were involved to choose their respective representatives, who would then hold an

III.D.5. Classification, Identification and Titling (continued)

evaluation meeting to discuss and pass on the proposals laid before them. The results of the evaluation meeting would be reviewed by the hsien or city government, which would send officers to make a rechecking on the spot and correct errors, if any. Then and only then would the proposed recommendations for readjustment be submitted by the hsien or city government to the Provincial Government for final approval.

The farmland affected by this 1950 readjustment was scattered over 305 villages and townships, or 88% of all villages and townships in Taiwan. It comprised 160,518 plots, or 4% of all registered plots of land, and totaled 70,746 chia, or 5% of the total area of all land duly registered.

### III.E.1. Valuation Procedures

For the land sold under the land-to-the-tiller program, landlords were paid 2.5 times the annual yield. It is true that paddy farms commanded a price between 3 and 4 times the annual yield prior to land reform. However, with reduced rent goes the lower land price, so valuation at 2.5 times the annual yield seems to have been in line with the return of investment in farmland and to have reflected the market valuation. In other words, valuation of land was determined at the time and by the initial rent reduction.

### III.E.2.a. Landowner Compensation

Of the total compensation, landlords were paid 70 per cent in land bonds in kind and 30 per cent in government enterprise stocks. There are two kinds of land bonds: rice bonds and sweet potato bonds, both bearing an annual interest rate of 4 per cent. Compensation for paddy fields was paid with rice bonds and for dry lands, with sweet potato bonds.

In paying part of the compensation to landlords with government enterprise stocks, the quantity of rice or sweet potatoes that any given landlord was entitled to receive as compensation first had to be converted into monetary terms at the rate of NT\$160 to 100 kilograms of unhulled rice and NT\$38.85 to 100 kilograms of sweet potatoes. The conversion rates were based on the general average commodity price for Taiwan in December, 1952, as was the reevaluation of the assets of the government enterprises offered for sale.

For the 30 per cent of the compensation for land compulsorily purchased, the government paid with its stocks in the Taiwan Cement Corporation, the Taiwan Paper and Pulp Corporation, the Taiwan Agricultural and Forestry Development Corporation, and the Taiwan Industrial and Mining Corporation. Each landlord had to take a bundle of all four stocks: 37 per cent of stock in the Taiwan Cement Corporation, 33 per cent in the Taiwan Paper and Pulp Corporation, 13 per cent in the Taiwan Agricultural and Forestry Development Corporation, and the remaining 17 per cent in the Taiwan Industrial and Mining Corporation.

### III.E.2.b. Peasant Repayment

The price of farmland offered by the government for resale was calculated on the same basis as that of farmland compulsorily purchased from landlords, namely, 2.5 times the total amount of its annual main crop yield for the respective land grades. Beginning with the season in which the land was purchased, the purchaser paid the price of the land plus 4 per cent interest per annum in twenty equal installments over a ten-year period, either in kind or in land bonds redeemable in kind. The rate at which rice and sweet potatoes were converted into cash was decided on the basis of the average wholesale quotations in important rice-producing townships. The total value of land, including immovable fixtures, resold as of June, 1954, by government, together with interest thereon, was 1,528,000 metric tons of unhulled rice for the paddy fields and 522,365 metric tons of sweet potatoes for the dry land.

### III.E.2.c. Government Expenditures

We examined the provincial budget and the budgets of the counties and the villages. There was no explicit item except for one entitled "economic development expenses." We have no way to determine the proportion that is devoted to the implementation of land reform or agricultural development, and the aggregate can only be taken as a rough approximation of such expenses. In terms of the constant 1949 new Taiwan dollar, the total spent under the item amounts to NT\$587 million.

In addition, JCRR contributed. The major item of support in land reform has been land-to-the-tiller program. Next are its supports for the 37.5 per cent rent reduction and, to a relatively minor extent, the sale of public land. In addition to appropriations for land reform, JCRR is instrumental in channeling U.S. aid funds to agricultural development. The scope covered by JCRR expenditure is quite comprehensive and mostly consists of measures supplementary to land reform.

### III.G. Mobilization of the Peasantry

The Sino-American Joint Commission on Rural Reconstruction (JCRR) was formally organized in October, 1948. Its basic objective was to assist the Chinese Government to increase agricultural production and improve the living conditions of the rural people. JCRR, from the very beginning, insisted on the necessity for land reform.

When the Chinese Communists swept across the Yangtse River in April, 1949, JCRR was more than ever convinced that, in order to meet political and military crises, it was necessary to buttress military action with a positive program of social reform. On June 27, 1949 JCRR issued a declaration outlining a six point program, with rent reduction at the head of the list.

A general program of rent reduction was put into effect in the Southwestern Provinces. The outcome was that in the short space of four months from August to December 1949, surprisingly good results were obtained in Szechuen Province where a 25% rent reduction was carried out. In the words of one field observer: "Overnight, the spirit and morale of the vast peasantry spurted." With the progressive deterioration of the military situation, JCRR was forced to migrate to Taiwan and concentrated its work there.

IV. A. (Effects of the Land Reform) On Land Tenure Structure

By area, 55 per cent of the farmland belonged to owner-cultivators in 1948. The percentage became 82.9 per cent in 1953, 84.9 per cent in 1956 and 85.6 per cent in 1959. A more dramatic way to picture the situation is to show the percentage of owner-farmers before and after the land reform. In Table IV.A. we find 57 per cent of the farm families were owner-cultivators in 1948 and that the percentage was 81 per cent in 1959 -- a remarkable change in slightly over a decade.

Table IV.A

Percentage Distribution of Farming Families  
by Tenure for Selected Years

Year	(1) Owner Cultivator	(2) Part- Owner	(3) Tenant Farmer	(4) Farm- hand	(5) (1) (2)	(6) (3) (4)
1948	33.02	24.10	36.08	6.80	57.12	42.88
1953	51.79	22.79	19.82	5.60	74.58	25.42
1956	57.05	22.10	15.86	5.00	79.15	20.86
1959	58.53	22.23	14.51	4.70	80.76	19.21

Source: C. Cheng, Land Reform in Taiwan (Taipei: China Publishing Co., 1961) p. 312.

#### IV.B. (Effects of the Land Reform) On Production and Productivity

The production data on each of the two major common and special crops, i.e., rice and sweet potatoes (common crops) and sugar cane and peanuts (special crops), will be examined. The importance of these major crops to the agricultural income should be emphasized. Take the value of agricultural income in 1961, for example. The percentage for rice was 44.33, sweet potatoes 8.66, sugar cane 6.23, and peanuts 2.94. The combined value of these crops totals 62.16 per cent of the agricultural output, or 86.82 per cent of the value of common and special crops.

Since it is quite possible that the increased output of an individual crop is due to an expansion of acreage at the expense of other crops, we shall concentrate our attention on yield instead of on the total output of a crop. To even out yearly fluctuations, a series of five-year average outputs per hectare for rice, sweet potatoes, peanuts, and sugar cane since 1900 was derived. By taking the first differences, we note the change of crop productivity for each successive period. In rice, for example, the incremental change for successive five-year intervals at 244 kilograms per hectare was largest in the 1930's for the fifty-year period that the island was under the Japanese control. Then, there was a sudden reduction of productivity during World War II and a further drop during the period immediately following the war. After 1949, the yield began to surge and continue to surge.

If we take the increase of productivity measured by successive five-year intervals since 1949 as the gains from land reform, i.e., 514 kilograms from 1945-49 to 1950-54, we would obviously be exaggerating the contribution of land reform since we have not fully discounted the rise from an extremely

## IV.B. (continued) -- Page

low base-period of the World War II aftermath. Even the change of 319 kilograms between the periods of 1950-54 and 1955-59 is perhaps an inflated figure, since in the late 1930's the average productivity per hectare reached the higher figure of 2,052 kilograms. A more reasonable approach is to take the highest pre-war figure of 2,052 kilograms and compare it with 2,322 kilograms to have a difference of 270 kilograms, which is higher by 26 kilograms than the highest five-year period change, 244 kilograms, reached since 1900.

Of the thirteen major rice-producing countries (1 million acres or more in rice) only Japan and the United States did better in terms of the change of the rice yield from 1935-39 to 1960-62.

Analysis of productivity data of sweet potatoes shows that the change of productivity from 1945-49 to 1950-54 was a modest one of 670 kilograms. A spectacular increase took place in the 1955-59 period over the previous one

## IV.B. (continued) -- Page

(2,511 Kilograms), and it is the highest increase in the record. But the absolute yield per hectare, 11,714 kilograms per hectare, was still 229 kilograms below the peak achieved in the late 1930's. The data on peanuts disclose a similar pattern. The recovery of yield per hectare was high -- an increase of 152 kilograms between 1950-54 and 1955-59, although not the highest on record. As in the case of sweet potatoes, the output per hectare in 1955-59 was still below the peak of 959 kilograms in 1935-39.

The sugar cane data are more difficult to assess. The rate of increase in yield in the post-World War II years was high. The average yield in 1955-59 passed the record achieved in the late 1930's by 4,812 kilograms, which was well within the rate of increase of the entire time series under observation. The frequent introduction of new sugar-cane varieties and disappearance of the old ones may account for the increase of productivity, instead of land reform.

A study of the productivity data of the major crops reveals differentials between crops. Since the above data are in terms of land productivity, can this lack of uniformity in productivity increase be explained by the tenants' incentive in applying more labor and capital and in learning new agricultural practices?

IV.B. (continued) -- Page

Agricultural technology supports profitability by allocating more capital and labor to rice than other crops. There is uncertainty in what a farmer can expect to get from fertilizer application to crops such as sweet potatoes and peanuts which are grown entirely on dry land with no supplementary irrigation. In years with plenty of rainfall at the right time, extra investment in fertilizers, etc., in the dry-land crops will pay off. But the returns are much more risky than those from investment in the paddy fields.

## IV.B. (continued) -- Page

According to the statistics of the land compulsorily purchased from the landlords by the government, out of the total 143,468 hectares, 85 per cent was paddyfields, the rest being dry land. Most of the new owners were, therefore, purchasers of paddy fields. As a result, the increased productivity of paddy fields following the land reform would be more easily noticed in the over-all yield figures than those of dry land, where the new owner-purchasers occupied a small percentage of the total of such land.

Concomitant with land reform was wider distribution of landownership and reduction in size of holdings. In the long run, population pressure and lack of employment opportunities in the nonagricultural sectors may be more decisive factors than the land reform in land fragmentation. Of course, land reform must have accelerated the trend. Thus, the study of farm size and land productivity takes on added significance as a basic economic problem of the densely populated underdeveloped countries. Surprisingly, the evidence on yields on a per chia basis during four recent years indicates that the landholdings of sizes below 0.49 chia enjoyed the highest productivity per unit of land for both the first and second rice crops. The productivity declined, with few exceptions, as the size of holdings increased.

The new owners are generally small landholders, and most of the land held formerly by absentee landlords and sold was of two crops. In fact, a higher per cent of land on the small farm is of two or more crops than on the large farm. In a sample study of 1,144 farms in Taiwan classified according to size, it was found that in the size interval under 0.499 chia, 63 per cent of the land was of two or more crops and that the per cent went down as the holding size

## IV.B. (continued) -- Page

interval increased until the per cent of two-crop land reached 17 per cent for holdings of more than 7 chias.

Another explanation is that perhaps the incentive effect of being owner-cultivators for the first time (largely small ones) made them all the more willing to increase capital and labor inputs and to find out about seeds and fertilizer utilization in increasing the yield of the farm. Of course, we can argue as <sup>D. G.</sup> Johnson did that owners of small holdings have to work harder in order to achieve a minimum standard of living. The assertion implies that the preference map between work and income may change as a person's holdings vary. In fact, empirical evidence bears out the contention that the smaller the size of the farm, the more labor was used on a per hectare basis, as shown in Table IV.B. However, the figures in the second column, strictly speaking, are not comparable because small holdings consist of a higher per cent of multiplecrop hectare basis, we still find that the average unites of labor input per crop hectare are larger for small than for large holdings.

Table IV. B  
Size of Holdings and Labor Inputs

Size of Holdings (chia)	Average Units of Labor per Hectare	Average Units of Labor per Crop Hectare
Below 0.51	893	387
0.52-1.03	613	256
1.04-1.54	412	179
1.55-2.06	331	150
2.07 and above	313	146
Average (weighted)	387	176

\* A unit of labor is defined as ten hours of work for a male worker. A female worker's hours are converted to the unit of labor at an 80 per cent ratio.

Source: Agriculture Census 1961. Taipei, Taiwan.

IV.C. (Effects of the Land Reform) On Rural Employment and Underemployment

According to a recent survey of farm labor requirements in Taiwan, the key factors that influence the labor input are size of holdings and type of land, which, in turn, determine the crops. In Table IV.C, we have an estimate of available labor supply for each farm household, classified in accordance with the class interval of landholdings. It is of interest to note that there is a pattern of rising rate of utilization from 42.35 per cent in the first group to a peak of 76.99 per cent in the ninth group, and then it tapers off to 62.76 per cent in the 6.5 chia and above groups.

Wu and Lee use the labor utilization rate of the ninth group, i.e., 76.99 per cent as the norm in their analysis. The decision is somewhat arbitrary, notwithstanding 76.99 per cent being the highest rate of labor utilization in the sample. The reason is that per cent of labor utilization is not entirely independent of wage rate, "irksomeness" of labor and the relative price between labor and capital. In fact, the decline of labor utilization rate in groups larger than the ninth might be due to the feasibility of using agricultural machinery on larger farms. Thus, one should not put much faith in the constant 76.99 per cent but should prefer a figure variable with the factors mentioned above. This reservation will certainly cast doubt on the significance of their quantitative findings but should not deter us from using their figures to illustrate an analytic procedure.

Table IV. C (1)  
Availability and Utilization of On-Farm and Off-Farm Labor  
(An Estimate of Involuntarily Unemployed Labor in Agriculture)

(1) Farm Size (chia)	(2) Number of Sample Farm Families	(3) Total Po- tential Labor Units (Per Farm Family)	(4) Actual Utilization on and off Farm (Per Farm Family)	(5) Percentage of Utili- zation [(4)/(3) x 100]	(6) Percentage of invol- untary Unem- ployed [76.99 per cent-(5)]	(7) Units of Involun- tary Unem- ployed [(6)x(3) or (8)-(4)]	(8) Available Units of Labor [(3)x76.99 per cent]	(9) Percentage of Utiliza- tion [(4)/(8) x 100]
(1) -0.499	137	750.75	317.92	42.38	34.64	260.96	577.98	55.01
(2) 0.5-0.999	333	856.81	422.76	49.34	27.65	236.91	659.67	64.39
(3) 1.0-1.499	245	917.04	532.23	58.04	18.95	173.78	796.01	75.32
(4) 1.5-1.999	180	985.61	635.04	64.43	12.56	123.79	755.83	64.02
(5) 2.0-2.499	103	1168.30	754.39	64.57	12.42	145.10	699.49	63.62
(6) 2.5-2.999	63	1134.31	771.57	68.02	8.97	101.75	873.32	68.35
(7) 3.0-3.499	34	1177.31	830.96	70.56	6.41	75.47	905.45	91.67
(8) 3.5-3.999	21	1266.57	958.43	75.67	1.32	16.72	975.15	98.29
(9) 4.0-4.499	14	1110.22	854.77	76.99	0	0	254.77	100.00
(10) 4.5-6.499	10	1584.00	1029.03	64.96	.....*	.....*	1029.03**	100.00
(11) 6.5-	4	936.38	587.69	62.76	.....*	.....*	587.69**	100.00

1,144

\* The heading does not apply to the figure.

\*\* The figures are those in Column 4.

Source: C. K. Wu and T. K. Lee, *The Demand and Supply of Farm Labor of the Families of the Involuntarily Unemployed* (in Chinese) (Taichung: Chung Hsin University, 1963).

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#### Notes to Table

The sample size is 4.62 per cent of the total population (24,764 farm families of agricultural vocational students) who had been trained to keep detailed farm accounts. The labor requirements were estimated on a twelve-month basis, specifically February 1, 1961 to January 31, 1962, and covered the following categories of work: growing of crops and vegetables; care of water buffaloes, livestock, poultry, and orchards; and food processing. Adjustments were made for differences in land composition for each class interval. On the average, two-crop land was estimated to require 23 per cent more labor per chia than dry land.

## IV.C. (continued) -- Page

Columns 7 and 8, respectively, show the involuntarily unemployed and available labor units per family by landholding class. We find that unemployment on the average, is higher for each household in the small landholding class than in the large ones until it completely disappears in households with holdings larger than 4.0 chia (in the ninth group and above).

It is to be noted that off-farm employment reduces the rural unemployment only to a minor extent. Wu and Lee concluded that off-farm jobs are so limited that getting a job which requires no special skill is largely a question of the availability of opportunity. Skilled jobs are available, but most of the farm laborers are not equipped for them.

On the basis of the present survey, rural unemployment is estimated at about 19 per cent of the total (potential) labor units and 24 per cent of the available labor supply in the early 1960's in Taiwan. This does not mean that such people can be entirely removed without affecting the output because of the seasonal nature of farm activity, nor are they necessarily idle. Since the total working units are from one family, work units can be rotated on a certain basis among all members of the family. It is a scheme of two or three persons sharing one job. As a result, each member is busy at a certain season of the year or time of the day.

One may argue that land reform also tends to encourage more initiative on the part of the owner-cultivators to accept new technology and invest more capital in land, thereby making the size of holding less of a restriction. To make it more explicit, we assume that the new technology is land-saving and labor-intensive.

The problem of transferring surplus labor to urban industrial areas has deserved and received growing attention. In the context of such discussions, it is generally assumed that there is no difference of labor capacity between the agricultural and nonagricultural sectors. Emphasis has accordingly been placed on the wage differentials, the cost of living, and disparity of living conditions in the city, countryside, and so on.

According to the data for 1951-61 in Taiwan, the net per capita income of labor in the agricultural sector has been about one-third of the industrial sector and half of the commercial sector and others. Undoubtedly this difference explains in good measure the cause of rural out-migration to urban and industrial areas. However, given time for dissemination of information on job opportunities and

## IV.C. (continued) -- Page

living conditions in urban centers, competition on the supply side of labor should have closed such enormous gaps. Accordingly, one must turn some attention to the possible difference in skills between farm and industrial workers.

What the experience in Taiwan can contribute is that the land reform has wrought a lasting change on the capacity of farm labor by increasing farm income and thereby reducing the financial barrier to education with the consequent increase of rural labor mobility to industry.

When the moving rates of tenants, half-owner-cultivators and owner-cultivators are computed on the basis of the same farm size, the declining order of moving rates is owner-cultivators, half-owner-cultivators, and tenants. In order to understand why owner-cultivators or half-owner-cultivators as such should have a higher moving rate, we need to look into their qualifications for finding jobs in the cities.

When we classify the number of persons receiving education beyond the sixth grade, by extent of landownership, we find the percentage highest among the owner-cultivators. When we examine the educational levels of the out-migration rate. The rate increases invariably with the level of education for over-all out-migrants and is especially marked with long-term employees. For examples, in Table <sup>IV.C.(2)</sup> /, 85 per cent of those who had not received any education stayed home. For those with a primary education, 60 per cent stayed home. For junior high, 40 per cent stayed on the farm, for senior high about 4 per cent. No one stayed behind after a college education. But the way land reform seems to play a part in influencing farm workers to get an education remains to be demonstrated.

Table IV. C. (2)  
 Educational Level of Out-Migrants  
 Unit: Number of persons

Education Level	Total	Stayed Home	Seasonal Worker	Commuter	Long-term Employee	Percentages				
						Total	Stayed Home	Seasonal Worker	Commuter	Long-term Employee
No education	1058	904	113	25	16	100	85.4	10.7	2.4	1.5
Primary school	1362	818	270	170	104	100	60.1	19.8	12.4	7.7
Junior (secondary school)	83	33	8	13	29	100	39.8	9.6	15.7	34.9
Senior (secondary school)	26	1	...	6	19	100	3.8	...	23.1	73.1
College	2	...	...		2	100	...	...	...	100
Total	2531	1756	391	214	170	100	69.4	15.4	8.5	6.7

Source: T. H. Lee, *A Case Study of Rural Labor Mobility in Relation to Industrialization and Urbanization in Taiwan* (Taipei: JCRR, July, 1962), p. 15.

#### IV. D. (EFFECTS OF THE LAND REFORM) On Income Distribution

According to one estimate given by the Taiwan Provincial Food Bureau to illustrate the increase in income to tenants after land reform, the 1948 production (on a two crops a year basis) was 3,894 kilograms per hectare. In Table IV.D(1) the rent before land reform in 1948 is estimated to be 50 per cent of the output per hectare on paddy field, or 50 per cent x 3,894 kilograms -- 1,947 kilograms. Fertilizer cost is estimated to be 118 kilograms per hectare. This left the tenant farmer with a residual of 1,829 kilograms per hectare to cover other costs of rice production, including the reward for his services. For 1949 and thereafter, a figure of 37.5 per cent of the 1948 output is used for calculating the rent because of the implementation of the rent limitation, i.e., 1,460 kilograms (37.5 per cent x 3,894). As long as the land was not upgraded, the rent payment remained fixed at 1,460 kilograms per hectare per annum.

In the years immediately following the land rent limitation, total increase of income to the tenant farmers consisted largely or reduced rent. In the later years, as the farmers applied more fertilizer, and possibly more labor, to the land, the increase of output as a part of gains became much more pronounced. In 1949, out of the total increase of income of 571 kilograms per hectare, 487 kilograms, or 85 per cent, came from reduced rent; in 1960, the proportion is reduced to 24 per cent (i.e., 487/1957).

Table IV. D. (1)  
Estimated Increase of Income Derived from Rent Limitation  
by Tenant Farmers (Based on Paddy-Rice Production per Hectare)  
(Unit: Kilograms of Paddy-Rice)

	Income for Production Increase			Alternative Rent System				Net Increase of Income from Change of Rent and Productivity Since Base Year, 1948						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Production of Paddy (2 Crops of Paddy Rice)	Quantity of Rice Bar-tered for Fertilizer	Gross Receipt (1) - (2)	Increase of Production over 1948	Increase of Paddy Rice for Fertilizer over 1948	Net (4)-(5)	50 Per Cent of Yield (Current Year)	37.5 Per Cent of Yield (Current Year)	50 Per Cent of Yield (Base Year, 1948)	37.5 Per Cent of Yield (Base Year, 1948)	Under Rent of (7)	Under Rent of (8)	Under Rent of (9)	Under Rent of (10)
Before 37.5 per cent rent limitation:	1948	3894	118	3776			1947		1947		1829		1829	
After 37.5 per cent rent limitation:	1949	4248	388	3860	354	84	2124	1583	1947	1460	-93	430	54	571
	1950	4322	608	4214	928	438	2411	1836	1947	1460	-26	577	438	925
	1951	4076	591	4235	1022	459	2458	1944	1947	1460	-52	507	456	946
	1952	5216	801	4415	1322	639	2603	1956	1947	1460	-22	630	639	1100
	1953	5333	805	4568	1491	807	2694	2021	1947	1460	60	733	807	1294
	1954	5352	977	4585	1538	809	2701	2066	1947	1460	-25	670	809	1296
	1955	5422	1010	4462	1578	836	2736	2052	1947	1460	-103	581	836	1373
	1956	5763	1032	4734	1632	958	2853	2170	1947	1460	12	735	958	1443
	1957	5953	1074	4894	2074	1118	2934	2238	1947	1460	81	827	1118	1653
	1958	6174	1111	5065	2230	993	3087	2515	1947	1460	147	919	1287	1774
	1959	6052	1110	4952	2168	992	3031	2273	1947	1460	92	850	1176	1693
	1960	6336	1120	5243	2472	1002	3183	2387	1947	1460	234	1030	1470	1957

Source: (1). Food Production and Activities of the Taiwan Provincial Food Bureau (Taiwan Provincial Food Bureau, 1962), p. 41.

(2). Ibid.

(3). (1) - (2).

(4). Calculated from (1).

(5). Calculated from (2).

(6). (4) - (5).

(7), (8), (9), and (10). Calculated from (1).

(11). (6) + 1947 kg. - (7).

(12). (6) + 1947 kg. - (8).

(13). (6) - 1947 kg. - (9).

(14). (6) - 1947 kg. - (10).

## IV.D. (continued) -- Page

We next turn our attention to the land-to-the-tiller program which was implemented in 1953. Since the tenant purchasers became owners, they now pay land taxes, but not rent. The land tax expressed in terms of rice amounted to 229 kilograms per hectare, as shown in Table IV.D.(2). The repayment cost of land is expressed as 30 per cent of the yield in 1948. The output per hectare in 1948 was 3,894 kilograms and land cost repayment is 30 per cent of the 1948 output (2 crops), or 1,168 kilograms.

The tenant farmers paid an annual rent of 1,460 kilograms before their purchase (Table IV.D. (2)). When they became owner-cultivators, they paid instead the land tax (229 kilograms) and repayment cost (1,168 kilograms), totaling 1,397 kilograms. When we compare this with the rent payment, the owner-cultivators were better off by 63 kilograms per hectare. An uncertain element in this comparison is the tax rate. The risk of a rising tax rate is borne by the owner, but not by the tenant. If the tax rate is as fixed as the rent, land purchase obviously becomes attractive to the owner-cultivators.

It is noteworthy that the estimated increase of income to the farmers is largely attributable to the increase of rice productivity in recent years. It was found that the rice consumption figure per head since 1955, particularly 1959 and 1960, has been generally on a higher level than in the early years. Under the situation of rising income, one would normally expect a steady per capita increase of fish and pork consumption as is indeed true in Taiwan. However, we do not find a gradual decline of the consumption of rice and other staples, but a concomitant increase. Since it is not likely that the statistics on rice exports and inventory contain errors, one suspects that the official estimates of rice production in recent years may have been on the high side.

Table IV.D (2)

Estimated Increase of Income Derived by  
Farmers After Land-to-the-Tiller  
(Based on the Rice Production per Hectare in One Whole Year)

Year	(1) Production (2 Crops of Paddy Rice)	(2) Gross (After Tax - 229 kilograms)	(3) Quantity of Paddy Rice Bartered for Fertilizer	(4) Net Farm In- come	(5) Land Cost Repayment (36.4 x 30 per cent)	(6) Dis- posable Income
1953	5,388	5,159	805	4,354	1,168	3,186
1954	5,562	5,333	977	4,356	1,168	3,188
1955	5,472	5,243	1,010	4,233	1,168	3,065
1956	5,786	5,557	1,052	4,505	1,168	3,337
1957	5,968	5,339	1,074	4,265	1,168	3,097
1958	6,174	5,945	1,111	4,834	1,168	3,666
1959	6,062	5,833	1,110	4,723	1,168	3,555
1960	6,366	6,137	1,120	5,017	1,168	3,849

Comparison of Disposable Income:

(1) Tenant after land rent limitation: rent	1460
(2) Owner-cultivator after land-to-the-tiller: tax and repayment cost	1397
	<u>63</u>

Comparison of Net Receipt:

(1) Tenant after land rent limitation: rent	1460
(2) Owner-cultivator after land-to-the-tiller: tax	229
	<u>1231</u>

Source: Koo, *op. cit.*, p. 55

IV.D. (continued) -- Page

INCOME, SAVING, AND CONSUMPTION IN THE AGRICULTURAL SECTOR

Detailed statistics on agricultural income; consumption, and saving are available for the years 1950, 1955, and 1960, thus giving us an opportunity to examine the impact of land reform as shown in aggregate statistics. Data collected for 1950 (one year after rent reduction) are considered to reflect the conditions prior to land reform; data collected for 1955 reflect conditions at the mid-point; and by 1960, the immediate impact of the land reform should have been fully eliminated. To facilitate comparison, we have converted all items in terms of the 1934-37 Taiwan dollar. In 1950, the flow of farm income to the sectors outside agriculture in the form of land rent, interest charges, and taxes was higher in percentage (30 per cent) than in 1955 (18 per cent); the downward trend continued into 1960 (11 per cent), as shown in Table *IV.D.3*). One of the major items that caused the large outflow was the land rent. The distribution of income inside the farm sector also saw a substantial increase of wage payments and concomitant reduction of implicit rent in 1955 and 1960, as compared with 1950. The rise in wage payments was largely due to including the owners' own wages, since much of the land was owned by the farmers themselves within the sector.

To throw further light on the extent of income change before and after land reform, it is necessary to compare absolute figures and calculate their percentage changes over the years. A note of caution should be sounded in such a comparison, as it was in discussing rice yield. Estimates of Taiwan's gross national product (GNP) and national income for the 1950's are under review by the government. The actual rate of growth was probably in the neighborhood of 7 to 7.5 per cent, which is lower than the official estimate of 8 per cent.

## IV.D. (continued) -- Page

Another figure of interest is the per cent of income saved in the farm sector. On account of the implementation of the land-to-the-tiller program, with its consequent greater equality in income distribution in the farm sector, we are interested in comparing the per cent of income saved in the farm sector for the period of 1950-60. Here we encounter the same problem of underestimation as the gross farm income discussed earlier.

In view of underestimation of both gross farm income and consumption, the estimated saving is naturally under suspicion. Since saving is estimated as a residual, i.e., the difference between two underestimated figures, the bias could be in either direction. No simple procedure can be improvised to make the necessary adjustment. Thus, the estimated savings in Table IV.D. (4) stand unchanged and should be taken only as a rough indication of actual farm savings. This reservation applies equally to the ratio between saving and income in the table.

Table IV. D. (3)  
Flow of Net Farm Income Outside and Inside the Farm Sector for Selected Years  
(in 1935-37 Taiwan Dollars)

	1950		1955		1960*	
	TS1000	Per Cent	TS1000	Per Cent	TS1000	Per Cent
<b>Flow of Farm Income to Outside Sectors</b>	<b>92,877</b>	<b>30.48</b>	<b>71,052</b>	<b>17.85</b>	<b>48,127</b>	<b>10.69</b>
Land rent paid	62,624	20.55	23,950	6.02	16,790	3.73
Interest paid	11,304	3.71	13,766	3.46	6,833	1.52
Taxes paid	18,949	6.22	33,346	8.33	24,504	5.44
<b>Flow of Farm Income Inside Farm Sector</b>	<b>211,858</b>	<b>69.52</b>	<b>325,777</b>	<b>82.14</b>	<b>402,224</b>	<b>89.32</b>
Wage payment	118,767	38.97	191,077	48.03	236,504	52.52
Rent for farmers' own land	69,325	22.75		24.42	97,174	21.58
Interest for farmers' own capital	23,766	7.80		9.69	68,546	15.22
<b>Total Net Farm Income</b>	<b>304,735</b>	<b>100.00</b>	<b>397,837</b>	<b>100.00</b>	<b>450,352</b>	<b>100.00</b>
<b>Total Gross Farm Income</b>	<b>471,091</b>		<b>535,872</b>		<b>643,791</b>	

\* JCRR data.

Source: H. S. Tang and S. C. Hsieh, "Land Reform and Agricultural Development in Taiwan" in Walter Froehlich (ed.), *Land Tenure Industrialization and Social Stability* (Milwaukee: Marquette University Press, 1961), p. 130.

Table IV.D. (4)  
Income, Consumption, and Saving of the Farm Sector for Selected Years  
(in 1935-37 Taiwan Dollars)

	1950		1955		1950*	
	T\$1000	Per Cent	T\$1000	Per Cent	T\$1000	Per Cent
Retained net farm income (farm earnings)	211,858	76.62	326,777	85.47	402,224	60.75
Nonfarm income	64,850	23.28	51,112	13.53	174,416	30.25
Total farm family income	276,718	100.0	377,899	100.00	576,640	100.00
Total consumption	238,973	85.77	339,109	89.74	482,813	83.73
Farm products	119,384	42.85	152,599	40.38	230,121	39.91
Nonfarm products	119,589	42.92	186,520	49.36	252,692	43.82
Total saving	39,567	14.20	38,476	10.88	92,712	16.08
Agricultural investment	36,454	13.08	30,543	8.08	84,333	14.63
Nonagricultural investment	3,113	1.12	7,933	2.10	8,379	1.45
Statistical discrepancy	85	0.03	304	0.08	1,115	0.19

\* JCRB data.

Source: H. S. Tung and S. C. Hsieh, "Land Reform and Agriculture Development in Taiwan" in Walter Froehlich (ed.), *Land Tenure, Industrialization and Social Stability* (Milwaukee: Marquette University Press, 1951), p. 131.

IV.H. (EFFECTS OF THE LAND REFORM) Broader Effects on the Economy, Society and Polity

Only 13.1 per cent of the Taiwanese school-aged children went to school in 1917. At the time of the last available count before the restoration of Taiwan to China, it was 71.3 per cent. The rise of this percentage to 96 within a ten-year period is a spectacular achievement. Since urban people in Taiwan, as a whole, have had more education than the rural people, and since the bulk of the island population lives on the farm, the substantial increase of the percentage of school-aged children receiving compulsory education must be accounted for by the rise of the enrollment in rural schools.

IV.H. (continued) -- Page

We have some direct evidence indicating that the number of children of farmer-purchasers receiving all levels of education has been on the rise. The number of these children enrolled in primary schools increased from 140,641 in 1948 to 433,790 in 1961, and those in the secondary schools increased from 5,380 to 61,523. No one with such a family background entered college in 1948, but 1,602 of them were attending colleges in 1961.

In short, the long-run impact of land reform on farm unemployment undergoes a roundabout process. Briefly stated, the chain reaction starts with more education for children. Since a better trained person will have greater off-farm employability, he is more likely to out-migrate, and, consequently, reduce the farm unemployment.

The rise of education has certainly made the farmers more socially and politicall conscious. The number of holders of public offices, such as village, precinct, and neighborhood chiefs; officers of farmer's organizations; and members of county or municipal councils; etc., coming from farm families, has doubled or tripled since the land reform. It is a good indication of their drive and desire to take the initiative in economic and related activities, and marks the decline in the almost exclusive leadership of the gentry class, leading to some equalization of social status in rural Taiwan. Some observers considered the establishment and actual implementation of universal primary education in Taiwan the most revolutionary social force in Taiwan which has received the least attention in the outside world, because the achievement of the level of education of the general public makes possible the efficient functioning of the local organizations.

## V. Critique and Evaluation

By all standards, land reform in Taiwan is a significant achievement. The rapid gains in agricultural output and productivity following land reform are all the more remarkable and unprecedented in an area where population growth is rapid and land and capital resources are relatively scarce. Consequently, its experience should be of interest and relevance to many other developing countries which share many points of similarity with Taiwan.

Many factors contributing to the success of the land reform program have been mentioned in this and other studies: the introduction of new varieties of plants; the prompt diffusion of improved farming methods through effective agricultural extension work; the large infrastructure investment in irrigation, flood control, and drainage; the well-developed credit system to facilitate the use of such capital inputs as fertilizer, pesticides, tools and equipment, and other materials from non-farm sources; the assured market outlets or the level of farm product prices to minimize the marketing risks, etc. These and probably some other factors are undoubtedly important. What I wish to do here is to focus attention on a unique precondition or combination of circumstances for the success of the land reform program in Taiwan.

Land reform in Taiwan was a major social experiment. It was designed to change the economic order deeply ingrained in the lives of a great majority of the people there. The experiment could not possibly have had a chance without the firmest commitment on the part of the political leadership. The Government of the Republic of China has shown this determination. The lesson of the Communist takeover of mainland China was fresh in 1950 and a bitter one, too. The necessity of building a viable economy and stable social order as quickly as

V. Critique and Evaluation -- Page 2

possible in Taiwan was imperative. The resolve to make land reform a success in Taiwan could be and was indeed well appreciated and overwhelmingly supported by the people in all walks of life. Until and unless they were convinced of this, land reform would not have had lasting effects on the economy as a whole.

It is true that rent reduction or limitation acts as an incentive to the peasants to work harder, and the land-to-the-tiller program promises a reward to the peasants for their efforts. In the nature of things, the peasants will question (and who will not?) whether these programs imply or signal that all hard work and sacrifice on their part will be rewarded. For example, if they save more, will such savings be protected against inflation and be rewarded at a reasonable rate of return? More importantly, should they reduce consumption of "luxuries" and put their children through school and would they get as much a chance for upward mobility in the society as the other children of similar ability? In essence, can they improve their livelihood and/or their children's by hard work and self-denial? If the peasants are sufficiently convinced that their limited experience can be generalized into the norm of expectation, we shall have a generalized chain effect in the incentive system. We speak of a chain effect because we are concerned not with a single, once-for-all change which exhausts itself, but with something which goes on so that each phase contains the germ for further incentive. It is generalized because it requires, or results in, change in beliefs, attitudes, relationships, institutions, and organizations not usually thought of as economic, or at least not entirely so.

V. Critique and Evaluation -- Page 3

As all of us who have had the experience of dealing with governments know, determination on the part of the leadership is a necessary but by no means sufficient condition for success. Taiwan has been fortunate to have the services of the Joint Commission on Rural Reconstruction (JCRR) which has had wide authority to disburse funds and provide technical assistance to agriculture. Yet because of its special character as a joint, autonomous, semi-independent organization, it seems unconventional when compared with regular governmental agencies. It is a unique example of the principle of "jointness." Authorized in the Foreign Assistance Act of 1948, and especially established through an Exchange of Notes between the Chinese and U.S. governments, JCRR came into being on October 1, 1948, at Nanking. The enabling legislation and bilateral agreement empowered JCRR "to formulate and carry out a program for reconstruction in rural areas of China," and to establish such objectives, policies and organizational arrangements as might be necessary for this end.

As the agricultural arm of the Agency for International Development China Mission, it has had rich resources. Several thousand rural reconstruction projects were sponsored and financed, partly or wholly, by JCRR and are still being sponsored. It has had the technical reservoir of American know-how to draw on. It has introduced to the island a new pattern of public organization which responds quickly in areas where a felt need is articulated. There is great flexibility in the choice of activities or projects it supports. Above all, it has had able, loyal and dedicated officials, both American and Chinese, who worked and work closely together in program planning and formulation and in project screening to insure continuity of policy. The achievement of JCRR

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is to a large degree attributable to the hard work of the people involved. In conclusion, it should be emphasized that such conditions as found in Taiwan are not universally encountered. To find ways and means to transfer to other areas these attitudes and beliefs and to adapt institutional organizations that have been found successful in Taiwan is, thus, a challenge to all who believe in land reform.



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